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The role of collective bargaining systems for labour market performance

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This chapter assesses the role of collective bargaining for labour market performance in OECD countries. It builds on the detailed characterisation of collective bargaining systems and practices presented in the previous chapter. Using a rich mix of country-, sector-, firm- and worker-level data, this chapter investigates the link of different collective bargaining settings with employment, wages, wage inequality and productivity. It then discusses how broad-based employee and employer organisations, administrative extensions, organised forms of decentralisation and wage co-ordination may contribute to better balance inclusiveness and flexibility in the labour market.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

In Brief

Key findings

This chapter provides an assessment of the role of collective bargaining systems for labour market performance and inclusive growth. It looks at how collective bargaining matters for some of the policy objectives that policy makers and citizens care most about: employment, wages, inequality and productivity. The chapter brings empirical analyses, using the best macro- and micro-data available and the characterisation of collective bargaining systems developed in the previous chapter, together with country experiences and case studies to support policy makers and social partners themselves in identifying directions for reform.

The main elements that are used in this chapter to characterise collective bargaining systems are the following:

- Collective bargaining coverage – the share of workers covered by collective agreements – which is linked to membership of signatory employer organisations and trade unions, but also to extensions of agreements to other firms and workers in a sector.
- The level of bargaining at which collective agreements are negotiated: firm level, sectoral level or even national level. Multi-level bargaining involves a combination of firm- and higher-level collective bargaining.
- The degree of flexibility for firms to modify the terms set by higher-level agreements. This ranges from centralised systems, in which there is little or no room for firms to derogate from sectoral or national-level agreements, to fully decentralised systems, where collective bargaining can take place only at the firm level. Between these two extremes, organised decentralisation allows sectoral agreements to set broad framework conditions but leaves detailed provisions to firm-level negotiations.
- The role of wage co-ordination between sectoral (or firm-level) agreements, such as the setting of common wage targets, to take account of macroeconomic conditions. Co-ordination might also occur as regards working conditions, for example training and occupational health and safety.

The main empirical findings are as follows:

- At the individual level (within countries), there is a wage premium for employees who are covered by firm-level bargaining compared with those not covered or those covered only by sectoral bargaining.
- Comparing collective bargaining systems across countries, co-ordinated systems – including those characterised by organised decentralisation – are linked with higher employment and lower unemployment (also for young people, women and low-skilled workers) than fully decentralised systems. Predominantly centralised systems with no co-ordination are somewhat in between.
- Collective bargaining also tends to affect wage dispersion, with greater dispersion in systems with no collective bargaining or where firms set wages independently. By contrast, wage dispersion is on average smallest among workers who are covered by sectoral bargaining. The lower dispersion in wages associated with sectoral bargaining in part reflects lower returns to education, seniority and potential experience for workers covered by collective agreements.

- The effect on wages also transits through the relationship of collective bargaining with productivity growth. Centralised bargaining systems tend to be associated with lower productivity growth if coverage of agreements is high. This result suggests that the lack of flexibility at the firm level, which characterises centralised bargaining systems, may come at the expense of lower productivity growth. By contrast, higher coordination in decentralised systems is not found to have adverse effects on productivity.
- Many OECD countries have taken steps towards decentralisation in the past two decades. Overall, organised decentralisation as described above tends to deliver good employment performance, better productivity outcomes and higher wages for covered workers. By contrast, other forms of decentralisation that simply replace sectoral with firm-level bargaining without co-ordination within and across sectors tend to be associated with somewhat poorer labour market outcomes.

The chapter also provides a detailed discussion of how wage co-ordination works and the features that make organised decentralisation capable to simultaneously achieve good labour market outcomes, provide some flexibility to firms and support adaptability to structural change. The main conclusions are:

- Co-ordination in wage bargaining helps take into account the macroeconomic effects of wage agreements by ensuring that these agreements do not undermine external competitiveness and are set in line with the business-cycle situation. This may be one factor behind the empirical association of co-ordinated systems with higher aggregate employment. The strongest form of wage co-ordination establishes a wage norm that defines the maximum for the collectively-agreed wage increase in every sector.
- In countries where co-ordination works well, it tends to be strongly supported by employer associations since it moderated wage growth and trade unions since it ensured high levels of employment. To be effective, co-ordination requires strong and self-regulated social partners as well as effective mediation bodies.
- The effectiveness of the articulation of firm-level arrangements within framework agreements, which characterises organised decentralisation, hinges to an important extent on the degree of collective worker representation at the firm level.
- In some countries, trade unions and employer organisations engage in sectoral initiatives that aim to enhance labour market adaptability by facilitating job transitions and providing workers with the skills needed in a changing world of work.

Collective bargaining can only contribute to labour market inclusiveness and have a significant macroeconomic effect if it covers a large share of workers and companies:

- Well-organised trade unions and employer organisations with a broad support base tend to be the best way to attain high coverage. At sector level, they ensure representativeness in wage negotiations. At firm level, they are the basis for social dialogue between workers and employers.
- In systems with sectoral bargaining and no broad-based representation, administrative extensions can help cover companies and workers not participating in collective bargaining. To avoid harming the economic prospects of start-ups, small firms or vulnerable workers, extensions need to be well designed to ensure that the parties negotiating the agreements represent the collective interest of a large group of firms and workers. This can be achieved by subjecting extension requests to reasonable representativeness criteria and a meaningful test of public interest and providing well-defined procedures for exemptions and opt-outs of firms in case of serious economic hardship.

Introduction

This chapter provides new insights on the role of collective bargaining for good labour market performance. This assessment of collective bargaining contributed to the new *OECD Jobs Strategy* (OECD, 2018^[1]), which identified three main policy goals for successful labour market policies: i) more and better jobs; ii) labour market inclusiveness; and iii) resilience and adaptability. Collective bargaining has the potential to play a central role in all three. The chapter considers a variety of outcomes related to good labour market performance, including employment, wages, inequality and productivity, while the role of collective bargaining for resilience was already investigated in OECD (2017^[2]).

The chapter uses a variety of approaches including quantitative analyses and country case studies and mobilises both micro and macro data sources. The next section sets the scene by outlining a framework to illustrate how collective bargaining may matter for labour market performance and inclusive growth. Section 3.2 proceeds with a macroeconomic analysis of the role of collective bargaining for employment and inequality using a novel characterisation of collective bargaining systems. This allows going beyond previous macro-studies, which usually concentrated on the degree of collective bargaining coverage and the level of bargaining, by also taking account of the flexibility of firms to tailor the conditions of sectoral agreements to their needs and of the co-ordination of wages across bargaining units. Section 3.3 uses worker- and sector-level data to study the relationship of collective bargaining with wages, wage distribution and productivity, shedding light on some of the mechanisms behind the relationships found at the macro level. Drawing on a series of country case studies and the broader industrial relations literature, Section 3.4 discusses some policy options that social partners and governments may want to consider to make collective bargaining systems more flexible and more inclusive.

3.1. The role of collective bargaining for labour market performance: An overview

Collective agreements signed by employers and unions primarily determine wage levels (or wage increases) and non-wage working conditions, including working time, leave arrangements, training, employment protection, and health and safety provisions (Figure 3.1). Re-negotiations of contracts by particular firms or employees may increase wages above the rate agreed at higher levels (or, in some cases, reduce wages below the negotiated rate). Outcomes such as employment or productivity are usually not part of the collective agreement, although they may be taken into account in the negotiations. The way collective bargaining influences labour market performance depends on the bargaining strategies of social partners, the structure of product and labour markets and the nature of collective bargaining institutions.

The academic literature has focused on two broad classes of bargaining strategies. In the so-called “right-to-manage” model (Leontief, 1946^[3]), unions bargain exclusively over wages, leading to lower employment relative to the perfect competition benchmark. Union members, usually referred to as “insiders” in this literature, are viewed as gaining at the cost of “outsiders”, unemployed individuals or individuals in vulnerable jobs not covered by collective bargaining (Lindbeck and Snower, 1986^[4]). The cause of the presumed inefficiency is that employment is not accounted for in the negotiations. This could have the additional downside of reducing the resilience of the labour market against adverse macroeconomic shocks.

In practice, however, unions might not only be concerned about wages but also employment and macroeconomic resilience. This has motivated the “efficient bargaining” model (McDonald and Solow, 1981^[5]).¹ Furthermore and as mentioned in Chapter 2, the insider/outsider theory is not backed up by much empirical evidence.²

The effect of collective bargaining depends also on the structure of the market and the degree of competition. With perfect competition in product and labour markets, raising wages above the market equilibrium wage induces unemployment. However, when product market competition is imperfect

(i.e. when firms have some degree of monopoly or oligopoly power), higher wages may not induce greater unemployment but be simply the result of workers appropriating a greater share of the rents. Moreover, in imperfectly competitive labour markets, higher bargaining power and higher wage floors can increase employment. This would be the case in the presence of monopsony power, which enables firms to offer wages below the market wage, for example because workers have limited opportunities to change their employer or would incur high costs if they did so.³

Figure 3.1. Collective bargaining, labour market performance and inclusive growth



Finally, the role of collective bargaining for labour market performance also depends on the functioning of the institutional system. Chapter 2 documented that collective bargaining systems differ considerably across OECD countries, even among those sharing similar characteristics. For example, the systems in the Netherlands and Portugal⁴ or those in Australia and the United States, although formally similar in many respects, differ substantially in the way they function. The main elements that are used in this chapter to characterise collective bargaining systems are the degree of coverage, the level of bargaining, the degree of flexibility and the role of wage co-ordination:

- Degree of coverage: Collective bargaining coverage, rather than only trade union density, is essential to measure the relevance of the system. Collective agreements covering a large share of workers can have a more sizeable macroeconomic effect – positive or negative – on employment, wages and other outcomes of interest than agreements confined to a few firms.
- Level of bargaining: This defines the unit at which parties negotiate and may refer to the firm, sector or country. Sectoral or national agreements can be expected to reduce wage inequality relative to decentralised systems, by lowering wage differentials not only between workers in the same firm, but also between workers in different firms and, in the case of national bargaining, in different

sectors. Firm-level agreements, by contrast, allow paying more attention to firm-specific conditions, potentially raising productivity.

- Degree of flexibility: Sectoral or national agreements may differ substantially in the degree of flexibility they provide to firms. For example, the possibility of opt-outs or leaving the application of the favourability principle to social partners can increase the flexibility of the system and allow for a stronger link between wages and firm performance, with on the upside higher employment and productivity, but on the downside higher wage inequality.
- Wage co-ordination: Wage co-ordination between sectoral agreements (or as in the case of Japan between firm-level agreements) helps negotiators internalise the macroeconomic effects of the terms set in collective agreements. This is typically achieved by keeping wage increases in the non-tradable sector in line with what can be afforded by the tradable sector or by strengthening the ability of the system to adjust wages or working time in the face of a macroeconomic downturn. Co-ordination can therefore serve as an instrument for wage moderation and earnings flexibility over the business cycle, with potential benefits for employment and resilience.

Social partners affect labour market outcomes and hence inclusive growth and well-being also by influencing and, sometimes, negotiating or even managing other labour market institutions, such as the minimum wage, labour laws (in particular employment protection legislation), unemployment benefits, active labour market policies, payroll taxes, and family and pension policies. Further, any effects of collective bargaining systems also depend on the other policies and institutions in place. For instance, if decentralisation increases wage inequality, the magnitude of the effect on the broader concept of disposable income inequality depends on the extent to which the tax-and-transfer system offsets the rise in wage inequality. While sometimes important, these issues go beyond the scope of this chapter.

3.2. The role of collective bargaining for employment and wage inequality: New evidence from macro-data

The economic literature has long debated the role of collective bargaining for labour market performance, but paid little attention to the system of collective bargaining as a whole. Studies have mostly examined the presence or relevance of collective bargaining rather than its functioning. For example, many analyses of countries with predominantly firm-level bargaining, such as the United Kingdom or the United States, have focused on the role of trade union membership.⁵ Union membership is a reasonable proxy of collective bargaining coverage in countries with predominantly firm-level bargaining. But it is not sufficient for measuring the scope of collective bargaining, as many workers who are not affiliated to a trade union are also covered by collective bargaining – via *erga omnes* clauses and, in countries with sectoral or multi-level bargaining, administrative extensions.⁶ Bargaining coverage is therefore in general a more appropriate proxy for the relevance of collective bargaining.⁷

However, to capture the role of collective bargaining for labour market performance, it is important to go beyond coverage by looking at its main features and actual functioning. Collective bargaining coverage in Italy is comparable to that in the Netherlands or the Nordic countries. Similarly, Australia and Germany have comparable coverage. As Chapter 2 shows, these systems are nevertheless very different. It is therefore important to also consider the characteristics of the system itself. This echoes Aidt and Tzannatos (2008^[6]) in their review of trade unions, collective bargaining and macroeconomic performance in which they concluded that, more than trade union density or coverage, what matters most is the functioning of the “entire package”.

In terms of main features, most attention has been directed to the role of centralisation, i.e. the predominant level of bargaining. In the early 1980s, the corporatist view suggested that by guaranteeing that wage-setters recognise broader interests, centralisation, intended as national bargaining, can deliver superior outcomes in terms of macroeconomic and labour market performance (Cameron, 1984^[7]).⁸

However, opponents pointed out that wage increases would be restrained or resource allocation would be more effective if market forces were allowed to play a larger role, bringing the example of the United States or the United Kingdom after Thatcher to support this view.

To reconcile these opposing views, Calmfors and Driffill (1988^[8]) proposed the influential “hump-shape” hypothesis, which suggested that both centralisation and decentralisation perform well in terms of employment while the worst outcomes may be found in systems with an intermediate degree of centralisation, i.e. sectoral bargaining. In this intermediate case, organised interests are “strong enough to cause major disruptions, but not sufficiently encompassing to bear any significant fraction of the costs for society of their actions in their own interests” (Calmfors and Driffill, 1988^[8]). The paper by Calmfors and Driffill had the merit to suggest that the relationship between the degree of centralisation and performance does not need to be monotonic. This hypothesis was behind the critical stance on sectoral bargaining systems in the 1994 *OECD Jobs Strategy* (OECD, 1994^[9]) which recommended decentralising collective bargaining given the impossibility to have full centralisation of bargaining systems.⁹ However, later empirical studies did not provide much backing for this hypothesis – see OECD (1997^[10]), Traxler, Blaschke and Kittel (2001^[11]), Aidt and Tzannatos (2002^[12]), Bassanini and Duval (2006^[13]) and Eurofound (2015^[14]).

Another key feature of collective bargaining systems is the degree of wage co-ordination across bargaining units. Soskice (1990^[15]) suggested that co-ordinated systems of sectoral bargaining may be as effective as national bargaining systems at adapting to aggregate economic conditions. Subsequent studies found that co-ordination plays a key role in improving the performance of sectoral bargaining – see the review in Aidt and Tzannatos (2002^[12]) as well as the evidence in Elmeskov et al. (1998^[16]), OECD (2004^[17]), Bassanini and Duval (2006^[13]), OECD (2012^[18]) and Eurofound (2015^[14]). The 2006 *Reassessed OECD Jobs Strategy* (OECD, 2006^[19]) embraced this “augmented” version of the Calmfors-Driffill hypothesis which entailed that decentralised and centralised or co-ordinated bargaining systems result in better employment performance than sectoral bargaining systems.¹⁰

More recently, Boeri (2014^[20]) revived the debate by suggesting that “two-tier” bargaining systems (i.e. where firm-level bargaining can only top up sectoral bargaining) are worse than fully centralised and fully decentralised systems, as they are not able to respond appropriately either to a microeconomic shock or a macroeconomic one.¹¹

All in all, the characterisation and estimation of the economic effects of collective bargaining systems have proven to be a major challenge, leading to a proliferation of indicators for centralisation and co-ordination as well as econometric specifications.

3.2.1. New country-level evidence based on a taxonomy of collective bargaining systems

The role of collective bargaining for labour market performance should be analysed by looking at bargaining systems as a whole, rather than simply at the sum of their components. This section therefore uses a new taxonomy of collective bargaining systems for studying the links with employment and inequality.

The taxonomy of collective bargaining systems is taken from the dashboard in Chapter 2. This proposed a classification scheme based on two main aspects: i) the degree of centralisation as characterised by the predominant level of bargaining as well as the rules and use of extensions, derogations, opt-outs and the favourability principle; and ii) the degree of wage co-ordination between sectoral agreements. Annex 3.A provides further details. The following five categories of collective bargaining systems were identified:¹²

- *Predominantly centralised and weakly co-ordinated collective bargaining systems:* Sectoral agreements play a strong role, extensions are relatively widely used, derogations from higher-level agreements are possible but usually limited or not often used, and wage co-ordination is largely

absent. In 2015, France, Iceland, Italy, Portugal, Slovenia, Spain and Switzerland fell in this group.¹³

- *Predominantly centralised and co-ordinated collective bargaining systems:* As in the previous category, sectoral agreements play a strong role and the room for lower-level agreements to derogate from higher-level ones is quite limited. However, wage co-ordination is strong across sectors. In 2015, Belgium and Finland were part of this group.
- *Organised decentralised and co-ordinated collective bargaining systems:* Sectoral agreements play an important role, but they also leave significant room for lower-level agreements to set the standards – either by limiting the role of extensions (rare and never automatic or quasi-automatic), leaving the design of the hierarchy of agreements to bargaining parties or allowing opt-outs. Co-ordination across sectors and bargaining units tends to be strong. In 2015, Austria, Denmark, Germany, the Netherlands, Norway and Sweden were in this group.
- *Largely decentralised collective bargaining systems:* Firm-level bargaining is the dominant bargaining form, but sectoral bargaining (or a functional equivalent) or wage co-ordination also play a role. Extensions are very rare. Australia with its “Modern Awards” (see Box 3.5 for details) and Japan with its unique form of co-ordination (*Shunto*) were in this group in 2015, as well as Greece, Luxembourg and the Slovak Republic. Since the enactment of the Industrial Relations (Amendment) Act of October 2015, which re-introduced “Sectoral Employment Orders”, Ireland is also part of this group.
- *Fully decentralised collective bargaining systems:* Bargaining is essentially confined to the firm or establishment level with no co-ordination and no (or very limited) influence by the government. In 2015, Canada, Chile, the Czech Republic, Estonia, Hungary, Korea, Latvia, Lithuania, Mexico, New Zealand, Poland, Turkey, the United Kingdom and the United States were part of this group.

