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DISCUSSION PAPER SERIES

IZA DP No. 13465

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Bargaining: Trends and Determinants**

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JULY 2020

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ABSTRACT

Union Membership and Collective Bargaining: Trends and Determinants

This survey shows that union membership and density as well as bargaining coverage have fallen in most countries and that collective bargaining has become more decentralized over the last decades. However, there is a considerable amount of variation across countries and between different indicators of unionization and collective bargaining. Unionization is found to be related to a large number of structural, cyclical, institutional, and socio-demographic variables. Although changes in the sectoral structure of the economy and the composition of the workforce have played a role, their contribution to union decline seems to be smaller than widely believed. The effect of globalization on unionization and collective bargaining as well as the role of changing attitudes of employees towards unions are not fully clear, but the rise of the informal sector in various parts of the world poses a challenge to union recruitment. Union density and bargaining coverage are related, but the link is far from perfect. A more important predictor of bargaining coverage is the level at which bargaining takes place. Bargaining coverage is usually high and stable in countries with multi-employer bargaining, and the decentralization of bargaining structures in many countries has contributed to the fall in bargaining coverage observed in the last decades.

JEL Classification: J51, J52

Keywords: unions, union membership, collective bargaining, decentralization

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1. INTRODUCTION

Trade unions (or labor unions), here loosely defined as voluntary organizations of workers that try to advance their members' interests in respect to wages and working conditions, are important actors on the labor market and on the political arena in many countries. The right to organize in unions and the right to collective bargaining with employers is recognized in one of the fundamental conventions of the International Labour Office (ILO), and this Convention No. 98 has been ratified by more than 160 countries (Visser et al. 2017). Unions' existence and their political and economic influence crucially depend on their ability to attract and keep a loyal membership and to successfully represent their members' interests in collective bargaining. Despite substantial reductions in membership over time in many countries, unions are still among the largest organizations in the world. In his analysis covering 150 countries, Visser (2019a) counts more than 500 million employed union members (more than 200 million when leaving out countries like China where workers' freedom to join unions is questionable). In OECD countries alone, about 82 million workers were union members in 2018 and roughly 160 million workers were covered by collective agreements concluded either at the national, regional, sectoral, occupational or firm level (OECD 2019: 15).

Workers' voice via unions (or other bodies) and collective bargaining are not only important labor rights but at the same time key labor market institutions that have been found to affect the performance of the labor market. The two institutions play a major role in determining pay, benefits, and working conditions, they have a bearing on employment, productivity, job quality, inequality and further topics, and they may shape the changing world of work in times of globalization and digitalization (OECD 2017, 2019). Thus, it is important to know which factors determine the extent of unionization and collective bargaining coverage and how these two indicators of workers' voice and strength have developed over time.

In identifying the trends and determinants of union membership and collective bargaining, this paper proceeds as follows: Chapter 2 presents some key figures and trends in union membership and density across a wide range of countries and regions, discusses various theoretical and empirical approaches, and surveys the main determinants of unionization. In Chapter 3, the functions, structure and coverage of collective bargaining are discussed and the determinants of bargaining structure and coverage as well as their developments over time are analyzed. Chapter 4 provides a brief summary and some conclusions, suggesting that a major

challenge for both unions and collective bargaining will be to remain relevant in a rapidly changing world of work.

2. UNION MEMBERSHIP AND DENSITY

In recent years, reports of falling union membership or density in many countries seem to have created the impression among the public that unions are a vanishing species. It almost has become conventional wisdom, in particular in Anglo-Saxon countries, that union decline is ubiquitous. This impression, however, is only partly true, neglecting a considerable amount of variation across countries and between different indicators of unionization.

2.1 DATA AND TRENDS

A comprehensive picture of union membership and density in a wide range of countries is provided by the ICTWSS Database (version 6.1). This open access database is maintained by Jelle Visser (2019b) at the Amsterdam Institute for Advanced Labour Studies (for details, see <http://uva-aias.net/en/ictwss>). Since the data stem from different sources and there are statistical breaks over longer periods of time in some countries, comparisons across countries and over long time periods should be made cautiously, and small differences and variations should not be overinterpreted.

Tables 1 and 2 inform about developments in unionization in those countries for which largely consistent data are available for long time periods. Starting with net union membership (i.e. total membership minus union members outside the active, dependent and employed labor force) in Table 1, this measure has fallen in some countries but risen in others. For instance, in the period 1980 to 2018 (or the most recent year for which data are available) net union membership decreased in 16 and increased in 9 of the 25 countries for which data are provided. Looking at the longest observation period possible with these data, it becomes obvious that net union membership since 1960 has even increased in 13 countries whereas it has fallen in only eight countries (most notably in Austria and the UK). While this empirical evidence contrasts with simplistic statements postulating ubiquitous falls in union membership, it is somewhat misleading since in most countries the number of employees has increased substantially over the periods observed.

A somewhat different and probably more meaningful picture emerges from the data on union density (i.e. net union membership as a proportion of wage and salary owners in employment) shown in Table 2. Based on this indicator, unionization has fallen in 23 of 25 countries since 1980 (with the notable exceptions of Spain and Chile). Over the longest possible observation period 1960 to 2018, union density has just fallen in 13 out of 17 countries but increased in four countries. Although a cross-sectional comparison of data that stem from various sources should not be overinterpreted, it is also apparent that union density varies substantially across countries. The most recent density data for 2017/18 range from around 66 percent in Denmark and Sweden to less than 11 percent in France, South Korea and the United States. A substantial amount of variation can also be observed in previous years, and the coefficients of variation across countries calculated for these years have tended to increase over time (see Table 2). This suggests that among advanced countries there is no convergence (rather some divergence) in union density over time.

In a more detailed analysis of the ICTWSS data that covers 32 European countries but is restricted to the period 2000 to 2017, Vandaele (2019) also paints a bleak but nuanced picture of unionization. He shows that, overall, union membership and density are heading downwards in most (but not all) countries, and quite drastically in Central and Eastern Europe. That said, some countries have seen membership increases, and union membership among women has somewhat increased in most European countries. There is a large cross-country variation in unionization levels, with union density ranging from about 90 percent in Iceland (in 2016) to about 4 percent in Estonia (in 2017) – both are countries not covered in Table 2. Vandaele (2019: 4) also points out that “the least unionised countries in the 2000s have largely stayed at the bottom of the ‘unionisation league’ in the 2010s, while countries with a medium and high average level have maintained their positions in the middle or at the top.”

When we move beyond advanced countries, data for unionization in 39 less developed countries collected mostly in 2000 in the World Value Survey are presented and analyzed by Martin and Brady (2007), and they show again a large cross-country variation in unionization. The most comprehensive description of unionization worldwide by Visser (2019a), based on ILO and ICTWSS data, covers 150 countries and the period 2000-2016. Table 3 shows that since 2000 union membership has declined in most regions of the world, except for large parts of Africa, South and Central America, and South Asia (with China being a special case). Union density among workers in dependent, formal employment varies considerably among the 18 world regions, with Northern Europe standing out at the top end and the Arab countries at the low end. Visser (2019a) states that in general the lowest

unionization rates are found in the poorest regions (like Sub-Saharan Africa and South Asia), with the Arab countries being the exception that proves the rule. When distinguishing between countries in different stages of development, Visser (2019a) finds that union density rates for employees have been declining since 2000 everywhere, with the largest fall occurring in developed and lower-middle-income countries.

Three major insights emerge from these analyses of unionization figures and trends: First, union density has fallen over the last decades in almost all (advanced) countries, whereas this is not equally true for union membership. Second, union decline was faster and more abrupt in some countries and regions than in others. Third, union density and its trends vary considerably across countries and world regions, with no signs of international convergence. While these variations in (the trends of) union membership and density have been noted before (see, e.g., Checchi and Lucifora 2002; OECD 2019; Schmitt and Mitukiewicz 2012; Schnabel 2013), they need to be reiterated since they stand in contrast to conventional wisdom that unions are losing members and are about to become extinct everywhere.

2.2 THEORETICAL AND EMPIRICAL APPROACHES

The economic, sociological and political science literature contains a reasonable amount of theoretical and empirical work on unions and their membership. However, the progress of the theoretical literature as to why employees belong to a union has not been wholly satisfactory (for brief surveys from various disciplines, see Ebbinghaus et al. 2011; Schnabel 2003). Economic modeling has long analyzed the forces influencing union membership within a conventional demand and supply framework, and such a cost-benefit analysis from the sides of employees and unions may be appropriate for countries (like the US) where workers can choose between union and non-union workplaces. This rationale, however, does not pay enough attention to the free-rider problem (Olson 1965) that unions face in most countries, for instance in Europe. The main problem is to explain why any individual would join a union and pay dues when most results of union activity are available to all workers regardless of their union status (that is, unions provide collective goods). One answer is that unions also provide some private goods to their members such as strike pay, legal assistance, and employment protection, which act as 'selective incentives' for joining a union. The most prominent explanation of union existence probably is that workers comply with a social custom of union membership. Social custom models (e.g., Booth 1985, Goerke and Pannenberg 2004) assume that employees derive

utility from the reputation of belonging to a union and show that a union can exist despite the free-rider problem if it achieves a minimum critical density.

Further potential factors influencing unionization that have mainly been stressed by sociologists and political scientists (e.g., Streeck 1981) are values, modes of production, class consciousness, the composition of the workforce, and the political climate. Three partly overlapping theoretical approaches to union participation in social psychology are the frustration-aggression approach, the rational-choice approach and the interactionist approach (see Klandermans 1986), which to some extent have been incorporated in the now dominant social custom models. From a sociological perspective, Ebbinghaus et al. (2011) interpret union membership in terms of Max Weber's four general categories of social action: the decision to unionize can be based on instrumental-rational motives or on ideological convictions, individuals may feel emotionally associated with the community of other union members, or traditional motives may play a role (such as a tradition of unionization at the workplace or in the family, i.e. social customs). Unfortunately, direct tests of all theoretical explanations have proved to be difficult, and empirical studies on the determinants of unionization usually take an eclectic approach combining economic as well as socio-political considerations.

