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## ABSTRACT

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# Membership in Employers' Associations and Collective Bargaining Coverage in Germany

While there is a strong overlap between membership in employers' associations and collective bargaining coverage, the overlap is far from being perfect. Using unique firm-level data from Germany, this study estimates the determinants of the membership in employers' associations and the coverage by industry-level or firm-level agreements. The analysis particularly focuses on the various constellations of membership and collective bargaining status. The results show that firm-level worker representation, foreign ownership, work organization, firm size, age and East-West differences are important determinants. Altogether, the analysis demonstrates that a more differentiated picture of industrial relations can be obtained by considering both membership in employers' associations and collective bargaining coverage.

**JEL Classification:** F23, F66, J51, J52

**Keywords:** employers' associations, industry-level bargaining, firm-level bargaining, foreign ownership, works councils, union density

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## **1. Introduction**

Many OECD countries have experienced a decentralization of collective bargaining or decline in collective bargaining coverage during the last decades (OECD 2017, Visser 2016, 2013). This also holds for Germany where collective bargaining is centralized at the industry level.<sup>1</sup> The share of firms covered by industry-level agreements declined from 47.9 percent in the year 2000 to 32.9 percent in the year 2011 (Addison et al. 2017). The share of firms covered by firm-level agreements remained small. Thus, Germany experienced a marked growth in the share of firms without collective agreements of any kind. Some authors have diagnosed an exhaustion (Streeck 2009), erosion (Hassel 1999) or even a demise (Addison et al. 2017) of the German industrial relations system.

Against this background, a series of studies have examined the determinants of collective bargaining coverage of firms (see Jirjahn 2016 and Schnabel 2020 for surveys). However, solely focusing on the collective bargaining coverage of firms may only partially reveal the pattern of changes in industrial relations. A more complete picture can be obtained if we expand the perspective and also consider the determinants of firms' membership in employers' associations.

Multi-employer bargaining is conducted by employers' associations. Thus, one may view collective bargaining coverage as an indicator of membership in employers' associations (Schnabel and Wagner 1996). However, the overlap between collective bargaining coverage and membership in employers' associations is far from being perfect. On the one hand, there are firms which are members of employers' associations, but are not covered by a collective agreement. In Germany, some employers' associations offer a membership status freed from collective bargaining coverage. On the other hand, firms

may be covered by collective agreements without being members of an employers' association. An industry-level agreement can have subsequent validity even after a firm has withdrawn from the employers' association. Finally, employers may conduct firm-level negotiations with or without assistance by an employers' association.

Examining membership in employers' associations not only contributes to a fuller picture of the extent to which firms comply with the traditional industrial relations system in Germany or turn away from the system. Employers' associations are also important actors in the political system lobbying the state on behalf of their members and participating in corporatist arrangements. This gives rise to the question of their representativeness (Martinez Matute and Martins 2020). Examining the factors that influence firms' membership in employers' associations can provide useful indications of which interests employers' associations represent in the political arena.

This paper provides a theoretical and empirical analysis on the determinants of membership in employers' associations and collective bargaining coverage. In the theoretical part, we discuss the benefits and costs influencing the membership decision. We argue that benefits and costs of a membership and the implied collective bargaining coverage depend on circumstances and type of firm. The theoretical discussion emphasizes the influence of foreign ownership, firm-level worker representation, work organization, firm size, age, and East-West differences.

The empirical analysis uses unique firm-level data to estimate the determinants of the membership in an employers' association and the coverage by industry-level or firm-level agreements. The analysis particularly focuses on the various constellations of membership and collective bargaining coverage. Analyzing the various constellations not

only shows the determinants leading firms to conform to the traditional industrial relations system with both membership in an employers' association and industry-level bargaining or to completely turn away from that system. It also provides insights into the determinants of mixed constellations – specifically firm-level bargaining without membership in an employers' association and withdrawal from employers' associations with continued coverage by industry-level agreements.

The results show that foreign-owned firms are less likely to comply with the traditional industrial relations regime characterized by membership in an employers' association and coverage by industry-level bargaining. They are more likely to completely turn away from traditional industrial relations system by avoiding both membership in an employers' association and any kind of collective bargaining coverage. The results also suggest that foreign-owned firms are less likely to give membership in an employers' association a try. Thus they are less likely to end up in a situation in which they withdraw from the employers' association and the industry-level agreement still has validity. Differentiating between European and non-European foreign owners shows that while both types of foreign owners tend to avoid industry-level bargaining, non-European foreign owners specifically tend to avoid collective bargaining coverage of any kind.

Moreover, the results confirm that smaller, younger, and East German firms contribute to the erosion of traditional industrial relations in Germany. These firms are less likely to belong to the regime with both membership in an employers' association and coverage by an industry-level agreement. East German firms are more likely to be characterized by non-membership and the absence of collective bargaining coverage of any kind.

Furthermore, the estimates provide some evidence that a more flexible organization of work contributes to a decentralization of collective bargaining. While the results provide no evidence that flexible production entails a complete turning away from collective bargaining, they suggest that flexible production increases the propensity for firm-level bargaining. The results also provide some indications that this decentralization occurs without involving employers' associations as traditional collective bargaining institutions.

Finally, the analysis shows that firm-level worker representation plays an important role. The incidence of a works council and a high unionization of the firm's workforce increase the likelihood that a firm conforms to the traditional industrial relations regime. The estimations also indicate that the incidence of a works council makes it less likely that a firm withdraws from an employers' association (and ends up in a situation in which the industry-level agreement is still valid).

Altogether, this study contributes to the literature by combining two strands of studies – studies examining the determinants of collective bargaining coverage and studies examining membership in employers' associations. In particular, the fledgling literature on membership in employers' associations is rather small (e.g., Behrens and Helfen 2016, Gooberman et al. 2019, Martins 2020). A few studies have used aggregate industry- or country-level data to examine the determinants of membership density (Brandl and Lehr 2019, Helfen 2011, Traxler 2000, 2004). This study uses firm-level data to examine the factors that influence the membership decision of firms.

The rest of the paper is organized as follows. Section 2 describes the institutional framework. Section 3 provides the theoretical background discussion. The fourth section



describes the data and variables. The estimates are presented in the fifth section. The sixth section concludes.

## **2. Institutional Framework**

In Germany, business interests are covered by three different types of associations, namely chambers of industry and commerce, industry associations, and employers' associations. While membership in chambers of industry and commerce is obligatory for the vast majority of firms, membership in industry and employers' associations is voluntary.

