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ABSTRACT

Foreign Ownership and Intra-Firm Union Density in Germany

From a theoretical viewpoint the relationship between foreign ownership and unionization is ambiguous. On the one hand, foreign owners have better opportunities to undermine workers' unionization. On the other hand, workers of foreign-owned firms have an increased demand for the protection provided by unions. Which of the two opposing influences dominates can vary according to moderating circumstances. This study shows that firm size and industry-level bargaining play a moderating role. The relationship between foreign ownership and unionization is negative in larger firms whereas it is positive in smaller firms. Coverage by industry-level collective bargaining makes a positive relationship both stronger and more likely.

JEL Classification: F23, F66, J51, J52

Keywords: corporate globalization, foreign direct investment, union membership, firm size, centralized collective bargaining

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1. Introduction

The past decades have witnessed an enormous growth in globalization. The consequences of this growth in globalization remain a highly controversial issue. On the one hand, globalization has given rise to concerns about the threats to national institutions and regulatory regimes (Boyer and Drache 1996, Rodrik 1997, Sinn 2003, Stiglitz 2002). On the other hand, it has been argued that specifically labor market institutions are important in order to ensure workers against the high risks associated with globalization (Agell 1999, 2002).

This study examines the influence of foreign ownership on intra-firm union density in Germany. Germany is one of the largest host economies for inward foreign direct investment (FDI) among developed countries (Jost 2013). Comparing the stocks of inward FDI for the year 2009, Germany was ranked position four, after the United States, the United Kingdom, and France. It experienced a dramatic growth in the inward FDI stock. The stock rose from US$ 120 billion in the year 1990 to US$ 929 billion in the year 2010. Foreign-owned firms in non-financial industries now account for about 20 percent of total gross value added and employ more than 10 percent of all workers in those industries.

From a theoretical point of view, the relationship between foreign ownership and union density is ambiguous. There are two opposing effects. On the one hand, foreign owners may have better opportunities to undermine unionization than domestic owners. To the extent a foreign MNC maintains capacity to produce the same good in different national markets, it can avoid a high unionization of the subsidiary's workforce by threatening to shift production to facilities in other countries. On the other hand, the workers of foreign-owned firms may have an increased desire for representation in order to protect their

interests. Foreign ownership can lead to higher (perceived) job insecurity for various reasons. Foreign owners tend to be more volatile than domestic owners. They also often implement new production concepts and management practices in their subsidiaries that involve a substantial reorganization of work. Furthermore, information asymmetries and tensions with the institutional and cultural context of the host country make it more difficult for foreign owners to create trustful employer-employee relations in their local subsidiaries. Thus, workers in foreign-owned firms have a higher demand for the legal expertise and representation provided by unions.

Which effect of foreign ownership on union density dominates may vary according to circumstances and type of firm. In this study, we examine the moderating influences of firm size and centralized collective bargaining. Coverage by centralized collective bargaining should play a moderating role as wages and general working conditions are negotiated by unions and employers' associations outside the firm. Thus, under centralized collective bargaining, a high unionization of the firm's workforce has a less immediate influence on wages and working conditions (Scruggs and Lange 2002). This reduces the incentives for foreign owners to use their opportunities to avoid a high unionization of the workforce. Hence, workers' increased desire for protection is more likely to be the dominating factor. This should make a positive relationship between foreign ownership and union density more likely.

Moreover, we hypothesize that a moderating influence of firm size results from a potential free rider problem. Legal advice and representation provided by unions are selective services to their members that are often seen to overcome the potential free rider problem associated with union membership. However, the protection provided by unions

can entail its own free rider problem even if it is a selective service. The protection is very likely to be more effective if a high share of workers within the firm are union members. A free rider problem occurs if workers primarily consider their personal costs and benefits and do not take into account that their membership increases the effectiveness of the protection the union provides to other members within the firm. This problem is less strong if there is a smaller number of workers. Thus, workers in smaller firms should be more likely to overcome the free rider problem so that they unionize in response to the ambiguity and uncertainty brought by foreign owners. By contrast, in larger firms, the free rider problem among workers is more severe so foreign owners may be more successful in using their opportunities to avoid a high unionization of the workforce.

Using unique micro-level data, our empirical analysis confirms that both firm size and centralized collective bargaining in fact play a moderating role in the relationship between foreign ownership and intra-firm union density. The analysis shows that the relationship between foreign ownership and union density is positive in smaller firms and negative in larger ones. Coverage by an industry-level collective bargaining agreement makes a positive relationship between foreign ownership and union density both stronger and more likely. The pattern of results is similar for European and non-European foreign owners.

Our analysis contributes in several ways to the literature. As emphasized by Collings (2008), research on MNCs and industrial relations is a road less traveled. A handful of within- and cross-country studies have examined the link between FDI and union membership (Blaschke 2000, Brady and Wallace 2000, Lee 2005, Martin and Brady 2007, Sano and Willamson 2008, Scruggs and Lange 2002). In these studies, exposure to

FDI is measured at a highly aggregated state level or country level. By contrast, our data allow to measure exposure to FDI at the firm level. This is important as characteristics of the workplace have the most immediate influence on the decision to join a union (Gregg and Naylor 1993). Studies using firm data are very scarce. Some early studies have used firm data to examine the link between foreign ownership and union density in Australia (Harris 1993, Wooden 1999, Wooden and Balchin 1993). Our analysis for Germany provides more than another data point. Germany has a system of industrial relations sufficiently different to command attention of the scholars and policy makers interested in unions and collective bargaining. Moreover, this study contributes to the literature by examining the role of moderating factors. Only the cross-country study by Scruggs and Lange (2002) has taken moderating factors into account.

On a broader scale, this study also contributes to the literature on globalization and partisan politics. This literature emphasizes that labor market institutions and specifically a high degree of unionization strengthen the resilience of governments to the pressures associated with globalization (Garrett 1998, Kwon and Pontusson 2010). Our study shows that unionization itself is influenced by globalization.

The rest of the paper is organized as follows. The second section provides our background discussion. The third section describes the data and variables. The estimates are presented in the fourth section. The fifth section concludes.