Most empirical analyses of union membership or density use one (or more) of the three following approaches (see Ebbinghaus and Visser 1999; Schnabel 2003): Some studies stress cyclical explanations and attempt to identify the macro-determinants of union growth and decline in time-series studies. Other studies provide structural explanations and focus on individual characteristics of union members as well as on sectoral and occupational factors that are analyzed by means of cross-sectional or panel studies. Finally, there are investigations favoring institutional explanations, which analyze cross-national variations in institutional settings assumed to affect unionization. This crude distinction will also be followed below when discussing the relationships between unionization and the business cycle, structural change, workforce composition, and institutional settings.

Some limitations of the empirical literature discussed below should be noted beforehand (Schnabel 2013). Empirical studies have not always been able to take full account of interactions between variables (such as institutions, business cycle effects, and personal characteristics), to clearly disentangle the effects of parallel and related developments (such as sectoral changes and changes in the composition of the workforce), and to establish causation rather than just correlation between variables. Moreover, the empirical evidence also does not enable us to discriminate between alternative but often related theories from various disciplines. Nevertheless,

the extant literature allows us to draw a crude picture of the major factors that seem to play a role for unionization in many countries and regions of the world.

2.3 DETERMINANTS OF UNIONIZATION

2.3.1 UNIONIZATION AND THE BUSINESS CYCLE

Not only among historians, cyclical explanations of union growth and decline have been popular for more than 100 years. Over the course of the twentieth century, numerous models were developed and estimated for many advanced countries that try to explain union growth in terms of such components of the business cycle as wage and price changes, employment growth, and unemployment (see, e.g., Bain and Elsheikh 1976; Western 1997; the survey by Schnabel 2003). These approaches have drawn much criticism concerning the *ad hoc* use and justification of explanatory variables, the empirical specifications, and the structural stability and predictive power of the models. A serious flaw of the older studies in the business cycle approach is their failure to separate cycle and trend. Traditional cyclical models mainly try to explain the ups and downs of union membership (or density) by corresponding movements in business cycle variables while neglecting shifts in underlying, secular variables that may explain the trend in unionization. More recent time-series models explicitly distinguish between (short-run) cyclical and (long-run) trend factors of unionization, and make use of cointegration techniques in identifying a long-run equilibrium relationship that can serve as an error-correction mechanism in the dynamic modeling of unionization (see, e.g., Carruth and Schnabel 1990; Checchi and Visser 2005).

Both the older and the more recent studies provide evidence across countries that business cycle factors play a significant role in explaining short-run changes and long-run trends in unionization. Although the magnitude and the statistical significance of estimated coefficients differ considerably and the causal relationship between unionization and cyclical variables like inflation and unemployment is not fully clear (Checchi and Lucifora 2002), these studies show some consistent patterns. One stylized fact emerging from this literature is that union growth is procyclical. In particular, it appears that employment growth as well as price and/or wage inflation enhances union membership growth (at least in the short term). In contrast, a rise in unemployment tends to reduce union growth and density (except in “Ghent countries” with a union-administered system of unemployment insurance discussed below; see Checchi and Visser 2005).

2.3.2 SECTORAL DIFFERENCES AND STRUCTURAL CHANGE

A popular presumption is that unionization is influenced by some secular trends that change the industrial structure from highly-unionized to lowly-unionized sectors and workplaces. Cases in point are the shift in employment from manufacturing industries to private services, the reduction in average firm size that often goes with this, and the changing importance of public sector employment. A closer look at the empirical evidence, however, suggests that a purely sectoral explanation of union decline would be too narrow.

The shift in employment from manufacturing (the traditional union stronghold) to the service sector can be observed in every economy. The service sector today employs the largest share of the workforce everywhere except in low-income developing countries (which still have a large agricultural sector), and it is the strongest growing sector in terms of employment. The challenge for the unions is that union density rates are much lower in commercial services than in manufacturing (Visser 2019a). In the service sector, the strong growth in employment has outstripped membership growth nearly everywhere, so that union density has fallen. But even in manufacturing, mining, and construction, the problem is not only the disappearance of highly unionized jobs but also the fact that union density in the remaining jobs has decreased over time (Visser 2019a: 22f). Interestingly, the empirical evidence on structural change from multivariate analyses for groups of (mostly advanced) countries or for individual countries is mixed. While some studies find that the reduction of employment in manufacturing is associated with lower union membership and density (e.g., Polachek 2004), others report insignificant or varying effects depending on the specification and the size of the sample used (Calmfors et al. 2001). Many country studies demonstrate that the contribution of sectoral changes to changes in union density is marginal and definitely lower than often presumed (see, e.g., Fitzenberger et al. 2011; OECD 2019; the survey by Schnabel 2013).

The empirical evidence is much clearer concerning the role of the public sector, where union organizing is probably easier due to lower recruitment costs in large homogeneous organizations characterized by high employment stability and low hostility towards unionism (see Schnabel 2003). Descriptive evidence by the OECD (2017: Fig. 4.3) and by Visser (2019a: Fig. 7) shows for a large number of countries that union density in public, social, community and personal services is considerably higher than in commercial services. Visser (2019a: 28) points out that “civil servants, administrators, local and central government workers, teachers and, where allowed, the police and the military are those with the highest union density rates in any country.” Multivariate panel studies for groups of countries typically report that a

higher share of public employment is associated with higher union density (e.g., Checchi and Lucifora 2002; Checchi and Visser 2005; Scruggs and Lange 2002). A positive relationship between public employment and unionization is also found in most cross-sectional studies with data of individuals in Anglo-Saxon countries (Blanchflower 2007) and for samples of more than 20 European countries (Kirmanoğlu and Başlevent 2012; Shin and Ylä-Anttila 2018). The problem for unions is that membership and density have also fallen in the public sector because of privatization and other government attempts to cut back the public sector.

The sectoral change discussed above, in which large manufacturing workplaces disappear and smaller establishments in the service sector are created, points to another determinant of unionization, namely the size of the workplace. The probability of unionization is usually expected to rise with establishment size because union costs of organizing should be lower in larger units, and union services may be valued most highly in large, bureaucratic organizations where workers are likely to be treated impersonally and feel a greater need (or higher peer pressure) for representation (Schnabel 2003). The empirical evidence clearly supports such a positive relationship. Descriptive evidence by the OECD (2017: Fig. 4.3) and by Visser (2019a: Fig. 18) shows that union density is typically much lower in small than larger firms. Studies using data on individuals from a wide range of European countries included in the European Social Survey find a positive correlation between establishment size and the probability of union membership when pooling across all countries (Ebbinghaus et al. 2011; Kirmanoğlu and Başlevent 2012) as well as in the majority of countries or industrial relations regimes analyzed separately (Schnabel and Wagner 2007; Shin and Ylä-Anttila 2018). Studies for individual countries also tend to show that unionization is more likely in larger establishments, so that the decline in average firm size observed in many countries probably weakens unionization.

2.3.3 THE ROLE OF WORKFORCE COMPOSITION

Parallel to sectoral changes in the economy, the composition of the workforce has changed in most countries in that the employment shares of women, people in non-standard employment, foreign-born workers, and highly skilled individuals have increased in the last decades. This change can be expected to reduce unionization since some of these groups have a lower attachment to the labor force, others are supposed to be more individualistic, and all of them seem to be more difficult and more costly to organize (see, e.g., Ebbinghaus et al. 2011; Schnabel and Wagner 2007).

The substantial increase in the employment share of women visible in many countries has resulted in a rise of female union membership. At the same time, the gap in union density between men and women, which used to be interpreted as a reflection of women's weaker attachment to the labor force, has narrowed, disappeared or even reversed in many countries. Descriptive evidence provided by Visser (2019a: Fig. 8) shows that union density rates are now higher for women than men in 27 of the 56 countries investigated. Multivariate analyses controlling for other relevant factors indicate that the relationship between gender and unionization is inconclusive and varies among countries. Some cross-sectional studies with data of individuals pooled across countries find a significant negative effect of females on the probability of union membership (e.g., Kirmanoğlu and Başlevent 2012), but this association seems to vanish when controlling for atypical employment (as shown by Ebbinghaus et al. 2011). Analyzing countries separately, Schnabel and Wagner (2007) find that the gender variable is statistically insignificant in eleven of the 18 European countries investigated. That said, there are still some large countries in the world (such as Pakistan, Japan, and Germany) where females' union density is significantly lower than that of men, and the reasons for unions' problems in recruiting more women in these countries are far from clear (Visser 2019a). What seems clear, however, is that in most countries the rising share of women in employment *per se* is not a major impediment to union growth.

Another group whose employment share has risen in many countries are foreign-born or migrant workers. For samples of more than 20 European countries, Kranendonk and de Beer (2016) as well as Visser (2019a) present descriptive evidence from labor force surveys that foreign-born workers are less unionized than native workers. Visser (2019a) states that native workers are on average 1.3 times more likely to be union members than foreign-born workers. In multivariate analyses, however, Schnabel and Wagner (2007) do not find significant differences in the probability of union membership for native and foreign-born workers in the majority of European countries analyzed, and Shin and Ylä-Anttila (2018) obtain mixed results for immigrants across industrial relations systems. Kranendonk and de Beer (2016) show that individual characteristics alone cannot explain the difference between migrant and native unionization rates and that this difference becomes statistically insignificant once characteristics of the industrial relations system in the destination country are included in the estimations. It thus remains an open question whether a rising share of foreign-born employees really dampens unionization or whether union recruitment just has not targeted migrants appropriately. In a macro perspective, it is also not clear whether unions in ethnically diverse societies really face more obstacles in recruiting members (compared to the most ethnically homogenous

European countries that also have the highest levels of union density), and ethnic diversity “is not a promising candidate for explaining changes in unionization over time” (Visser 2019a: 51).