The country classification in 2015 was extended backwards to 1980 using information in the Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) database.¹⁴ The time variation in the resulting taxonomy of collective bargaining systems for OECD countries over the period 1980-2015 is considerable – see Annex 3.A. It reflects, in large part, the strong trend towards decentralised collective bargaining, but it also captures many country-specific changes in collective bargaining practices. These differences in the time variation are exploited in the analysis to estimate the relationship between systems of collective bargaining and indicators of labour market performance.

The analysis compares labour market outcomes under different collective bargaining systems relative to the fully decentralised system, while controlling for the level of bargaining coverage as well as the possible role of the business cycle, the characteristics of the workforce and persistent country-specific features (using country fixed effects).¹⁵ The results also account for other policy reforms that occurred at the same time, in the areas of labour taxation, product market regulation, job dismissal regulation, minimum wages and unemployment benefits. The relationships estimated in this section may nevertheless be influenced by the state of the labour market over and above the business cycle or other potentially important factors not controlled for; hence, care should be taken not to give the results a strict causal interpretation.

Co-ordinated bargaining systems are associated with higher employment and lower unemployment relative to fully decentralised systems (Panel A of Figure 3.2). This is particularly the case for predominantly centralised systems, while for organised decentralised systems the result on unemployment is somewhat smaller and less robust. Centralised but weakly co-ordinated systems and largely decentralised systems hold an intermediate position, with better employment outcomes than in fully decentralised ones but similar unemployment outcomes. The difference between the employment and unemployment results suggests that such systems are linked with higher employment and labour force participation. On average across all regimes, higher bargaining coverage is associated with lower employment rates (Annex 3.B). Given that in centralised and co-ordinated systems more workers tend to be covered, the extent to which these systems are linked with better employment outcomes could thus be somewhat lower than is displayed in the figure.

Empirically, the relative underperformance of fully decentralised systems is identified from variation in three countries (Ireland, New Zealand and the United Kingdom), which all undertook very significant collective bargaining reforms. The finding does not appear to be specific to these three countries, as it remains unchanged when country fixed effects are omitted from the regression. The results overall are qualitatively robust to two further sensitivity checks – see Annex 3.B for details. First, they are similar when more traditional collective bargaining indicators for centralisation and co-ordination (from the ICTWSS database) are used instead of the new taxonomy indicators.¹⁶ Second, the results with respect to collective bargaining regimes are effectively unchanged when collective bargaining coverage is not controlled for.

As mentioned above, some models have argued that collective bargaining delivers good labour market outcomes for “insiders” (notably prime-age male full-time workers with a permanent contract) at the expense of jobs for “outsiders”, such as youth, women and low skilled – see Saint-Paul (1996^[21]) and Bertola (1999^[22]). According to these models, by pushing the interests of “insiders”, unions may accept or even contribute to the proliferation of non-standard forms of employment as a buffer for its members, thereby reducing the inclusiveness of the labour market. In particular, unions may make temporary contracts indirectly more attractive for firms, by increasing the labour cost of “insiders”, for instance through bargaining over severance pay or assisting workers faced with the risk of dismissal.

The evidence, however, suggests that, in most cases, co-ordinated systems – either centralised or organised decentralised – are associated with better labour market outcomes for vulnerable groups (Panels B and C of Figure 3.2). The unemployment rates of youth, women and low-skilled workers appear to be consistently lower (or at least not higher) in co-ordinated systems than in decentralised ones. Co-ordinated and organised decentralised systems are also associated with a lower share of involuntary part-time workers. While the share of temporary employment is higher in countries with higher bargaining coverage – see Annex 3.B – which is in line with findings in Salvatori (2009^[23]), this finding is not corroborated in studies looking at agency work in the United States – see e.g. Gramm and Schnell (2001^[24]) and Autor (2003^[25]).

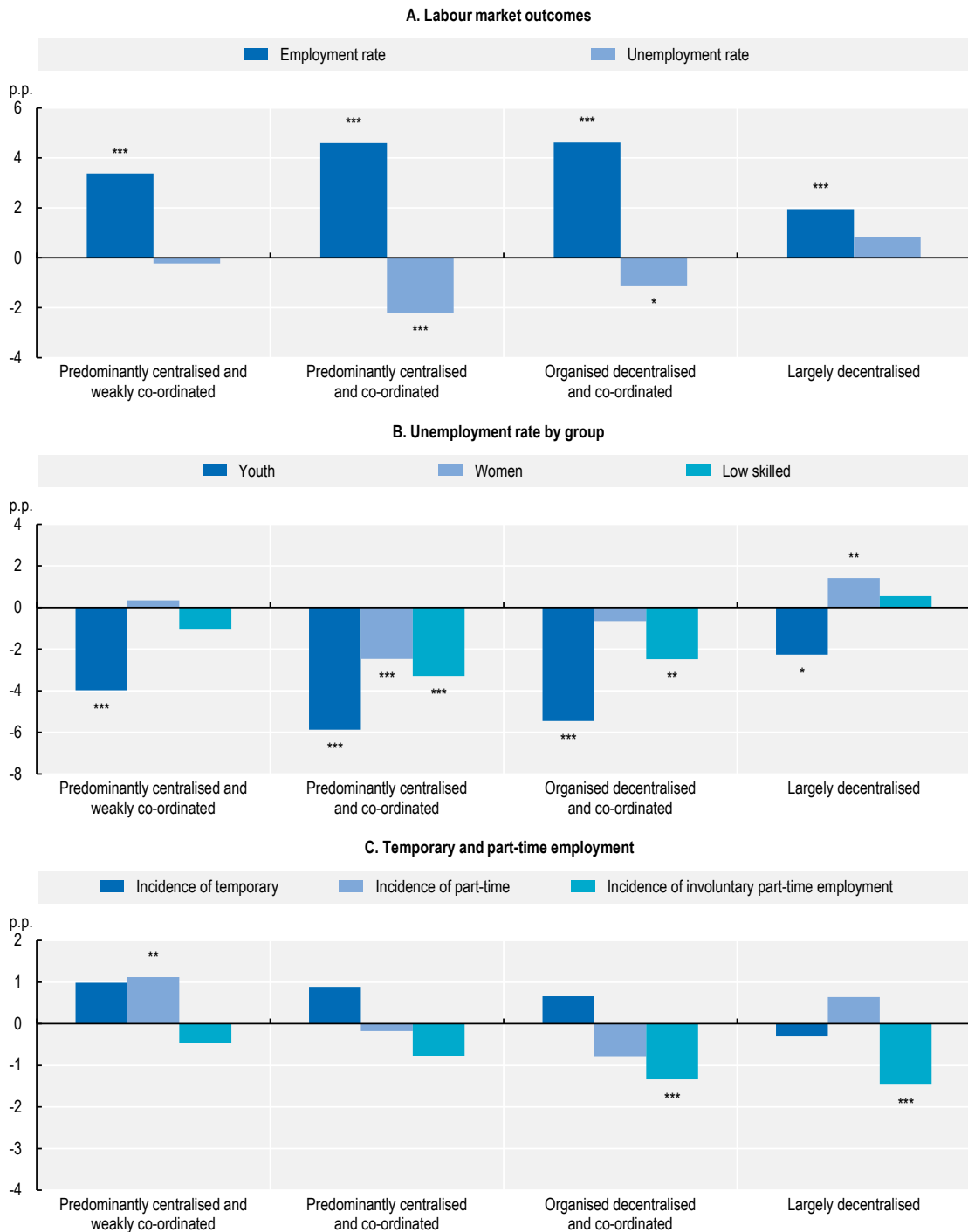
Collective bargaining systems that are not fully decentralised are also correlated with lower wage inequality for full-time employees (Figure 3.3), as measured by the D9/D1-ratio, i.e. the ratio of the wage at the 9th decile of the wage distribution to the wage at the 1st decile. This association is present both in the lower and upper half of the wage distribution.¹⁷ Similar results are obtained when replacing the taxonomy indicators with indicators for centralisation and co-ordination – see Annex 3.B.

Strengthening the bargaining power of low-wage workers is one of the core missions of collective bargaining, so it is not surprising that empirically collective bargaining is associated with lower levels of inequality. Detailed pay scales, where they are defined, can compress wages in the middle and top of the distribution to compensate for higher wages at the bottom; Leonardi, Pellizzari and Tabasso (2015^[26]) provide evidence of wage compression within Italian firms. These mechanisms are particularly relevant when bargaining covers a substantial share of the working population. Section 3.3 provides further evidence on the positive role of collective bargaining for wage equality based on matched employer-employee and sector-level data. The inequality results in this chapter complement previous findings that point in the same direction, from earlier studies by Blanchflower and Freeman (1993^[27]), Blau and Kahn (1999^[28]), Card, Lemieux and Riddell (2004^[29]) and DiNardo and Lee (2004^[30]) to more recent ones including OECD (2011^[31]), ILO (2015^[32]) and Jaumotte and Buitron (2015^[33]).

In conclusion, using country-level data on labour market outcomes for 35 OECD countries between 1980 and 2016 and a novel characterisation of collective bargaining systems, co-ordinated systems are shown to be associated with higher employment, lower unemployment, a better integration of vulnerable groups and less wage inequality than fully decentralised systems. Weakly co-ordinated, centralised systems and largely decentralised systems hold an intermediate position, performing similarly in terms of unemployment to fully decentralised systems, but sharing many of the positive effects on other outcomes with co-ordinated systems.

Figure 3.2. Collective bargaining systems and employment outcomes

Difference in percentage points with respect to fully decentralised systems

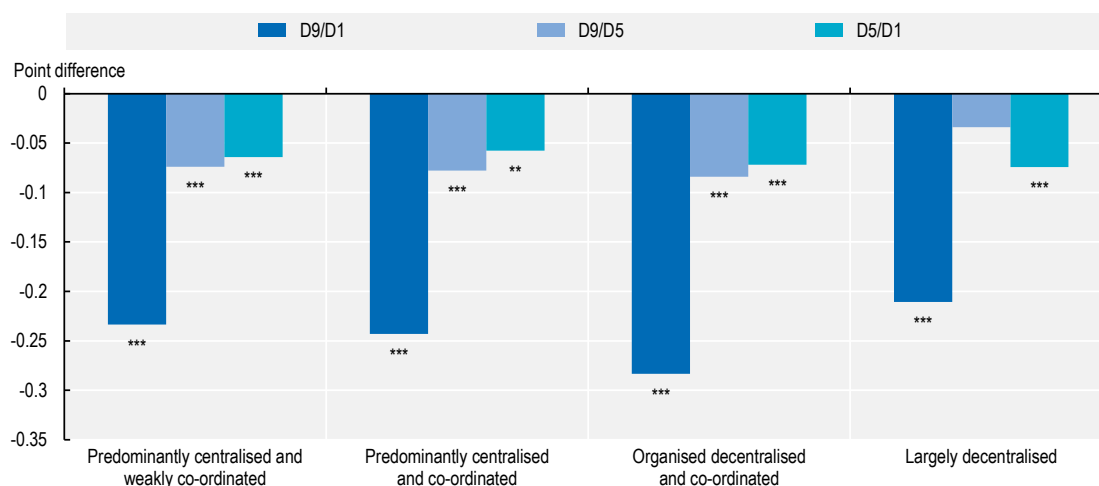


Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Results are based on OLS regressions including country and year dummies, collective bargaining coverage, log of average years of education, female employment share and institutional variables: (tax wedge, product market regulation, employment protection legislation (both temporary and permanent), ratio of minimum wage to median wage and gross unemployment benefit replacement rate).

Source: OECD estimates. Details on sources and definitions can be found in Annex 3.B.

Figure 3.3. Collective bargaining and wage dispersion

Difference in percentage points with respect to fully decentralised systems



Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Results are based on OLS regressions including country and year dummies, collective bargaining coverage, log of average years of education, female employment share and institutional variables: tax wedge, product market regulation, employment protection legislation (both temporary and permanent), ratio of minimum wage to median wage and gross unemployment benefit replacement rate. Earnings inequality measures are based on gross earnings of full-time wage and salary workers. D1, D5 and D9 stand for the first, fifth and ninth decile of the wage distribution.

Source: OECD estimates. Details on sources and definitions can be found in Annex 3.B.

StatLink  <http://dx.doi.org/10.1787/888934027399>

3.3. The role of collective bargaining for inclusiveness and flexibility: New evidence from micro-data

By centralising or co-ordinating negotiations over wages and working conditions, collective bargaining has a tendency to compress pay differences among workers. As a result, it weakens the link between individual performance, wages and working conditions. In the context of firm-level bargaining, overall firm performance necessarily becomes the main reference for negotiations on pay increases rather than individual performance. Similarly, in the context of sectoral bargaining, overall industry performance becomes the main contextual factor for pay increases. In the same vein, centralisation and co-ordination place a greater emphasis on macroeconomic performance and therefore competitiveness and resilience.

Collective bargaining may manifest itself in a lower dispersion of wages, by defining common criteria for wages of workers, firms or sectors. But by the same mechanism, it may also lead to stronger rigidities in wages over time, as negotiating partners are less flexible to tailor wages to the individual worker, firm or sector. The effects of such rigidities are likely to depend on the context in which they occur. In some cases, they may be benign, for example when they reduce the scope for discriminatory practices or serve a specific economic purpose as in the case of co-ordination, while in others they may raise concerns, for instance when they weaken incentives for skill acquisition.

This section uses worker- and sector-level data to shed further light on the relationship between collective bargaining institutions, wage equality, productivity growth and the way wages are set in line with productivity in firms and sectors. In doing so, the analysis provides useful insights into the mechanisms that may drive some of the macroeconomic relationships documented in Section 3.2.

3.3.1. *Collective bargaining and wage dispersion*

In many countries, the wages of some workers are principally determined by a collective pay agreement (collective bargaining), while those of others are not (individual bargaining). This may, or may not, introduce forms of injustice or unfairness between the two groups of workers, depending on what collective bargaining actually does. Empirically, the fact that some workers are covered by collective agreements while others are not allows comparing the level and dispersion of wages between workers in different bargaining schemes, without having to rely on country-to-country comparisons that might be influenced by aspects other than collective bargaining.

Worker-level data on collective bargaining coverage are available for 21 OECD countries. Besides distinguishing workers covered by collective bargaining from those who are not, the micro-data separately identify workers whose wage is primarily determined by a firm- as opposed to a sectoral agreement.¹⁸ This creates the possibility of distinguishing three bargaining levels: i) individual or no collective bargaining; ii) firm-level bargaining; and iii) sectoral bargaining. The three co-exist in the dataset for seven of the 21 countries; in the others two co-exist. Labour earnings are defined per hour and include bonus payments. As in Section 3.2, dispersion is measured as the ratio of wages at the 9th decile to the 1st decile.

When comparing wage dispersion between workers who are covered by collective bargaining and those who are not, it is important to account for possible sample selection: For instance, if collective agreements cover mainly men, or certain industries, wage dispersion may be lower with collective bargaining because wages tend to be more similar among men only, or among certain industries, than in the entire working population. Different empirical techniques can be applied to adjust for these compositional differences between bargaining groups. The one used in this section goes back to Juhn, Murphy and Pierce (1993^[34]) and has been widely used since.¹⁹ For each country and bargaining level, separately a standard hourly wage regression is run on a large number of explanatory variables: age, gender, education, firm size, contract type, years employed in the firm, industry and occupation. Differences in composition are then corrected by replacing the coefficients and residuals in each bargaining level with those for the group of workers who are not covered. Box 3.1 describes the empirical approach in detail.

On average, earnings dispersion is lower with collective bargaining, when accounting for compositional differences (Figure 3.4). In the first group of countries where all three bargaining levels co-exist, wage dispersion is highest among workers not covered by collective bargaining, followed by firm-level and then sectoral bargaining. By contrast, for the second group of countries where there is no sectoral bargaining, wage dispersion among workers covered and those not, at least on average, is the same. A cross-country comparison of the averages for the first two groups suggests that firm-level bargaining is only effective in lowering wage dispersion when it comes on top of sectoral bargaining. One possible explanation for this may be that companies characterised by firm-level bargaining are in most cases also covered by sectoral bargaining. Firm-level bargaining may then not fully undo the inequality reduction due to sectoral bargaining. In five countries (Hungary, Korea, Mexico, Norway and Portugal), the results go in the opposite direction. Nevertheless, overall, they appear consistent with those in the previous section which suggested that the economy-wide distribution of wages is less equal in systems without scope for sectoral or higher-level bargaining (see Figure 3.3).

Box 3.1. Empirical approach to adjust wages and wage dispersion for differences in composition

Differences in wages and wage dispersion between workers covered by collective bargaining and those not could, in part, be due to differences in composition. A standard way to adjust for these compositional differences is provided by Juhn, Murphy and Pierce (1993^[34]). Applying this method in the present context, for each country and bargaining level b (no collective bargaining, firm-level bargaining, sectoral bargaining) separately, the following regression is run:

$$\log(w_{ib}) = x_{ib}\beta_b + \varepsilon_{ib}.$$

The wage of worker i is measured per hour, and weights in the survey are used to better align the sample with the actual working population. Control variables, x_{ib} , include dummies for age, gender, education, firm size, contract type (permanent or temporary), job tenure, industry and occupation. A few control variables are not available for some countries. Comparing estimated coefficients, $\hat{\beta}$, for the same variables allows examining, for instance, differences in the gender gap or education premium between workers covered by collective bargaining and those who are not.