Chambers of industry and commerce are involved in the system of vocational education and training and mainly provide services in the areas of business start-ups, tax- and law questions, local economic policy, and expansion in international markets. The umbrella organization is the Association of German Chambers of Industry and Commerce. Industry associations represent product-market related interests. The Confederation of German Industry is the national peak organization.

Employers' associations (EAs) represent the labor-market interests of firms (Behrens 2016, 2018, Demougin et al. 2018, Silvia 2013, Silvia and Schroeder 2007, Weckwerth and Weishaupt 2019). There are about 700 EAs in Germany. Most of them are regional organizations covering a single industry. The vast majority of these associations belong to the national federation for their industry, such as the General Association of Metal-Industry Employers' Associations or the Federal Employers' Association of the Chemical Industry. The national federations belong in turn to the peak organization of employers' associations, the Federal Organization of German Employers' Associations.

EAs have three functions. First, they participate in corporatist arrangements. In such corporatist arrangements, EAs not simply lobby the state on behalf of their members.

They often provide information and expert advice to the state and are involved in the formulation and even implementation of public policy (Streeck 1983). In particular, EAs are involved in the system of vocational education and training (Culpepper 2001, Soskice 1994). EAs, unions and state actors jointly decide on the creation of new occupational profiles and reforms of existing training regulations. Second, EAs provide a series of services to their members including advice in the areas of employment law, human resource management (HRM), and public relations. They also create opportunities for networking so HR managers of a firm can make contact with HR managers of other firms. Third, multi-employer collective bargaining is the most important task to be pursued by EAs.

Multi-employer collective agreements are negotiated between EAs and unions on an industry level. Collective agreements regulate wage rates and general aspects of the employment contract such as working hours. Firms covered by a collective agreement apply the contract to both union and non-union members. Thus, employees may have little incentive to join a union. Indeed, the share of workers covered by collective bargaining is much higher than the share of union members.

Firms are usually covered by an industry-level agreement if they are members of an EA. Thus, as membership in an EA is voluntary, coverage by an industry-level agreement usually depends on the firm's membership decision. This implies that we can distinguish between two typical constellations. The first typical constellation is that a firm is a member of an EA and, hence, is covered by an industry-level agreement. The second typical constellation is that the firm is not a member of an EA and is not covered by collective bargaining at all.

However, there also exist a series of other constellations. One of these constellations is that the firm is not a member of an EA, but is nonetheless covered by an industry-level agreement. There can be two reasons for this constellation. On the one hand, the firm has withdrawn from an EA. Yet, withdrawal from the EA does not necessarily mean that the firm is no longer covered by the collective agreement. Even after the firm's withdrawal from the EA, the current collective agreement has validity as long as it has not expired. On the other hand, there may be a mandatory extension of a collective agreement. An industry-level agreement can be extended to non-member firms by the Federal Ministry of Labor. However, such mandatory extensions are relatively rare in Germany (OECD 2017, Paster et al. 2020).

Another constellation is that a firm is the member of an EA without being covered by collective bargaining. In the 1990s, some EAs started offering a so called "OT" (Ohne Tarifbindung) membership status (Behrens and Helfen 2019). Firms can be members of the association, but are freed from applying the terms and conditions of the collective bargaining agreement to their workforces. Firms with an "OT" membership status usually pay lower membership dues. They may avail themselves of the association's legal, lobbying and personnel services, but are not eligible to receive strike insurance payments from the EA.

Finally, there are firms covered by firm-level agreements. This can occur with and without membership in an EA. Some employers may seek the assistance of an EA when they conduct firm-level negotiations with a union. Others may prefer not to join an EA. However, not joining an EA does not always guarantee that a firm can avoid collective bargaining coverage. Unions may pressure the firm to negotiate a firm-level agreement.

### **3 The Firm's Membership Decision**

In what follows, we first discuss the general benefits and costs of the membership in an employers' association. We proceed by emphasizing that the benefits and costs of a membership and the implied collective bargaining coverage depend on a series of firm characteristics. Hence, the membership and also the collective bargaining status of a firm should depend on its specific characteristics. In order to derive empirically testable hypotheses, we argue that firm-level worker representation, foreign ownership, a flexible organization of work, firm size, age, and East-West differences should play a role in the firm's membership decision.

#### *3.1 Benefits and Costs of a Membership*

A firm's decision to join an EA depends on the expected benefits and costs. One benefit may be that the firm gains influence on public policy through the EA. However, this can entail a collective action problem (Olson 1965). To the extent employers share common political interests, political influence is a public good to them. Not only members of the association, but also non-members benefit from the influence on public policy. This can result in a free rider problem so that gaining political influence may only involve a relatively weak incentive to join an EA.

The services provided by EAs are a further benefit of membership. As these services are only selectively provided to members, they are likely to involve stronger incentives to join an association. One important service is legal advice and support. An association may even represent a firm's interest in the court room. Many associations employ their own attorneys and the directors of the associations often have a law degree

(Behrens 2018). EAs also provide advice and support in matters of HRM such as working time models, and education and training. Some associations even have hired engineers who assist firms in optimizing work processes, applying wage scales to their workforces and assigning wage classifications to individual employees (Behrens 2016).

Networking can also provide an important incentive to join an association. EAs are platforms for networking among firms. They provide the opportunity for managers from the same industry to share experience and information. EAs not only gather information from their members, process the information, and communicate aggregate information back to members. They also provide opportunities for direct communication among members. For example, an EA may implement circles in which HR or production managers of different firms regularly meet to discuss specific topics (Weckwerth and Weishaupt 2019).

Such networking also offers opportunities to managers for socializing. Case study evidence suggests that managers value EAs as platforms for their local social life (Weckwerth and Weishaupt 2019). Membership in an EA may be viewed similar to the membership in a golf club, Rotary club or Lions Club. Against this background, insights from social custom models on trade union membership (Booth 1985, Corneo 1995, Naylor and Cripps 1993) can also apply to membership in EAs. Membership in an EA involves that managers of the firm receive social recognition from their peers in other member firms. This provides an incentive to support the firm's membership in the association.

EAs and the networks created by these associations also play a role in coordinating members' behavior. Such coordination ensures that firms comply with the standards of apprenticeship training and contributes to preventing poaching of skilled labor (Soskice

1994). More generally, it reduces competition among employers by facilitating collusion so they get monopsony power in the labor market (Martins 2020). An EA can help sustain collusion by monitoring firms. In particular, communication and information sharing among firms contributes to building long-term inter-firm relationships characterized by reciprocity, reputation and trust. These long-term relationships help overcome short-term temptations to deviate from collusive arrangements (Ostrom 1998).