In the last decades, the employment share of standard full-time jobs has fallen in most advanced countries while non-standard employment (such as part-time work, temporary agency jobs, fixed-term contracts or on-call work) has risen. This weight shift has created recruitment problems for the unions since atypically employed workers usually have weaker ties to their current workplace, record higher job turnover and are more difficult to recruit and keep as members. The benefits of unionization are probably lower both from the point of view of these workers and of the unions, so that unions often have concentrated on organizing full-time workers (Schnabel 2013). If union membership is seen as a social custom that is upheld by peer pressure (e.g. Booth 1985; Checchi and Visser 2005), changing a job removes this pressure, and according to Visser (2019a) this is one of most cited reasons of workers asked why they left a union. Interestingly, unions first opposed the new kinds of non-standard work (a strategy that failed), and they started organizing non-standard employees only after they realized that this group of workers is here to stay, growing in importance and vital for union success or survival. Currently, according to descriptive evidence by Visser (2019a: 30-38) for 35 countries, average union density is 30 percent for permanent and 14 percent for temporary workers. Full-time workers are twice as likely to be union members as part-time workers, but this gap in union density has decreased in most countries. In a multivariate analysis with pooled data for individuals from 19 European countries, Ebbinghaus et al. (2011) obtain a highly significant negative relationship between atypical employment and the probability of being unionized whereas Schnabel and Wagner (2007) find very few significant correlations between working full-time and being a union member when using the same data set but analyzing countries separately (see also the mixed results for precarious workers obtained by Shin and Ylä-Anttila 2018). Quite a few country-specific studies show that part-time employment lowers or full-time employment increases the probability of union membership (see, e.g., Blanchflower 2007; Fitzenberger et al. 2011; the survey by Schnabel 2013). As non-standard employment continues to increase in most countries, unions must further adjust their organizing strategies.

Better educated workers are often assumed to be less willing to unionize, which might pose a problem for unions given that levels of education have risen in all countries. Employees with more education probably have greater individual bargaining power and thus lesser need for collective voice. Ebbinghaus et al. (2011: 111) argue that “[w]ith the exception of the public sector and some well organized

professions ..., better educated employees, particularly those with tertiary (university) education tend to be less likely to join trade unions.” However, the empirical evidence is not so clear-cut (see Schnabel 2013). In a cross-section analysis with pooled data of 39 less developed countries collected mostly in 2000, Martin and Brady (2007) find that the likelihood of being unionized rises with the level of education. Using pooled data for individuals in 24 European countries from the European Social Survey (ESS) 2008, Kirmanoğlu and Başlevent (2012) obtain a linear and positive relationship between years of schooling and the probability of being a current or former member of a union whereas with ESS 2002/03 data Ebbinghaus et al. (2011) find a curvilinear relationship: with increasing years of education, the probability of being a union member first increases and then decreases at about 15 years of full-time education (i.e., with a university degree). In contrast, dummy variables for levels of education are found to be insignificant in the majority of countries by Schnabel and Wagner (2007) when using the same data set but analyzing countries separately. What most studies seem to have overlooked is the distinction between the private and the public sector. Analyzing large individual data sets for the UK, the US and Canada, Blanchflower (2007) shows that more educated workers have lower probabilities of being a union member in the private sector and higher probabilities in the public sector. All in all, although the employment share of better educated workers has risen over time, this must not necessarily have impeded union membership and density.

The composition of the workforce in most countries has also been affected by demographic change. A rising average age of employees and cohort replacement effects (in particular, stronger and higher organized cohorts retiring from the workforce) can affect union density if unionization varies in the age dimension. Descriptive evidence for European countries presented by Vandaele (2019) indicates that union density tends to be relatively low among young workers, increases with age, and falls when employees are older and approaching retirement. Multivariate analyses also show that younger workers are less likely to be unionized (e.g., Bryson et al. 2005, Martin and Brady 2007), and they often obtain a concave relationship between age and membership. With cross-sectional data for individuals from a large number of countries, Blanchflower (2007) finds that the probability of being unionized follows an inverted U-shaped pattern in age, maximizing in the mid- to late 40s in 34 of the 38 countries investigated. However, such a pattern is found to be statistically significant only in four of the 18 countries analyzed by Schnabel and Wagner (2007), probably because they employ more control variables than Blanchflower (2007). Pooling data across countries, Ebbinghaus et al. (2011) and Kirmanoğlu and Başlevent (2012) also obtain a concave age-unionization pattern. Explanations for this relationship remain vague, ranging from younger or older workers' lower need for

unions over different free-riding behavior and different attitudes towards unions to different experiences with unions. Moreover, we cannot rule out that the age effects found in cross-sectional analyses are partly confounded with cohort effects (for details, see OECD 2019; Schnabel 2013).

Concerning cohort effects, a serious problem for unions in many western countries is that young people today have a much lower propensity to join unions than one or two generations ago (but there are exceptions, see OECD 2019). Consequently, the average age of union members is on the rise in most European countries (see the descriptive evidence by Vandaele 2019 and Visser 2019a). This reduced unionization rate of young people can be expected to have a long-lasting effect since employees typically join unions at a relatively young age, most often once they have successfully entered the labor market. What is more, in European countries there is a general pattern of highly unionized cohorts retiring from the labor market and being replaced by less unionized cohorts of employees (Vandaele 2019). Such an incomplete substitution implies that average union density falls (as demonstrated for Finland by Böckerman and Uusitalo 2006). Looking at advanced industrial countries in 2014, Visser (2019a: Fig. 6) finds that the age cohort of older workers (aged 55-64 years), who entered the labor market in the 1970s, is on average 4.3 times more unionized than the cohort of young workers (aged 16-24 years) who have started to work in the last decade. The union membership problem is exacerbated by the fact that because of demographic change in many countries, future cohorts of potential union members are smaller than the cohorts of employees they replace. This means that even if union density of new cohorts were the same as that of exiting cohorts, the smaller size of new cohorts would result in a fall of aggregate union membership. Although the decline in union density does not seem to be linked to generational replacement in most countries studied by the OECD (2019), in a number of countries unions need to intensify organizing efforts among young workers. According to Vandaele (2019), European unions are increasingly aware of the need to tackle the massive generation gap in unionization, but this challenge also applies to the labor movement in other advanced countries hit by demographic change.

Taken as a whole, the empirical literature suggests that changes in the composition of the workforce do play a role in explaining the changes in union membership and density observed in the last decades, but the contribution of compositional changes seems to be smaller than widely believed. Several country studies explicitly investigating the explanatory power of various compositional changes underline this conclusion (see, e.g., Andrews and Naylor 1994 for the UK; Böckerman and Uusitalo 2006 for Finland; Fitzenberger et al. 2011 for Germany), and a multivariate decomposition analysis for 15 OECD countries suggests that “the contribution of

composition changes to the decline in union density is generally small and varies across countries” (OECD 2019: 41). These findings imply that de-unionization would have occurred even in the absence of compositional changes and that it is inadequate to simply attribute union decline to secular trends that largely cannot be influenced by the labor movement. That said, recent technological change like robotization and digitalization that tends to hollow out the middle of the occupational distribution by replacing the jobs of skilled workers, assemblers, machine operators, clerical jobs etc. may be a serious threat to unions since these jobs used to be highly unionized in most countries. A time-series study by Meyer (2019) for a panel of 21 OECD countries (1970-2010) finds that a decline in routine-task employment is associated with a decline in union density. Moreover, even in routine jobs like assembler or machine operator, union density has substantially fallen over the years (Visser 2019a), so that it is not only the change in the employment structure away from such jobs that probably has a negative impact on unionization.

The limited explanatory power of compositional changes suggests that changing attitudes of employees towards unions and changing social values may also play a role. Using data from the European Social Survey 2008, Kirmanoğlu and Başlevent (2012) show that basic personal values are related to (current and former) union membership status and they argue that changing personal values may have been an important factor behind the decline in union membership. In contrast, the OECD (2019) points out that different preferences between young and older workers cannot explain their differences in unionization (and confidence in unions is even higher among young workers in most of the 32 countries analyzed). The cross-sectional nature of these and other studies calls for a cautious interpretation unless we have convincing panel analyses that follow individuals over time and show that there have been substantial changes in their attitudes and values over the years and that this has really affected unionization.

2.3.4 INSTITUTIONAL SETTINGS AND UNIONIZATION

In addition to cyclical and structural explanations of unionization and its development over time, there exist a number of institutional explanations that mainly focus on cross-national variations in unionization, but which also can be used to explain union growth and decline over time. Institutional variables emphasized in this literature dominated by political scientists and sociologists (see, e.g., Ebbinghaus and Visser 1999; Scruggs and Lange 2002; Western 1997) include union-administered unemployment insurance, closed-shop arrangements, union access to or presence at the workplace, and structures of collective bargaining.