2. Background Discussion

2.1 The German Industrial Relations System

Industrial relations in Germany are characterized by a dual structure of employee representation with both works councils and unions (Behrens 2016, Jirjahn 2016, Keller and Kirsch 2015). Works councils provide a highly developed mechanism for firm-level codetermination while collective bargaining agreements are usually negotiated between unions and employers' associations on a broad industrial level. Collective bargaining agreements regulate wage rates and general aspects of the employment contract. The coverage by an agreement does not depend on the decision of the firm's workforce, but on the decision of the employer. Typically, firms are covered if they are members of an employers' association. By joining an employers' association, the employer saves transaction costs or credibly commits herself to guarantee a certain level of wages (Dustmann and Schönberg 2009). In the year 2004, 41 percent of all West German establishments were covered by industry-level agreements while only 2 percent were covered by firm-level agreements (Addison et al. 2007).

Firms covered by a collective bargaining agreement pay the negotiated wage rates to both union and non-union members. Thus, collectively agreed wage rates are like public goods. This entails a potential free rider problem. Workers 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. In the year 2004, 68 percent of the workers in West Germany were covered by collective bargaining agreements while union density was only 21.7 percent (Addison et al. 2007).

It is usually argued that two broad factors may help mitigate or overcome the free rider problem. On the one hand, social influences such as peer pressure, solidarity and social recognition at the workplace may involve incentives to join a union (Booth 1985, Corneo 1995, Goerke and Pannenberg 2004, Naylor and Cripps 1993). On the other hand, unions may increase workers' interest in a membership by providing specific services such as legal advice and representation only to their members (Blanchflower et al. 1990, Olson 1965).

A series of empirical studies for Germany that members indeed benefit from the selective services provided by unions. These studies suggest that union members are better protected than non-members. Berger and Neugart (2011) find that union members are more likely to be successful in labor dispute processes. Relatedly, Goerke and Pannenberg (2011) show that union members are less likely to be dismissed. Moreover, in case of a dismissal, union members have a higher probability of receiving severance pay (Goerke and Pannenberg 2010). Finally, Goerke and Pannenberg (2012) find that risk-averse workers are more likely to be union members. This conforms to the notion that unions provide exclusive insurance services to their members. Workers have a higher demand for such insurance services if they are risk-averse.

However, the decision to join a union does not only depend on a worker's preferences but also on the characteristics of the firm. Firm characteristics such as management strategy, organization of work, and unions' workplace access play a role as they influence the costs and benefits of union membership (Klodt and Meyer 1998). The extent of peer pressure and recognition by colleagues depends on the norms and social relationships at the workplace while the benefits from legal advice and representation

depend on the degree of job insecurity workers face. Gregg and Naylor (1993) go so far as to contend that it is a stylized fact that firm characteristics play a more important role in workers' membership decisions than their personal attributes. This gives rise to the question of whether or not foreign owners matter for workers' decision to join a union.

2.2 Foreign Owners

The existence of MNCs is usually explained by their superior products and production processes to which other firms have no access (Helpman 2006, Markusen 1995). Specifically, knowledge-based assets embodied in the human capital of the employees, patents or other exclusive technical knowledge, copyrights or trademarks, or even more intangible assets such as management practices or the reputation of the firm give rise to FDI. These firm-specific assets can be transferred relatively easy back and forth across space. Moreover, like a public good within the firm, they can be supplied to additional production facilities at low costs. However, even if MNCs have superior firm-specific assets, this does not necessarily mean that foreign direct investment is always desirable from the viewpoint of social welfare. MNCs may use their superior assets for rent-seeking activities and exploitation of market power (Bellak 2004, Caves 1971).

The basic point for our analysis is that the activities of foreign MNCs appear to have far reaching consequences for the labor markets of the host countries. There is some evidence that foreign owners tend to be more volatile than domestic owners (Meriküll and Rõõm 2014). A series of international studies show that foreign ownership is associated with an increased probability of firm closure (Bernard and Sjoeholm 2003, Goerg and Strobl 2003, Harris 2009, Wagner and Weche Geluebcke 2012), higher levels of

outsourcing (Girma and Goerg 2004), and a faster adjustment of employment (Fabbri et al. 2003, Navaretti et al. 2003, Slaughter 2001). There is even evidence that foreign-owned subsidiaries face increased pressure to maximize short-term profit (Dill et al. 2016, Liljeblom and Vaihekoski 2010).

Moreover, implementing the strategies and production concepts of a foreign MNC can entail a fundamental restructuring of work in the local subsidiary. Such a fundamental restructuring of work may require renewed effort on the side of the employees or may involve job loss due to competence-destroying change.[1] MNCs in particular tend to implement unified management practices and personnel policies that follow (to a greater or lesser extent) company-wide standards (Doeringer et al. 1998, Freeman et al. 2008, Geary and Roche 2001, Walsh 2001).[2] This also involves a greater use of performance management (Bayo-Moriones et al. 2013, Bloom and van Reenen 2010, Edwards et al. 2016, Heywood and Jirjahn 2014, Poutsma et al. 2006). Performance management leads to an intensification of work and can entail the implicit or explicit threat to dismiss employees in case of low performance.

Finally, even though the firm strategies of foreign MNCs may be potentially superior, they can entail tensions with the host country's cultural and institutional context (Heywood and Jirjahn 2014, Kostova and Roth 2002). In particular, information asymmetries lead to such tensions (Jirjahn and Mueller 2014, Kang and Kim 2010). As important managerial decisions are made overseas and employees in the host country have only very limited access to the information possessed by the parent company's managers, it is difficult to create trustful employer-employee relationships within the local subsidiary. The tensions are even more pronounced if the parent company's managers lack sufficient

knowledge about the local situation of the subsidiary and, hence, face difficulties in successfully adjusting the strategies to the local situation.[3] Thus, increased information asymmetries and tensions with the cultural and institutional context of the host country can imply that subsidiaries of foreign MNCs suffer from liability of foreigness (Bell et al. 2012, Zaheer 1995, Zaheer and Mosakowski 1997).

2.3 Implications for Unionization

From a theoretical viewpoint, the relationship between foreign ownership and intra-firm union density is ambiguous. On the one hand, it can be negative. Foreign owners have better opportunities to undermine a unionization of the firm's workforce than domestic owners. If a foreign MNC maintains capacity to produce the same good in different national markets, it can avoid a high unionization of the subsidiary's workforce by threatening to shift production to facilities in other countries. Moreover, foreign owners have less experience with the industrial relations system of the host country than domestic owners. Thus, they face more difficulties in building cooperative relationships with unions and their members. As a consequence, foreign owners may have a higher interest in avoiding a unionization of the workforce.