However, membership in an EA not only involves benefits. It also entails a series of costs. First, a firm has to pay the membership dues. Second, coordination among the members of the EA entails restrictions on the individual firm's flexibility to its preferred personnel policy. The firm has to follow the specific standards and requirements set by the EA. Third, participating in the inter-firm network may imply that the firm has to reveal sensitive information to other firms. Managers might fear that competitors could use this information against the firm's interest.

To the extent that membership in an EA implies coverage by the corresponding industry-level agreement, there are a series of further benefits and costs the firm will consider when making its membership decision. The firm may save on transaction costs by being covered by an industry-level agreement. If the firm does not join the employers' association, it may be at risk that a union pressures to negotiate a firm-level agreement. The firm can avoid the transactions costs of firm-level negotiations if the employers' association negotiates an industry-level agreement with the union.

More generally, centralized collective bargaining reduces distributional conflicts at the firm level. If basic distributional conflicts are moderated by unions and employers' associations outside the firm, management and employees can build more cooperative

relationships (Freeman and Lazear 1995, Hübler and Jirjahn 2003, Jirjahn 2017). Management and employees can have a stronger focus on creating joint surplus instead of fighting over the distribution of the surplus.

Collective bargaining coverage also has a commitment value. The firm commits itself to paying the wage and to implement the working conditions specified in the collective agreement. This increases workers' trust in the firm's personnel policy and, hence, fosters their motivation.

Moreover, collective bargaining coverage may have a signaling value. By paying wages and providing working conditions specified in the collective agreement the firm can signal applicants that it is a good employer. Such signaling helps in attracting skilled employees and filling vacancies (Backes-Gellner and Tuor 2010).

However, paying the wages and providing the working conditions specified in the collective agreement can entail higher labor costs. Moreover, centralized collective bargaining may impose further restrictions on the firm's flexibility to pursue its preferred personnel policy. As these restrictions are the result of the negotiations with unions, they come on top of the ones imposed by the informal coordination among the member firms of the employer's association.

Most salient to our empirical analysis, the benefits and costs of membership in an EA and coverage by a collective agreement depend on circumstances and type of firm. Thus, the membership and collective bargaining status of a firm should depend on its specific characteristics. In what follows, we hypothesize that firm-level worker representation, foreign ownership, work organization, firm size, firm age and differences

between East and West Germany are important determinants of membership and collective bargaining status.

### *3.2 Firm-Level Worker Representation*

In Germany, works councils provide a highly developed mechanism for worker representation at the firm level (Jirjahn and Smith 2018). Works councils are mandatory but not automatic. Their creation depends on the initiative of the firm's workforce. Hence, works councils are not present in all eligible firms. For several reasons, the presence of a works council should have a positive influence on the firm's membership in an EA and on the coverage by a collective agreement.

While works councils and unions are formally independent, there are important linkages. Unions provide training and legal expertise for works councils. Works councils in turn represent unions' interests within the firm and help unions recruit members (Behrens 2009). A works council may also put pressure on the employer to join an EA and to participate in collective bargaining.

Moreover, the employer may have an increased interest in joining the EA when a works council is present. The employer has to negotiate the firm's personnel policy with the works council. An EA can provide support and legal advice in these negotiations. In addition, the coverage by an industry-level agreement may help the employer in building cooperative relationships with the works councils as basic distributional conflicts are separated from firm-level codetermination (Freeman and Lazear 1995, Hübler and Jirjahn 2003, Jirjahn 2017).

The share of employees who are union members should also have a positive influence on the firm's membership in an EA and its coverage by a collective agreement.



Unionized employees receive support and advice from their unions. Thus, a highly unionized workforce may pursue more coordinated and effective actions to pressure management to join the EA and to participate in collective bargaining (Jirjahn 2021). The firm may be also more interested in a membership if a high share of the workforce is unionized. The support provided by unions to their members strengthens the position of employees vis-a-vis the employer (Goerke and Pannenberg 2012). Thus, the firm is likely to have a greater need for the legal advice and support by an EA.

### *3.3 Foreign Ownership*

The last decades have witnessed an enormous growth in foreign direct investment (FDI) around the world. There are about 82,000 multinational companies (MNCs) in the world controlling 810,000 foreign affiliates (Edwards et al. 2013a). MNCs account for roughly a third of total world trade and employ about 80 million people outside the companies' home base. Germany is one of the largest host economies for inward FDI (Jost 2013). The growth in corporate globalization has led to concerns about the threats to national institutions in general and to collective bargaining systems in particular. However, from a theoretical viewpoint, the influence of foreign owners on a firm's membership and collective bargaining status is ambiguous.

On the one hand, foreign owners may have an increased interest that their local subsidiaries are members of an EA. The association could help foreign owners in adjusting to the institutional and cultural frameworks in the host country. Foreign owners might even have an increased interest in collective bargaining coverage. Employees in foreign-owned subsidiaries face higher levels of uncertainty and ambiguity as important decisions are made overseas by the managers of the parent company and foreign owners bring new

management concepts and production concepts to their subsidiaries (Dill and Jirjahn 2016). Foreign-owned subsidiaries may use collective bargaining coverage as a signaling and commitment device to reduce uncertainty and, hence, to increase employees' cooperativeness.

However, on the other side, foreign MNCs tend to be more volatile than domestic owners (Fabbri et al. 2003, Meriküll and Rõõm 2014, Navaretti et al. 2003, Slaughter 2001, Wagner and Weche Geluebcke 2012, Wang et al. 2018) and their subsidiaries appear to have a stronger focus on short-term profit (Dill et al. 2016). If foreign MNCs maintain capacity to produce the same product in different national markets, they have the ability to respond more quickly to changing market conditions in the host country by partially or completely shifting production to facilities in other countries. This implies that foreign owners should be less interested in building long-term relationships with the employees in the host country. Thus, they may value collective bargaining coverage to a lesser degree as a signaling and self-commitment device to build trustful and cooperative industrial relations. They may be even less interested in the networking opportunities offered by EAs to build long-term relationships with other firms. This can also entail that managers of foreign-owned subsidiaries are less interested in socializing with managers of other firms in the host country. Managers of foreign-owned subsidiaries are likely to have a stronger focus on the international inter-firm network created by the foreign MNC.