The empirical approach to adjust a wage statistic, $f(w_b)$, such as the average wage or D9/D1-ratio, for compositional differences is as follows. Workers whose wages are not governed by collective bargaining, b_1 , are taken as the benchmark. In Belgium, France and Spain where data for workers not covered are not available, firm-level bargaining is taken as the benchmark. The counterfactual wage of worker i covered by collective bargaining, b_2 , is then calculated as

$$\log(w_{ib_2}^x) = x_{ib_2}\hat{\beta}_{b_1} + \varepsilon_{ib_1}(\hat{p}_{ib_2}|x_{b_2}),$$

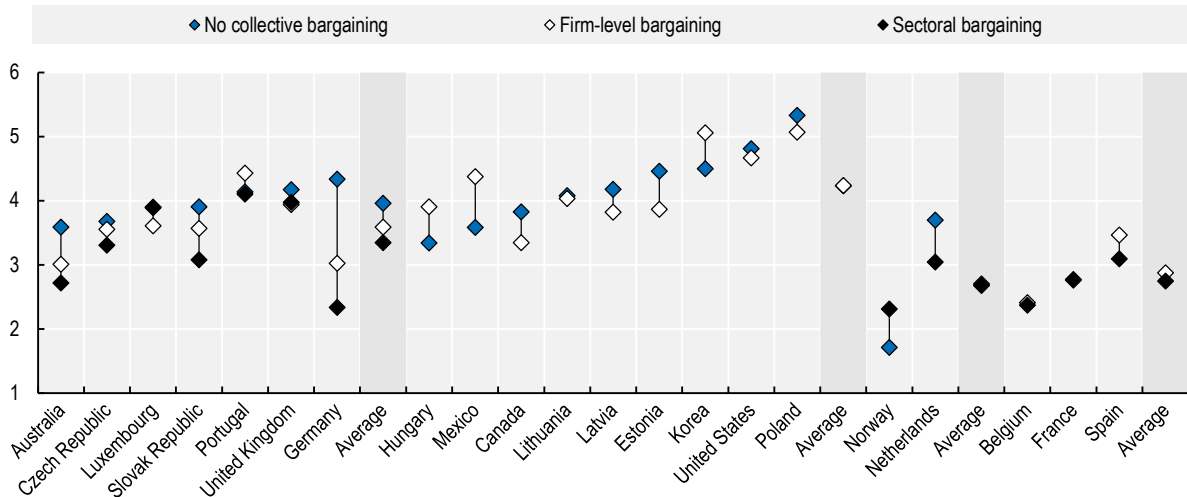
with the last expression denoting the residual from the regression for workers not covered that is at the same percentile \hat{p}_{ib_2} as worker i 's residual. The assumption is that, had a covered worker become uncovered while maintaining the same characteristics, the new residual of the worker would have belonged to the same percentile of the distribution of the residuals in the uncovered sector as the percentile the old residual belonged to in the distribution of the covered sector.

The difference in the desired wage statistic using the raw data is

$$f(w_{b_2}) - f(w_{b_1}),$$

which after adjusting for differences in composition becomes

$$f(w_{b_2}) - f(w_{b_2}^x).$$

Figure 3.4. Composition-adjusted wage dispersion by level of collective bargainingRatio of the 9th to the 1st earnings decile

Note: Results are based on Juhn-Murphy-Pierce decompositions using workers without a collective agreement as the reference group and controlling for gender, age groups, educational attainment, industry, occupation, firm size, type of contract and job tenure. Countries are ordered in ascending order of the D9/D1-ratio for employees not covered by a collective agreement, where D1 and D9 stand for the 1st and 9th decile of the wage distribution. Data are from 2012-16, depending on the country (2006 for Germany). The first group of countries allows comparing wage dispersion among workers not covered by collective bargaining with that among workers covered by firm-level agreements and that among workers covered by sectoral agreements. The second group compares wage dispersion among uncovered workers with that among workers with a firm-level agreement. The third group compares wage dispersion among uncovered workers with that among workers with a sectoral agreement. The final group allows comparing wage dispersion among workers with a firm-level agreement with that among workers with a sectoral agreement. "Sectoral bargaining" for Australia refers to the use of Modern Awards (see Box 3.5). A proper sector-level bargaining does not exist in Australia.

Source: OECD calculations based on the European Structure of Earnings Survey for European countries, the Household, Income and Labour Dynamics survey for Australia, the Labour Force Survey for Canada, the Labour and Income Panel Study for Korea, the National Survey of Occupation and Employment for Mexico and the Current Population Survey Merged Outgoing Rotation Groups for the United States.

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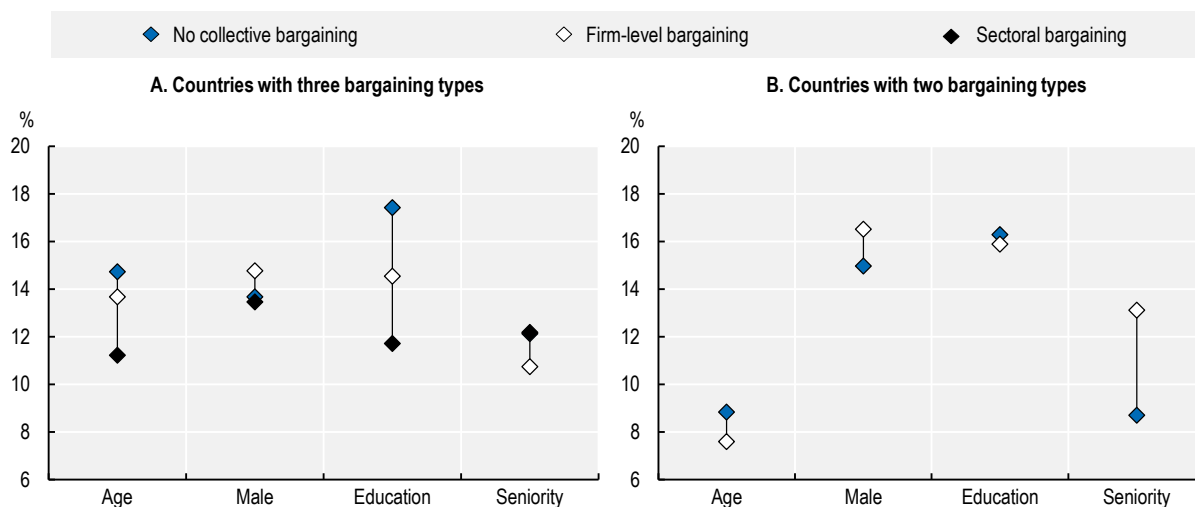
3.3.2. What accounts for the lower wage dispersion with collective bargaining?

Empirically, two categories of factors may account for the lower wage dispersion with collective bargaining: differences in the returns to characteristics (technically, the coefficients) and unexplained differences (the residual). This issue is investigated here by focusing on the two largest country groups for which data are available: the first with seven countries (which have three collective bargaining types) and the second with nine countries (which have two types: firm-level bargaining and no collective agreement).

Four characteristics are studied to analyse the extent to which collective bargaining may compress their returns (Figure 3.5): a higher age, being male, a better education and seniority at work (measured by the number of years in the firm). All four typically exhibit increasing returns in micro-level analyses, meaning that older, male, more educated and more experienced workers tend to earn more.

Figure 3.5. Wage returns by level of collective bargaining

Unweighted averages across countries, 2014



Note: Results are based on OLS regressions controlling for gender, age groups, educational attainment, industry, occupation, firm size, type of contract and job tenure. Data are from 2012-16, depending on the country (2006 for Germany). The age premium is calculated relative to 20-29-year-olds, the education premium relative to workers with no high school education and the seniority premium relative to workers who have worked for their current employer for less than one year. The categories for the comparison groups (different age groups, education categories and brackets for number of years in the firm) are weighted by the proportion of workers in these categories. The countries with three bargaining types are Australia, the Czech Republic, Germany, Luxembourg, Portugal, the Slovak Republic and the United Kingdom. The countries with two bargaining types are Canada, Estonia, Hungary, Korea, Latvia, Lithuania, Mexico, Poland and the United States. Source: OECD calculations based on the European Structure of Earnings Survey for European countries, the Household, Income and Labour Dynamics survey for Australia, the Labour Force Survey for Canada, the Labour and Income Panel Study for Korea, the National Survey of Occupation and Employment for Mexico and the Current Population Survey Merged Outgoing Rotation Groups for the United States.

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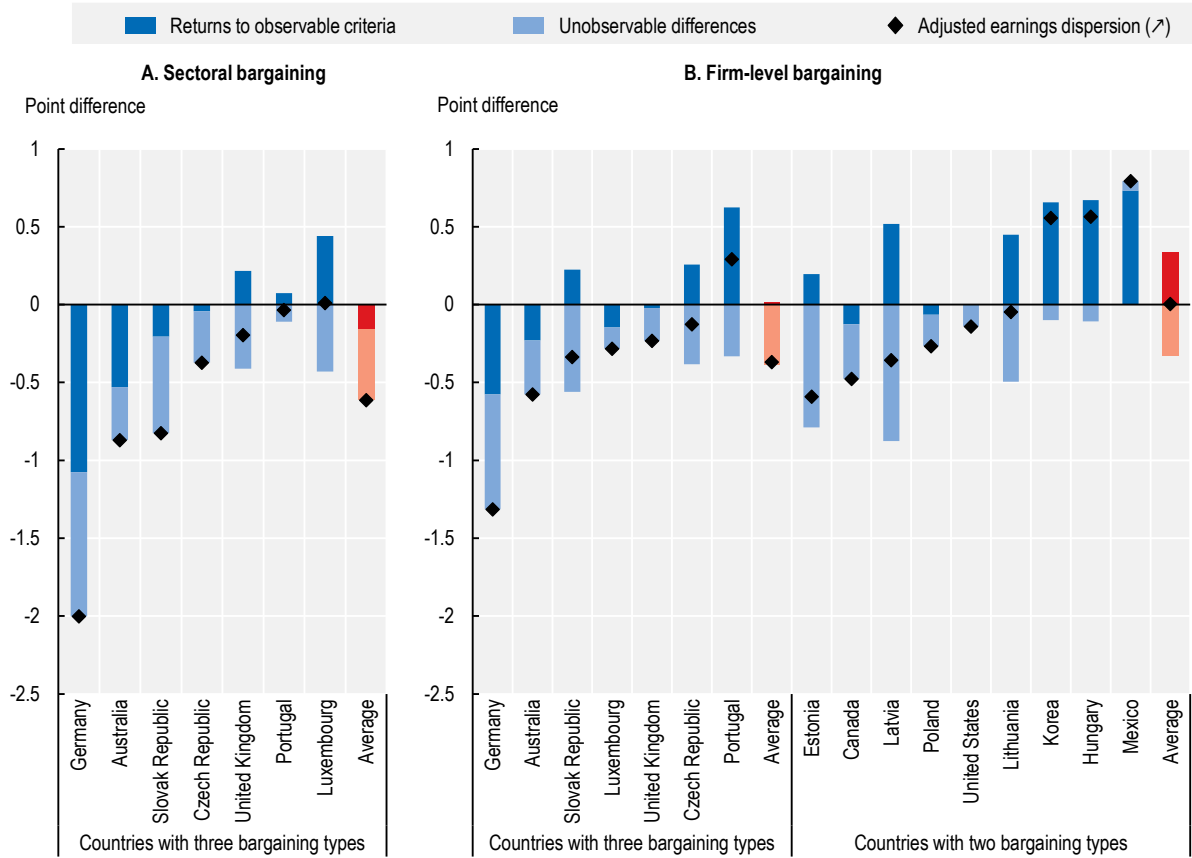
Compared with uncovered workers, the age premium is lower for people who are covered by firm-level bargaining and even more so for those covered by sectoral bargaining. Collective bargaining thus lowers wage inequality, in part by flattening the distribution of wages among people of different ages. By contrast, no evidence is detected that collective bargaining compresses the gender pay gap on average. If anything, men's wage premium over women is slightly larger among workers covered by collective bargaining than those who are not.

The benefit of better education, in terms of higher pay, is lower with firm- and even more so sectoral bargaining. A lower payoff from education, while reducing inequality, may also negatively affect productivity growth if this leads to lower investment in education. Finally, monetary rewards for seniority are also found to be an explanatory factor for why in countries with firm- and sectoral bargaining wage dispersion is lower with collective bargaining than without, although the picture is the opposite in the group of countries with only firm-level bargaining.

Even if reduced returns to age, education and seniority go some way towards explaining the lower wage dispersion with collective bargaining, overall it is mainly unobserved factors that reduce wage dispersion (Figure 3.6).

Figure 3.6. Accounting for the differences in wage dispersion with and without collective bargaining

Change in the ratio of the 9th to the 1st earnings decile relative to employees not covered by collective bargaining (adjusted for composition), 2014



Note: Results are based on Juhn-Murphy-Pierce decompositions using workers without a collective agreement as the reference group and controlling for gender, age groups, educational attainment, industry, occupation, firm size, type of contract and job tenure. Data are from 2012-16, depending on the country (2006 for Germany). For countries with three bargaining types, data are available for firm- and sectoral bargaining and no collective bargaining. For countries with two bargaining types, data are available for firm-level bargaining and no collective bargaining. "Sectoral bargaining" for Australia refers to the use of Modern Awards (see Box 3.5). A proper sectoral bargaining does not exist in Australia. Source: OECD calculations based on the European Structure of Earnings Survey for European countries, the Household, Income and Labour Dynamics survey for Australia, the Labour Force Survey for Canada, the Labour and Income Panel Study for Korea, the National Survey of Occupation and Employment for Mexico and the Current Population Survey Merged Outgoing Rotation Groups for the United States.

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3.3.3. Collective bargaining wage premium

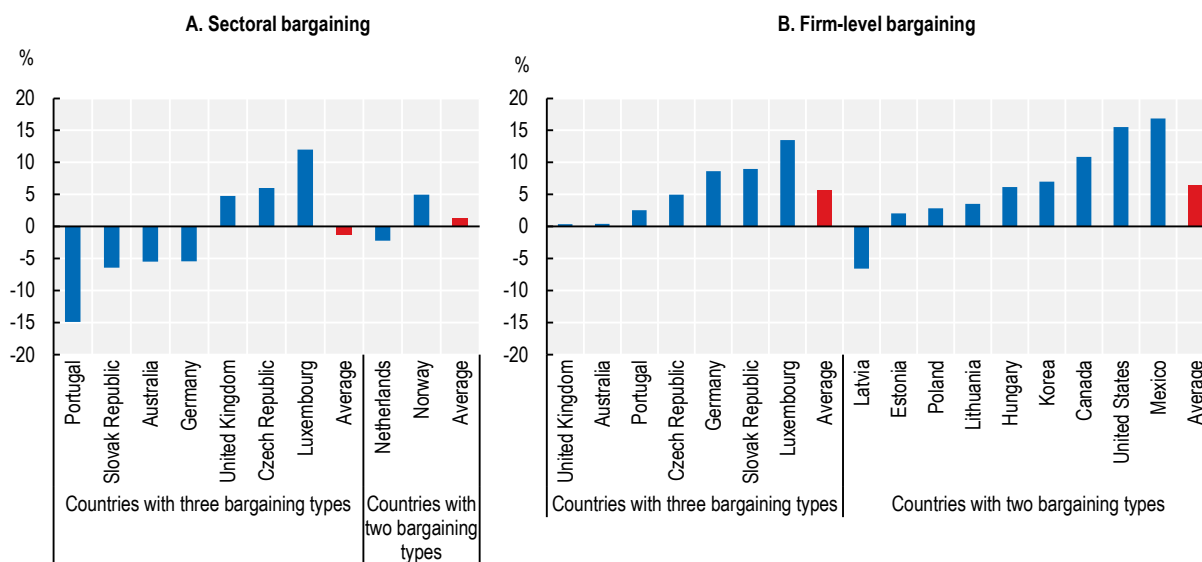
This section has so far focused on wage dispersion within each bargaining type, i.e. wage dispersion among workers not covered by collective agreements and wage dispersion among workers covered by collective bargaining. Results can be interpreted as illustrating what would happen to wage inequality if in a country collective bargaining moved from inexistent to full coverage or from full to no coverage. This naturally seems extreme. When considering less extreme scenarios, account should also be taken of pay

differences which may exist between workers covered by collective agreements and those not. Such pay differences are sometimes referred to as the collective bargaining wage premium.

Workers are paid more with firm-level bargaining, while sectoral bargaining is not associated with relatively higher pay on average (Figure 3.7). This is not surprising as firm-level negotiations can often only raise wages relative to sectoral agreements. The differences in wages may also signal higher productivity in companies with firm-level bargaining. The results are in line with a large body of the literature which finds that sectoral bargaining is not linked with higher wages on average – see Dell’Aringa and Lucifora (1994^[35]), Hartog, Leuven and Teulings (2002^[36]), Rycx (2003^[37]) and Cardoso and Portugal (2005^[38]). The variation for sectoral bargaining across countries is large, with a positive premium in some countries and a negative one in others. By contrast, wages of workers covered by firm-level agreements are higher than those of uncovered workers in all countries except Latvia. In countries with low collective bargaining coverage, wage inequality can thus rise as firm-level bargaining expands to include more workers, even if wage dispersion is smaller among workers covered by firm-level bargaining than among those who are not.

Figure 3.7. Wage premium by level of collective bargaining

Composition-adjusted difference in average wages relative to no collective bargaining, 2014



Note: Results are based on Juhn-Murphy-Pierce decompositions using workers without a collective agreement as the reference group and controlling for gender, age groups, educational attainment, industry, occupation, firm size, type of contract and job tenure. Data are from 2012-16, depending on the country (2006 for Germany). “Sectoral bargaining” for Australia refers to the use of Modern Awards (see Box 3.5). A proper sectoral bargaining does not exist in Australia.

Source: OECD calculations based on the European Structure of Earnings Survey for European countries, the Household, Income and Labour Dynamics survey for Australia, the Labour Force Survey for Canada, the Labour and Income Panel Study for Korea, the National Survey of Occupation and Employment for Mexico and the Current Population Survey Merged Outgoing Rotation Groups for the United States.

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3.3.4. Collective bargaining and wage-productivity misalignment

The analysis above has shown that collective bargaining tends to be associated with lower wage dispersion. The stronger wage compression with collective bargaining may reflect a more pronounced misalignment of wages with a firm's or sector's productivity, because centralisation or co-ordination of negotiations makes pay in part determined by factors other than the firm or sector. In this sense, lower wage flexibility at the sub-national level and lower wage dispersion could be seen as two sides of the same coin.²⁰

The extent to which wages in a particular firm or sector correspond to the productivity in the firm or sector can be estimated with available data. By comparing countries with one another, the analysis that follows provides suggestive evidence that wages tend to be less aligned with labour productivity in countries where collective bargaining institutions have a more important role.²¹

The analysis relies on insights using sector-level data, examining the correlation between wages and productivity across sectors. Sector-level data have the advantage that they cover the same number of units (i.e. sectors) for many countries over a long period of time. They are available for 28 OECD countries from 1980 to 2014, covering 24 sectors. Box 3.2 describes the estimation approach.