On the other hand, foreign ownership may lead to increased unionization. As discussed, foreign owners are often more volatile. Moreover, implementing their specific strategies and production concepts can entail a fundamental restructuring of work that requires renewed effort on the side of the employees or may involve job loss due to competence-destroying change. Finally, information problems and tensions with the cultural and institutional context of the host country imply that foreign owners face more

difficulties in creating trustful employer-employee relationships within their firms. Thus, foreign ownership can result in a high degree of ambiguity and insecurity for the employees of the local subsidiary (Dill and Jirjahn 2016, Scheve and Slaughter 2004). The high degree of ambiguity and insecurity increases employees' desire for representation in order to protect their interests. As unions provide selective services such as legal expertise to their members, employees in foreign-owned firms should have an increased interest in joining a union.

Altogether, from a theoretical viewpoint, there are two opposing effects. On the one hand, foreign owners may have better opportunities and an increased incentive to undermine a unionization of the workforce. On the other hand, employees in a foreign-owned firm have an increased desire for union membership in order to protect their interests. Depending on which effect dominates, there will be a negative or a positive relationship between foreign ownership and union density. The relative weight of the two opposing effects is very likely to depend on moderating factors. In what follows we argue that collective bargaining coverage and firm size can play a moderating role.

2.4 The Moderating Role of Industry-Level Collective Bargaining

While foreign owners have better opportunities to undermine a unionization of the workforce, their incentive to use these opportunities depends on the consequences of a potential unionization for the wages and the personnel policy of the subsidiary. As emphasized by Scruggs and Lange (2002), a unionization of the subsidiary's workforce has less immediate consequences if wages are not set at the firm level but are rather negotiated between employers' associations and unions at a central level.

A high union density within the firm increases the bargaining power of the workforce. The implications of this increased bargaining power depend on the centralization of collective bargaining. Increased bargaining power of the workforce has a more immediate influence on wages if a firm largely pursues its own pay policy, but not if wages are negotiated outside the firm by a union and an employers' association.

Thus, foreign owners' incentives to undermine unionization are less strong in subsidiaries covered by industry-level collective bargaining contracts. As a consequence, the workers' increased demand for the unions' selective services is more likely to be the dominating factor in foreign-owned firms covered by industry-level collective bargaining. This means that a positive relationship between foreign ownership and union density should rather hold true in covered firms.

2.5 The Moderating Role of Firm Size

A moderating role of firm size can result from a specific free rider problem. Selective services provided by unions such as legal advice and representation are usually seen as helping mitigate or overcome the free rider problem associated with union membership. However, legal advice and representation may, to some extent, entail their own free rider problem even when selectively provided. This problem is likely to be more severe in larger firms.

Legal advice and representation provided to a worker are only fully individualized incentives to join a union if the effectiveness of these services is independent of whether or not other workers in the firm also receive them. Such independent effectiveness of legal advice and representation may apply to individual dismissals or individual conflicts with

superiors. However, in case of a mass layoff or a major restructuring of the firm, the effectiveness of the protection provided by a union depends on the share of the workers who are union members. Legal advice and representation by a union are less likely to help workers in influencing management decisions on mass layoff and restructuring if only a small share of the workforce is unionized. Yet, if there is a high share of union members, legal advice and representation are more likely to be effective in ensuring that management takes workers' interests into account. This implies a potential free rider problem. Workers may only considers their personal costs and benefits when deciding on a union membership. In this case, each single worker ignores the benefits of his or her union membership to other workers, namely the increase in the general effectiveness of the protection provided by the union. This potential free rider problem is more severe if there is a large number of workers in the firm.

Against this background, it can be argued that the relationship between foreign ownership and intra-firm union density should depend on the size of the firm. In smaller firms, the free rider problem is less severe so workers are more likely to find a way to overcome the problem. Hence, workers are more likely to unionize in response to the increased ambiguity and uncertainty brought by foreign owners. By contrast, in larger firms, the free rider problem is more severe implying that managers of foreign-owned firms may be more successful in avoiding a high union density of the workforce. Thus, we should find a positive relationship between foreign ownership and union density in smaller firms and a negative relationship in larger firms.

3. Data and Variables

3.1 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 information on both foreign ownership and union density at the firm level. Other data sets that are available for Germany contain only one piece of information. The IAB Establishment Panel only provides information on foreign ownership while the Hannover Firm Panel contains only information on union density.

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 617 firms.

3.2 Dependent Variable

The dependent variable is an interval variable. Interviewees are asked to indicate a category for the share of the firm's employees who are union members. The categories are: '0 percent', '1–10 percent', '11–25 percent', '26–50 percent', 51–75 percent', and '76–100 percent'. Table 1 shows the relative frequencies. In nearly half (47.33 percent) of the firms, the share of union members is 10 percent or less. Some 18.48 percent of the firms have a share of union members between 11 and 25 percent, 15.72 percent a share between 26 and 50 percent, 13.13 percent a share between 51 and 75 percent, and only 5.35 percent a share between 76 and 100 percent.

The interval scale has the advantage that interviewees do not need to know the exact share of union members, but only the range in which the share falls. Workers do not have to reveal their union membership to the management of the firm. However, managers have various sources that provide information on the share of union members within the firm. This information allows managers to roughly assess the share. The share of union members is revealed if the workforce of the firm is involved in strike activities. Moreover, managers can get information from conversations with works councilors or union representatives. Informal conversations with workers often also play a role.

Nonetheless we perform a series of further estimations to check if our results are influenced by a potential measurement error in the dependent variable. As a first check of robustness, we include an additional variable indicating the interviewee's experience with the workforce. Experience with the workforce is likely to be positively correlated with the accuracy of the interviewee's assessment. Thus, including the variable for the experience with the workforce helps control for the accuracy of the interviewee's response. Second,

we replace our interval variable by a dummy dependent variable equal to 1 if the share of union members is greater than 50 percent. Interviewees may be better able to assess whether the share of union members in the firm is simply high or low. Typically, the workforce of a firm is more likely to be involved in strikes if unionization is high. Thus, it may be easier for interviewees to assess whether the share of union members is high or not. Third, in a subsample of firms, works councilors were also asked to answer the question on the share of union members. Thus, we can examine if using the information from managers and using the information from work councilors yield similar results. This is particularly important as works councils usually help unions recruit members. Thus, works councilors are well informed about the union density within the firm.