Moreover, foreign-owned firms have an increased need for flexibility. MNCs tend to implement unified management practices in their subsidiaries (Doeringer et al. 1998, Edwards et al. 2016, Freeman et al. 2008, Geary and Roche 2001, Heywood and Jirjahn 2014, Walsh 2001). These practices follow company-wide standards across sites in

different countries. MNCs also tend to use coercive comparisons of their subsidiaries in different countries to extract concessions from local workforces (Ferner and Edwards 1995, Greer and Hauptmeier 2016, Martinez Lucio and Weston 1994, Mueller and Purcell 1992). It is easier for managers to implement unified management practices and to extract concessions from the workforce if the firm is not bound to the restrictions imposed by centralized bargaining in the host country. This suggests that foreign-owned firms tend to avoid centralized agreements (Bognanno et al. 2005, Cooke 1997, 2001, Hamm and Kleiner 2007, Jirjahn 2021, Marginson and Meardi 2012, Marginson and Sisson 1996). In a similar vein, they may also tend to avoid membership in an EA if the standards and requirements set by the association and its network of member firms impose restrictions on their flexibility.

### *3.4 Work Organization*

The last several decades have also witnessed a change in the organization of work. This change can be characterized by a shift away from Tayloristic mass production to a more lean and flexible production concept emphasizing quality and speedy responses to changing market conditions (Campaner et al. 2021, Caroli et al. 2001, Lindbeck and Snower 2000, Milgrom and Roberts 1990). A key feature of flexible production is the decentralization of work organization involving increased multitasking and the delegation of responsibilities and decision rights to lower level staff. Employees are given more autonomy in how to carry out their work or which projects to undertake. This allows the flexible use of local information available at lower layers of hierarchy.

On the one hand, firms using flexible production concepts may have an increased incentive to join an EA. The employers' association may provide expertise in successfully

adopting a flexible organization of work. Employers using flexible production may particularly value the networking opportunities offered by the association to exchange experience and information on flexible production concepts with other employers.

However, on the other hand, to the extent membership in an EA involves coverage by collective bargaining, firms using flexible production may tend to avoid a membership (Katz 1993, Lindbeck and Snower 2001, Ramaswamy and Rowthorn 1993). Flexible production involves more heterogeneous working conditions. It blurs occupational barriers as employees perform a broader set of tasks spanning more than one of the traditional occupational groupings. Flexible production has also a crucial dynamic dimension. A speedy adjustment of production to changing market conditions as well as continuous process improvements to increase quality imply relatively frequent changes in workers' tasks. These changes are specific to the respective situation and firm. Yet, centralized agreements require a standardization of tasks. Negotiating wage scales at an industry level presupposes that these wage scales can be applied by the various firms within the industry. This is only feasible if workers' tasks are similar within these firms. Employers using flexible production may view the standardized wage scales and work rules of industry-level agreements as imposing too many restrictions on the ability to implement a work organization that accounts for the specific situation within the individual firm.

### *3.5 Firm Size*

Larger firms often have their own personnel department with specialized HR managers and experts in labor and employment law. Thus, they might have less need for the services and support provided by EAs (Behrens 2018). While this could imply a negative link between firm size and membership, a series of reasons suggest that larger firms are likely to have

an increased interest in joining an EA. Larger firms are more complex organizations with a wider variety of personnel issues that need to be handled. Thus, larger firms may have an increased demand for the services and support provided by an EA, even if they have personnel departments with professional HR managers.

The services and opportunities provided by EAs may be rather complementary than substitutive to a professional personnel policy within the firm. If a firm has professional HR managers, it can more effectively participate in the inter-firm networks and opportunities for information exchange offered by EAs. Thus, these networking opportunities may have a greater value to larger firms.

Larger firms may also have a higher willingness to join an EA because they have a greater chance to gain influence and a position of power within the association (Martins 2020). In Germany, some EAs have established weighted voting rights that explicitly favor firms having a larger number of employees or paying a higher amount of membership dues (Behrens 2018). Yet, even in associations that follow the ‘one member, one vote’ principle, larger employers are likely to have greater influence than smaller ones. Larger employers have more resources to play a more active role in the association by, for example, participating in commissions. Furthermore, the directors of the association usually have some scope in the formulation of its strategy. They may use this scope to pay more attention to the interests of well-paying members.

Finally, given that larger firms tend to pay higher wages than smaller ones (Schmidt and Zimmermann 1991), they are more likely to view the wage levels set in industry-level agreements as being appropriate. Thus, if membership in an employers’ association involves coverage by an industry-level agreement, larger firms are less likely to view this

as entailing higher wage costs (Schnabel et al. 2006). Quite the contrary, larger firms may even save labor costs if the wages set in an industry-level agreement are lower than those they would have to pay in case of firm-level bargaining. Larger firms that are not members of an EA face an increased risk to be targeted by unions and, hence, a higher pressure to negotiate firm-level agreements. Unions are more likely to target larger firms as these firms can provide a higher number of union members and usually have higher rents that can be shared with workers.

### *3.6 Firm Age*

The age of a firm is also likely to play a role in its membership and collective bargaining status. Younger firms are less experienced. On the one hand they might be particularly interested in the expertise and services provided by an EA. On the other hand, they learn through experimentation and trial and error without being strongly bound or guided by organizational routines. Thus, their internal organization is more in flux. This suggests that younger firms are more likely to view membership in an EA and coverage by an industry-level agreement as imposing too many restrictions on their flexibility (Schnabel et al. 2006).

Moreover, liability of newness implies that younger firms are more likely to close (Marta and Portugal 1994). Inexperienced managers of younger firms make more mistakes so that these firms are more likely to fail because of inadequacies in managerial knowledge (Thornbill and Amit 2003). A higher likelihood of failure means that younger firms have a shorter expected time horizon implying that they may be less interested in using collective bargaining coverage as a self-commitment device to build long-term cooperative relationships with their employees.

Finally, if younger firms have a lower ability to pay, the wages set in collective agreements may be too high for these firms (Martins 2020). The technology of younger firms may have not yet been well defined (Bartel 1994) and they are less likely to produce well-known products providing a brand loyalty of customers (Scherer 1980). Thus, younger firms may have lower productivity and profitability resulting in a lower ability to pay.

### *3.7 East and West Germany*

Finally, differences between East and West Germany have to be taken into account. Following reunification, the transfer of western German industrial relations to East Germany resulted in a series of frictions (Hyman 1996, Schmidt 2003). Despite a much lower productivity than in West Germany, unions and EAs negotiated excessively high wages in East Germany to narrow differences in the standards of living, to reduce East-West migration, and to avoid that firms in East Germany undercut West German firms. The high wages induced many East German firms to withdraw from EAs and to opt out of centralized bargaining. Productivity in East Germany is still below the West German level (IWH 2019). Moreover, there can be path dependence. Negative experiences in the past have led to increased distrust in collective bargaining institutions among East German employers.