Box 3.2. Empirical approach to estimate the role of collective bargaining for wage-productivity alignment

The alignment of wages with productivity is estimated through the strength of the correlation of the hourly wage rate with hourly labour productivity. The baseline regression uses sector-level data and is as follows:

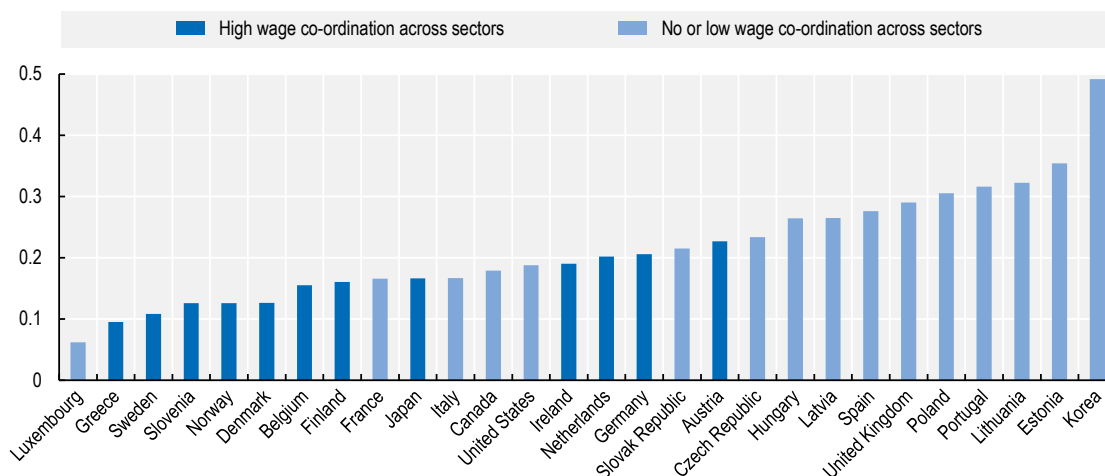
$$\log(w_{sct}) = \beta_c \log(LP_{sct}) + \alpha_{ct} + \varepsilon_{sct}.$$

If wages, w_{sct} , and labour productivity, LP_{sct} , are positively correlated across sectors in country c , $\beta_c > 0$. The inclusion of the country-year fixed effects, α_{ct} , ensures comparing sector s_1 in a given country and year to other sectors in the same country and year. When investigating the relative roles of wage co-ordination, centralisation and bargaining coverage, productivity is interacted with indicators for co-ordination, centralisation and bargaining coverage.

The approach comes down to studying the role of collective bargaining for the distribution across sectors of the labour share, i.e. the share of value added going to workers. Schwellnus, Pak and Pionnier (2018^[39]) use sector-level data to study the role of, among others, collective bargaining for the size of the labour share.

Countries show marked differences in the degree to which wages and productivity are aligned for different sectors (Figure 3.8). The correlation is relatively high in many Eastern European countries (the Czech Republic, Estonia, Hungary, Latvia, Lithuania and Poland). It is also high in Korea, Portugal, Spain and the United Kingdom. By contrast, misalignments of wages with productivity appear to be strong in some Nordic countries (Denmark, Finland, Norway and Sweden), as well as Belgium, Greece, Luxembourg and Slovenia.

Several features of collective bargaining could affect the flexibility of firms in a sector to set wages in line with sector-level productivity. Possibly the most natural candidate is wage co-ordination across sectors, which actively seeks to limit differences in pay across sectors by establishing some cross-sectoral wage norm for the purposes of collective bargaining. This is borne out in the data. Wages and productivity at sectoral level are more aligned in countries without co-ordination in wage-setting. The difference is stark: On average across countries, the elasticity of wages with respect to productivity is 0.26 without and 0.16 with cross-sector wage co-ordination. This means that if productivity is 10% higher in some sector than another, wages tend to be 2.6% higher in this sector in co-ordination countries and 1.6% higher in non-co-ordination countries.²²

Figure 3.8. Elasticity of wages with respect to productivity across sectors: Country estimates

Note: Results are based on Ordinary Least Squares (OLS) regressions of the log hourly wage on log hourly labour productivity across sectors. The regressions include country-year dummies. Co-ordination is classified as high for a country if in the majority of the years in the sample it is classified as high.

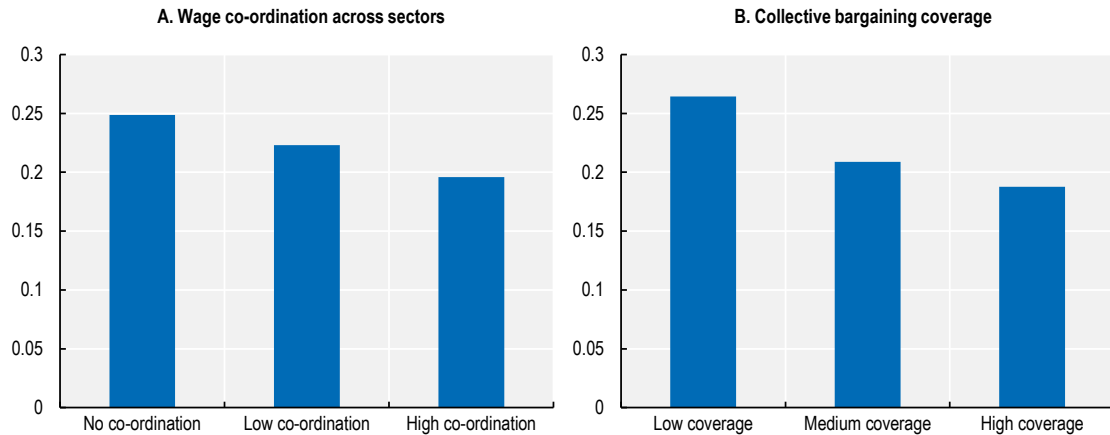
Source: OECD estimates based on OECD Annual National Accounts database completed with OECD Structural Analysis (STAN) database, EU-level analysis of capital, labour, energy, materials and service inputs data (EU-KLEMS) and Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) database.

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Wage co-ordination is correlated with other features of collective bargaining such as coverage rates and the degree of centralisation. Centralisation may matter for wage-productivity alignments because in industries with stronger trade unions workers may appropriate a greater share of the production surplus. Coverage may matter since without coverage wage co-ordination and centralisation have no role. Moreover, in countries with no explicit wage co-ordination but high coverage and centralised bargaining, negotiations in one sector may nevertheless serve as an implicit benchmark for others. Thus, some cross-sectoral co-ordination can happen even if co-ordination is not institutionalised.

Sectoral wages are set less in line with sectoral productivity in systems with cross-sector wage co-ordination, even when differences in coverage rates are accounted, or controlled, for (Figure 3.9). As coverage rates tend to be higher in countries with wage co-ordination, taking account of this reduces the difference in the wage-productivity-correlation between countries with and without co-ordination. Centralisation, too, is found to be related with a weaker alignment between wages and productivity across sectors – see Annex 3.B for the full regression results.

Figure 3.9. Elasticity of wages with respect to productivity across sectors: The role of collective bargaining



Note: Results are based on Ordinary Least Squares (OLS) regressions of the log hourly wage on log hourly labour productivity across sectors. The regressions include country-year dummies and interactions of log productivity with wage co-ordination dummies and collective bargaining coverage. Low, medium and high collective bargaining coverage are defined by the averages for the bottom third, middle third and top third in the distribution of coverage rates in the sample.

Source: OECD estimates based on OECD Annual National Accounts database completed with OECD Structural Analysis (STAN) database, EU-level analysis of capital, labour, energy, materials and service inputs data (EU-KLEMS) and Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) database.

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Co-ordination, collective bargaining coverage and centralisation jointly predict lower wage-productivity alignment. The empirical evidence, which is based on cross-country comparisons, is not enough for proving that such features of collective bargaining are the driving, or causal, factors behind the differences across countries in wage-productivity alignments. It is nonetheless suggestive that collective bargaining has an important role for how wages in a sector correspond to sector performance.

The analysis in this subsection has focused on sector-level data. In related work, and in line with the results in this section, Berlingieri, Blanchenay and Criscuolo (2017^[40]) show, based on harmonised micro-aggregated firm-level data covering many countries, that trade union density and co-ordination in wage-setting tend to be associated with a lower dispersion of average wages across firms and a weaker link between productivity and average wage dispersion across firms in the same sector.

This section has used data on actual wages in different sectors in the economy. Typically, however, collective bargaining sets negotiated wages which may depart from actual wages. In the euro area, negotiated wages have grown at a lower rate since 2000 than actual wages and labour productivity (Box 3.3). Negotiated wages have tended to follow productivity only with a considerable lag, which appears to have induced a misalignment of wage and productivity growth rates at the macroeconomic level in the short run.

Box 3.3. Negotiated wages in euro area countries

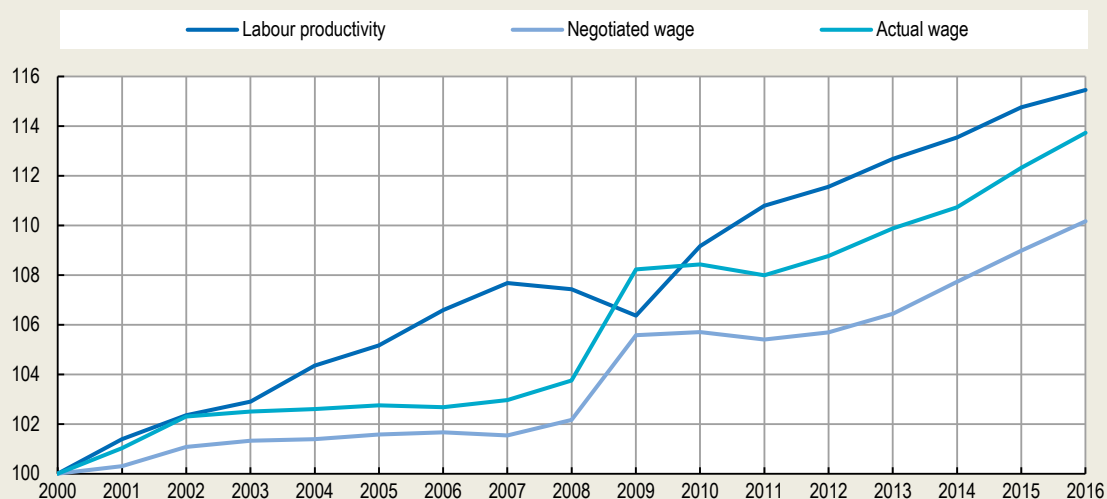
Analyses on wage developments and collective bargaining almost exclusively focus on actual wages. However, collective agreements usually define contractual wages which in most countries apply only to a subset of workers. Actual wages also reflect the trends among non-covered workers as well as supplements at the company, plant or individual level (such as bonus or overtime pay). The difference between the actual wage outcome and the negotiated wage is generally referred to as the “wage drift”, i.e. the movement of wages above the negotiated floor.

Data on negotiated wages are not easily available and when available not easily comparable. The European Central Bank (ECB) provides “experimental” statistics on the evolution of negotiated wages for the euro area as a whole (European Central Bank, 2002^[41]),²³ while the CAWIE (Collectively Agreed Wages In Europe) database developed by the European network of Trade Union related Research Institutes (TURI) provides the underlying national statistics.²⁴ Similar data are also collected and published by Eurofound (2017^[42]).

Figure 3.10 shows the trends in negotiated wages, actual wages and labour productivity in real terms for the euro area as a whole from 2000 to 2016 using the ECB data. The aggregate data show that, on average, negotiated wage growth has been relatively limited, or at least well below productivity growth both before and after the crisis. Actual wage growth exceeded negotiated wage growth but remained below productivity growth, reducing the labour share. Only during 2008-09 negotiated (and actual) wage growth increased above productivity growth due to the unexpected deflationary shock of the crisis and the staggering of collective agreements. Staggering refers to the inability to renegotiate agreements signed under more favourable economic conditions, which can amplify the aggregate shock, as shown by Diez-Catalan and Villanueva (2015^[43]) for Spain.

Figure 3.10. Negotiated wages in the euro area

Base 100 in 2000



Note: Negotiated and actual wages are deflated using the private final consumption price index.

Source: OECD calculations based on ECB data on collectively agreed wages and Eurostat National Accounts data.

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Country-specific data (Annex 3.C) show that in all countries (except in Italy, as a result of dismal productivity growth, not “excessive” wage increases) negotiated wages have grown in line with, or often less than, labour productivity growth, apart from 2008-09. Interestingly, negotiated wages in the Netherlands have barely moved since 2000 – in fact, negotiated wages in the Netherlands are practically unchanged since the 1970s in real terms (de Beer and Keune, 2017^[44]) – but thanks to a sizeable wage drift actual wages have grown in line with productivity. By contrast, in Germany actual wages have grown considerably less than productivity and less than negotiated wages, showing a negative “wage drift”. This unique trend of negative wage drift (at least among the European countries for which data are available) means that actual wages are not bound by negotiated wages, which is probably the result of decreasing bargaining coverage in Germany and the use of opening clauses which allow companies to deviate from sectoral agreements (Schulten, 2013^[45]).

Overall, in countries where wage co-ordination has an important role or wages are more centralised at sectoral level, the correlation of wages with productivity at the sub-national level is weaker. This suggests that wage co-ordination “works”, in the sense that it co-ordinates wages and, by partially delinking wages from productivity, may end up in a less dispersed wage distribution. Centralisation and co-ordination may also affect how wages can respond to individual firm performance. In the longer term, such delinking of wages from productivity could have potentially important implications for productivity growth. It could reduce incentives for workers to innovate, work hard and move to a better-paid job. However, stronger misalignments of wages from productivity do not need to have such negative effects; for example, they may even increase innovation incentives, if firms would reap the full benefits of productivity gains. Box 3.4 summarises the existing literature on collective bargaining and productivity. It also provides exploratory evidence that certain forms of sectoral bargaining may come at the expense of lower productivity growth within sectors.

Box 3.4. Collective bargaining and productivity growth

How does collective bargaining influence productivity? Theory suggests that effects could go either way. On the one hand, collective bargaining can increase aggregate productivity by setting higher wage floors (and making it more difficult to cut costs through lower wages) which may force unproductive firms to exit the market (Braun, 2011^[46]). More rigid wages may also increase the incentives of the firms’ owners to innovate, as they would reap the full benefits of productivity gains – see Acemoglu and Pischke (1999^[47]) and Haucap and Wey (2004^[48]). Other ways through which collective bargaining could promote productivity growth are higher “efficiency” wages, better non-wage working conditions and the possibility for workers to voice concerns.

On the other hand, a more compressed wage structure may reduce the incentives to work hard and move to a more productive firm, harming firm productivity and the efficient reallocation of workers. Union power could also allow workers appropriating the benefits of investments by employers, giving rise to the so-called “hold-up” problem (Malcomson, 1997^[49]) and reducing investment incentives for firms. Further, limitations to adjustments in the organisation of work (such as in working time, shifts or leave) could lower productivity. Finally, decentralisation of bargaining may promote productivity through a more frequent use of incentive schemes (such as performance pay).

The empirical literature has examined quite extensively the role of union coverage for productivity. According to a meta-analysis (Doucouliagos, Freeman and Laroche, 2017^[50]), the evidence overall suggests that union coverage increases productivity in non-manufacturing industries, but not in manufacturing industries. Some papers studied empirically the relevance of collective bargaining for the “hold-up” problem and investment, with inconclusive results overall. Card, Devicienti and Maida (2014^[51]), using matched employer-employee data from Italy’s Veneto region, obtain little evidence of

hold-up. Based on sector-level data for OECD countries, Cardullo, Conti and Sulis (2015^[52]) find that union coverage reduces investment in sunk-capital-intensive industries relative to others.

The results in this section suggest that certain collective bargaining systems can be associated with stronger misalignments of pay and productivity, with possible consequences for productivity growth. However, few papers have directly studied the role of different features of bargaining systems, such as centralisation or co-ordination, for productivity, in part due to lack of suitable data. Andreasson (2017^[53]) finds that in Sweden companies for which wage-setting is more decentralised have higher value added per employee and higher productivity. Similarly, Garnero, Rycx and Terraz (2019^[54]) obtain a positive link between decentralised bargaining and productivity, using Belgian firm-level data. For developing countries, Lamarche (2013^[55]; 2015^[56]) argues that firm-level instead of sectoral agreements could yield productivity gains. However, Hibbs and Locking (2000^[57]) document that decentralisation in Sweden in the 1980s reduced aggregate productivity growth by slowing down the exit of inefficient firms. Taking the evidence from these papers together, decentralisation appears to improve firm productivity, while it may slow down the cleansing effect of higher wages and therefore, due to composition effects, not translate in higher aggregate productivity growth.

To study the links of centralisation and co-ordination with productivity growth, the following variant of the sector-level approach by Rajan and Zingales (1998^[58]) is used. The premise is that collective bargaining reforms tend to affect sectors more where collective bargaining coverage is high and therefore productivity growth in these sectors should be affected more. The estimating equation is:

$$PG_{sct} = \beta_1 Coverage_{sc} \times Centralisation_{ct} + \beta_2 Coverage_{sc} \times Coordination_{ct} + P_{sct-1} + \alpha_{ct} + \gamma_{sc} + \varepsilon_{sct}$$

The dependent variable, PG_{sct} , indicates productivity growth in sector s , country c and year t . The lagged level of productivity, P_{sct-1} , accounts for convergence. Regressions are run for total factor and labour productivity. Estimation of the coefficients of interests, β , requires variation in coverage across sectors and centralisation or co-ordination across time. This is the case for seven countries with available data: Austria, Denmark, Finland, France, Germany, the Netherlands and Spain.

Centralisation is linked with lower productivity growth, both for total factor and labour productivity – the full set of empirical results is available in Annex 3.C. Productivity growth is higher in high compared with low coverage sectors when collective bargaining is more decentralised. No association is estimated for wage co-ordination. The estimation, which relies on sector comparisons, does not readily allow conclusions on aggregate productivity growth. It also does not rule out issues of endogeneity, despite relying only on within-country variation. Yet, the results suggest that centralised bargaining may come at the expense of lower productivity growth, although analysis beyond these empirical explorations is needed to examine the links between bargaining regimes and productivity further.

3.4. Balancing inclusiveness and flexibility in collective bargaining systems

The future of collective bargaining, its relevance and function, will depend on how it will adapt to changing labour market conditions. Social partners and governments should aim to reap the benefits of collective bargaining for employment and inclusiveness while avoiding that collective bargaining becomes a straitjacket, by ensuring that firms are able to adjust wages and working time when their business situation requires it.