3.3 Explanatory Variables

Table 2 provides the definitions and descriptive statistics of the explanatory variables. The key explanatory variable is a dummy equal to 1 if the firm is owned by a foreign company. The dummy is equal to 0 if the firm has domestic owners. 11.51 percent of the firms in the sample are foreign-owned. We also include a dummy variable for domestic-owned subsidiaries.[4] If workers of subsidiaries in general have a specific demand for union membership, the variables for domestic- and foreign-owned subsidiaries should take significant coefficients of the same sign and similar magnitude. Yet, if foreign ownership has a particular influence on the demand for union membership, the estimated coefficients should differ significantly.

A variable for firm size is also included. Firm size is usually a positive determinant of unionization. However, for larger firms, the effect of firm size has sharply declined over

time in Germany (Fitzenberger et al. 2011). Nonetheless firm size may have an indirect effect by moderating the relationship between foreign ownership and union density. The relationship between foreign ownership and union density should be more likely to be negative in larger firms because of a potential free rider problem among workers.

Collective bargaining is taken into account by dummy variables for the coverage by a firm-level or an industry-level agreement. Collective bargaining coverage may have a positive influence on union density because of a credit effect (Klodt and Meyer 1998). Workers are more likely to recognize and acknowledge the achievements of unions in an environment where unions bargain over wages. However, as discussed, collective bargaining coverage may not only have a direct, but also an indirect effect on union density. Our theoretical considerations suggest that the relationship between foreign ownership and union density should depend on the coverage by an industry-level agreement. The relationship should be more likely to be positive if the firm is covered by an industry-level agreement.

Furthermore, we control for the presence of a works council. Works councils shall be elected by the whole workforce of firms with five or more employees. However, their creation depends on the initiative of the firm's workforce. Thus, they are not present in all eligible firms. Although works councils and unions are formally independent, there are important linkages. Unions provide training and legal expertise for works councils. Works councils in turn help unions recruit new members (Behrens 2009). Works councils promote norms of mutual solidarity and, hence, increase the reputation effect of belonging to a union. They may also put informal pressure on workers to join a union (Windolf and Haas

1989). For example, a works council may treat union members and non-members differently when fostering their internal promotions or protecting them from redundancy.

Previous research has shown that the behavior of a works council depends on the firm's coverage by a collective bargaining agreement (Huebler and Jirjahn 2003, Jirjahn 2017). Against this background, we also include variables for a possible interaction of work council incidence with the coverage by firm-level or industry-level agreements. A works council should have a more pronounced impact on union density if the firm is covered by a collective bargaining agreement. Collective bargaining coverage indicates a stronger influence of unions implying that the works council is more likely to represent the interests of unions within the firm.

The share of blue-collar workers is also controlled for. Blue-collar workers may have more homogeneous preferences than white-collar workers (Schnabel and Wagner 2005). More homogeneous preferences facilitate the emergence of norms of solidarity leading to a higher propensity to join a union. This suggests that the share of blue-collar workers should be positively associated with intra-firm union density.

Flexible production is captured by variables for team production and quality circles. The shift from Tayloristic to flexible production is often thought to be a challenge for unionization (Meyer 2017, Regini 1987, Thomas and Kochan 1992). Tayloristic mass production involves standardized working conditions which facilitate union organizing. By contrast, flexible production is characterized by more heterogeneous working conditions and a greater extent of multitasking. Workers on the shop floor also increasingly have to take on planning and administrative functions and, thus, share management concerns.

Moreover, the employer's performance management may have an influence on workers' propensity to join a union. On the one hand, performance-related pay may reduce the demand for union membership as it aligns workers' interests with those of the employer. On the other hand, performance-related pay may imply that workers' pay is to a larger degree dependent on decisions of the employer (Heywood and Jirjahn 2006). For example, workers' performance may not only depend on their own efforts but also on complementary investments of the employer. Moreover, employers often have discretionary power in the measurement of performance and in the accounting of profit. This can increase workers' demand for representation in order to protect their interests. In the regressions, we account for the employer's performance management by variables for regular performance feedback and for managerial and non-managerial profit sharing.

We also control for the age and the legal form of the firm. Finally, eight industry dummies and fifteen federal state dummies are included.

4. Results

4.1 Initial Estimates

Table 3 provides the regression results. The initial regressions do not include interaction variables. As the dependent variable has interval censoring, we estimate the determinants of union density within firms by using interval regression. Interval regression is a generalization of censored regression. In order to check the robustness of the results, we also use OLS regression on the midpoints of the intervals (0.0, 5.5, 18.0, 38.0, 63.0, 88.0 percent).

The interval regression and the OLS regression on the midpoints of the intervals yield very similar results. The share of blue-collar workers, works council presence, coverage by industry-level or firm-level collective bargaining, and frequent performance feedback to workers are positive determinants of union density. Team production is a negative determinant. Interestingly, managerial profit sharing is a negative and non-managerial profit sharing a positive covariate of union density.

Most importantly, the variable for a foreign-owned subsidiary takes a significantly positive coefficient. The variable for a domestic-owned subsidiary does not emerge as a significant determinant. This suggests that the influence on union density is not a general phenomenon of subsidiary companies, but a specific phenomenon of foreign-owned subsidiary companies.

As stressed in the background discussion, there can be two opposing effects of foreign ownership on unionization. On the one hand, foreign owners have better opportunities and an increased incentive to avoid a high unionization of the firm's workforce. On the other hand, employees of foreign-owned firms have an increased desire for representation in order to protect their interests. The positive association between foreign ownership and union density suggests that the latter effect dominates. However, so far we have ignored the possible role of moderating factors. The full pattern of influences may remain obscured until moderating factors have been taken into account. Thus, in a further step, we examine if firm size and industry-level collective bargaining play a moderating role in the relationship between foreign ownership and union density.

4.2 The Moderating Influences of Firm Size and Collective Bargaining Coverage

Table 4 provides estimations that account for interactions of foreign ownership with firm size and collective bargaining coverage. Interactions of works councils with foreign ownership and collective bargaining coverage are also considered. Estimations (1) and (2) use the full set of interaction variables.