## **4. Data, Variables and Methodology**

### *4.1 Data Set*

Our empirical investigation uses representative firm data collected in the context of the research project “Profit Sharing and Share Ownership of Employees in Germany” (Fietze

et al. 2012, Matiaske et al. 2009). The research project was conducted by Chemnitz University of Technology and University of Flensburg. The Hans Boeckler Foundation provided financial support. The survey was carried out by Produkt + Markt, a leading market research institute in Germany. The data set is available to interested researchers through GESIS – Leibniz Institute for the Social Sciences.

The population of the survey consisted of firms in Germany with at least 150 employees. In November of 2007, the data were collected on the basis of a standardized questionnaire in telephone interviews with the top managers or personnel managers of 1,201 randomly drawn firms. The data are unique in that they provide firm-level information on the membership in employers' associations. Other German data sets such as the IAB Establishment Panel or the Hannover Firm Panel do not contain this information.

For the empirical analysis, we exclude the public sector and non-profit organizations. After eliminating observations for which full information is not available, the investigation is based on data from 610 firms.

#### *4.2 Membership and Collective Bargaining Status*

The survey asks if the firm is a member of an EA and if it is covered by an industry-level or a firm-level agreement. Table 1 provides descriptive statistics on the various constellations of membership and collective bargaining status. The descriptive statistics show that there is a strong overlap between EA membership and collective bargaining coverage. 77 percent of the firms are characterized by either EA membership and collective bargaining coverage or no EA membership and no coverage. However, the overlap is far



from being perfect. 23 percent of the firms either are covered by a collective contract without being an EA member or are EA members without being covered.

All of the constellations discussed in Section 2 can be found in the data. 46.23 percent of the firms are covered by an industry-level agreement and are members of an EA. 6.39 percent are covered by industry-level bargaining without being members in an association. 7.38 percent of the firms negotiate firm-level agreements and are at the same time members of an EA. 7.54 percent negotiate firm-level agreements without being members in an association. 9.02 percent are not covered by a collective agreement, but are members' of an EA. 23.44 percent of the firms are neither covered by collective bargaining nor are they members in an association.<sup>2</sup>

#### *4.3 Explanatory Variables*

Table 2 provides definitions and descriptive statistics of the explanatory variables. Worker representation at the firm level is captured by a dummy for the incidence of a works council. Moreover, a variable for the share of union member within the firm is included. The survey asks interviewees to indicate a category for the share of the firm's employees who are union members: 0, 1–10, 11–25, 26–50, 51–75, and 76–100 percent. The variable for the share of union members is defined by the midpoints of the intervals.

Ownership is taken into account by a dummy equal to 1 if the firm is owned by a foreign company. In additional analyses, we will also distinguish between European and non-European foreign owner in order to examine if the home base of an MNC has an influence on the membership and collective bargaining status of its subsidiary.

Dummy variables for teams with increased responsibilities, quality circles, delegation of decisions, and employee attitude surveys capture an organization of work

that aims at a flexible use of local information available at lower layers of hierarchy. Furthermore, regional differences in the propensity to participate in collective bargaining are accounted for by a dummy for firms located in East Germany. The regressions also include variables for firm size and firm age. Firm size is measured by the log of number of employees. Firm age is defined as the time span between the year 2008 and the year of foundation of the firm.

Finally, the regressions include a series of additional controls. A variable for the share of blue-collar workers captures the structure of the workforce. Dummy variables for regular performance feedback, target agreements, and profit sharing for managers account for the employer's performance management.

## **5. Regression Results**

### *5.1 Determinants of EA Membership and Collective Bargaining Coverage*

From Table 1 we have learned that there is a clear overlap between EA membership and collective bargaining coverage, but that the overlap is far from being perfect. This gives rise to the question of whether or not the same factors influence EA membership and collective bargaining coverage. Thus, in a first step, we compare the determinants of EA membership and collective bargaining coverage.

Table 3 provides average marginal effects calculated from logit regressions with dummy dependent variables for EA membership, coverage by an industry-level agreement, coverage by a firm level agreement, and no coverage by a collective agreement. Note that each of the three dummies for the respective collective bargaining regime uses the two other regimes as the reference group. This allows us to identify the unique firm characteristics associated with a collective bargaining regime.<sup>3</sup>

The estimations show that employee representation at the firm level plays an important role in the firm's membership status. The incidence of a works council and the share of union members are significantly positive determinants of EA membership. Works council incidence increases the likelihood of an EA membership by 17 percentage points. Given that 63 percent of the firms are EA members, this implies an increase in membership likelihood by 27 percent. A 10 percentage point higher share of union member is associated with a 5 percentage point higher likelihood that the firm is a member of an EA.

Employee representation at the firm level also plays a role in collective bargaining coverage. Works council incidence is a significantly positive determinant of both coverage by an industry-level agreement and coverage by a firm-level agreement. For each type of collective agreement, the presence of a works council increases the probability of coverage by about 9 percentage points respectively. Unionization of the workforce is significantly associated with the coverage by an industry-level agreement. A 10 percentage point higher share of union members increases the likelihood of participating in industry-level bargaining by roughly 6 percentage points.

Altogether, the results provide evidence that firms with works councils and a high share of union members are more likely to conform to the traditional German industrial relations regime characterized by both EA membership and coverage by an industry-level agreement. On the one hand, works councils and unionized workers may pressure employers to join an EA and to participate in collective bargaining. On the other hand, employers may have an increased interest in EA membership and collective bargaining coverage. Employers are likely to have an increased need for the support and advice provided by an EA when a works council participates in decision making or a high share

of workers is unionized. Moreover, collective bargaining coverage may help reduce distributional conflicts that otherwise need to be solved with the works council. The reduction of distributional conflicts enables employers and works councils to build more cooperative and productive relationships.

Larger firms are also more likely to conform to the traditional industrial relations regime in German. Firm size is a significantly positive determinant of both EA membership and coverage by an industry-level agreement. On the one hand, larger firms may have an increased interest in the services provided by EAs as they have more complex HRM problems. On the other hand, they may have more resources to actively participate in the inter-firm networks offered by EAs. They may also have a higher chance to influence decision making within EAs. Moreover, since larger firms tend to pay higher wages, they are less likely to view industry-level agreements as entailing higher wage costs. They may even save wage costs as they can avoid direct negotiations with unions about firm-level agreements.