This chapter has put forward new evidence based on a range of data sources (country-, sector-, firm- and worker-level data) that suggests that, to a certain extent, collective bargaining has historically meant a trade-off between inclusiveness and flexibility. In countries and periods when collective bargaining was not confined to firm-level bargaining (or simply absent), wage inequality has been lower and employment, including of vulnerable groups, has been higher. Wage co-ordination can also have the benefit of

strengthening the resilience of the economy against business-cycle downturns (OECD, 2017^[2]). This chapter and the literature, however, have also provided evidence that more centralised bargaining at sectoral or national level may come at the cost of reduced flexibility to adjust pay and working conditions in line with business conditions for the individual sector or firm, with potentially adverse implications for productivity.

This section discusses possible pathways going forward, through the combined use of tools that help promote inclusiveness (Section 3.4.1) and tools that help promote flexibility (Section 3.4.2). Inclusiveness in this context is to a large extent about being represented; hence, a strong emphasis is placed on broad-based collective bargaining and social dialogue. Flexibility can be attained in many ways, but the challenge is to nest it within systems that deliver broad-based coverage. Organised decentralisation (which leaves space for firm-level agreements to set the terms of employment within a broader framework of sectoral agreements), high levels of representation at the local level and wage co-ordination across sectors are among the elements that hold most promise to effectively balance inclusiveness with flexibility.

3.4.1. Promoting broad-based collective bargaining and social dialogue

Broad-based employer and employee organisations tend to be the best way for countries to attain high collective bargaining coverage

For collective bargaining to have meaningful macroeconomic effects, it needs to involve and cover a large share of workers and companies. Well-organised social partners – unions and employer organisations with a broad support base – are often the condition for attaining high coverage. Declining coverage rates in several countries have reduced the potential role of collective bargaining for promoting earnings equality and social cohesion. In countries where coverage has held up but trade union density has declined, questions about the legitimacy and representativeness of trade unions are sometimes raised.

Currently, the union membership rate is above 50% only in OECD countries with the so-called “Ghent system”, i.e. where union-affiliated institutions administer unemployment benefits (Denmark, Finland, Iceland, Sweden and partly Belgium), and in Norway. However, even the Ghent system has been gradually eroded through the development of private insurance funds. The use of administrative extensions and *erga omnes* clauses that extend collective agreements to non-unionised workers and non-covered companies may have weakened the incentives to join a union (as non-union members enjoy the same rights as union members). Several countries use fiscal incentives to promote trade union membership. Norway, for instance, subsidises union membership through tax breaks. Barth, Bryson and Dale-Olsen (2017^[59]) show that the increase in the generosity of the subsidy from 7% of the average membership fee in 2001 to 21% in 2012 was important for slowing the decline in trade union density. Other examples are Sweden, which has just reintroduced a subsidy for union members that had been abolished in 2007, and Finland, where union membership fees and employer confederation fees are tax-deductible.

Affiliation to employer organisations is significantly higher (50% on average) and has been quite stable over the last few decades, in contrast to the strong decline in union membership. An extreme case is Austria where membership to the sectoral branch of the chamber of commerce (*Wirtschaftskammer Österreich* or WKÖ) in each region (*Bundesland*) is compulsory for all companies. Sectoral agreements signed at the regional or in some cases national level therefore necessarily cover all firms in the sector, obviating the potential need of formal extension measures by the government. Studying the trends in 13 European countries, Brandl and Lehr (2016^[60]) argue that employer organisations have been able to remain relatively strong by adapting their organisational structures and activities to the changing needs of businesses. Moreover, the use of administrative extensions of collective agreements in many countries strengthens the incentives for membership to employer organisations since the terms of agreements also apply to non-members (whose objectives may be different to those of members).

Even in countries where company-level bargaining plays a significant role, it is often mostly confined to large and medium-sized enterprises. To extend social dialogue to all segments of society, some governments have tried to promote social dialogue in small firms. One example is the 2017 labour market reform in France. This introduced the possibility for companies with less than 20 employees to call workers to vote on a company-level agreement even in the absence of a union delegate, provided at least two-thirds of employees support the agreement. It also allowed companies with 20 to 50 employees to negotiate with an elected representative even if not explicitly mandated by the unions. Unions fear that these initiatives to promote social dialogue in small businesses will in fact lead to abuses by employers who have stronger bargaining power than employees. However, in France the role of firm-level bargaining remains quite tightly defined by sectoral agreements which, very often (at least until the 2017 reform), explicitly block renegotiations and derogations at the firm level on most topics. Another example comes from Italy, where the government in 2017 increased tax incentives to promote negotiations on performance-related pay and welfare provisions at the firm level with the stated aim of extending firm-level bargaining also to medium and small firms and strengthen the link between productivity and wage increases at the firm level (D'Amuri and Nizzi, 2017^[61]).

The rise of non-standard and new forms of work represents a major challenge for collective bargaining systems (see Chapter 5). The meaning of “employer”, “employee” and “place of work” becomes increasingly blurred, impeding the ways in which employers and employees have negotiated traditionally. Unions are making efforts to reach out to workers in new forms of work. Non-union labour movements to defend workers’ interests are also emerging. Technology and social media help workers organise by facilitating building communities and engaging in protests, boycotts and petitions. Moreover, direct forms of voice such as regular meetings, team briefings and problem-solving groups may contribute to fill in for unions and representative bodies (Bryson, Forth and George, 2012^[62]; Bryson et al., 2017^[63]).

Such alternative forms of collective organisation are a tool for preserving some form of workers’ voice at times of rapid changes to work relationships. But these new bodies are often not entitled or may not even want to engage in direct negotiations with employers. Hence, some employers fear that these alternative forms of organisation represent a threat to the traditional forms of collective bargaining that have been based on negotiations and industrial peace. Moreover, some restrictions to worker and employer organisation may come from labour and competition laws which are often based on traditional concepts of “employer” and “employee”. For instance, in the case of platform workers, but also of the self-employed more generally, a key challenge is that bargaining collectively on wages would be against the traditional interpretation of competition rules which tend to consider them as “undertakings” (Daskalova, 2017^[64]). This highlights the importance of legal reform to clarify the scope for collective bargaining and support the emergence of new forms of social dialogue.

Extensions can be an alternative to support wide coverage of collective agreements when social partners are weak, but have to be well regulated

In the absence of broad-based social partners, another way of making collective bargaining coverage more inclusive is through the use of administrative extensions. These extend the coverage of collective agreements beyond the members of the signatory unions and employer organisations to all workers and firms in a sector. Extensions level the playing field across firms in a sector and reduce the burden associated with lengthy and detailed negotiations, which can be particularly relevant for small firms. In addition, they support the sustainability of “public goods”, including sectoral training and mobility schemes funded by collective agreements. However, extensions can also have downsides, as they may be used as a tool for unfair competition and harm the economic prospects of those not represented at the negotiation table, such as start-ups, small firms or vulnerable workers – see Haucap, Pauly and Wey (2001^[65]), Magruder (2012^[66]) and Hijzen and Martins (2016^[67]).

To avoid or minimise the potential negative effects, it is important that the parties negotiating the agreement represent the interests of a wide range of firms and workers and leave some “escape valves” for specific cases. This can be achieved by requiring reasonable representativeness criteria and a meaningful test of public interest, while establishing well-defined procedures for exemptions and opt-outs in case of serious economic hardship.²⁵

As discussed above, extensions may weaken incentives for trade union membership. This, in turn, may have adverse consequences for the quality of labour relations but also make it harder to introduce more flexibility in the system through the use of decentralised organisation (see Section 3.4.2). Extensions therefore can play a useful role for ensuring that all employees in a sector are covered but do not provide a one-to-one substitute for collective organisation.

Extensions of collective agreements can only be used in countries with some form of sectoral agreements. The case of Australia, where a government body determines minimum standards for each sector, represents an alternative approach for ensuring basic terms of employment among all firms in a sector (Box 3.5). The main challenge of this system is the difficulty to establish appropriate sectoral standards, as this presupposes detailed knowledge of the sector which may often require a strong involvement of the social partners.

Box 3.5. An alternative to sectoral bargaining? The case of Modern Awards in Australia

Australia does not have sectoral bargaining, but a form of industry- or occupation-wide regulations, so-called Modern Awards, which set industry-specific wage floors that vary by skill level. While some 36% of employees are covered directly by collective agreements, another 23% are covered by awards only. That is, around three-fifths of employees have wages that are not determined by the employer and the individual employee but instead either through collective bargaining or an external regulator. This is well above the average rate of collective bargaining coverage across the OECD. The system has been in place for several decades and a similar organisational arrangement was in place in New Zealand until 1991 – see Peetz and Rasmussen (2018^[68]) for a detailed analysis of the functioning of Modern Awards.

Awards in Australia set sectoral minimum wages that vary according to the skill level of the job, with provisions for night and weekend premiums (“penalty rates”), overtime pay, working time and other dimensions of working conditions. A Modern Award covers a whole industry in most states and territories (some states have retained their workplace relations practices). Australia also has a “national minimum wage”, but this is usually fixed at the lowest rate in any award and adjusted every year at the same time as the rest of the award pay structure.

Awards are set by a federal tribunal, the Fair Work Commission, whose members are chosen by the government and selected among employer bodies, unions, lawyers and government officials. Unions and employers make submissions on the content of Modern Awards and then the Fair Work Commission decides. The Commission is also tasked with revising, after consultations, wage rates (recently every four years). Outside these reviews, the relationship between awards is quite stable and award wage increases in one industry rarely outpace, or fall behind, those in other industries.

With the support of employees, employers can deviate from the terms set in the awards, in particular those relating to working hours, through specified processes, but workers should still be better off overall. Mechanisms exist to adjust to temporary, special circumstances, but these are not widely used.

Modern Awards do not represent a form of sectoral bargaining, but they create a set of industry-specific skill-varying wage floors which, while significantly different, can be compared with the use of administrative extensions in countries with sectoral bargaining.

3.4.2. Ensuring that collective bargaining systems are able to respond to changing and unexpected challenges

Collective bargaining and social dialogue should also support strong economic outcomes, which may require ensuring that working conditions are sufficiently well-aligned with economic conditions. This can be achieved by allowing some degree of flexibility at the firm or worker level or through the use of mechanisms to co-ordinate bargaining outcomes across sectors or firms with a focus on macroeconomic performance. Moreover, social partners can play a key role in supporting job transitions and ensuring that workers are equipped with the skills needed.

Leaving more scope for company-level bargaining does not require disavowing sectoral bargaining

Debates on collective bargaining have largely focused on the level of negotiation. The introduction of flexibility in predominantly sectoral systems has therefore often been considered as requiring a shift from sectoral to firm-level bargaining. While such a shift would indeed provide more flexibility to firms, it may also induce a decline in coverage, undermining the inclusiveness of the system.²⁶ However, experiences from a number of countries show that less radical options, typically referred to under the heading of “organised decentralisation” (Traxler, 1995_[69]), are available. These have the advantage of preserving sectoral bargaining, while enabling a closer link between productivity and working conditions at the firm level.

Organised decentralisation occurs within the framework provided by sectoral agreements, while explicitly allowing elements of working conditions and work organisation to be negotiated or determined at the company or even worker level under certain conditions through specific procedures. In principle, the sectoral framework should preserve collective bargaining coverage and give firms and workers more freedom to set working conditions. Decentralisation usually takes place through company collective agreements with trade unions, but in some cases also through agreements by the management with non-union worker representatives (such as works councils) or individual employees. For Traxler (1995_[69]), who coined the term, organised decentralisation stands in contrast to “disorganised decentralisation”, a system where firm-level agreements entirely replace sectoral agreements and many workers are left without representation.

Organised decentralisation can take several forms – see Ibsen and Keune (2018_[70]) for more details. In a first model, sectoral agreements provide a general framework but leave room for lower-level agreements to tailor the terms of employment. This approach is thus predicated on multi-level bargaining and strong local representation (or extensions) and can be found in Denmark, Norway and Sweden, for instance. In these countries, the favourability principle is not set in the law but entirely left to the bargaining parties who decide whether and in which case it applies. In this first form of organised decentralisation, sectoral agreements can take the following forms or a mix of them:

- Minimum agreements: They set minimum standards but leave the setting of actual wages and working conditions up to company agreements, with the condition that they respect the minimum standards.
- Corridor agreements: They set the boundaries (minimum and maximum) between which the terms of employment in company-level agreements can be set.
- Default agreements: They set wages and working conditions, but these come only into force in case local parties do not find an agreement. Hence, company agreements can also set wages and working conditions below the default levels.
- Figureless agreements: They contain no wage standards which are entirely left to the company level.

In practice, few “pure” agreements exist, as even default agreements may include some common standards.

Sectoral agreements can also allow for a different type of decentralisation where working conditions are not set by a company agreement but by individual workers. Such *à-la-carte* arrangements offer individuals the option to exchange, within predefined limits, wages, working time and free time. In some cases, company-level agreements introduce this option for the workforce (“mandated *à-la-carte*”). In others, this is done in the sectoral agreement, regardless of a company-level agreement (“un-mandated”). *À-la-carte* arrangements tend to be important in the Netherlands where the scope for bargaining at the firm in addition to the sectoral level tends to be limited beyond certain industries and larger firms, given relatively low levels of local representation (Visser, 2016^[71]).

In a second model of organised decentralisation, notably present in Germany and Austria, sectoral agreements set the standard terms of employment and allow for exceptions to the favourability principle via opt-out or derogation clauses. These clauses, often also known as competition, hardship or opening clauses, allow company-level agreements to deviate downwards from wages and working conditions set in a sectoral agreement. Traditionally, such clauses were intended to apply to companies in serious economic problems for a temporary time period under predefined conditions.²⁷ Since 2004 in Germany, opening clauses have been used more generally by companies to reduce labour costs. Some clauses allow companies to postpone or cancel parts of the sectoral agreement, notably wage increases, depending on the type or economic situation of the company.

In Germany, opening clauses are usually contingent upon an initial agreement between the signatory social partners in the industry or region. There is some leeway in designing the clause, in terms of what substantive issues it includes (wages, working time, employment guarantees, etc.) and under what conditions and according to which procedures the derogation can be made. According to Schulten and Bispinck (2017^[72]), company-level parties (management and works council) usually make a joint application to the signatory parties at sectoral level which take the final decision. It is, however, also possible to derogate the final decision-making competence to the company-level parties. According to a recent study (Amlinger and Bispinck, 2016^[73]), derogation agreements concern mainly working time (14% of all companies covered by a collective agreement), wages (10%), allowances (10%), annual bonuses (10%) and apprenticeship pay (3%). The clauses in sectoral agreements mainly define the rules and conditions under which the derogation can be made, in particular:

- Companies have to disclose their financial information to justify a derogation;
- Parties at the company and industry level need to have the time to scrutinise the company’s financial status and the measures taken;
- The duration of the derogation should be limited to ensure terms and conditions will return to the standards in the sectoral agreement;
- Derogations are conditional on the safeguarding of jobs or investment plans to make the company more viable.

In addition to these bi-partite procedures, unions have instated their own procedural requirements to avoid that derogations are agreed between local parties without workers getting something in exchange. According to Haipeter and Lehndorff (2014^[74]) and Schulten and Bispinck (2017^[72]), such internal union procedures have helped ensure a controlled use of opt-outs. Baccaro and Benassi (2017^[75]) are less optimistic, as control through internal procedures is only strong in some sectors, notably metalworking where unions are still strong locally. In the German retail sector, by contrast, decentralisation has been less “organised”, since unions and works councils are less prevalent and employers have rather opted for non-binding membership to the employer association or no membership at all. With limited use of extensions, this has led to a substantial decrease in bargaining coverage.

Although strict conditions on the use of opening clauses help ensure that the decentralisation process remains organised, they may also severely diminish their role. Where opening clauses exist, opt-outs are mostly used by large firms which are not necessarily those most in need. Small firms are often not able to make use of derogations and opt-out clauses because they lack the capacity or worker representation. In a possibly extreme, but not totally unlikely scenario, opt-outs with very strict conditions may become an anti-competitive tool: Large firms could first negotiate relatively generous conditions in sectoral agreements and then opt out to improve the terms in their favour, leaving competitors to bear the brunt of the generous terms they negotiated.²⁸

Overall, organised decentralisation appears to be able to increase the flexibility of the system, at least to some extent, without being accompanied by a substantial decline in the number of workers being represented. This is the case in countries where well-regulated extensions help attain high collective bargaining coverage (as in the Netherlands), where membership of trade unions is high (as in the Nordic countries) and where employer association density is high (as in Austria). In Germany, the introduction of opening clauses has been accompanied by a reduced use of extensions and a decline in bargaining coverage. Special forms of membership with the employer association (so-called *Ohne Tarifbindung-Mitgliedschaft*), which do not bind companies to collective agreements, have added to the disengagement of employers from bargaining. The experience of Germany exemplifies the difficulty of organised decentralisation in a context where the degree of local representation is relatively weak. In such a context, the scope for opt-out is limited for some firms, increasing incentives for disengaging from employer associations altogether, contributing to the decline in collective bargaining coverage. In the end, decentralisation in Germany represents a combination of organised and disorganised elements, as Visser (2016^[71]), Oberfichtner and Schnabel (2017^[76]) also noted.

Several countries, especially in Southern Europe in the wake of the euro area crisis, introduced reforms to increase the flexibility of their collective bargaining systems along the lines of the German model. Examples are Spain (OECD, 2014^[77]), Portugal (OECD, 2017^[78]) and, to a different extent, Greece (OECD, 2016^[79]). Special attention should be paid in the coming years to a careful evaluation of the introduction of opening clauses in countries which did not have them and their possible interaction with other elements of the collective bargaining system. The absence of strong worker representation at the local level in the form of unions or works councils limits the scope of such reforms and may increase incentives for firms to leave an employer association in the absence of extensions or to opt for less organised forms of collective bargaining.

Wage co-ordination can strengthen flexibility to macroeconomic conditions

OECD (2012^[18]) and OECD (2017^[2]) have found that wage co-ordination across sectors can contribute to labour market resilience in the aftermath of an economic downturn thanks to greater flexibility in earnings (i.e. working time and wages) and better employment outcomes based on wage moderation. The new evidence reported in Section 3.2 on the link between collective bargaining systems and employment provides further support for these results.

Co-ordination works either by having sectoral or firm-level agreements following the guidelines fixed by peak-level organisations or a social pact or by identifying a leading sector (or group of companies) which sets the mark for others to follow (“pattern bargaining”).