One key institutional variable that has been found to be associated with unionization in most cross-national studies is the provision or administration of unemployment insurance by unions. This 'Ghent system' (named after the Belgian city where it first emerged) comes in two variants: either in the form of voluntary unemployment insurance funds set up by the unions and subsidized by the state, as in Sweden, Denmark, Iceland and Finland, or as a compulsory unemployment insurance system partly administered by union officials, as is the case in Belgium. Union-run unemployment insurance may not fully be a 'selective incentive' in the strict sense of Olson (1965) since union membership is usually not compulsory for those insured and there exist alternative options of acquiring unemployment insurance. But the important role of union officials in the provision of unemployment benefits and the regular contact with the union during spells of unemployment are said to strongly motivate workers to join unions and remain union members when becoming unemployed (for details, see Van Rie et al. 2011). The high union density rates in these countries found in cross-national studies are therefore often attributed to positive effects of their Ghent systems, even though Rasmussen and Pontusson (2018) demonstrate with data going back to 1870 that the first-time introduction of (initially not very generous) Ghent systems had no effect on unionization. It is striking that among the 25 countries listed in Table 2, union density is indeed highest in Denmark, Sweden, Finland and Belgium in 2017/18. Several multivariate cross-sectional studies show that Ghent system countries enjoy a substantial advantage in unionization (e.g., Ebbinghaus and Visser 1999; Traxler et al. 2001) and that individual workers in countries with a union-administered unemployment insurance are much more likely to be unionized, *ceteris paribus* (e.g., Ebbinghaus et al. 2011). A number of studies further indicate that the Ghent system has been associated with higher increases or lower reductions in union density in various periods (e.g., Checchi and Lucifora 2002; Ebbinghaus and Visser 1999; Schnabel 2013). The existence of a Ghent system may not just have a direct impact but also affect unionization via its interaction with other factors. For instance, a longitudinal analysis by Checchi and Visser (2005) shows that while in general unemployment has a negative impact on union density, its impact is positive in Ghent countries. However, the stabilizing effect of Ghent systems on union density cannot be taken for granted. Policy changes that have either affected unemployment benefits or encouraged other organizations to create their own, cheaper unemployment funds seem to have contributed to the unprecedented decline in unionization in countries like Finland, Denmark, and Sweden (see, e.g., Böckerman and Uusitalo 2006; Vandaele 2019; Visser 2019a).

Another institutional variable that plays an important role for unionization is unions' access to or presence at the workplace. This can be expected to increase employees' likelihood of being a union member in various ways, for instance by facilitating unions' recruiting efforts, enabling unions to visibly represent the interests of the workforce, and creating reputation and social custom effects (Schnabel and Wagner 2007). Following Ebbinghaus and Visser (1999), several studies have included indicators of the degree of the institutionalized access of union to the workplace in cross-national analyses. Such analyses usually find that unions' access to the workplace is positively associated with union density and changes in union density (e.g., Checchi and Lucifora 2002; Checchi and Visser 2005; Ebbinghaus and Visser 1999). Interestingly, closed-shop practices of forced membership that used to be common in the UK and Ireland do not always seem to strengthen aggregate union density and density growth (Ebbinghaus and Visser 1999). Studies that look at the actual presence of a union at the workplace rather than on its institutionalized access point in the same direction. In a cross-sectional analysis pooling data for individuals from 19 European countries, Ebbinghaus et al. (2011) obtain a highly significant positive relationship between the presence of a union at the workplace and the probability of being unionized, and when using the same data set but analyzing countries separately Schnabel and Wagner (2007) find union presence to be a strong and statistically significant predictor of union membership in almost all countries. Besides union presence, the existing level of union density at the workplace also seems to play an important role for union recruitment. For Denmark, Toubol and Strobj Jensen (2014) as well as Ibsen et al. (2017) show that where union density is high, it is more likely that non-members will join the union, which may be interpreted as a social custom effect (see also Goerke and Pannenberg 2004 for Germany). The empirical evidence sketched here suggests that unions which want to increase or stabilize their membership should attempt to increase (or at least maintain) their presence at the workplace even if this becomes more difficult and expensive the smaller workplaces get and even if it might be opposed by employers.

Unionization may also depend on a country's structure of collective bargaining, with more centralized bargaining usually said to be conducive to higher union density (see, e.g., Scruggs and Lange 2002; Visser 2019a). Potential reasons for such a positive relationship are that bargaining centralization may reduce employers' incentives to eliminate unions from their workplaces (since these now tend to interfere less in workplace management and local wage setting) and that centralization lowers transaction costs for unions and employers alike. Centralized bargaining also alleviates the need for unions to gain recognition and recruit members in small firms, helps to solve the latent conflict between capital and labor,

and can bring macroeconomic benefits so that governments may have an interest in maintaining strong unions. On the other hand, bargaining centralization can make it easier for employees to free ride on union agreements without being union members, in particular when collective agreements are extended to non-unionized employees and workplaces. The relationship between centralization and unionization is thus theoretically open, and the empirical evidence is also mixed. Although some cross-national studies report a positive relationship between unionization and bargaining centralization (e.g., Checchi and Visser 2005; Western 1997), others obtain findings that are insignificant and/or difficult to interpret (e.g., Checchi and Lucifora 2002; Scruggs and Lange 2002). Given these conflicting results it would certainly be premature to predict that the trend towards decentralization of collective bargaining visible in quite a few countries will automatically go along with large-scale de-unionization. Although there may be good reasons for unions to oppose decentralization (for example, higher transaction costs in decentralized bargaining), membership considerations alone do not necessarily suggest such a strategy (see also Schnabel 2013).

2.3.5 GLOBALIZATION AND THE INFORMAL ECONOMY

Economic globalization, i.e. countries' increasing openness concerning trade, financial flows and foreign direct investment as well as the re-location of jobs to less developed countries in global supply chains, is often thought to undermine unionization by weakening unions' bargaining power and thus their attractiveness to employees. In particular, union bargaining power and thus wages are reduced if firms can credibly threaten to outsource their production to other countries where (unskilled) labor is cheaper and the labor market may be less regulated. On the other hand, unions may also benefit from globalization in various ways, for instance by serving as vehicles of insurance against volatile global market forces (for more detailed argumentations, see Hessami and Baskaran 2015; Scruggs and Lange 2002). The theoretical relationship between globalization and (de-)unionization is thus open, and the empirical evidence is quite limited and inconclusive. *Prima facie* evidence invoked by Visser (2019a: 47) shows that "[g]lobalization has generated millions of industrial and service jobs in the Global South, but it has not created an upsurge in unionization in these countries." Multivariate studies often focus on developments in the late 20th century, and they have problems in employing adequate indicators that capture the many facets of globalization (e.g., global value chains). Weak evidence for globalization effects is provided by Western (1997) who finds that trade openness increased the likelihood that an advanced capitalist country would experience a decline in unionization in the 1980s. In some but not all

specifications of their panel analyses for OECD countries, Hessami and Baskaran (2015) find that various measures of globalization are associated with falling union density rates in OECD countries during the 1990s and, to a lesser extent, during the 2000s. In contrast, when employing several indicators of globalization and an interactive cross-sectional and time series model that estimates the joint effect of labor market institutions and globalization, Scruggs and Lange (2002) are able to show that (controlling for cyclical and demographic features) there are no robust significant relationships between changes in union density and increasing financial market openness, direct investment flows, or increased trade flows in a sample of 16 advanced countries in the period 1964 to 1994. Similarly, for a panel of 14 European countries Checchi and Visser (2005) report that changes in union density are unaffected by proxies for increased globalization such as trade openness and financial liberalization. In a multilevel analysis for 39 less developed countries around the year 2000, Martin and Brady (2007) find that trade and investment are not significantly associated with unionization. There is a lack of causal studies at the industry and firm level that investigate whether (the threat of) de-localizing production has indeed affected union bargaining power and individual employees' likelihood of being union members.

Another challenge to unions has been the growth of employment relationships in the informal economy. The ILO (2018) estimates that about two billion (or 61 percent) of the global employed population aged 15 and over earn their living in the informal economy. Informality not only refers to unregulated and unprotected employment in developing countries, but also includes some non-standard economic activities not covered by formal arrangements and work-based social protection in developed countries, such as activities in the 'shadow economy', own-account work and (disguised) self-employment. The expansion of the informal economy is not only a threat to workers, who typically have lower regular income, less social protection, and fewer resources to engage in social dialogue. It is also a threat to unions since informality implies insecurity and fewer opportunities to organize, which may reduce workers' propensity to join unions. Not surprising, an international comparison by Visser (2019a) finds a sizeable negative correlation between the size of the informal sector or the employment share of informal jobs and the union density rate calculated over the entire employed population. In many countries, unions have long neglected the informal sector, considering informal work a transitory phenomenon that is outside the union ambit and too difficult to profitably organize (Bonner and Spooner 2011). Over the last decades, however, unions have become increasingly aware of the growth and persistence of informal employment across the globe and have opened to informal sector workers. This also includes employees in platform markets,

who show some similarities with own-account workers and workers in the informal sector (for a detailed discussion of work and union activities in the platform economy, see Visser 2019a: 43-46).

2.3.6 FURTHER POTENTIAL DETERMINANTS OF UNIONIZATION

In addition to the determinants discussed above, there are some other variables that might be associated with unionization, but which have been found to affect union membership and density in an unstable way across countries and time periods and/or which cannot be assumed to develop over time in such a systematic way that this will have a clear impact on unionization over time. These variables – some of which are potentially endogenous – include strikes (see, e.g., Calmfors et al. 2001; Checchi and Visser 2005; Western 1997), political attitudes of employees (Kirmanoğlu and Başlevent 2012; Schnabel and Wagner 2007), the broad national political environment and industrial relations regime (Schmitt and Mitukiewicz 2012; Shin and Ylä-Anttila 2018), government composition (Checchi and Visser 2005; Scruggs and Lange 2002; Western 1997), and social capital (Ebbinghaus et al. 2011). In addition, country-specific conditions, national traditions, and historical influences may also be relevant for union density and growth. An empirical analysis of developments in unionization by the OECD (2019: 44) concludes – somewhat in frustration – that union density is a multifaceted phenomenon and that “[b]ehind the apparently common trend characterizing OECD countries, there appears to be a collection of country-specific stories.”