The interactions of works councils with firm-level and industry-level collective bargaining take significantly positive coefficients. Thus, the impact of works councils on intra-firm union density is greater in firms covered by a firm-level or industry-level bargaining agreement. This fits the notion that the linkages between works councils and unions are particularly strong in covered firms.

Turning to the variables of primary interest, the coefficient on foreign-owned subsidiaries remains significantly positive. The interaction of foreign-owned subsidiaries with firm size emerges with a significantly negative coefficient. While the interactions with firm-level collective bargaining and works councils are insignificant, the interaction of foreign-owned subsidiaries with industry-level collective bargaining takes a significantly negative coefficient.

In estimations (3) and (4), the insignificant interactions of foreign-owned subsidiaries with firm-level bargaining and works councils are removed from the specification. This improves the statistical significance of the coefficients on the key variables. The coefficients on the dummy for foreign-owned subsidiaries and on the interaction of foreign-owned subsidiaries with industry-level bargaining are now significant at the 1 percent and the 5 percent level, respectively. The coefficient on the

interaction of foreign-owned subsidiaries and firms size remains significant at the 1 percent level.

Altogether, the results suggest that there is a positive relationship between foreign ownership and union density in smaller firms and a negative one in larger firms. This fits our theoretical considerations. Workers in foreign-owned firms have an increased desire for representation in order to be protected against the higher job insecurity. However, there appears to be a free rider problem that occurs when the effectiveness of the protection depends on the share of workers being union members. When deciding about a union membership, workers may primarily consider their personal costs and benefits. They do not take into account that their union membership increases the effectiveness of the protection the union provides to other members within the firm. The free rider problem depends on the size of the workforce. It is less strong in smaller firms so workers may find ways to overcome this problem. As a consequence, the increased demand for protection results in a higher union density. The free rider problem gets more severe in larger firms so it is easier for foreign owners to use their opportunities to avoid a high unionization. Coverage by an industry-level collective bargaining agreement reduces the incentive to avoid unionization as wages and general working conditions are negotiated by unions and employers' associations outside the firm. This makes a positive relationship between foreign ownership and union density both stronger and more likely. Regression (4) implies that, in a covered firm, the relationship between foreign ownership and union density is positive up to a size of 2,061 workers. In an uncovered firm, the relationship is only positive up to a size of 866 workers.

In order to provide a quantitative assessment, Table 5 shows projections of the relationship for different firm sizes and for firms with and without coverage by an industry-level agreement. Regression (4) is used to project the percentage point change in intra-firm union density if the firm has a foreign owner instead of a domestic owner. In a covered firm with 150 employees, foreign ownership is associated with a 20 percentage point higher union density. In an uncovered firm of the same size, foreign ownership implies only an 8 percentage point higher union density. If there are 1,000 workers, foreign ownership involves an 11 percentage point higher union density for a covered firm and a 1 percentage point lower density for an uncovered firm. In a firm with 3,000 employees, foreign ownership implies a lower union density for both covered and uncovered firms. If the firm is covered by industry-level bargaining, foreign ownership is associated with a 10 percentage point lower share of union members. If the firm is not covered, foreign ownership is associated with a 23 percentage point lower share.

4.3 The Issue of Measurement Error

As discussed in section 3.2, managers may be able to provide an approximate assessment of the share of union members within the firm. However, they may not know the exact share. This gives rise to the question of whether our results are influenced by a measurement error in the dependent variable. In OLS regressions, a measurement error in the dependent variable can entail biased estimates if the error is correlated with an explanatory variable (Wooldridge 2010). This might apply to our study. A potential measurement error could be correlated with the dummy variable for foreign ownership if managers of foreign-owned firms have less experience with the workforce and, hence, have

more problems in assessing the share of union members. In nonlinear models with discrete dependent variables, a measurement error may yield biased estimates even when there is no correlation with the explanatory variables (Hausman et al. 1998). In what follows, we present a series of additional estimations to address the issue of a possible measurement error in the dependent variable.

As a first check, we add the interviewee's tenure to the specification. The interviewee's tenure can be seen as an indicator of his or her experience with the workforce. Thus, by including the tenure variable, we control for the interviewee's experience with the workforce when estimating the influence of foreign ownership on union density. This should remove or at least mitigate a possible correlation between foreign ownership and a potential measurement error. Table 6 provides the estimates. Results on the control variables are suppressed to save space. The interviewee's tenure emerges with a significantly positive coefficient. Interviewees who are more experienced with the workforce tend to report a higher share of union members. However, most importantly, including the variable for the interviewee's tenure does not change the basic pattern of results. This applies to both the significance and the size of the estimated coefficients. The variable for foreign ownership takes a significantly positive coefficient. The interaction with industry-level collective bargaining also emerges with a significantly positive coefficient while the interaction with firm size takes a significantly negative coefficient.

In a further step, we replace the interval variable for union density by a simple dummy dependent variable. The dummy variable is equal to 1 if the share of union members within the firm is greater than 50 percent. It may be easier for interviewees to assess whether the share of union members in the firm is simply high or low. Workers are

more likely to be involved in strikes if unionization within the firm is high. Thus, interviewees may be better able to assess a high or a low share of union members. Table 7 shows the key results of logit regressions. The interviewee's tenure with the firm does not play a significant role in these regressions. Most importantly again, the regressions confirm our basic findings. The coefficient on foreign ownership is significantly positive while the coefficients on the interactions of foreign ownership with firm size and industry-level bargaining are significantly negative and positive, respectively.

Table 7 also shows marginal effects evaluated at the mean of the dependent variable.[5] This allows us to provide as quantitative assessment. If a firm is covered by industry-level bargaining and has 150 employees, foreign ownership involves an almost 33 percentage point higher probability that more than 50 percent of the employees are unionized (0.1932 x 1 - 0.0004 x 1 x 150 + 0.2549 x 1 x 1 = 0.3269). In an uncovered firm of the same size, foreign ownership implies only a 7 percentage point higher probability (0.1932 x 1 - 0.0004 x 1 x 150 + 0.2549 x 1 x 0 = 0.0720). If there are 1,000 employees, foreign ownership involves for a covered firm a 5 percentage point higher and for an uncovered firm a 21 percentage point lower probability that more than 50 percent of the employees are union members. Thus, the robustness check with the dummy dependent variable confirms a quite substantial influence on the share of union members within firms.