Guidelines by peak-level organisations define norms or objectives that should be followed when bargaining at lower levels. They are present in several countries but they tend to be binding only in countries where peak-level unions or employer organisations are relatively strong and centralised (in the Nordic countries and to a significantly lower extent in France and Italy).

A social pact is a peak-level deal over a comprehensive policy package that is negotiated between the government, trade unions and employer organisations. By bringing all parties to the same table at the national level, it helps devising a widely shared response, especially in the case of macroeconomic shocks.

This therefore represents a strong form of co-ordination. As argued in OECD (2017^[2]), peak-level co-ordination and social pacts can reduce transaction costs involved in the negotiation of temporary wage and working-time reductions and make them more acceptable to workers by ensuring that they are widely shared.

The objective of pattern bargaining is to support macroeconomic performance based on international competitiveness, both in good and bad times. A concrete example of pattern bargaining is Sweden, where the tradable sector (mainly manufacturing) sets the “cost mark” (an increase in the wage bill for that year), looking at productivity and wage developments in other countries. The cost mark represents a reference ceiling for the other sectors. In this case, the role of firm-level bargaining is mainly called to decide on the distribution of wage increases within the firm (with exceptions).²⁹ Pattern bargaining, in different forms, is also present in Austria, Denmark, Germany, Japan, the Netherlands and Norway.

A precondition for a well-functioning co-ordination of wage bargaining is to have strong and representative employer and employee organisations. Wage co-ordination requires a high level of trust in and between the social partners and the availability of objective and shared information on the labour market situation. Enforcing maximum wage targets is not straightforward, especially if some non-tradable sectors can afford more than the agreed “cost mark”. Ibsen (2016^[80]) highlights the role of mediation bodies for the functioning of pattern bargaining in Denmark and Sweden. In Denmark, the mediation institution can call for the approval of all agreements into one majoritarian union ballot, which effectively forces potential defectors into the agreement. In Sweden, the mediation process works rather through persuasion and naming and shaming. Conversely, the lack of effective mediation bodies is considered as one of the reasons behind the decline of pattern bargaining in Germany. The unique degree of self-regulation by the social partners makes co-ordination fundamentally different from centralisation which is commonly written in laws or regulations.

A further consideration is that the share of manufacturing in total employment and GDP has been decreasing in most countries, putting into question its role as leading sector in pattern bargaining and the sustainability of co-ordination through pattern bargaining in the future. In the Swedish context, the Labour Market Policy Council highlighted that, if this situation were to persist, there is a risk of a collapse of the current co-ordination system (Arbetsmarknadsekonomiska rådet, 2017^[81]). This could make it more difficult to secure wage moderation. One way to prevent this may be to take account of productivity and price developments in all tradeable sectors beyond just manufacturing when setting the “cost mark”.³⁰

All in all, co-ordination remains a unique tool to strengthen the resilience of the labour market and increase the inclusiveness of collective bargaining, while safeguarding the competitiveness of the national economy. However, co-ordination not only requires strong social partners at national and local levels, but it also faces increasing challenges to remain effective in a changing economic structure.

Conclusions

Using a mix of available cross-country micro-and macro data and a new characterisation of collective bargaining systems based on the main elements identified in Chapter 2, i.e. collective bargaining coverage, the level of bargaining the degree of flexibility and the role of wage co-ordination, this chapter has shed light on the link between bargaining systems and employment, wages and productivity.

The results show that co-ordinated collective bargaining systems are associated with higher employment, lower unemployment, a better integration of vulnerable groups and less wage inequality than fully decentralised systems. This highlights the role of wage co-ordination as a tool to ensure that collective agreements are set taking into account their macroeconomic effects without undermining the external competitiveness of the country as well as accounting for the business-cycle situation. In countries where there is wage co-ordination, it tends to be strongly supported by employer associations, since it contributed to moderate wage growth, and trade unions, since it has ensured high levels of employment.

At the individual level (within countries), there is a wage premium for employees who are covered by firm-level bargaining compared with those not covered or those covered only by sectoral bargaining. Moreover, wage dispersion is greater in systems with no collective bargaining, or where firms set wages independently. By contrast, wage dispersion is on average smallest among workers who are covered by sectoral bargaining. Centralised bargaining systems tend to be associated with lower productivity growth if coverage of agreements is high. This result suggests that the lack of flexibility at the firm level, which characterises centralised bargaining systems, may come at the expense of lower productivity growth. By contrast, higher co-ordination in systems that are not centralised is not found to have adverse effects on productivity.

While many OECD countries have taken steps towards decentralisation in the past two decades, the best outcomes in terms of employment, productivity and wages are reached when sectoral agreements set broad framework conditions but leave detailed provisions to firm-level negotiations. By contrast, other forms of decentralisation that simply replace sectoral with firm-level bargaining, without co-ordination within and across sectors, tend to be associated with somewhat poorer labour market outcomes.

Therefore the main challenge for social partners and governments is to adjust collective bargaining systems, as to use it to reach better outcomes in terms of employment, job quality and inclusiveness, while leaving scope for firms to adapt rules to their own realities. The exact nature of this challenge and the way it is addressed will differ from country to country and depend to an important extent on the existing national collective bargaining traditions.

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Annex 3.A. A taxonomy of collective bargaining systems

In order to provide an overarching view of the functioning of collective bargaining systems while, at the same time, capturing as much as possible the granularity, complexity and diversity across countries, a novel taxonomy of collective bargaining is used to conduct the empirical work, notably to investigate the link between the main features of collective bargaining systems and labour market performance at macro level. Three main aspects are considered to group countries based on the conceptual framework developed in Chapter 2: the level of bargaining, the degree of actual centralisation or organised decentralisation as defined by the rules and use of extensions, derogations, opt-out, and the presence of the favourability principle with respect to wages, and the degree of wage co-ordination. Grouping countries necessarily requires some simplifications and therefore the detailed discussion in Chapter 2 should be kept in mind when comparing and assessing the functioning of the different bargaining systems across countries.

The dashboard in Chapter 2 based on the answers to the OECD policy questionnaires allowed identifying five main groups of countries:

- A first group includes countries with predominantly centralised and weakly co-ordinated collective bargaining systems. In this group of countries, sectoral agreements play a strong role, extensions are relatively widely used and derogations from higher-level agreements are either limited or not often used. In 2015 France, Iceland, Italy, Portugal, Slovenia, Spain and Switzerland fell in this group.

Note: In Chapter 2 Spain and Switzerland were mentioned in an intermediate group between the rather centralised and organised decentralised ones. The number of observations between 1980 and 2015 for such an intermediate group, however, is too small to be used for econometric purposes.

- A second group includes countries with predominantly centralised but co-ordinated collective bargaining systems. In this group of countries, sectoral agreements play a strong role as well and the room for lower level agreements to derogate from higher-level ones is also quite limited. However, wage co-ordination is quite binding. In 2015 Belgium and Finland were part of this group.
- A third group is composed by countries with co-ordinated, organised decentralised bargaining systems. In these countries, sectoral agreements play an important role but also leave significant room to lower agreements to set the standards – either by limiting the role of extensions (rare and never automatic or quasi-automatic in this group), or by leaving up to bargaining parties the design of the hierarchy of agreements (the “favourability principle”) or by allowing for the possibility to opt-out. Moreover, in this group of countries co-ordination is strong. In 2015 Austria, Denmark, Germany, the Netherlands, Norway and Sweden composed this group.
- A fourth group includes countries with collective bargaining systems where firm-level bargaining is dominant but sectoral bargaining also plays a role or there are some forms of regulation mechanisms or some degree of wage co-ordination by peak-level organisations. Extensions are very rare. Australia with its “Modern Awards” (see Box 3.5 in the Chapter), Ireland with the “Sectoral Employment Orders”, or Japan with its unique form of co-ordination (*Shunto*) were included in this group in 2015 as well as Greece, Luxembourg and Slovakia.
- The fifth group covers countries where bargaining is essentially confined to the firm/establishment level with no co-ordination and no (or very limited) influence of the government. In 2015 Canada,

Chile, Czech Republic, Estonia, United Kingdom, Hungary, Ireland, Korea, Lithuania, Latvia, Mexico, New Zealand, Poland, Turkey, United States were part of this group.

The taxonomy is then reconstructed backwards until 1980 using information on the **level of bargaining** (four levels: central or intermediate between central and industry bargaining; sectoral; intermediate between sector and company bargaining; company level, from ICTWSS), the **degree of organisation** by identifying changes in use of extensions, derogations, opt-out, and the existence of the favourability principle (as reported in ICTWSS complemented with information on policy reforms and major agreements using information from LABREF, Eurofound and the available literature) and **co-ordination** (defined as strong when COORD in ICTWSS takes the value of 5 and 4³¹, and weak or absent otherwise and smoothing for one year blips, i.e. excluding changes in the variable COORD which occur in a single year).

Annex Table 3.A.1 shows the taxonomy for all OECD countries between 1980 and 2015 (central and eastern European countries only available after 1990).

Annex Table 3.A.1. A taxonomy of collective bargaining systems in OECD countries, 1980-2015

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980			
Australia	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Austria	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Belgium	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Canada	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	
Chile	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	
Czech Republic	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	LD	LD	LD	LD														
Denmark	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	
Estonia	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD															
Finland	PCC	PCC	PCC	PCC	PCC	PCW	PCW	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCW	PCW	PCW	PCC	PCC	PCC	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCW	PCW	
France	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Germany	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	PCW	PCW	PCW	PCW	ODC	ODC	ODC	ODC	ODC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Greece	LD	LD	LD	LD	LD	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Hungary	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	LD	LD	LD														
Iceland	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Ireland	FD	FD	FD	FD	FD	FD	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	FD	FD	FD	FD	FD	FD	FD	PCC		
Israel	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Italy	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Japan	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Korea	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
Latvia	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD																
Lithuania	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD																
Luxembourg	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
Mexico	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
Netherlands	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC
New Zealand	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
Norway	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Poland	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
Portugal	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCC	PCC	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Slovak Republic	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	
Slovenia	PCW	PCW	PCW	PCW	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCW	PCW											
Spain	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	
Sweden	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	ODC	PCW	PCW	PCW	PCW	PCW	PCW	ODC	ODC	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	
Switzerland	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCW	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC	PCC
Turkey	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
United Kingdom	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD	LD
United States	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD

Note: Acronyms in the Table refer to the following country groupings:

PCW. Predominantly Centralised and Weakly co-ordinated

PCC. Predominantly Centralised and Co-ordinated

ODC. Organised Decentralised and Co-ordinated

LD. Largely Decentralised

FD. Fully Decentralised

Co-ordination in Switzerland in 2015 was marked as high in OECD (2017^[2]), *OECD Employment Outlook 2017*, http://dx.doi.org/10.1787/empl_outlook-2017-en. The ICTWSS database, however, classifies it at an intermediate level similar to that of other countries marked as “low”. To ensure consistency back in time co-ordination Switzerland has been reclassified to “low” in 2015. Spain and Switzerland in 2015 should be considered as an intermediate group. However, the number of observations between 1980 and 2015 for such an intermediate group is too small to be used for econometric purposes.

Source: OECD elaboration using the OECD policy questionnaires, ICTWSS, Eurofound, LABREF and related literature.

What is behind the changes in the taxonomy?

The main features of wage bargaining in Canada, Chile, Estonia, France, Iceland, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Poland, Turkey and the United States appear constant between 1980 and 2015 in the proposed taxonomy.

On the opposite changes in the level of bargaining and the degree of actual centralisation have been registered in the following countries:

- Australia: in 1993, the Australian Government passed the Industrial Relations Reform Act which replaced centralised wage setting with enterprise-level collective bargaining. In 1996 the Federal Government introduced the Workplace Relations Act, which introduced individual statutory contracts into the federal system. These individual agreements were abolished in 2009;
- Germany: in 1993 the first hardship agreement and “restructuring clauses” were introduced in the German bargaining system;
- Greece: in 2011 the reforms led to a decentralisation of wage bargaining;
- Ireland: between 1987 and 2008 wage bargaining was rather centralised and co-ordinated;
- New Zealand: in 1992 the Employment Contract Act decentralised wage bargaining;
- Norway: 2001 was the first year without a central agreement;
- Sweden: in 1980s central agreements played a significant a role before being rolled out;
- United Kingdom: a series of reforms in the 1980s by the Thatcher government reduced the role of unions and decentralised collective bargaining first to an intermediate level (1987-1993), then to company level.

Less dramatic, but still notable changes have been observed in:

- Czech Republic: between 1991 and 1994 bargaining was at an intermediate level, after it has taken place mainly at firm-level (source: ICTWSS);
- Hungary: between 1990 and 1992 bargaining was at an intermediate level, after it has taken place at firm-level (source: ICTWSS);
- Israel: in the 1990s bargaining slowly decentralised. Starting in 2005 bargaining level as intermediate between sectoral and company bargaining (source: ICTWSS);
- Slovak Republic: in 2009 bargaining moved to an intermediate level between sectoral and firm-level bargaining (source: ICTWSS).

No change in the level of bargaining and the degree of actual centralisation is observed in France, Italy and Portugal since, as discussed in Chapter 2, collective bargaining over wages in these countries remain quite centralised. This may seem surprising as over the last decades the favourability principle was inverted in France and other reforms promoted firm-level bargaining. However, as argued in Chapter 2, decentralisation in France only covered non-wage working conditions while wage bargaining remained strictly in the hands of sectoral bargaining. In Italy, the scope for firm-level bargaining was also widened but it remains a tension between the rules set by social partners autonomously, which define a hierarchical relationship between bargaining levels, and jurisprudence, according to which a firm-level agreement can always depart from sectoral agreements. All in all wage bargaining has remained quite centralised over the period of observation. Finally, the recent reforms in Portugal have changed considerably the functioning of the bargaining systems but were also partly rolled back. At this stage, wage bargaining seems still rather centralised.

The degree of co-ordination, as measured in the ICTWSS database (variable COORD), also varied significantly over time:

- Australia: between 1981 and 1982 and 1992-1995 co-ordination was weak.
- Belgium: in 1980 co-ordination was weak.
- Denmark: between 1981 and 1986 co-ordination was weak.
- Finland: Several periods when co-ordination was weak.
- Germany: in 1998-2001 co-ordination was weak.
- Italy: 1983-1984 co-ordination played a somewhat significant role (in 1983 “*accordo Scotti*” to fight against inflation and in 1984 “Decreto di San Valentino” which abolished the “scala mobile”, the automatic indexation of pay scales, thus reducing the role of “state-induced” wage co-ordination).
- Netherlands: in 1980-1981 and 1985-1991 co-ordination was relatively weak.
- Norway: in 1982-1987 co-ordination was weak.
- Portugal: in 1986-1988 and 1996-1997 co-ordination was weak.
- Slovenia: in 1992-1996 and 1999-2009 co-ordination played a somewhat significant role.
- Spain: in 1980-1986 and 2002-2008 co-ordination played a somewhat significant role.
- Sweden: in 1980-1990 and 1993-1997 co-ordination was weak
- Switzerland: between 1980 and 1989 co-ordination played a somewhat significant role.

Annex 3.B. Macro-data analysis: Variable description and additional material

Labour market performance

Employment rate: Employment-to-population ratio of persons aged 25-64.

Incidence of temporary employment: Number of temporary employees as a percentage of total employees aged 25-64. Further details on country-specific definitions of temporary employees can be found at: www.oecd.org/els/emp/lfsnotes_sources.pdf.

Incidence of part-time employment: Number of part-time workers (national definition) as a percentage of total employment of persons aged 25-64.

Incidence of involuntary part-time employment: Number of involuntary part-time workers defined as part-time workers (based on national definition) who could not find full-time work as a percentage of total employment of persons aged 25-64.

Unemployment rate: Number of unemployed persons as a percentage of the labour force of persons aged 25-64.

Female unemployment rate: Number of unemployed persons as a percentage of the labour force of women aged 25-64.

Youth unemployment rate: Number of unemployed persons as a percentage of the labour force of persons aged 15-24

Source: OECD Employment Database, <http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm>

Low-skilled unemployment rate: Number of unemployed persons as a percentage of the labour force of persons aged 25-64 having attained below upper secondary education.

Source: OECD (2019^[82]), "Education at a glance: Educational attainment and labour-force status", OECD Education Statistics (database), <http://dx.doi.org/10.1787/889e8641-en>.

Earning dispersion indicator: Estimates of earnings used in the calculations refer to gross earnings of full-time wage and salary workers. However, this definition may slightly vary from one country to another. Further information on the national data sources and earnings concepts used in the calculations can be found at: www.oecd.org/employment/outlook.

Source: OECD Earnings Distribution Database, www.oecd.org/employment/emp/employmentdatabase-earningsandwages.htm

Hourly labour productivity: Hourly labour productivity refers to the ratio of real GDP over total hours worked.

Source: OECD (2018), "GDP per capita and productivity growth", OECD Productivity Statistics (database), <http://dx.doi.org/10.1787/data-00685-en>

Collective bargaining system

Collective bargaining coverage rate: Collective bargaining coverage rate corresponds to the ratio of employees covered by collective agreements, divided by all wage earners with the right to bargain.

Source: OECD <http://stats.oecd.org/Index.aspx?DataSetCode=CBC> and ICTWSS database (Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts), <http://www.uva-aias.net/en/ictwss/>.

Centralisation: Actual level of centralisation (CWB in ICTWSS) computed as:

$$LEVEL - (fAEB+OCG)/4 + (Art+DR-1)/5$$

where *LEVEL* is the predominant level at which wage bargaining takes place (from 1 for company-level bargaining to 5 for central/cross-industry-level bargaining), *fAEB* is the frequency or scope of additional enterprise bargaining (from 0 when not happening to 3 when frequent), *Art* is the articulation of enterprise bargaining (from 0 when absent to 3 when disarticulated) and *DR* is possibility of setting aside the favourability principle in higher-level agreements (from 0 when the favourability principle is inverted to 3 when the favourability is anchored in law and strictly applied without derogations).

Co-ordination: Degree of co-ordination of wage-setting derived from the variable *coord* in ICTWSS and recoded as no co-ordination (for values 1 and 2 of the variable *coord*), low co-ordination (for value 3 of the variable *coord*) and high co-ordination (for values 4 and 5 of the variable *coord*).

Source: ICTWSS database (Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts), <http://www.uva-aias.net/en/ictwss/>.