3. COLLECTIVE BARGAINING

Collective bargaining refers to a negotiation process between unions (or other independent bodies representing workers’ interests) and employers or employers’ associations that leads to collective agreements determining pay, working conditions, and other labor practices. Although collective bargaining has many facets, two main aspects are the level at which it occurs and the coverage rate of collective agreements (Lamarche 2015; OECD 2019). Negotiations can take place at various levels, ranging from the national or multi-sector level over the sector or industry level to the company or firm level, and multi-level bargaining is also possible. The extent to which the resulting collective bargaining agreements directly affect the working conditions of the workforce is reflected in the coverage rate. It refers to the percentage of workers in an economy or industry whose terms and conditions of

employment are determined by collective rather than individual bargaining (regardless of workers being union members or not). Like unionization, there have been substantial changes in the level and coverage of collective bargaining over the last decades, and there is a considerable amount of variation across countries and between different indicators of collective bargaining.

3.1 DATA AND TRENDS

A broad overview of collective bargaining structures and coverage in a wide range of countries is given by the ICTWSS Database (version 6.1) maintained by Jelle Visser (2019b). Even more than the unionization figures discussed above, data on bargaining must be interpreted *cum grano salis* since they stem from different (official and unofficial) sources, often rely on rough estimates and rounded figures, and may suffer from statistical breaks. Comparisons across countries and over long time periods should thus be made very cautiously, and small differences and variations must not be overemphasized.

Table 4 informs about developments in two major bargaining indicators in the same 25 countries that were analyzed above and for which data are available for longer periods of time (now starting in 1980). The first and probably most important indicator is the bargaining coverage rate, defined as the number of employees covered by collective (wage) bargaining agreements as a percentage share of all wage and salary earners in employment with the right to bargaining, and this rate is adjusted for the possibility that some sectors or occupations are excluded from the right to bargain (see Visser 2019b). By capturing the extent to which employment conditions are directly influenced by collective negotiation, this indicator provides a first impression of how inclusive collective bargaining is and allows a crude comparison of the relative strength of collective bargaining across countries and regions. That said, existing statistics on bargaining coverage may underestimate the actual extent of coverage due to firms' possibility of "orientation", i.e. voluntarily following the conditions set by the relevant sectoral collective agreement while not being formally bound to it (OECD 2017, 2019).

Table 4 shows that the adjusted bargaining coverage rate has fallen in most countries but risen in some. In the period 1980 to 2018 (or the most recent year for which data are available), bargaining coverage decreased in 16, increased in 5, and stayed the same in one of the 22 countries for which data are available in these years. Particularly large reductions are found in the UK, New Zealand, and Germany, with Greece being a special case (where the 100 percent coverage rate from 1990 to 2010 reflects extended general national agreements). A steady rise in bargaining

coverage over time can be observed in Finland. Although a cross-sectional comparison of data stemming from various sources should not be overinterpreted, it is apparent that bargaining coverage varies considerably across countries. The most recent coverage rates for 2016/18 range from more than 90 percent in Austria, France, Belgium, Finland and Sweden to less than 17 percent in Japan, South Korea and the United States. A substantial amount of variation is also visible in previous years. The coefficients of variation across countries calculated for those 22 countries with data available in 1980 and 2018 have steadily increased over time (see Table 4). This implies that among advanced countries there has been some divergence in bargaining coverage over time.

Also using ICTWSS data but comprising 38 countries in the period 1960 to 2013, Visser (2016) shows that the (unweighted) mean bargaining coverage rate slightly increased from 1960 to 1990. It has substantially fallen since, from more than 70 percent in 1990 to about 52 percent in 2013. Whereas the coverage rate has remained relatively stable in Western Europe, it has shrunk in Central and Eastern European countries as well as in non-European OECD countries. A similar picture is provided by the OECD (2019) which reports that in OECD countries the share of workers covered by a collective agreement has fallen to 32 percent in 2017 from 46 percent in 1985 on average.

Visser et al. (2017) give an even more comprehensive description of bargaining coverage worldwide, based on ILO and ICTWSS data for 75 countries in 2013 (or the latest year available). They display a substantial variation in (adjusted) bargaining coverage across countries, from about 1 or 2 percent in Ethiopia, Malaysia, and the Philippines to more than 95 percent of employees in Austria, France, Belgium and Uruguay. Focusing on developing countries in 2007, Lamarche (2015) also notes a large variation in bargaining coverage rates.

A second bargaining indicator reported in Table 4 is the predominant level at which wage bargaining takes place (in terms of coverage of employees). This indicator has five categories, ranging from decentralized bargaining at the local or company level (score = 1) over bargaining at the sector or industry level (score = 3) to bargaining that predominantly takes place at central or cross-industry level (score = 5). It also accounts for intermediate or mixed situations (scores 2 or 4), for instance when bargaining levels alternate (for details, see Visser 2019b). Table 4 shows that in 2017/18 collective bargaining at the local or company level dominated in nine of the 25 countries listed. Bargaining predominantly took place at sector or industry level in 12 countries (with three countries being intermediate or alternating cases). Belgium now is the only country that predominantly bargains at central level, whereas in 1980

five countries concluded collective agreements at this level. This change points to a process of decentralization where in many countries the predominant level of bargaining has shifted to a lower level (i.e. closer to the individual enterprise). Between 1980 and 2017/18, decentralization of this sort has occurred in ten countries while 14 countries have not varied their preferred bargaining level.

An international comparison of 38 OECD and EU countries by Visser (2016) with ICTWSS data until 2013 confirms that decentralization has been the major trend in industrial relations since the 1980s. Particularly in the wake of the Great Recession 2008/09, both central and industry-level bargaining came under pressure in many countries, and they were replaced in several countries. A slight tendency toward decentralization can also be observed across developing countries, with some countries having stable levels of collective bargaining while others experiencing drastic reforms and large changes (Lamarche 2015).

Using ICTWSS and ILO data for 57 countries in 2013, Visser et al. (2017) find enterprise bargaining to be prevalent in 25 countries, whereas in 19 countries sectoral or national bargaining prevails (the other 13 countries cannot be easily classified). Based on policy questionnaires addressed to Labor Ministries and social partners, the OECD (2019) reports that in two-thirds of OECD countries collective bargaining predominantly takes place at the firm or enterprise level. Sectoral or industry-level collective agreements continue to dominate in most Western European countries, even if they increasingly leave room for firm-level agreements. In some European countries, national trade unions and employers' associations engage in (cross-sectoral) bargaining at central level but at the same time also at sectoral and firm level.

It should be noted that simply looking at the predominant level of collective bargaining does not give the whole picture concerning the actual degree of (de)centralization of bargaining systems (see OECD 2019: ch. 2; Visser 2016). Countries with the same predominant level of bargaining differ substantially in terms of the flexibility and scope for additional firm-level negotiations to modify the terms laid down in higher-level collective agreements. For instance, in Scandinavian countries sectoral agreements only provide a broad framework that leaves ample scope for more detailed negotiations at the company level, and in countries like Germany and Austria, sectoral agreements in certain cases allow firm-level deviations that may result in less favorable terms for workers. Besides the level of bargaining, other factors like the frequency and scope of additional company bargaining, the existence and use of opening clauses (allowing firms to derogate from agreements), and the scope and coverage of extension mechanisms that allow

the application of agreements beyond the signatory parties must be taken into account when characterizing a country's system of collective bargaining.

Bargaining coordination, i.e. the degree of integration or synchronization of wage policies between distinct bargaining units, can also be important, in particular when assessing the macroeconomic effects of wage agreements (Soskice 1990; Traxler et al. 2001). For instance, bargaining in a country can be fully decentralized at company level but may at the same time be highly coordinated if all negotiations are conducted by the same union or if individual employers follow the guidelines of one major employers' association. The problem is that bargaining coordination is much more difficult to measure than bargaining coverage and the predominant level of bargaining (Aidt and Tzannatos 2008). Visser (2016) describes various forms of coordination, including minimum wage setting, trendsetting arrangements, and pattern bargaining, and he constructs an indicator of wage bargaining coordination that is found to be particularly high and quite stable in Western Europe and Japan.

3.2 FUNCTIONS, STRUCTURES, AND EFFECTS OF COLLECTIVE BARGAINING

Collective bargaining fulfills a number of functions for employees and for employers (or management), and it has various advantages and disadvantages for both parties and for society as a whole, some of which may depend on the level and structure of bargaining (for more detailed discussions, see Aidt and Tzannatos 2008; OECD 2017: ch. 4; Schnabel et al. 2006; Traxler et al. 2001; Visser 2016; Visser et al. 2017; Zagelmeyer 2005). From an economic perspective, collective bargaining can increase labor market efficiency by correcting market failures (like information asymmetries and excessive firm power) and by reducing the transaction costs of all parties involved. It also can improve the quality of employment relationships between workers and firms and thus the efficient allocation of resources and productivity. Collective bargaining may further have an impact on wage dispersion and income inequalities. The downside is that collective bargaining can also introduce labor market distortions, for instance if unions and insiders have excessive power. Overall, collective bargaining may affect labor market performance in a number of ways, depending on the specific features of a country's bargaining system, its interaction with other key labor market institutions (like minimum wage legislation and employment protection), and on the prevailing macroeconomic conditions and economic policies (OECD 2017: 130).