Furthermore, older firms are more likely to conform to the traditional German industrial relations regime. Firm age is a significantly positive determinant of both EA membership and coverage by an industry-level agreement. The internal organization of older firms is less in flux than that of younger ones. Thus, older firms may be less likely to view EA membership and industry-level agreements as imposing too strong restrictions on their flexibility. Moreover, if older establishments have a higher ability to pay, they may be also less likely to regard the wages specified in collective agreements as too costly. Finally, older firms typically have a lower likelihood of failure and, hence, a longer time horizon. Thus, they may be more interested in using collective bargaining coverage as a

commitment device to build long-term cooperative relationships with the workforce. Of course, path dependency or organizational inertia can also play a role in the influence of firm age. Situations at some time in the past have led a firm to join an EA and to be covered by an industry-level agreement. Because of path dependency or organizational inertia the firm does not change its decision at a later point of time even when circumstances change.

Foreign ownership appears to be a challenge for the traditional German industrial relations system. While foreign ownership does not emerge as a significant determinant of EA membership, it has a significant influence on collective bargaining coverage. Foreign-owned firms have a higher likelihood of not being covered by a collective agreement. This is driven by a lower likelihood of being covered by an industry-level agreement. Foreign ownership decreases the likelihood of participating in industry-level bargaining by 14 percentage points. The result conforms to the notion that foreign MNCs tend to avoid centralized bargaining as it imposes restrictions on their flexibility to implement company-wide management practices and to use coercive comparisons among their subsidiaries. Foreign owners are also more volatile and, thus, may be less interested in using collective bargaining coverage as a self-commitment device to build long-term cooperative relations with the workforce.

Furthermore, the estimations provide some evidence that a flexible organization of work plays a role. While the use of teams does not take significant marginal effects in the regressions, quality circles and the delegation of decisions emerge as significant determinants. The use of quality circles decreases the probability of participating in industry-level bargaining by 14 percentage points and increases the probability of firm-level bargaining by 19 percentage points. The delegation of responsibilities and decisions

to lower levels of hierarchy is associated with a 9 percentage point lower likelihood of EA membership and a 7 percentage point higher likelihood of coverage by a firm-level agreement. Altogether, the results fit the notion that flexible production contributes to a decentralization of collective bargaining and, hence, also challenges the traditional industrial relations system in Germany. However, the results provide no evidence that flexible production entails a complete turning away from collective bargaining. They rather suggest that it increases the propensity for firm-level bargaining.

Finally, the estimates show that firms in East Germany are significantly less likely to be covered by industry-level bargaining. East German firms have a 10 percentage point lower likelihood of being covered by an industry-level agreement than their counterparts in the western part of the country. On the one hand, this may reflect the negative experiences East German firms made when West German industrial relations institutions were transferred to East Germany after reunification. These negative experiences might have led to some path dependency resulting in divergent developments of industrial relations in the eastern and the western part of the country. On the other hand, East Germany is still lagging behind West Germany in terms of economic performance. Thus, the development of industrial relations in both parts of the country might converge in the future if economic conditions converge.

To summarize, a series of the determinants of EA membership bear similarities to the determinants of industry-level bargaining coverage. Unionization of the workforce, works councils, firm size, and firm age are positive determinants of both EA membership and coverage by an industry-level agreement. These similarities reflect that EA membership and industry-level bargaining are strongly connected in Germany. Typically,

firms are covered by industry-level bargaining if they are members of an EA. Nonetheless the initial regressions also show a series of differences. Location in East Germany and foreign ownership are significantly determinants of industry-level bargaining, but they do not emerge as significant determinants in the regression on EA membership. Moreover, it appears to be important to distinguish between coverage by industry-level and firm-level agreements. This specifically applies to the variables for a flexible work organization. Both delegation of decisions to lower layers of hierarchy and quality circles are associated with an increased likelihood of firm-level bargaining. However, a significantly negative influence on industry-level bargaining can only be found for quality circles and a significantly negative impact on EA membership only for delegation.

The full pattern of influences may remain partially obscured until combinations of EA membership and collective bargaining are considered. Thus, in the next step, the determinants of the various constellations of EA membership and collective bargaining are estimated.

### *5.2 The Various Constellations of EA Membership and Collective Bargaining Coverage*

Table 4 shows the results of a multinomial logit regression on the determinants of the various constellations of EA membership and collective bargaining coverage. Average marginal effects on the probability of each constellation are calculated relative to the other constellations, respectively.

This regression shows that foreign ownership not only has an influence on collective bargaining coverage, but also on EA membership. Foreign-owned firms have an almost 10 percentage point higher likelihood of not being an EA member and not being covered by any collective agreement. The regression confirms that foreign owners

particularly avoid industry-level bargaining. Foreign-owned firms are less likely to belong to the industrial relations regime with both EA membership and industry-level bargaining. Moreover, they are also less likely to belong to those firms that are covered by an industry-level agreement without being EA members. There are two possible explanations for the latter finding. On the one hand, foreign-owned firms may be more reluctant to try an EA membership. Thus, they are less likely to end up in a situation in which they withdraw from the EA while the collective agreement has still validity. On the other hand, foreign owners may tend to avoid sectors where the government extends industry-level agreements to non-member firms. However, given that mandatory extensions are relatively rare in Germany, this might be a less plausible explanation.

Location in East Germany now also emerges as a significant determinant of EA membership. East German firms have a 9 percentage point higher likelihood of not being an EA member and not being covered by any collective agreement. They are less likely to belong the industrial relations regime with both EA membership and industry-level bargaining. These results conform to the notion that the development of industrial relations in East Germany has not converge to the West German industrial relations system so far.

The regression confirms the view that a flexible organization of work challenges centralized collective bargaining. Firms with quality circles have a 16 percentage point lower likelihood of belonging to the traditional industrial relations regime with both EA membership and industry-level bargaining. Particularly interestingly, delegation of responsibilities and decisions to lower layers of hierarchy is associated with an 8 percentage point higher likelihood that a firm is covered by firm-level bargaining without membership in an EA. This latter result suggests that a flexible organization of work not



simply induces firms to prefer a decentralization of collective bargaining. It leads firms to prefer decentralized bargaining without involving EAs as traditional collective bargaining institutions.

The share of union members within a firm reduces the chance that the firm completely withdraws from the traditional industrial relations institutions in Germany. A 10 percentage point higher share of unionized workers is associated with a 7 percentage point lower likelihood that the firm is both no EA member and not covered by collective bargaining. The share of union members has a positive influence on the coverage by an industry-level agreement. This influence is with almost 7 percentage points particularly strong for the industrial relations regime with both industry-level bargaining and EA membership. The regressions also indicate that the share of union members increases the likelihood of firm-level bargaining coupled with EA membership. However, this influence is quantitatively weak.