Finally, in a small subsample of firms, works councilors were also asked to answer the question on the share of union members. This allows to examine if using information from works councilors confirms our key results. Works councils help unions recruit members. Hence, works councilors are typically well informed about the union density within the firm. However, using the information from works councilors reduces the sample

size by more than 85 percent to 91 observations. This can make it potentially more difficult to find significant relationships. Thus, if we can confirm our key results with the small sample, this additionally increases confidence in the findings.

Table 8 presents the OLS and interval regressions with the dependent variable obtained from the works councilor survey. Regression (1) and (2) do not include variables for the interaction of foreign ownership with firm size and industry-level collective bargaining. Regressions (3) and (4) account for these interactions. The estimates confirm the key results. Foreign ownership emerges with a positive coefficient while the interaction with firm size takes a negative and the interaction with industry-level bargaining a positive coefficient. The estimated coefficients are also significant. The only exception is the coefficient on foreign ownership in regression (4). However, the *t*-statistic is greater than 1.5 and the insignificance is likely to be due to the small sample size. Altogether, the estimations based on information obtained from works councilors also increases our confidence in the estimated pattern of results.

In summary, the various robustness checks confirm the pattern of key results. They provide no indication that the key results are driven by a measurement error in the dependent variable.

4.4 European and Non-European Foreign Owners

Finally, we take into account that the relationship between foreign ownership and union density may not only depend on the moderating influences of firm size and collective bargaining coverage. It may also depend on the degree to which the foreign owner lacks experience and familiarity with the cultural and institutional context of the host country.

To address this question, we return to the manager survey and distinguish between European and non-European foreign owners. Table 9 provides the results. Regressions (1) and (2) do not account for interaction effects with firm size and industry-level collective bargaining. In the two regressions, the variables for non-European and European foreign owners take significantly positive coefficients. The coefficient on non-European foreign owners is larger than the coefficient on European foreign owners. However, the null hypothesis of equal coefficients cannot be rejected in both the interval regression (χ^2 = 0.76) and the OLS regression (F = 0.76). Regressions (3) and (4) include the interactions with firm size and industry-level bargaining. The coefficients on non-European and European foreign owners are now very similar. Moreover, the interaction with firm size is significantly negative for both non-European and European foreign owners. The interaction with industry-level collective bargaining is positive for both types of foreign owners. However it is only significant for non-European, but not for European foreign owners. Thus, except the interaction with industry-level bargaining, our estimations suggest that non-European and European foreign owners have a similar influence on intra-firm union density.

5. Conclusions

Like in most developed countries, union density has declined in Germany over the past decades (Visser 2006). Globalization is often cited as contributing to the decline in union density. Against this background, this study examines the influence of foreign ownership on the unionization within firms. From a theoretical point of view, there are two opposing effects of foreign ownership. On the one hand, foreign owners have better opportunities to

undermine workers' unionization. On the other hand, workers of foreign-owned firms have an increased demand for the protection provided by unions. Depending on which effect dominates, the relationship between foreign ownership and unionization can be negative or positive.

The empirical results of this study show that firm size and coverage by industry-level collective bargaining play moderating roles in that relationship. While foreign ownership is associated with a lower share of union members in larger firms, it is associated with a higher share in smaller firms. Coverage by an industry-level bargaining agreement makes a positive association between foreign ownership and union density both stronger and more likely.

The negative association between foreign ownership and unionization in larger firms conforms to the notion that globalization can be a threat to national labor market institutions. However, even the positive association in smaller firms is not necessarily good news for unions. The positive association reflects a defensive response of workers to the uncertainties and tensions foreign MNCs bring to their local subsidiaries. It is quite possible that, even in these firms, foreign ownership undermines the industrial relations system in other ways.

Foreign owners may weaken the functioning of the German industrial relations systems by refraining from participating in industry-level collective bargaining.[6] There is indeed some (albeit not completely conclusive) evidence that foreign-owned firms are less likely to be covered by industry-level collective bargaining agreements (Addison et al. 2013). Taking into account that industry-level collective bargaining tends to foster a higher

unionization of workers, foreign owners can therefore indirectly have a negative effect on unionization by refraining from collective bargaining.

Moreover, even if foreign owners participate in collective bargaining, they may weaken the unions' bargaining power. Foreign MNCs may be able to extract concessions from unions by threatening to shift production abroad. Thus, in an international perspective, MNCs can reduce the relative bargaining power of unions by pitting them against each other across borders (Cooke 2005).[7]

Finally, foreign ownership has also an influence on firm-level codetermination which is the second pillar of the industrial relations system in Germany (Dill and Jirjahn 2016). On the one hand, workers of foreign-owned firms are more likely to adopt a works council. Thus, workers of foreign-owned firms also appear to have an increased desire for non-union representation to protect their interests. On the other hand, foreign ownership undermines the functioning of codetermination by reducing the chance of works council-management cooperation. In foreign-owned firms, works councils often do not play the trust-building and co-managerial role they typically play in domestic-owned firms.

Altogether, the German case study demonstrates that it is important to carefully consider the various dimensions, in which corporate globalization influences the industrial relations system of a country. Only if the various dimensions are taken into account, a more accurate appraisal of corporate globalization can be obtained.

There is need for continued research within this theme. First, it would be interesting to examine whether or not the protection unions provide to their members is as effective in foreign-owned firms as it is in domestically owned firms. Second, we note that our analysis is based on cross-sectional data. If panel data were available, these data could be fruitfully

used to extend the analysis. Third, it would be interesting to conduct similar studies with firm data from other countries.