From the perspective of workers, collective bargaining has first and foremost a protective function, i.e. ensuring adequate pay and employment conditions, in particular for persons with weak individual bargaining power. It also fulfills a voice or

participation function by enabling workers to express grievances and to participate in the design and control of working conditions. The distributive function of collective bargaining secures that workers get a fair share of the benefits of training and productivity growth. For employers and managers, collective bargaining performs a conflict management function by providing a process for dispute resolution, thus securing social peace. Bargaining collectively with trade unions also reduces firms' transaction costs by substituting one set of negotiations for a large number of individual bargains with single workers and by standardizing the terms and conditions of employment.

Employers can either bargain independently (in firm-level negotiations with unions) or unite in associations with a mandate to conduct multi-employer bargaining, and there may be some trade-offs in picking an "optimal" level of bargaining. Single-employer bargaining permits to tailor the resulting collective agreements to the situation of the company so that company-specific problems and challenges can more easily be considered. As the determination of employment conditions may reflect regional and labor market related factors, single-employer bargaining should provide for a differentiated pay structure and thus for an optimal allocation of resources. However, if the demands of a company's workforce are not only oriented at the local situation, but rather at the terms and conditions in other companies, this may lead to leapfrogging pay claims and the spiraling-up of wages. In contrast, multi-employer bargaining saves transaction costs and allows employers to form a united front against strong unions. Here more productive companies can hide behind the average or marginal firm in the industry and thus benefit in terms of lower labor costs. Workers, in particular those in the lower part of the wage distribution, may benefit from multi-employer bargaining as it tends to offer more inclusive labor protection. Both unions and employers often prefer multi-employer bargaining because it sets minimum standards for pay and working conditions in an industry, in such a way taking these out of competition. The social partners can also use multi-employer bargaining to establish joint regulation of labor market issues and thus reduce the need of government intervention. However, multi-employer negotiations are not able to fully use the information and flexibility available at the decentralized level, and they restrict the ability of single firms and local unions to act independently.

The various advantages and disadvantages of different levels and structures of collective bargaining gave rise to a large theoretical and empirical literature on the macro- and microeconomic effects of collective bargaining systems (for reviews, see e.g. Addison 2016; Aidt and Tzannatos 2008; OECD 2019: ch. 3). The early literature mainly focused on the level of bargaining. A prominent hypothesis was that systems with predominantly sectoral bargaining are associated with weaker labor market

performance (in terms of employment or unemployment, wage or productivity growth, industrial conflict and other indicators) than either decentralized systems that provide wage flexibility at the firm level or centralized systems that allow unions and employers' associations to find corporatist solutions for labor market problems (Calmfors and Driffill 1988). This 'hump-shape' hypothesis, however, is probably too simple, largely neglects bargaining coordination, and has not obtained much empirical support (Aidt and Tzannatos 2008; Soskice 1990; Traxler et al. 2001). The literature then has concentrated more on bargaining coordination, but here the evidence is mixed. The idea that countries with coordinated bargaining systems have more flexible labor markets and achieve better economic outcomes than countries with less coordinated systems receives some empirical support, but mostly from the 1970s and 1980s (see the survey by Aidt and Tzannatos 2008). Moreover, the more sophisticated the empirical investigations became, the harder detecting a relationship between bargaining coordination and (macro)economic performance proved to be (Addison 2016). Taking a microeconomic perspective and conducting an empirical investigation with company data for EU countries, Braakmann and Brandl (2020) argue that coordination and other processes and structures in which collective bargaining is embedded are crucial for company performance, and probably more important than the question whether bargaining should be conducted collectively or individually.

Building on a detailed characterization of collective bargaining systems and practices in OECD countries and using a mix of country-, sector-, company- and worker-level data, the OECD (2019: ch. 3) conducted a comprehensive investigation on the role of collective bargaining for labor market performance. *Inter alia*, the results show that coordinated bargaining systems are linked with higher employment, lower unemployment, and less wage inequality than fully decentralized systems. Wage dispersion is found to be greater in systems with no collective bargaining or where companies set wages independently, and centralized bargaining systems (which lack flexibility at the firm level) tend to be associated with lower productivity growth if bargaining coverage is high. The OECD (2019: 135) concludes that "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."

3.3 DETERMINANTS OF COLLECTIVE BARGAINING STRUCTURE AND COVERAGE

3.3.1 THE RELATIONSHIP BETWEEN BARGAINING STRUCTURE AND COVERAGE

Collective bargaining coverage is usually high and stable in countries with multi-employer bargaining, where collective agreements are negotiated at national or sectoral level and where either the percentage of firms that are members of an employers' association is high or agreements are extended to workers in firms that are not members of a signatory employers' association (OECD 2017, 2019). Looking at Table 4, we see that among those countries where multi-employer bargaining at the sector or national level prevails (i.e. scores 3-5 in 2018), the bargaining coverage rate ranges from about 50 percent in Switzerland to more than 90 percent in Austria, Belgium, France and Finland. By contrast, in countries with single-employer bargaining at the establishment, enterprise or company level (score 1), collective agreements only cover between 11 and 34 percent of workers (in the US and Ireland, respectively).

An international comparison of a larger number of countries by Visser et al. (2017) shows that in those countries where national and/or sectoral bargaining is dominant, about 77 percent of workers are covered by collective agreements on average. In contrast, the (unweighted) average bargaining coverage rate is only 14 percent across countries with single-employer bargaining. In these countries, it is mainly workers in larger enterprises who are covered since small firms often do not have the capacity or willingness to negotiate a firm-level agreement (see also OECD 2017).

Visser et al. (2017) argue that the level at which collective bargaining takes place is the single-most important predictor of bargaining coverage. They point out that in countries where multi-employer bargaining collapsed and was replaced by single-employer agreements (like the UK and New Zealand), the bargaining coverage rate fell substantially since fewer firms decided to recognize unions and negotiate with them. In developing countries, too, bargaining coverage was affected by changes in the level at which collective agreements are negotiated and signed (Lamarche 2015).

3.3.2 BARGAINING COVERAGE AND UNION DENSITY

Bargaining coverage may be linked to union density, but the relationship is far from perfect. This can be seen by looking at the most recent figures for union density in Table 2 and bargaining coverage in Table 4. The Pearson correlation coefficient between both variables is 0.54 for the 24 countries for which data are available around the year 2018. For some countries (like the US and Japan) low rates of union

density coincide with low bargaining coverage rates, and there are also some countries (such as Denmark, Finland, and Sweden) where high union density goes hand in hand with high bargaining coverage. Counterexamples are countries like France and Spain, where bargaining coverage is relatively high despite low unionization. In most of the countries included in Tables 2 and 4, bargaining coverage substantially exceeds union density.

Also using ICTWSS data but focusing on 32 countries in Europe, Vandaele (2019) shows that the gap between collective bargaining coverage and union density is quite large in Central and Southern European countries. He further points out that a group of Nordic and 'Ghent system' countries have in common high rates of union density and bargaining coverage, with both indicators being relatively stable in the observation period 2000-2016.

Visser et al. (2017) employ data for 60 countries in 2013, and they find that in 47 countries bargaining coverage rates are higher than union density rates. In these countries collective agreements also apply to non-union members, either because of administrative extensions or *erga omnes* clauses or because employers do not treat union members and non-members differently (in such a way avoiding conflicts at the workplace and giving no incentive for workers to join a union). Coverage rates also exceed union density if collective agreements are negotiated for the entire economy and thus include sectors that are not unionized or if they are concluded for entire sectors and then include smaller firms that often are not unionized. In contrast, there are 13 countries in which union density is higher than bargaining coverage. This can be the case if union members are concentrated in the public sector where wages and working conditions are determined by other methods than collective bargaining, if unions mainly focus on political lobbying and not collective bargaining, or if employers successfully oppose collective bargaining.

3.3.3 OTHER FACTORS OF INFLUENCE

Further variables that may explain differences in overall bargaining coverage are the sectoral and workforce composition, firm characteristics, and national traditions and practices. For the private sector, the OECD (2019: Fig. 2.12) reports that on average across OECD countries, bargaining coverage is somewhat higher in good-producing sectors like manufacturing and construction than in business services and other services. Bargaining coverage is probably lower in the private than the public sector, but reliable up-to-date information is missing for many countries and comparisons are difficult since the right to bargain is not allotted to all public sector employees in some countries. In all countries in Table 4 for which data are available, the ICTWSS

database (Visser 2019b) records higher bargaining coverage rates in the public or government sector than in the private or market sector. Across all sectors, firms seem to be more likely to be covered by collective bargaining, in particular multi-employer bargaining, in the public sector (Schnabel et al. 2006), which parallels the higher unionization rate in this sector. Although data are sparse, bargaining coverage does not seem to differ much in terms of employee status, such as blue-collar vs. white-collar worker, and in terms of gender (Traxler and Behrens 2002). In countries for which there is data by sex, Visser et al. (2017) find little difference in bargaining coverage rates for men and women.

Bargaining coverage and bargaining structures differ with respect to firm characteristics. According to the OECD (2019), in small firms with fewer than 50 employees just 26 percent of workers are covered by a collective agreement whereas the coverage rate is 34 percent in large firms with 250 employees or more. In small firms, workers' probability of being covered by a collective agreement is much lower if there is no multi-employer bargaining at national or sectoral level since small firms are less likely to negotiate a firm-level agreement. A comparative analysis of Germany and Britain by Schnabel et al. (2006) suggests that firms' probability of engaging in multi-employer bargaining (rather than single-employer or no collective bargaining) tends to rise with firm size, and it is lower in young firms, which probably need more flexibility in wage setting in order to survive. The authors argue that large firms benefit particularly from the collective goods provided by multi-employer bargaining and therefore more than proportionally support sectoral bargaining arrangements.