Institutional controls

Tax wedge: The tax wedge considered in this chapter is the wedge between the labour cost for the employer and the corresponding net take-home pay of the employee for single-earner couples with two children earning 100% of average worker earnings. It is expressed as the sum of personal income tax and all social security contributions as a percentage of total labour cost.

Source: OECD Taxing Wages Database.

Product market regulation: The aggregate indexes of anti-competitive product market regulation come from the OECD Regulatory Database. They vary from 0 to 6 from the least to the most restrictive.

Source: OECD Indicators of Product Market Regulation, <http://www.oecd.org/eco/growth/indicatorsofproductmarketregulationhomepage.htm>.

Employment protection legislation: The aggregate indexes on regulations with respect to the dismissals of workers on open-ended contracts (including additional provisions for collective dismissals) and the use of temporary contracts Separate employment protection EP indicators come from the OECD Indicators of Employment Protection (www.oecd.org/employment/protection). Both indicators vary from 0 to 6 from the least to the most stringent.

Source: OECD Employment Database, <http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm>.

Minimum wage: Statutory minimum wage as a percentage of median wage of full-time workers.

Source: OECD Employment Database, <http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm>.

Gross unemployment insurance replacement rate: UB generosity is measured on the basis of average replacement rates, defined as average unemployment benefit replacement rate across two income situations (100% and 67% of average worker earnings), three family situations (single, with dependent spouse, with spouse in work) and three different unemployment durations (first year, second and third years, and fourth and fifth years of unemployment).

Source: OECD (2018), "Taxes and benefits", OECD Social and Welfare Statistics (database), <http://dx.doi.org/10.1787/data-00201-en>.

Demographic controls

Share of female employment: Number of women employed as a percentage of total employment

Source: OECD Employment Database, <http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm>.

Average years of education: Number of years spent in education of person aged 25-64.

Source: D. Cohen and M. Soto, Growth and human capital: good data, good results, completed with Barro-Lee Educational Attainment Data (2013 update); <http://www.barrolee.com/>.

Annex Table 3.B.1. Effect of collective bargaining systems on labour market performance

OLS regressions using taxonomy of collective bargaining systems

	Employment rate		Incidence of temporary employment		Incidence of part-time employment		Incidence of involuntary part-time employment		Unemployment rate	
	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]
Bargaining coverage rate	-0.074*** (0.016)		0.037* (0.022)		0.063*** (0.014)		-0.034*** (0.009)		0.010 (0.016)	
Predominantly centralised and weakly co-ordinated	3.373*** (0.630)	1.719*** (0.650)	0.984 (0.685)	1.568** (0.628)	1.120** (0.487)	2.621*** (0.431)	-0.470 (0.443)	-1.244*** (0.358)	-0.225 (0.568)	0.008 (0.512)
Predominantly centralised and co-ordinated	4.598*** (0.691)	2.630*** (0.682)	0.886 (0.782)	1.590** (0.642)	-0.180 (0.538)	1.570*** (0.475)	-0.788 (0.495)	-1.692*** (0.402)	-2.187*** (0.643)	-1.911*** (0.556)
Organised decentralised and co-ordinated	4.618*** (0.715)	2.734*** (0.704)	0.659 (0.727)	1.343** (0.628)	-0.798 (0.711)	0.900 (0.631)	-1.337*** (0.484)	-2.210*** (0.444)	-1.105* (0.657)	-0.841 (0.577)
Largely decentralised	1.948*** (0.658)	1.546** (0.650)	-0.304 (0.705)	-0.305 (0.782)	0.637 (0.501)	0.974* (0.537)	-1.464*** (0.384)	-1.688*** (0.340)	0.841 (0.673)	0.897 (0.631)
Observations	931	931	702	702	858	858	746	746	931	931
R-squared	0.944	0.942	0.912	0.911	0.953	0.952	0.797	0.791	0.816	0.815

Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Robust standard errors in parentheses. OLS regressions including country and time dummies, institutional variables (Tax wedges, PMR in seven sectors, EPL (both temporary and permanent), minimum wage/median wage and gross replacement rate) log of average years of education and female employment share. Source: OECD estimates. For further details on sources and definitions see variable description above.

StatLink  <http://dx.doi.org/10.1787/888934027589>

Annex Table 3.B.2. Effect of collective bargaining systems on unemployment outcomes by group and wage dispersion

OLS regressions using taxonomy of collective bargaining systems

	Youth unemployment rate		Female unemployment rate		Low-skilled unemployment rate		Earnings inequality: D9/D1		Earnings inequality: D9/D5		Earnings inequality: D5/D1	
	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]
Bargaining coverage rate	0.041 (0.031)		0.006 (0.019)		0.003 (0.023)		-0.002 (0.002)		-0.001* (0.001)		0.000 (0.001)	
Predominantly centralised and weakly co-ordinated	-3.982*** (1.142)	-3.054*** (1.040)	0.337 (0.560)	0.462 (0.485)	-1.025 (0.833)	-0.957 (0.680)	-0.234*** (0.067)	-0.289*** (0.049)	-0.074*** (0.023)	-0.098*** (0.018)	-0.064*** (0.024)	-0.055*** (0.016)
Predominantly centralised and co-ordinated	-5.868*** (1.363)	-4.764*** (1.149)	-2.481*** (0.683)	-2.331*** (0.547)	-3.286*** (0.949)	-3.209*** (0.780)	-0.243*** (0.075)	-0.308*** (0.056)	-0.078*** (0.026)	-0.107*** (0.020)	-0.058** (0.029)	-0.046** (0.020)
Organised decentralised and co-ordinated	-5.459*** (1.37)	-4.403*** (1.207)	-0.661 (0.657)	-0.518 (0.560)	-2.486** (1.054)	-2.414*** (0.908)	-0.283*** (0.072)	-0.350*** (0.051)	-0.084*** (0.024)	-0.114*** (0.017)	-0.072*** (0.027)	-0.060*** (0.019)
Largely decentralised	-2.271* (1.195)	-2.046* (1.132)	1.415** (0.710)	1.445** (0.659)	0.537 (1.243)	0.544 (1.222)	-0.211*** (0.060)	-0.228*** (0.058)	-0.034 (0.023)	-0.042* (0.022)	-0.074*** (0.019)	-0.071*** (0.018)
Observations	931	931	931	931	746	746	747	747	747	747	747	747
R-squared	0.848	0.847	0.820	0.820	0.893	0.893	0.957	0.957	0.970	0.970	0.940	0.940

Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Robust standard errors in parentheses. OLS regressions including country and time dummies, institutional variables (Tax wedges, PMR in seven sectors, EPL (both temporary and permanent), minimum wage/median wage and gross replacement rate) log of average years of education and female employment share. Source: OECD estimates. For further details on sources and definitions see variable description above.

StatLink  <http://dx.doi.org/10.1787/888934027608>

Annex Table 3.B.3. Effect of centralisation and co-ordination of collective bargaining systems on labour market performance

OLS regressions using centralisation and co-ordination variables

	Employment rate		Incidence of temporary employment		Incidence of part-time employment		Incidence of involuntary part-time employment		Unemployment rate	
	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]
Bargaining coverage rate	-0.077*** (0.013)		0.037* (0.021)		0.028** (0.012)		-0.033*** (0.010)		0.018 (0.014)	
Centralisation of wage bargaining	3.015*** (0.489)	1.775*** (0.552)	1.469* (0.814)	1.853** (0.818)	2.577*** (0.486)	3.047*** (0.472)	-0.494 (0.339)	-1.017*** (0.300)	-0.249 (0.449)	0.036 (0.440)
Centralisation of wage bargaining (squared)	-0.311*** (0.066)	-0.165** (0.074)	-0.188 (0.119)	-0.228* (0.121)	-0.216*** (0.065)	-0.271*** (0.064)	0.056 (0.044)	0.118*** (0.040)	-0.043 (0.064)	-0.076 (0.062)
Co-ordination	0.673*** (0.187)	0.495** (0.194)	-0.100 (0.283)	-0.075 (0.280)	-1.259*** (0.227)	-1.194*** (0.223)	-0.051 (0.116)	-0.111 (0.120)	-1.149*** (0.196)	-1.108*** (0.198)
Observations	931	931	702	702	858	858	746	746	931	931
R-squared	0.947	0.944	0.912	0.912	0.955	0.955	0.787	0.781	0.827	0.827

Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Robust standard errors in parentheses. OLS regressions including country and time dummies, institutional variables (Tax wedges, PMR in seven sectors, EPL (both temporary and permanent), minimum wage/median wage and gross replacement rate) log of average years of education and female employment share. Source: OECD estimates. For further details on sources and definitions see variable description above.

StatLink  <http://dx.doi.org/10.1787/888934027627>

Annex Table 3.B.4. Effect of centralisation and co-ordination of collective bargaining systems on unemployment outcomes by group and wage dispersion

OLS regressions using centralisation and co-ordination variables

	Youth unemployment rate		Female unemployment rate		Low-skilled unemployment rate		Earnings inequality: D9/D1		Earnings inequality: D9/D5		Earnings inequality: D5/D1	
	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]
Bargaining coverage rate	0.082*** (0.026)	-0.077***	0.010 (0.015)		0.006 (0.022)		-0.004*** (0.002)		-0.002*** (0.001)		0.000 (0.001)	
Centralisation of wage bargaining	-4.798*** (0.940)	-3.484*** (0.915)	1.078* (0.574)	1.245** (0.548)	-0.202 (0.666)	-0.105 (0.590)	-0.121** (0.061)	-0.204*** (0.052)	-0.030 (0.020)	-0.070*** (0.018)	-0.045** (0.020)	-0.038** (0.016)
Centralisation of wage bargaining (squared)	0.481*** (0.125)	0.326*** (0.123)	-0.229*** (0.086)	-0.249*** (0.081)	-0.055 (0.093)	-0.067 (0.085)	0.017* (0.009)	0.027*** (0.007)	0.005* (0.003)	0.010*** (0.003)	0.005* (0.003)	0.004* (0.002)
Co-ordination	-1.722*** (0.473)	-1.534*** (0.471)	-1.756*** (0.253)	-1.732*** (0.252)	-1.198*** (0.319)	-1.185*** (0.319)	-0.004 (0.025)	-0.020 (0.023)	0.001 (0.006)	-0.007 (0.006)	0.002 (0.010)	0.003 (0.009)
Observations	931	931	931	931	746	746	747	747	747	747	747	747
R-squared	0.860	0.858	0.835	0.835	0.895	0.895	0.956	0.956	0.969	0.969	0.940	0.939

Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Robust standard errors in parentheses. OLS regressions including country and time dummies, institutional variables (Tax wedges, PMR in seven sectors, EPL (both temporary and permanent), minimum wage/median wage and gross replacement rate) log of average years of education and female employment share.

Source: OECD estimates. For further details on sources and definitions see variable description above.

StatLink  <http://dx.doi.org/10.1787/888934027646>

Annex Table 3.B.5. Effect of CB systems on employment and unemployment rates: country tournament

	Employment rate		Unemployment rate	
	Predominantly centralised and co-ordinated	Organised decentralised and co-ordinated	Predominantly centralised and co-ordinated	Organised decentralised and co-ordinated
Full sample	4.598***	4.618***	-2.187***	-1.105*
Excluding:				
Australia	4.813***	4.838***	-2.671***	-1.519**
Austria	4.494***	4.666***	-2.163***	-1.121*
Belgium	4.584***	4.806***	-2.124***	-1.095*
Canada	4.565***	4.687***	-2.051***	-1.149*
Chile	4.584***	4.606***	-2.103***	-1.036
Czech Republic	4.589***	4.604***	-2.139***	-1.035
Denmark	4.560***	4.390***	-2.186***	-1.048
Estonia	4.573***	4.630***	-2.229***	-1.133*
Finland	4.695***	4.556***	-2.525***	-1.241*
France	4.550***	4.568***	-2.245***	-1.231*
Germany	4.110***	3.819***	-2.258***	-1.501**
Greece	4.853***	4.922***	-2.621***	-1.624***
Hungary	4.521***	4.572***	-2.399***	-1.284*
Ireland	2.915***	3.109***	-0.453	0.451
Israel	4.839***	4.888***	-2.488***	-1.447**
Italy	4.551***	4.686***	-2.056***	-1.139*
Japan	4.464***	4.562***	-2.177***	-1.083
Korea	5.095***	5.160***	-2.450***	-1.381**
Latvia	4.669***	4.557***	-2.206***	-1.050
Luxembourg	4.437***	4.621***	-2.107***	-1.068
Mexico	4.598***	4.618***	-2.187***	-1.105*
Netherlands	4.679***	4.594***	-2.211***	-1.098
New Zealand	4.909***	4.896***	-2.589***	-0.011
Norway	3.289***	2.302***	-1.704**	-0.579
Poland	4.584***	4.571***	-2.061***	-0.915
Portugal	4.934***	4.792***	-2.339***	-1.224*
Slovak Republic	4.693***	4.703***	-2.186***	-1.089
Slovenia	4.944***	5.047***	-2.415***	-1.355**
Spain	4.220***	4.492***	-1.224*	-0.627
Sweden	4.379***	4.842***	-2.096***	-1.372**
Switzerland	4.584***	4.515***	-2.167***	-0.995
Turkey	4.425***	4.562***	-1.882***	-0.919
United Kingdom	5.217***	5.327***	-3.545***	-2.663***
United States	4.776***	4.658***	-2.220***	-1.086*
Ireland and United Kingdom	2.907**	3.127**	-2.303**	-1.481

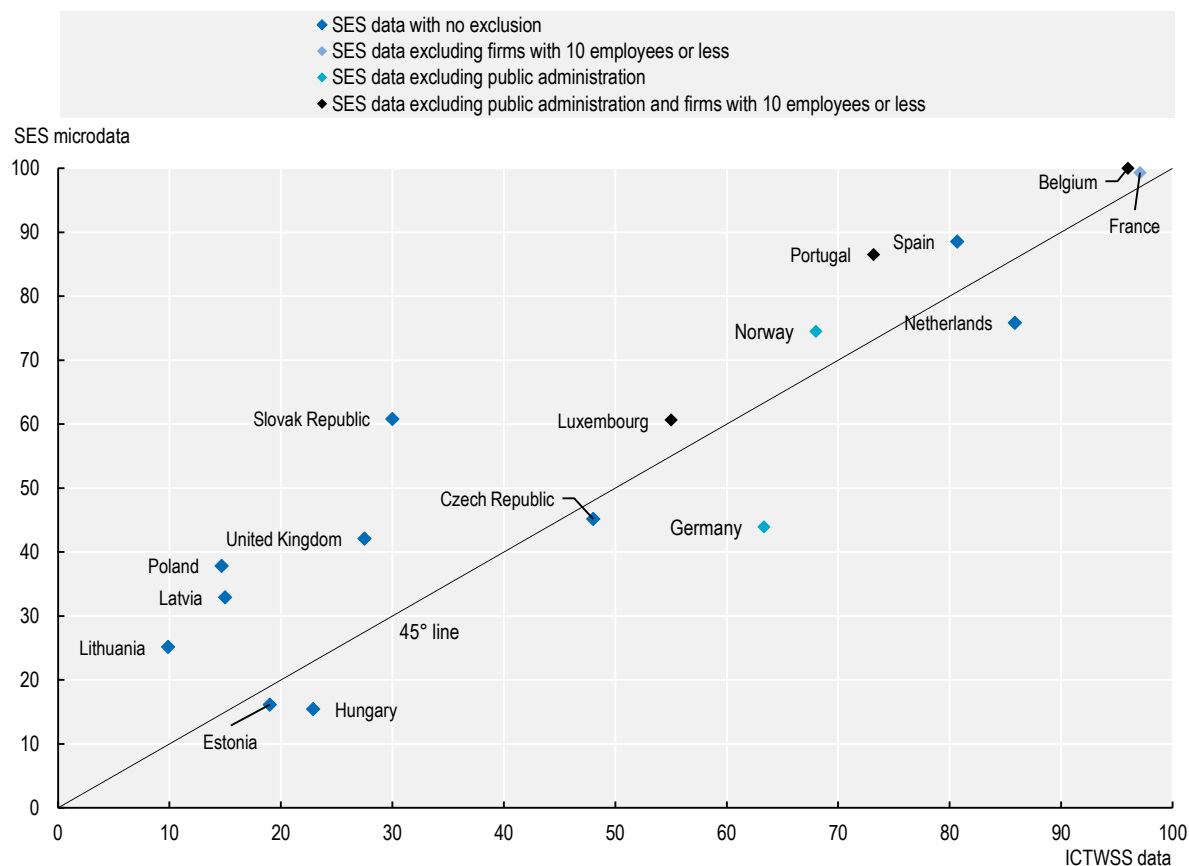
Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. OLS regressions including country and time dummies, institutional variables (Tax wedges, PMR in seven sectors, EPL (both temporary and permanent), minimum wage/median wage and gross replacement rate) log of average years of education and female employment share.

Source: OECD estimates. For further details on sources and definitions see variable description above.