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Table 1: Distribution of the Dependent Variable

Share of union members within the firm (in %)	*Share of firms (in %)*
0	22.53
1-10	24.80
11-25	18.48
26-50	15.72
51-75	13.13
76-100	5.35

Number of observations = 617

Table 2: Definitions and Descriptive Statistics of the Explanatory Variables

Variable	*Definition*	*Mean*
Foreign-owned subsidiary	Dummy equals 1 if the firm is owned by a foreign company.	0.1151
European foreign owner	Dummy equals 1 if the foreign owner is a company from a European country.	0.0681
Non-European foreign owner	Dummy equals 1 if the foreign owner is a company from a non-European country.	0.0470
Domestic-owned subsidiary	Dummy equals 1 if the firm is owned by a German company.	0.0940
Stock corporation	Dummy equals 1 if the firm is a stock corporation.	0.1070
Firm age	Time span between the year 2008 and the year of foundation of the firm.	62.038
Firm size	Number of employees in the firm.	815.23
Blue-collar workers	Share of blue-collar workers (in %).	51.603
Works council	Dummy equals 1 if the firm has a works council.	0.7553
Industry-level collective bargaining	Dummy equals 1 if the firm is covered by an industry-level collective bargaining agreement.	0.5283
Firm-level collective bargaining	Dummy equals 1 if the firm is covered by a firm-level collective bargaining agreement.	0.1459
Teams	Dummy equals 1 if the firm has teams with increased responsibilities.	0.3874
Quality circles	Dummy equals 1 if the firm uses quality circles.	0.2723
Performance feedback	Dummy equals 1 if the firm provides performance feedback to workers at least once a month.	0.6110
Profit sharing for managers	Dummy equals 1 if the firm provides profit sharing for managers.	0.0908
Profit sharing for non-managerial employees	Dummy equals 1 if the firm provides profit sharing for non-managerial employees.	0.1232
Interviewee's tenure	Interviewee's tenure with the firm in years.	13.410
Region dummies	15 federal state dummies are included.	-----
Industry dummies	8 industry dummies are included.	-----

Number of observations = 617

Table 3: Initial Estimates

Variable	(1) *Interval regression*	(2) *OLS regression*
Foreign-owned subsidiary	10.0958 (3.55)***	10.1388 (3.43)***
Domestic-owned subsidiary	1.0292 (0.38)	0.8848 (0.31)
Stock corporation	-3.5532 (1.36)	-3.5805 (1.30)
Firm age	0.0180 (0.95)	0.0180 (0.91)
Firm size	0.0003 (1.01)	0.0003 (0.93)
Blue-collar workers	0.0783 (2.65)***	0.0828 (2.62)***
Industry-level collective bargaining	16.4546 (9.26)***	16.8396 (8.91)***
Firm-level collective bargaining	11.3162 (4.13)***	11.7170 (4.04)***
Works council	17.9059 (11.64)***	18.5689 (11.43)***
Teams	-7.9355 (3.66)***	-8.2142 (3.58)***
Quality circles	2.3471 (0.97)	2.5461 (0.99)
Performance feedback	3.34991 (2.08)**	3.6556 (2.05)**
Profit sharing for managers	-11.9867 (2.40)**	-11.9976 (2.28)**
Profit sharing for non-managerial employees	9.7905 (2.10)**	9.5670 (1.95)*
Constant	-4.3522 (0.60)	10.0913 (1.05)
Region dummies	Included	Included
Industry dummies	Included	Included
Log likelihood	-1406.5641	-----
R^2	-----	0.4075
Number of observations	617	617

The table shows the estimated coefficients. Robust t-statistics are in parentheses. *Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table 4: Interaction Effects

Variable	(1) *Interval regression*	(2) *OLS regression*	(3) *Interval regression*	(4) *OLS regression*
Foreign-owned subsidiary	7.2068 (2.14)**	7.3302 (2.09)**	9.2174 (2.77)***	9.2745 (2.63)***
Domestic-owned subsidiary	0.5498 (0.20)	0.8848 (0.31)	0.5737 (0.21)	0.4619 (0.16)
Foreign-owned subsidiary x firm size	-0.0105 (3.24)***	-0.0107 (3.21)***	-0.0105 (3.25)***	-0.0107 (3.23)***
Foreign-owned subsidiary x industry-level collective bargaining	10.9592 (1.80)*	10.6743 (1.66)*	12.8996 (2.49)**	12.7829 (2.38)**
Foreign-owned subsidiary x firm-level collective bargaining	-2.6865 (0.36)	-3.2043 (0.41)	-----	-----
Foreign-owned subsidiary x works council	4.2594 (0.85)	4.1410 (0.77)	-----	-----
Stock corporation	-3.4290 (1.36)	-3.4997 (1.31)	-3.4332 (1.36)	-3.5071 (1.31)
Firm age	0.0173 (0.92)	0.0173 (0.87)	0.0177 (0.94)	0.0177 (0.90)
Firm size	0.0004 (1.14)	0.0004 (1.06)	0.0003 (1.12)	0.0004 (1.04)
Blue-collar workers	0.0801 (2.69)***	0.0849 (2.65)***	0.0801 (2.70)***	0.0848 (2.66)***
Industry-level collective bargaining	4.1880 (2.14)**	4.2832 (2.05)**	4.3023 (2.17)**	4.3727 (2.07)**
Firm-level collective bargaining	3.1829 (1.01)	3.2526 (0.97)	3.3826 (1.07)	3.4199 (1.03)
Works council	10.6162 (5.52)***	11.1417 (5.35)***	11.0832 (5.94)***	11.6027 (5.76)***
Works council x industry-level collective bargaining	15.8938 (5.23)***	16.2041 (4.97)***	15.5325 (5.13)***	15.8338 (4.89)***
Works council x firm-level collective bargaining	13.2508 (2.67)***	13.7219 (2.60)***	12.6763 (2.67)***	13.0899 (2.60)***
Teams	-7.3933 (3.47)***	-7.7138 (3.39)***	-7.5419 (3.57)***	-7.8508 (3.49)***
Quality circles	1.5997 (0.68)	1.8157 (0.73)	1.6497 (0.70)	1.8590 (0.74)
Performance feedback	3.9023 (2.34)**	4.0730 (2.30)**	3.8993 (2.34)**	4.0678 (2.30)**
Profit sharing for managers	-9.7423 (1.86)*	-9.8119 (1.77)*	-9.7829 (1.87)*	-9.8438 (1.77)*
Profit sharing for non-managerial employees	7.0713 (1.42)	6.9043 (1.31)	7.1607 (1.44)	6.9933 (1.33)

Constant	-4.5207 (0.69)	11.7581 (1.30)	-4.6509 (0.71)	11.5163 (1.27)
Region dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Log likelihood	-1393.7177	-----	-1393.8712	-----
R^2	-----	0.4309	-----	0.4306
Number of observations	617	617	617	617

The table shows the estimated coefficients. Robust t-statistics are in parentheses. *Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table 5: Projections

Firm size	*No coverage by an industry-level collective bargaining contract*	*Coverage by an industry-level collective bargaining contract*
150	7.67	20.45
500	3.92	16.71
750	1.25	14.03
1,000	-1.43	11.36
2,000	-12.13	0.66
3,000	-22.83	-10.05

The projections show the percentage point change in intra-firm union density if the firm has a foreign owner instead of a domestic owner. The projections are based on Regression (4) in Table 4.