Finally, collective bargaining systems and their effects do not only depend on national labor law, but unwritten practices, longstanding traditions, compliance with collective agreements, and the quality of industrial relations may also play a role (OECD 2019). For instance, trust among the social partners may be important for deciding on the preferred level and the extent of coordination of collective bargaining and for achieving macro- and microeconomic flexibility (Addison 2016).

3.3.4 EXPLANATIONS FOR THE DOWNWARD TREND IN BARGAINING COVERAGE

The fall in bargaining coverage observed in the last decades is not simply a corollary of declining union density (see 2.3.2), and it also cannot be strongly related to changes in the density of employers' associations since the share of employees in the private sector working in firms that are affiliated to an employer organization has been relatively stable in the last decades (OECD 2019). Other factors such as the decentralization of bargaining structures, globalization, and policy reforms may play a

role here. Decentralization in the sense that the locus of collective bargaining is shifting downwards and the frequency of multi-employer bargaining is declining has been noticed in several countries since the early 1980s (Katz 1993). A straightforward economic conjecture is that changes in the relative advantages and disadvantages of various levels of regulation discussed above (2.2) may have brought about both a decentralization of collective bargaining and a fall in bargaining coverage. For instance, the new information and production technologies and novel forms of work organization introduced in the last decades, including multi-tasking, teamwork, and performance pay, can be executed and regulated more flexibly and efficiently at the firm level (e.g., Lindbeck and Snower 2001) – and bargaining coverage is typically lower at this level (see 2.3.3). If firms regard the rules on work arrangements and pay established by centralized collective bargaining as too rigid and costly, they may either switch to firm-level bargaining or leave the system of collective bargaining altogether (Schnabel et al. 2006). A related explanation points to the higher speed of technological change and rapid changes in the external environment that may affect regions, industries, and companies differently. The resulting stronger heterogeneity of companies within an industry or region implies that the costs of concluding and administrating multi-employer agreements rise. To the extent to which differences between industries and establishments increase, the transaction-cost advantage of centralized arrangements decreases in favor of the informational and flexibility advantages of decentralized regulation (Schnabel et al. 2006, Visser et al. 2017).

In European countries, decentralization has typically occurred in two ways, which are sometimes termed “disorganized” and “organized decentralization” (OECD 2017; Traxler et al. 2001). Disorganized (or unorganized) decentralization means that employers (and unions) or governments directly replace national or sectoral agreements by company agreements, which in practice implies that bargaining coverage falls. Organized decentralization refers to a process where national or sectoral agreements either leave some scope for bargaining at the firm level or allow clearly-defined deviations at lower levels via opening clauses, in order to preserve bargaining coverage while at the same time giving firms and workers more freedom in setting wages and working conditions (for details, see OECD 2019; Visser 2016).

Decentralization can be a joint strategy by unions and employers’ associations or can be pushed by one side only (typically, employers). However, often it has been government policy reforms that ended national agreements and multi-employer bargaining and/or gave priority to firm-level agreements over national or sectoral agreements. Other policy changes to the collective bargaining framework that also resulted in lower bargaining coverage were limiting the continuity of collective

agreements beyond expiry and changing the rules on extension of sectoral agreements to non-organized employers and employee (for examples from many countries, see OECD 2019; Visser 2016). As a case in point, Visser et al. (2017) refer to the sharp decline in bargaining coverage that occurred in those European countries that suffered severe economic problems during the Great Recession in 2008/09. When those countries needed international financial assistance, the programs that accompanied the loan packages by the IMF or the ECB often suggested changes in the wage bargaining framework. Likewise, in many Latin American countries government labor market reforms drastically changed collective bargaining, for instance by weakening industry-level bargaining, which led to a decline in bargaining coverage (Lamarche 2015).

In conjunction with decentralization, globalization is often thought to have affected collective bargaining structure and coverage. Globalization and growing international competition entail that firms must be more flexible in adapting to changing conditions in product and factor markets, with a shift from Fordist mass production and Taylorist work organization to differentiated high technology products, increased individual responsibilities, and performance-related pay (Schnabel et al. 2006). In addition, foreign investors may favor countries with decentralized bargaining structures (Hessami and Baskaram 2015). Although most theoretical considerations predict a negative correlation, in their analysis of up to 20 countries in 1970-1996 Traxler et al. (2001) find that the direct effects of internationalization on the level of bargaining are quite limited. Looking at the period 1980-2009, Hessami and Baskaram (2015) obtain empirical evidence across 44 countries that economic, social and political globalization has not affected the extent of decentralization (and neither the extent of government intervention) in collective bargaining.

4. SUMMARY AND OUTLOOK

This survey has shown that unionization and bargaining coverage have fallen in most countries and regions and that collective bargaining has become more decentralized over the last decades. That said, there is substantial variation across countries and between different indicators of unionization and collective bargaining. Unionization is found to be related to a range of structural, cyclical, institutional, and socio-demographic variables whose specific influence may differ across countries. One important determinant of unionization, namely union-administered unemployment insurance, exists in very few countries, and unions' access to and presence at the workplace also differs substantially across countries. Interestingly, some seemingly

obvious explanations for the fall in union density over time do not seem to hold on closer scrutiny. For instance, union growth and decline are not mainly due to changes in the sectoral structure of the economy and the composition of the workforce. The contribution of these changes to union decline has been modest and smaller than widely believed. The effect of globalization on unionization and collective bargaining has not been fully clarified, and the relationship between unionization and (de)centralization of collective bargaining is open both theoretically and empirically. Bargaining coverage depends more on the level at which collective bargaining takes place than on union density. It is typically high and stable in countries with multi-employer bargaining, and the decentralization of bargaining structures in many countries has contributed to the fall in bargaining coverage observed in the last decades.

Despite these changes, unions are still key players in the labor market in many countries, and collective bargaining systems are important if complex labor market institutions. A formidable challenge for both unions and collective bargaining will be to stay relevant in a world of work that is changing quickly. For unions, this means, *inter alia*, that they must react to the rise of the informal sector in various parts of the world and that they must be more successful in recruiting young and atypically employed workers. Visser (2019a) explores four scenarios or possible futures for unions, ranging from marginalization to revitalization, that can happen at the same time but in different countries or in different sectors within a country. He stresses that recruiting new members has become more difficult than maintaining existing ties and that the labor movement must be prepared to do things differently and build coalitions with other movements. For collective bargaining, the attempt to remain relevant requires, *inter alia*, a flexibilization of bargaining structures and a differentiation of collective agreements so that they better correspond to the needs of firms. For Addison (2016: 45), “what is needed for efficiency is a collective bargaining system that allows for local adjustment while retaining coordination to facilitate macroeconomic adjustment.” In recent years, the social partners in many countries, particularly in Europe, have tried to reform their endangered bargaining systems in this direction by implementing various procedures that leave some scope for individual firms to adapt (sectoral) collective agreements to their specific situation (see OECD 2019; Visser 2016).

An open and disputed question is whether and how governments should engage in stabilizing unions and employers’ associations and the national systems of collective bargaining. On the one hand, it could be argued that industrial relations systems that are exhausted (whose “time’s up”, as hypothesized by Streeck (2009) for the case of Germany) should not be kept alive artificially but be allowed to wither away without government interventions to stabilize the collective actors and the bargaining system.

On the other hand, stable bargaining coverage does not only depend on the efforts and strategies of unions and employers but may also need some support from government policies that provide an enabling legal framework and appropriate measures to promote collective bargaining (as demanded by Visser et al. 2017). Interestingly, the OECD (2019: 13) recently has argued that collective bargaining and workers' voice remain crucial instruments that should be mobilized to prevent inequalities in a changing world of work and to help employees and employers successfully manage the many challenges ahead.

Given that both unions and collective bargaining have been on the retreat for many years in many countries, the chances for revitalization may seem limited and the outlook rather bleak. However, unions, employers' associations, and collective bargaining were written off many times in the past but have shown a pronounced resilience and an astonishing ability to reshape themselves and adapt to different economic and social circumstances. It remains to be seen if they can repeat this trick in a world with megatrends like globalization, worldwide migration, and digitalization, and in rapidly changing labor markets characterized by population ageing, new forms of non-standard employment, and weakening labor relations.

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Table 1: Union membership in 25 advanced countries

Country	Net union membership (in millions)							Percentage change	
	1960	1970	1980	1990	2000	2010	2018	1960-2018	1980-2018
Australia	1.667	2.053	2.616	2.778	1.911	1.762	1.620 ¹	-2.8	-38.1
Austria	1.370	1.355	1.444	1.375	1.190	999	999	-27.0	-30.8
Belgium	1.055	1.231	1.651	1.646	1.936	2.067	2.054	94.6	24.4
Canada	1.459	2.173	3.397	4.031	4.111	4.626	4.828 ³	230.9	42.1
Chile	232	628	329	516	468	734	1.009 ²	334.3	206.9
Denmark	904	1.117	1.605	1.756	1.845	1.653	1.753	93.9	9.2
Finland	424	828	1.332	1.527	1.498	1.489	1.330	213.7	-0.2
France	2.532	3.458	3.282	1.968	1.942	2.046	2.071	-18.2	-36.9
Germany	6.948	6.966	8.154	8.014	7.928	6.330	6.222	-10.4	-23.7
Greece	-/-	-/-	650	684	633	628	490 ²	-/-	-24.6
Ireland	293	382	491	442	495	535	454 ¹	54.9	-7.5
Italy	2.886	4.736	7.189	5.872	5.195	5.974	6.154	113.2	-14.4
Japan	7.662	11.605	12.369	12.265	11.539	10.054	10.070	31.4	-18.6
Luxembourg	-/-	52	69	79	116	118	134	-/-	94.2
Netherlands	1.319	1.430	1.517	1.348	1.574	1.370	1.200	-9.0	-20.9
New Zealand	332	529	714	611	319	386	361 ¹	8.7	-49.4
Norway	622	683	938	1.034	1.093	1.154	1.236	98.5	31.8
Portugal	-/-	-/-	1.500	920	768	739	579 ²	-/-	-61.4
Singapore	145	112	244	212	314	550	719 ³	396.4	194.7
South Korea	97	473	948	1.887	1.527	1.643	2.088 ¹	2052.6	120.2
Spain	-/-	-/-	1.110	1.318	2.150	2.854	2.212	-/-	99.3
Sweden	1.909	2.325	3.116	3.388	3.232	2.829	2.970 ¹	55.6	-4.7
Switzerland	733	760	853	820	719	703	675 ¹	-7.8	-20.8
UK	8.851	10.061	11.891	9.040	7.108	6.680	6.400	-27.7	-46.2
US	17.049	19.381	19.843	16.740	16.344	14.715	14.744	-13.5	-25.7

Notes: ¹ 2017, ² 2016, ³ 2015; in case values are missing for a given year, the values of the closest years are inserted.