The incidence of a works council increases the chance that a firm belongs to the industrial relations regime with both EA membership and industry-level bargaining. Works council incidence is associated with a 13 percentage point higher likelihood of being an EA member and participating in industry-level bargaining. However, works council incidence decreases the likelihood that a firm is no EA member, but is nonetheless covered by an industry-level agreement. An explanation for this finding may be that firms are less likely to withdraw from EAs (and still remain covered by a valid collective agreement) if a works council is present. On the one hand, firms with a works council may need more support by EAs and, hence, have a higher incentive to remain EA members. On the other hand, works councils may exert pressure on firms to stay in EAs.

Larger firms have a higher likelihood of belonging to the traditional industrial relations regime with both EA membership and industry-level bargaining. This also holds for older firms. Put differently, the results conform to the view that smaller and younger firms also contribute to the erosion of the traditional industrial relations system in Germany (Hassel 1999).

Finally, note that, apart from the marginal effect of employee surveys, the estimated influences in the equation for EA membership without collective bargaining coverage are not well determined. This might indicate that the decision for a so-called OT membership is rather driven by idiosyncratic factors. Moreover, as not all employers' associations offer an OT membership, firms' opportunity to choose this constellation may be rather limited.

Altogether, analyzing the various constellations of EA membership and collective bargaining coverage provides more differentiated insights. It not only shows the determinants leading firms to conform to the traditional industrial relations system with both EA membership and industry-level bargaining or to completely abandon EAs and collective bargaining. It also provides some interesting insights into the determinants of mixed constellations – specifically firm-level bargaining without EAs and withdrawal from EAs with continued coverage by industry-level contracts.

### *5.3 European and Non-European Foreign Owners*

So far our estimations have shown that foreign-owned firms tend to avoid coverage by industry-level agreements. However, there is an ongoing debate as to whether the home base of the MNC plays a role in the behavior of foreign-owned firms (e.g., Edwards et al. 2013a, Edwards et al. 2013b, Ferner et al. 2013, Meardi et al. 2009, Pudelko and Harzing 2007). To examine the role of the foreign owner's location, we return to the initial probit

regressions and distinguish between European and non-European foreign owners. The estimations provided in Table 5 show interesting differences. While firms with European and firms with non-European foreign owners are both less likely to be covered by industry-level agreements, the former are more likely to be covered by firm-level bargaining and the latter are more likely to be without any collective bargaining coverage. Thus, while both European and non-European foreign are a challenge to the German industrial relations system, non-European foreign owners appear to be an even greater challenge.

## **6. Conclusions**

This study examines the factors influencing membership in an employers' association and coverage by industry-level or firm-level agreements. The study give particular attention to the various constellations of membership and collective bargaining coverage. The results show that firm-level worker representation is an important factor leading firms to comply with the traditional German industrial relations regime characterized by both EA membership and coverage by an industry-level agreement.

The opposite holds true for smaller and younger firms, firms with a flexible organization of work, and firms in East Germany. These firms are less likely to comply with the traditional industrial relations system. This suggests that employers' associations aiming at representativeness should give more attention to the needs of these firms.

Finally, the results provide evidence that foreign ownership is a challenge to the German industrial relations system. The behavior of foreign-owned firms follows the transnational logic of multinational companies. Thus, it is an open question if employers' associations will be able to integrate foreign-owned firms into the German industrial relations system.

We conclude with a brief note on future research. Further insights could be obtained if panel data were available. Panel data would allow to analyze the dynamics of the various constellations of EA membership and collective bargaining coverage.

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The author declares that there is no conflict of interest.

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**Table 1:** Distribution of Collective Bargaining Coverage and Membership in Employers' Associations (in %)

	Membership in an employers' association	No membership in an employers' association
Covered by an industry-level agreement	46.23	6.39
Covered by a firm-level agreement	7.38	7.54
Not covered by a collective agreement	9.02	23.44

Number of observations = 610.

**Table 2:** Variable Definitions and Descriptive Statistics of Explanatory Variables

<i>Variable</i>	<i>Definition</i>	<i>Mean</i>
Share of union members	Share of the firm's employees who are union members (in %). The variable is defined by the midpoints of the intervals for the share of union members: 0.0, 5.5, 18.0, 38.0, 63.0, and 88.0%.	23.926
Works council	Dummy equals 1 if the firm has a works council.	0.761
Foreign-owner	Dummy equals 1 if the firm is owned by a foreign company.	0.113
European foreign owner	Dummy equals 1 if the foreign owner is a company from a European country.	0.067
Non-European foreign owner	Dummy equals 1 if the foreign owner is a company from a non-European country.	0.046
Firm age	Time span between the year 2008 and the year of foundation of the firm.	62.554
Ln(firm size)	Log of number of employees in the firm.	5.976
Blue-collar workers	Share of blue-collar workers (in %).	51.900
Teams	Dummy equals 1 if the firm has teams with increased responsibilities.	0.387
Quality circles	Dummy equals 1 if the firm uses quality circles.	0.272
Delegation	Dummy equals 1 if responsibilities and decisions are delegated to lower layers of hierarchy.	0.523
Employee surveys	Dummy equals 1 if the firm regularly conducts employee attitude surveys.	0.154
Performance feedback	Dummy equals 1 if the firm provides performance feedback to workers at least once a month.	0.608
Target agreements	Dummy equals 1 if the firm uses staff appraisal and target agreements.	0.357
Profit sharing for managers	Dummy equals 1 if the firm provides profit sharing for managers.	0.093
East Germany	Dummy equals 1 if the firm is located in East Germany.	0.125

Number of observations = 610.