Table 6: Controlling for Interviewee's Tenure

Variable	(1) *Interval regression*	(2) *OLS regression*	(3) *Interval regression*	(4) *OLS regression*
Foreign-owned subsidiary	10.7298 (3.78)***	10.7783 (3.64)***	9.9295 (2.95)***	10.0021 (2.80)***
Foreign-owned subsidiary x firm size	-----	-----	-0.0105 (3.16)***	-0.0107 (3.12)***
Foreign-owned subsidiary x industry-level collective bargaining	-----	-----	12.7953 (2.49)**	12.6637 (2.38)**
Interviewee's tenure	0.2149 (2.37)**	0.2157 (2.26)**	0.2204 (2.47)**	0.2210 (2.35)**
Log likelihood	-1403.0365	-----	-1390.0013	-----
R^2	-----	0.4140	-----	0.4375
Number of observations	617	617	617	617

The table shows the estimated coefficients. Robust t-statistics are in parentheses. **Statistically significant at the 5% level; *** at the 1% level. Control variables are included but are suppressed to save space.

Table 7: Dummy Dependent Variable (More than 50% Union Density)

Variable	(1)	(2)
Foreign-owned subsidiary	1.0132 [0.1526] (2.76)***	1.2827 [0.1932] (1.89)*
Foreign-owned subsidiary x firm size	-----	-0.0026 [-0.0004] (2.79)***
Foreign-owned subsidiary x industry-level collective bargaining	-----	1.6928 [0.2549] (2.05)**
Interviewee's Tenure	0.0148 [0.0022] (1.34)	0.0180 [0.0027] (1.64)
Pseudo R^2	0.2356	0.2250
Number of observations	617	617

Method: Logit. The dummy dependent variable equals 1 if more than 50 percent of workers are union members. The table shows the estimated coefficients. Robust t-statistics are in parentheses. Marginal effects evaluated at the mean of the dependent variable are in square brackets. The mean of the dependent variable is equal to 0.1848. *Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level. Control variables are included but are suppressed to save space.

Table 8: Estimations Using the Works Councilor Survey

Variable	(1) *Interval regression*	(2) *OLS regression*	(3) *Interval regression*	(4) *OLS regression*
Foreign-owned subsidiary	13.8386 (2.64)***	12.8824 (2.26)**	12.3301 (1.66)*	12.4308 (1.52)
Foreign-owned subsidiary x firm size	-----	-----	-0.0207 (2.06)**	-0.0206 (1.88)*
Foreign-owned subsidiary x industry-level collective bargaining	-----	-----	24.0033 (2.77)***	22.6070 (2.38)**
Log likelihood	-140.6346	-----	-138.7880	-----
R^2	-----	0.3512	-----	0.3681
Number of observations	91	91	91	91

The table shows the estimated coefficients. Robust t-statistics are in parentheses. *Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level. Control variables are included but are suppressed to save space.

Table 9: European and Non-European Foreign Owners

Variable	(1) *Interval regression*	(2) *OLS regression*	(3) *Interval regression*	(4) *OLS regression*
European foreign owner	8.9004 (2.35)**	8.8934 (2.28)**	9.2950 (1.85)*	9.2100 (1.74)*
Non-European foreign owner	13.4216 (3.50)***	13.5964 (3.38)***	10.2148 (2.69)***	10.6789 (2.66)***
European foreign owner x firm size	-----	-----	-0.0100 (2.41)**	-0.0100 (2.37)**
Non-European foreign owner x firm size	-----	-----	-0.0099 (2.36)**	-0.0107 (2.40)**
European foreign owner x industry-level collective bargaining	-----	-----	10.5078 (1.53)	10.4745 (1.47)
Non-European foreign owner x industry level collective bargaining	-----	-----	16.9133 (2.20)**	16.5181 (2.10)**
Log likelihood	-1402.6095	-----	-1389.4658	-----
R^2	-----	0.4148	-----	0.4384
Number of observations	617	617	617	617

The table shows the estimated coefficients. Robust t-statistics are in parentheses. **Statistically significant at the 5% level; *** at the 1% level. Control variables are included but are suppressed to save space.

Endnotes

[1] For example, foreign-owned firms are embedded in an international production network leading to different strategies for dividing in-house and outsourced production (Girma and Goerg 2004). They can source inputs that may be substitutes for some types of labor.

[2] Even rent sharing across borders appears to play a role (Budd and Slaughter 2004, Budd et al. 2005, Martins and Yang 2015).

[3] Of course, local managers of the subsidiaries may find solutions in adjusting the strategies. Yet, to the extent the information about the local conditions of the subsidiary cannot be verified, they face difficulties in convincing the managers of the headquarter.

[4] As we include variables for both foreign-owned and domestic-owned subsidiaries, the reference group consists of domestic-owned firms that are not subsidiaries.

[5] Marginal effects of interaction variables in nonlinear models such as logit or probit models require particular care. In nonlinear models, calculating marginal effects of interaction variables can potentially result in artificial and atheoretical predictions (Frant 1991, Greene 2010). The functional form of a nonlinear model implies that all explanatory variables have nonlinear effects on the probability of interest. Hence, calculating the marginal effect for an interaction variable can produce interaction effects simply by distributional assumption. For example, the marginal effect may be nonzero even if the coefficient of the interaction variable is zero. One may even obtain marginal effects with signs reversed to those of the estimated coefficients. To avoid such spurious results, one can calculate marginal effects at the mean of the dependent variable and not at the means of the explanatory variables (e.g., Allen 2007 and Bishop and Mane 2001). This is particularly straightforward for logit estimations. Let $\bar{y}$ denote the mean of the dummy dependent variable and $\hat{\beta}_k$ the estimated coefficient on explanatory variable *k*. One can simply evaluate the marginal effect of the explanatory variable at the mean of the dependent variable by multiplying $\hat{\beta}_k$ with the scalar $\bar{y}(1-\bar{y})$.

[6] Firms can refrain from industry-level collective bargaining by not joining an employers' association.

[7] Evidence from Denmark (Braun 2009) and Norway (Balsvik and Sæthre 2014) indeed shows that foreign ownership weakens the bargaining power of unions.