Source: ICTWSS Database, version 6.1, 2019; own calculations

Table 2: Union density in 25 advanced countries

Country	Union density (net membership/employment, in %)							Change (% points)	
	1960	1970	1980	1990	2000	2010	2018	1960-2018	1980-2018
Australia	49.5	44.2	49.6	41.3	24.8	18.5	15.0 ¹	-34.5	-34.6
Austria	59.6	56.7	51.7	46.8	36.9	28.9	26.3	-33.3	-25.3
Belgium	40.4	42.1	54.1	53.9	56.2	53.8	50.3	9.8	-3.9
Canada	31.0	31.0	34.0	34.0	31.2	30.1	29.4 ³	-1.6	-4.6
Chile	-/-	21.6	9.2	16.2	11.8	14.6	17.7 ²	-/-	8.5
Denmark	59.3	60.8	78.0	74.6	74.5	67.2	66.5	7.2	-11.5
Finland	31.5	51.3	69.4	72.8	74.3	70.3	60.3	28.8	-9.0
France	19.6	22.2	18.7	10.7	9.5	9.0	8.8	-10.7	-9.9
Germany	34.2	32.0	34.9	31.2	24.6	18.9	16.5	-17.7	-18.4
Greece	-/-	-/-	39.0	35.2	24.9	22.2	20.2 ²	-/-	-18.8
Ireland	47.1	53.2	57.1	51.1	36.0	33.5	24.5 ¹	-22.6	-32.6
Italy	37.0	37.0	49.6	38.7	34.4	35.5	34.4	-2.6	-15.2
Japan	35.4	35.4	30.8	25.2	21.5	18.3	17.0	-18.5	-13.9
Luxembourg	-/-	46.5	50.4	46.1	42.5	35.1	31.8	-/-	-18.6
Netherlands	41.1	38.4	34.8	24.6	22.6	19.3	16.4	-24.7	-18.4
New Zealand	43.6	56.5	69.1	49.7	22.4	21.4	17.3 ¹	-26.3	-51.8
Norway	60.8	56.8	57.9	58.5	52.4	50.0	49.2	-11.6	-8.7
Portugal	-/-	-/-	60.1	29.3	20.5	19.6	15.3 ²	-/-	-44.8
Singapore	-/-	25.4	22.8	14.4	16.8	18.0	21.2 ³	-/-	-1.6
South Korea	-/-	12.6	14.7	17.2	11.4	9.6	10.5 ¹	-/-	-4.2
Spain	-/-	-/-	13.3	13.7	17.4	18.3	13.6	-/-	0.4
Sweden	65.0	67.7	80.0	83.2	86.6	70.2	65.6 ¹	0.6	-14.4
Switzerland	30.2	24.9	27.5	22.5	20.2	17.6	17.1 ¹	-13.1	-10.4
UK	40.2	44.8	52.2	39.6	29.7	26.8	23.4	-16.8	-28.8
US	29.5	27.4	22.1	15.5	12.9	11.4	10.1	-19.4	-12.0
Variation coefficient 18 countries	0.279	0.332	0.436	0.489	0.582	0.610	0.639		
Variation coefficient 25 countries			0.462	0.522	0.631	0.617	0.631		

Notes: ¹ 2017, ² 2016, ³ 2015; in case values are missing for a given year, the values of the closest years are inserted. Source: ICTWSS Database, version 6.1, 2019; own calculations

Table 3: Union membership and density in 18 world regions

	Union membership of employees (in 1000s, excluding the self-employed)		Union density of employees (in %)
	2016	Change 2000-2016	2016
Southern Africa	5615	+114	24.9
West Africa	5562	-400	11.6
East Africa	2331	+655	14.1
North Africa	11083	+4513	33.9
Arab Countries	1035	+57	5.0
North America	19256	-809	12.2
Central America/ Caribbean	6477	+950	13.0
South America	22316	+6779	20.1
China	302000	+198385	42.6
East Asia	16354	-443	18.2
South-East Asia	19181	-547	12.4
South Asia	15867	+5861	11.6
West Asia	6362	-608	14.3
Eastern and Central Europe	26254	-28423	24.5
Southeast Europe/Balkans	3177	-1953	21.5
Southern Europe	9573	+388	24.4
Western Europe	20557	-3100	19.1
Northern Europe	7413	-104	63.2

Source: Visser (2019a, Table 1); own calculations

Table 4: Predominant level of wage bargaining and bargaining coverage rate in 25 advanced countries

Years	1980		1990		2000		2010		2018		1980-2018
Country	level	coverage rate (%)	level	coverage rate (%)	level	coverage rate (%)	level	coverage rate (%)	level	coverage rate (%)	change in coverage (% points)
Australia	4	84.3	4	84.3	2	60.0	2	60.0	2	-/-	-/-
Austria	4	95.0	3	98.0	3	98.0	3	98.0	3	98.0	3.0
Belgium	3	96.0	5	96.0	5	96.0	5	91.6	5	92.9 ²	-3.1
Canada	1	37.1	1	38.0	1	30.4	1	29.1	1	28.1 ¹	-9.0
Chile	1	-/-	1	10.0	1	13.4	1	13.4	1	17.3 ²	-/-
Denmark	5	82.0	3	82.8	3	77.7	3	76.5	3	82.0 ²	0.0
Finland	3	70.0	4	85.0	3	85.0	3	87.5	3	91.0 ²	21.0
France	3	84.6	3	94.6	3	96.0	3	95.0	3	94.0	9.4
Germany	3	85.0	3	85.0	3	67.8	3	59.8	3 ¹	54.0	-31.0
Greece	5	85.0	5	100.0	4	100.0	5	100.0	2	25.5 ²	-59.5
Ireland	5	70.0	5	62.8	5	44.2	1	40.5	1	34.0 ¹	-36.0
Italy	3	85.0	3	83.0	3	80.0	3	80.0	3	80.0	-5.0
Japan	1	31.1	1	25.6	1	21.1	1	17.6	1	16.4	-14.7
Luxembourg	2	60.0	2	60.0	2	60.0	2	59.0	2	59.0 ¹	-1.0
Netherlands	3	84.6	3	81.5	3	81.7	3	89.7	3	76.7	-7.9
New Zealand	4	70.0	3	60.0	1	30.7	1	17.4	1 ¹	19.8 ³	-50.2
Norway	4	70.0	4	75.0	5	77.0	3	74.0	3	69.0 ¹	-1.0

Portugal	3	70.0	4	78.0	3	78.4	3	76.7	3	73.1 ²	3.1
Singapore	1	-/-	1	-/-	1	18.0	1	16.8	1	19.8 ³	
South Korea	1	17.1	1	20.1	1	15.2	1	12.7	1	13.1 ²	-4.0
Spain	5	70.0	3	77.8	3	75.0	3	69.7	3	68.0 ²	-2.0
Sweden	5	88.0	3	91.0	3	94.0	3	89.0	3 ¹	90.0 ²	2.0
Switzerland	3	50.0	3	47.9	3	44.9	3	47.7	3 ¹	49.6 ²	-0.4
UK	3	82.0	2	58.0	1	36.4	1	30.9	1	26.0	-56.0
US	1	25.0	1	17.6	1	14.2	1	12.6	1	11.2	-13.8
variation coefficient 22 countries		0.325		0.360		0.443		0.482		0.518	

Notes: ¹ 2017, ² 2016, ³ 2015; in case values are missing for a given year, the values of the closest years are inserted. The predominant level at which bargaining takes place (in terms of coverage of employees) has five categories: 1 = bargaining predominantly takes place at the local or company level; 2= intermediate or alternating between sector and company bargaining; 3 = bargaining predominantly takes place at the sector or industry level; 4= intermediate or alternating between central and industry bargaining; 5 = bargaining predominantly takes place at central or cross-industry level negotiated at lower levels. A level is predominant if it accounts for at least two-thirds of the total bargaining coverage rate in a given year. If it accounts for less, but for more than one-third of the coverage rate, there is a mixed or intermediate situation. A mixed situation also occurs when bargaining levels alternate and/or it is impossible to assess which of the two contributes more to the actual coverage of the agreements. The coverage rate is the adjusted bargaining (or union) coverage rate, that is the number of employees covered by collective (wage) bargaining agreements as a proportion of all wage and salary earners in employment with the right to bargain, expressed as percentage, adjusted for the possibility that some sectors or occupations are excluded from the right to bargain.

Source: ICTWSS Database, version 6.1, 2019; own calculations