Annex 3.C. Collective bargaining, wages and productivity: Additional material

Annex Figure 3.C.1. Collective bargaining coverage rates: A comparison of SES and ICTWSS

Percentage of employees with the right to bargain, 2014¹

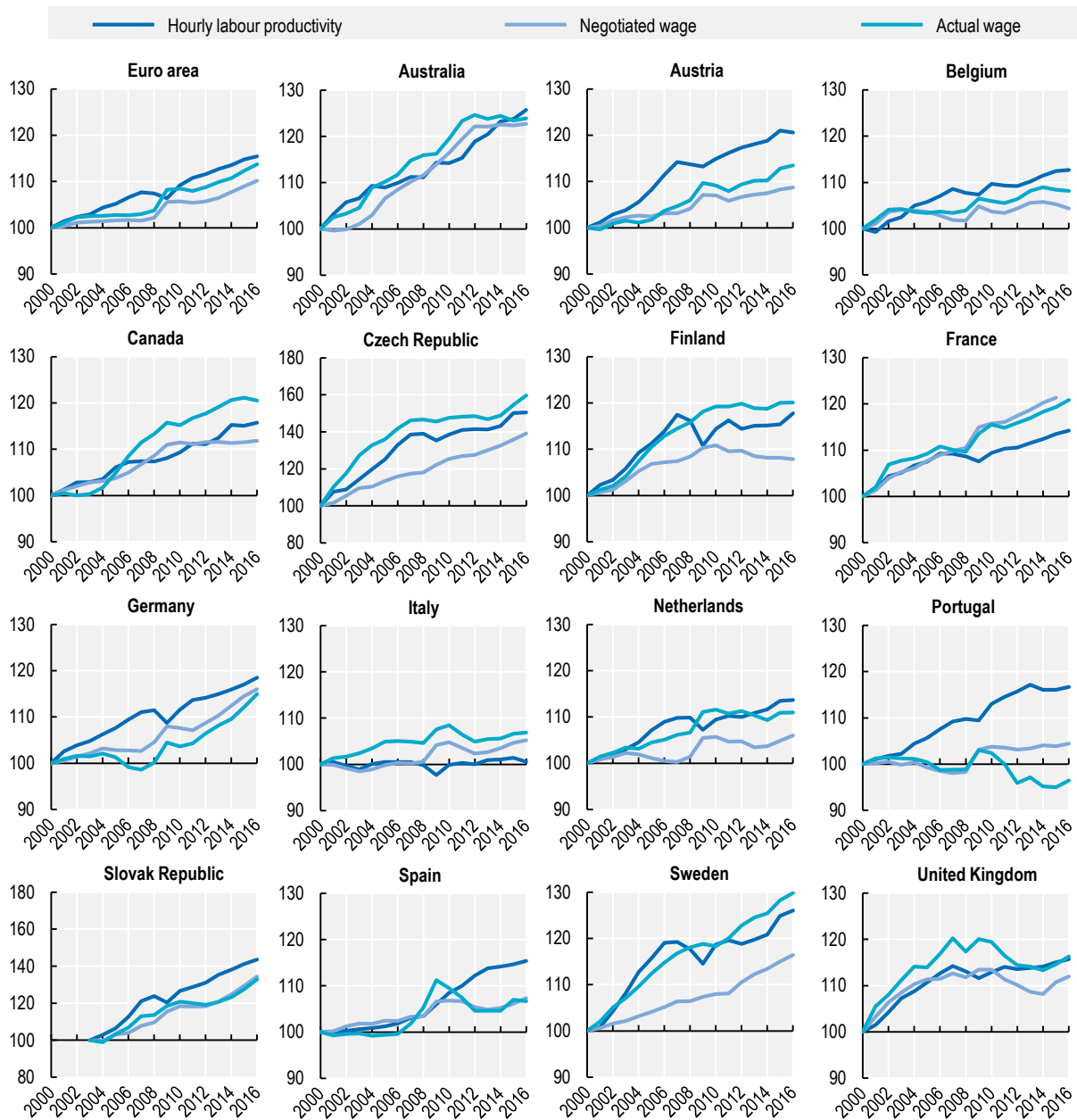


1. 2006 for Germany.

Source: OECD calculations based on the European Structure of Earnings Survey and OECD/ICTWSS Database (<https://stats.oecd.org/Index.aspx?DataSetCode=CBC>).

StatLink  <http://dx.doi.org/10.1787/888934027551>

Annex Figure 3.C.2. Negotiated wages in selected OECD countries

Base 100 in 2000¹

Note: Negotiated and actual hourly earnings are deflated using the private final consumption price index. Hourly labour productivity refers to real GDP divided by total hours worked and actual wage to total wages divided by total hours worked of employees.

Australia: Negotiated wage refers to the average weekly total cash earnings.

Belgium: Negotiated wage refers to all private sector employees registered at the National Social Security Office.

Czech Republic: Negotiated wage includes only agreements with nominal wage changes agreed.

1. Base 100 in 2003 for the Slovak Republic.

Source: **Negotiated wage:** OECD calculations based on TURI data and Eurofound, Database of wages, working time and collective disputes for the European countries, ABS Cat No. 6306.0 Employee Earnings and Hours for Australia and StatCan, Employment and Social Development Canada, Major Wage Settlements for Canada. **Hourly productivity and actual wage:** OECD calculations based on annual national accounts data.

Annex Table 3.C.1. Correlation of wages and productivity across sectors: The role of collective bargaining: Detailed results

Log hourly wage rate

	[1]	[2]	[3]	[4]	[5]	[6]
Log hourly labour productivity	0.161***	0.286***	0.231***	0.252***	0.313***	0.260***
	(0.031)	(0.042)	(0.063)	(0.072)	(0.052)	(0.079)
<i>Interactions of log hourly labour productivity with:</i>						
Collective bargaining coverage	-	-	-	0.001	-0.001	-0.001
				(0.001)	(0.001)	(0.001)
Centralisation	-	-0.033**	-0.020	-	-0.016	-0.012
		(0.014)	(0.019)		(0.021)	(0.022)
Low co-ordination	0.024	-	-0.024	0.027	-	-0.016
	(0.046)		(0.043)	(0.045)		(0.039)
No co-ordination	0.101**	-	0.059	0.053	-	0.046
	(0.043)		(0.052)	(0.049)		(0.054)
Joint significance of interaction coefficients (F-test, p-value)	0.06*	0.01**	0.03**	0.10*	0.04**	0.07*
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17 729	16 889	16 889	17 729	16 889	16 889
R-squared	0.98	0.98	0.98	0.98	0.98	0.98

Note: ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. To judge the statistical significance of collective bargaining institutions as a whole, the focus should be on the F-test, which tests the joint significance of all coefficients on the interactions with log hourly labour productivity. Standard errors (in brackets) are clustered at the country-industry level.

Source: OECD estimates based on OECD Annual National Accounts database completed with OECD STAN and EU-KLEMS data and ICTWSS database.

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Annex Table 3.C.2. Collective bargaining and productivity growth: A sector-level approach

Difference in log productivity

	Total factor productivity growth			Labour productivity growth		
	[1]	[2]	[3]	[4]	[5]	[6]
Collective bargaining coverage x centralisation	-0.042**	-0.043**	-0.050***	-0.047*	-0.044*	-0.053**
	(0.020)	(0.020)	(0.019)	(0.025)	(0.026)	(0.026)
Collective bargaining coverage x low co-ordination	-	-0.015	-0.016	-	0.027	0.022
		(0.035)	(0.034)		(0.034)	(0.033)
Collective bargaining coverage x no co-ordination	-	0.176	0.002	-	0.552	0.379
		(0.359)	(0.262)		(0.518)	(0.451)
Lagged level of log productivity	-7.071***	-7.066***	-5.793***	-5.617***	-5.573***	-4.404***
	(2.194)	(2.195)	(1.690)	(1.793)	(1.793)	(1.386)
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country-industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2 733	2 733	2 640	2 733	2 733	2 640
R-squared	0.238	0.238	0.305	0.236	0.237	0.300

Note: Productivity is measured per hour worked. Sample of countries: Austria, Denmark, Finland, France, Germany, the Netherlands and Spain. No other countries for which data are available experience variation both in coverage rates across sectors and in centralisation over time. Columns 3 and 6 exclude observations for manufacturing of coke and refined petroleum products, many of which take extreme values. ***, **, *: statistically significant at the 1, 5 and 10% levels, respectively. Standard errors (in brackets) are clustered at the country-industry level.

Source: OECD estimates based on EU-KLEMS data, 2017 version, <http://www.euklems.net/>.

StatLink  <http://dx.doi.org/10.1787/888934027703>

Notes

¹ In “efficient bargaining” models, employers and unions bargain jointly on wages and employment in a way that maximises the surplus after deduction of their outside options.

² While temporary employment is higher in countries with higher bargaining coverage, and some studies show that unionised workplaces are more likely to use temporary employment – see e.g. Salvatori (2009^[23]), this does not constitute support to the insider/outsider theory. Indeed it remains unclear whether the higher rate of temporary employment results from unions influence or rather from union-avoidance strategies from management (since temporary workers with a lower attachment to a single workplace are less likely to join unions). In addition, these results are contrasted by others; for instance, Gramm and Schnell (2001^[24]) and Autor (2003^[25]) do not find corresponding evidence when looking at temporary agency work in the United States.

³ Recent evidence from the United States and other countries suggests that monopsony power may be higher than previously thought – see, among others, Azar, Marinescu and Steinbaum (2017^[97]), Benmelech, Bergman and Kim (2018^[95]) and Chapter 4 in OECD (2019^[101]).

⁴ See Hijzen, Martins and Parlevliet (2019^[103]) for a detailed comparative analysis of the collective bargaining systems in these two countries.

⁵ For OECD countries, Freeman (1988^[90]) found no effect of unionisation on unemployment, while Nickell (1997^[85]) and Nickell and Layard (1999^[86]) found a positive correlation. Scarpetta (1996^[84]) suggested that a high unionisation rate tends to reinforce the persistence of unemployment. Other papers exploited policy reforms in particular countries to study the relationship of unionisation with employment: Blanchflower and Freeman (1993^[27]) used the Thatcher reforms in the United Kingdom, finding no effect on unemployment and the probability of leaving unemployment. Maloney (1997^[88]), by contrast, found that the reform in New Zealand that led to a sharp reduction in unionisation caused a significant increase in employment.

⁶ *Erga omnes* (literally in Latin, “towards everybody”) refers to the extension of agreements to all workers in the same firm, not only the members of signatory unions. *Erga omnes* differs from the administrative extension of a collective agreement which refers to the extension of a collective agreement at sectoral level to workers in firms which have not signed the agreement or are not affiliated to an employer organisation which signed the agreement.

⁷ Nickell and Layard (1999^[86]), for instance, find a positive effect of coverage on unemployment and a negative one on employment, while Baker et al. (2005^[96]) find insignificant effects. At the OECD-level, de Serres and Murtin (2014^[94]) find that bargaining coverage, especially if larger than union coverage, can lead to rigid adjustments in wages and may be detrimental to employment. Several studies have also used the difference between bargaining coverage and trade union density, the so-called “excess bargaining coverage”, to study the effect of administrative extensions, while in fact this measure mixes *erga omnes* clauses and administrative extensions. For example, Murtin, de Serres and Hijzen (2014^[87]) study the interaction of extensions and the tax wedge and find a negative effect of the tax wedge on unemployment in countries with higher “excess coverage”. Gal and Theising (2015^[89]) find a negative effect of “excess coverage” on employment, but the effect appears to be driven by Germany, New Zealand and Spain. Égert and Gal (2017^[91]) also find that higher “excess coverage” is associated with lower employment rates.

⁸ Corporatism is a “system of social organisation that has at its base the grouping of men according to their community of their natural interests and social functions, and as true and proper organs of the state they direct and co-ordinate labour and capital in matters of common interest” (Cameron, 1984^[7]).

⁹ In the original *Jobs Strategy*, centralised or co-ordinated bargaining arrangements were viewed more positively than sectoral bargaining but not explicitly supported. While countries with such systems typically managed to sustain relatively high employment levels, the empirical evidence based on country panels was judged to be weak. Moreover, strong employment performance in those countries reflected, to an important extent, developments in the public rather than the private sector. More fundamentally, the ability to foster fully centralised bargaining systems or systems that are effectively co-ordinated so as to promote resilience and contain wage spirals was put in doubt.

¹⁰ The *Reassessed Jobs Strategy* also acknowledged that collective bargaining arrangements are deeply embedded in countries’ social fabric and this was seen as the main reason why so little progress was made since the original *Jobs Study* of 1994.

¹¹ However, it is not clear whether the result by Boeri (2014^[20]) is driven by the “two-tier” structure of the system or the lack of wage co-ordination in those countries that have a two-tier structure.

¹² Classifying countries in these categories of collective bargaining systems necessarily comes with some simplification. The detailed discussion in Chapter 2 should thus be kept in mind when comparing and assessing the functioning of the different bargaining systems across countries.

¹³ In Chapter 2 Spain and Switzerland were mentioned in an intermediate group between the predominantly centralised and organised decentralised ones. The number of observations between 1980 and 2015 for such an intermediate group is, however, too small to be used for econometric purposes.

¹⁴ The ICTWSS database is available at <http://www.uva-aiaa.net/en/ictwss>.

¹⁵ To avoid a reduction in the sample size, missing values among control variables have been redefined at zero and dummies for missing observations have been included among the controls.

¹⁶ Separately controlling for the degrees of centralisation and co-ordination delivers qualitatively similar results (see Annex 3.B): Centralisation is associated with lower employment rates (although the relationship is not monotonic as it becomes weaker for extreme forms of centralisation) and not related with the unemployment rate. Wage co-ordination is linked with higher employment rates and lower unemployment rates.

¹⁷ While decreasing wage inequality among full-time workers, collective bargaining may increase earnings inequality between full-time employees and other workers, in the spirit of an insider-outsider model (but see endnote 2 above on the limited empirical backing of such model). Since the data in this analysis are based on hourly wages of full-time workers, they cannot be used to study effects on overall earnings inequality among all workers.

¹⁸ For European countries, the bargaining variable that is reported in the data is a characteristic that is associated with the firm, not the individual. Hence, all workers in one firm are classified in the same way, whether or not this type of bargaining applies to every single worker in the firm. The data only indicate the agreement that is the most relevant, even if both a sectoral and a firm-level agreement are in place. For a few other countries, even if the variable is not missing, there is no within-country variation in the data, and the data are therefore not used.

¹⁹ Compared with an OLS regression that includes one or two collective bargaining dummies, the Juhn-Murphy-Pierce (JMP) decomposition has the advantage that it nests all the different parts of the analysis in this section. The alternative to the JMP decomposition would be to employ reweighting methods, such as those popularised by DiNardo, Fortin and Lemieux (1996_[92]). These reweighting methods are, however, especially sensitive to the problem of lack of common support, i.e. characteristics being common in one collective bargaining scheme, but not in another. For this reason, they cannot be used in this context.

²⁰ Misalignment of wages and productivity may come at an efficiency cost, in particular weaker productivity growth. The possible link between efficiency, wage-productivity alignment and wage dispersion gives collective bargaining, potentially, a central role in the productivity-inequality nexus – see OECD (2016_[98]) and OECD (2016_[100]).

²¹ In a frictionless economy, wages in one sector should equal marginal productivity in this sector. The analysis uses average rather than marginal productivity, as marginal productivity is more difficult to measure. With a standard Cobb-Douglas production function, marginal productivity equals average productivity. In practice, however, the parameters of the production function may not be constant across sectors, competition may be imperfect and the distribution of sectoral wages may not be aligned on that of average productivity also for reasons that have nothing to do with collective bargaining (e.g. because of differences in capital intensity across sectors and over time; see, for example, Chapter 2).

²² When annual growth rates of wages and productivity are analysed instead of their levels, the results are similar. With growth rates capturing more short-run adjustments, this suggests that collective bargaining may influence the way wages are set both in the short and longer term.

²³ The euro area aggregate statistics are based on non-harmonised data for ten countries which include all larger countries and cover more than 95% of the euro area (Schulten, 2013_[45]). The ECB labels as “experimental” those data for which compromises in terms of harmonisation, coverage and methodological soundness of the source data have to be made.

²⁴ For a methodological note on CAWIE data, see Van Gyes and Vandekerckhove (2015_[83]); for policy analyses, see Schulten (2013_[45]) and Delahaie, Vandekerckhove and Vincent (2015_[93]). Compared to the discussion in this chapter, Schulten (2013_[45]) also examines sectoral developments of negotiated wages but does not find clear patterns across European countries.

²⁵ See Chapter 2 for a detailed discussion of the pros and cons of the different options and OECD (2017_[102]) for an application in the context of France, where extensions up to the recent reform used to be semi-automatic.

²⁶ In systems where bargaining predominantly happens at the firm level, workplace representation and the coverage of collective agreements go hand-in-hand. At the same time, Chapter 2 shows that in these countries, the proportion of workers covered by any form of employee representation in the workplace is lower (while it tends to be high in multi-level systems characterised by complementarity between sectoral and firm-level agreements). Therefore, the shift towards firm-level bargaining could result in lower coverage.

²⁷ A special type of opening clauses concerns the short-time working scheme *Kurzarbeit* which allows companies in times of economic crisis to put part of their workforce temporarily on unemployment benefits. These measures are meant to preserve valuable personnel for a company in crisis. It differs from the “normal” opening clauses in that generally the government has a key role in these measures, since it regulates the use of unemployment benefits.

²⁸ In a few other countries (including France, Italy and Portugal), company-level bargaining plays a sometimes significant role, but either due to a strict application of the favourability principle or the practice of social partners to “lock” the content of sectoral agreements, firm-level agreements can *de facto* only improve the standards set at national or sectoral level. In principle, these two-tier structures could still allow balancing high coverage, macroeconomic stability and some margins of adjustment at the firm level. Indeed, the main advantage of such a system is that it does not rely on local representation in small or less productive firms. However, Boeri (2014^[20]) argues that these regimes “combine the rigidity in pay of centralised systems with a lack of consideration of macroeconomic constraints” (Boeri, 2014, p. 17^[20]). This may be because those who can afford more favourable agreements at the company level impose generous working conditions on others through their involvement in the negotiation of sectoral agreements. But it could also reflect the absence in those countries of a proper system of wage co-ordination which has been proven to be key for macroeconomic flexibility (OECD, 2017^[21]).

²⁹ For example, during the bargaining round in 2016 the “cost-mark” was set at about 2.5% but assistant nurses received an agreed wage raise of about 3.5%. All social partners agreed on this exception due to many years of comparatively small wage increases for assistant nurses despite labour shortages in their profession.

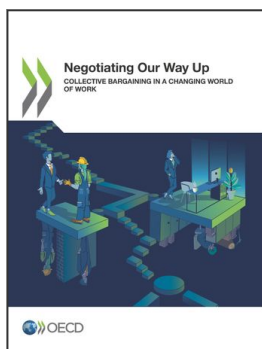
³⁰ The IMF (2017^[99]) in its Article IV review for Sweden called on social partners to find ways to make wages more responsive to Swedish conditions at both the macroeconomic and sectoral level.

³¹ 5 = maximum or minimum wage rates/increases based on:

- a) centralised bargaining by peak association(s), with or without government involvement, and/or government imposition of wage schedule/freeze, with peace obligation
- b) informal centralisation of industry-level bargaining by a powerful and monopolistic union confederation
- c) extensive, regularised pattern setting and highly synchronised bargaining coupled with co-ordination of bargaining by influential large firms

4 = wage norms or guidelines (recommendations) based on:

- a) centralised bargaining by peak associations with or without government involvement
- b) informal centralisation of industry-level bargaining by a powerful and monopolistic union confederation
- c) extensive, regularised pattern setting coupled with high degree of union concentration



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