**Table 3:** Determinants of Membership in an Employers' Association and Collective Bargaining Coverage

<i>Dependent variables</i> <i>Explanatory variables</i>	<i>Membership in an employers' association</i>	<i>Coverage by an industry-level agreement</i>	<i>Coverage by a firm-level agreement</i>	<i>No coverage by a collective agreement</i>
Share of union members	0.0053 (5.31)***	0.0056 (6.07)***	0.0002 (0.37)	-0.0085 (6.07)***
Works council	0.1709 (2.10)**	0.0928 (1.82)*	0.0879 (2.79)***	-0.0924 (2.09)**
Foreign owner	-0.0378 (0.68)	-0.1442 (2.62)***	0.0576 (1.11)	0.0952 (1.73)*
Firm age	0.0015 (3.23)***	0.0009 (2.26)**	0.0001 (0.39)	-0.0011 (2.83)***
Ln(firm size)	0.0513 (2.25)**	0.0575 (2.64)***	-0.0280 (1.46)	-0.0303 (1.43)
Blue-collar workers	-0.00001 (0.03)	0.0004 (0.66)	-0.00003 (0.06)	-0.0003 (0.55)
Teams	0.0525 (0.67)	0.1130 (1.25)	-0.0147 (0.21)	-0.0849 (1.02)
Quality circles	-0.0100 (1.24)	-0.1415 (1.84)*	0.1905 (1.65)*	-0.0040 (0.06)
Delegation	-0.0899 (1.79)*	-0.0731 (1.35)	0.0697 (1.75)*	-0.0017 (0.03)
Employee surveys	0.0459 (0.70)	0.0569 (0.081)	-0.0087 (0.19)	-0.0289 (0.48)
Performance feedback	-0.0007 (0.02)	-0.0150 (0.39)	-0.0140 (0.45)	0.282 (0.86)
Target agreements	0.0425 (0.49)	-0.0085 (0.08)	-0.1322 (1.66)*	0.1150 (1.28)
Profit sharing for managers	-0.0445 (0.76)	-0.0651 (1.00)	-0.0057 (0.11)	0.0763 (1.35)
East Germany	-0.0885 (1.44)	-0.0993 (1.70)*	0.0518 (1.00)	0.0489 (0.91)
Pseudo R <sup>2</sup>	0.1577	0.1416	0.0418	0.2340
Number of observations	610	610	610	610

Method: Logit. The table shows average marginal effects. Robust z-statistics are in parentheses. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

**Table 4:** Collective Bargaining Coverage without and with Membership in an Employers' Association

<i>Categories</i>	<i>No EA membership &amp; No collective bargaining coverage</i>	<i>No EA membership &amp; Coverage by a firm-level agreement</i>	<i>EA membership &amp; Coverage by a firm-level agreement</i>	<i>No EA membership &amp; Coverage by an industry-level agreement</i>	<i>EA membership &amp; Coverage by an industry-level agreement</i>	<i>EA membership &amp; No collective bargaining coverage</i>
<i>Explanatory variables</i>						
Share of union members	-0.0072 (4.44)***	0.0003 (0.66)	0.0008 (1.83)*	0.0009 (1.67)*	0.0066 (6.64)***	-0.0014 (1.31)
Works council	-0.0649 (1.57)	0.0338 (1.29)	0.0233 (0.74)	-0.0907 (1.92)*	0.1327 (2.31)**	-0.0341 (1.01)
Foreign owner	0.0948 (1.70)*	-0.0005 (0.01)	0.0492 (1.16)	-0.0520 (2.60)***	-0.0957 (1.85)*	0.0041 (0.10)
Firm age	-0.0009 (2.31)**	-0.0002 (0.92)	0.0003 (1.73)*	-0.0003 (0.69)	0.0012 (2.91)***	-0.0001 (0.39)
Ln(firm size)	-0.0153 (0.69)	-0.0252 (1.34)	-0.0027 (0.23)	-0.0092 (0.71)	0.0624 (2.92)***	-0.0010 (0.72)
Blue-collar workers	-0.0002 (0.47)	-0.0004 (1.10)	0.0005 (1.15)	0.0071 (1.89)*	-0.0005 (0.79)	-0.00004 (0.10)
Teams	-0.0007 (0.01)	-0.0391 (0.69)	0.0182 (0.32)	0.0064 (0.16)	0.0957 (1.09)	-0.0805 (1.26)
Quality circles	-0.0303 (0.49)	0.1457 (1.34)	0.0264 (0.36)	-0.0024 (0.05)	-0.1550 (1.91)*	0.0156 (0.32)
Delegation	-0.0012 (0.02)	0.0780 (2.82)***	-0.0058 (0.19)	-0.0008 (0.03)	-0.0685 (1.37)	-0.0017 (0.05)
Employee surveys	0.0233 (0.40)	-0.0427 (1.79)*	0.0860 (1.24)	-0.0139 (1.04)	0.0320 (0.41)	-0.0667 (2.56)**
Performance feedback	0.0070 (0.22)	0.0019 (0.08)	-0.0141 (0.60)	-0.0102 (0.49)	-0.0079 (0.21)	0.0233 (0.98)
Target agreements	0.0371 (0.48)	-0.0426 (0.61)	-0.0866 (1.42)	-0.0449 (1.19)	0.0488 (0.50)	0.0882 (1.03)
Profit sharing for managers	0.0739 (1.38)	-0.0239 (0.74)	0.0140 (0.36)	-0.0017 (0.05)	-0.0567 (0.96)	-0.0057 (0.13)
East Germany	0.0888 (1.70)*	0.0056 (0.16)	0.0541 (1.14)	-0.0080 (0.30)	-0.0987 (1.67)*	-0.0417 (1.48)
Log likelihood	-755.3583					
Number of observations	610					

Method: Multinomial Logit. The table shows average marginal effects. Robust z-statistics are in parentheses. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

**Table 5:** European and Non-European Foreign Owners

<i>Dependent variables</i>	<i>Membership in an employers' association</i>	<i>Coverage by an industry-level agreement</i>	<i>Coverage by a firm-level agreement</i>	<i>No coverage by a collective agreement</i>
<i>Explanatory variables</i>				
European foreign owner	-0.0098 (0.14)	-0.1437 (2.07)**	0.1170 (1.60)*	0.0311 (0.41)
Non-European foreign owner	-0.0765 (0.95)	-0.1451 (1.82)*	-0.0350 (0.55)	0.1864 (2.47)**
Pseudo R <sup>2</sup>	0.1582	0.1416	0.0468	0.2365
Number of observations	610	610	610	610

Method: Logit. The table shows average marginal effects. Robust z-statistics are in parentheses. \*\* Statistically significant at the 5% level; \* at the 10% level. The other explanatory variables are included in the regressions, but are suppressed to save space.



## Endnotes

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<sup>1</sup> The degree of bargaining centralization in Germany can be characterized as medium. Visser (2015) provides a widely used classification of countries with respect to the *dominant* level of collective bargaining: (1) Decentralized bargaining at the firm level (2) Intermediate or alternating between firm-level and industry-level bargaining (3) Industry-level bargaining (4) Intermediate or alternating between industry-level and more central bargaining (5) Cross-industry or national bargaining. Germany is classified as category (3).

<sup>2</sup> Note that the survey only captures larger firms with at least 150 employees. This explains the relatively low share of uncovered firms in the dataset.

<sup>3</sup> This is a standard procedure to characterize industrial relations regimes or HRM systems (e.g., Arthur 1992, Jirjahn and Smith 2006).