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Workplace Employee Representation and Industrial Relations Performance: New Evidence from the 2013 European Company Survey

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Abstract
Using cross-country data from the European Company Survey, we investigate the relationship between workplace employee representation and management perceptions of the climate of industrial relations, sickness/absenteeism, employee motivation, and staff retention. For a considerably reduced subset of the data, a fifth indicator – strike activity – is also considered alongside the other behavioral outcomes. From one perspective, the expression of collective voice through works council-type entities may be construed as largely beneficial, especially when compared with their counterpart union agencies either operating alone or in a dominant position. However, if heightened distributional struggles explain these differential outcomes in workplace employee representation, it should not go unremarked that the influence of formal collective bargaining is seemingly positive.

JEL Classification: J51, J52, J53, J83

Keywords: employee representation, works councils, union agencies, labor organization, collective bargaining, strikes, industrial relations climate, employee motivation and retention

Availability of Data and Materials:
The main data source used in this inquiry is the 2013 European Company Survey. The data are publicly available in the U.K. Data Service at https://www.ukdataservice.ac.uk/.

I. Introduction

Cross-country information on the extent of workplace employee representation is sparse, and still less is known about its effects on behavioral and economic outcomes. But this form of worker participation has actively been encouraged in member states of the European Union as a matter of policy, based notions of industrial democracy (European Commission 2002) and helping companies achieve economic competitiveness under the Lisbon Strategy (ETUI 2009: Chapter 5). The impetus behind increased worker participation in the Community is long-standing. Thus, Article 27 of the Charter of Fundamental Rights of the EU states that "workers or their representatives must, at the appropriate level, be guaranteed information and consultation in good time in the cases and under the conditions provided by Community law and national laws and practices." Most directly, Directive 2002/14/EC of the European Parliament and the Council of 11 March 2002 sets down a general framework for informing and consulting workers at national level (Official Journal, 2002), with Article 4 of that directive outlines practical arrangements for the effective information and consultation of workers.[1]

Yet the legislation lays down only main principles and minimal rules, allowing member states wide room for maneuver. Further, despite the 2009 Recast European Works Council Directive (Official Journal 2009) that heralded moves toward a formal linkage between transnational information and consultation requirements and those at the local and national levels (a process that has been described as *articulation*), the current state of play is that worker participation rights at establishment/undertaking level vary considerably between member states. Also, movement toward systematization may have been countered by other Community initiatives such as the Commission's REFIT strategy (European Commission 2013a, 2013b), whereby all legislation deemed no longer fit for purpose – including information and

consultation rights – is to be withdrawn. Nevertheless, even if there is considerable heterogeneity in worker participation rights at local company and cross-border levels, and in board-level representation, there is undoubted movement toward consolidating the linkages between the various levels of worker participation (see European Commission 2015).

Despite having reasonable knowledge of the types, if not always the prevalence, of workplace employee representation in member states (e.g. Fulton 2013; Synthesis Report 2007), cross-country quantitative evidence on the determinants and consequences of that representation has long been sparse. Prior to the publication of the European Company Surveys such research was largely confined to comparisons of Germany and Britain (Addison et al. 2000), Norway and the U.K. (Bryson and Dale-Olson 2008), and France and Britain (Bryson, Forth, and Laroche 2011). With the availability of a common dataset across nations, albeit not without its own problems, comparative quantitative work is embarking upon a growth phase.

In contrast, from the outset considerable attention has been accorded the economic theory of workplace representation, drawing in particular upon notions of exit and voice (Freeman and Medoff 1984). However, as we shall see, this collective voice model is equivocal, only predicting a clear negative relationship between union voice and quits and union voice and absenteeism, namely two of the five outcome indicators examined in the present inquiry. Broadening the model to encompass governance provides a basis for expecting a negative association between collective voice and strike incidence based on the improved flow of information between the two sides (i.e. where strikes are viewed as bargaining mistakes) while also implying an improvement in employee motivation. Moreover, aside from these two additional outcomes, given that the principal goal of the present exercise is to shed further light on the operation of *workplace representation* this more comprehensive view of the collective

voice model to encompass governance necessarily involves consideration of the works council as a potential exemplar of collective voice. That is to say, if the works council can focus on integrative bargaining rather than distributive bargaining the beneficial impact of voice on quits, absenteeism, worker motivation, and strikes is strengthened. Equally, we shall have reason to argue that work councils are not a datum and may be expected to be influenced by union organization and collective bargaining, the former negatively and the latter positively. On the latter issue, although there are clear indications that works council effects may be positive when its deliberations are anchored in a system where wages are largely determined at sectoral level, the picture is clouded by changes in collective bargaining which we shall also have to take into account.

This brings us to our final outcome indicator, namely the quality of industrial relations. Good labor relations are part and parcel of the collective voice model and indeed central to its ability to achieve traction. But they remain un-modeled. We shall examine the correlation between workplace representation (as well as collective bargaining) and management perceptions of industrial relations quality, while having regard to the potential feedback to the other outcome indicators.

The plan of the paper is as follows. We begin with a review of the collective voice model that embraces each of the outcome indicators considered here along with our key workplace representation independent variable(s). We then offer a thumbnail sketch of the recent literature using the European Company Surveys, as these studies also inform the present treatment. The unique dataset is then described. Our empirical results are next provided for the one objective (strike incidence) and four subjective (industrial relations climate, sickness/absenteeism, staff retention, and employee motivation) outcome measures. A summary concludes.

II. Worker Representation: Theoretical Considerations

The key theoretical construct in examining the effects of employee workplace representation is collective voice. In the collective voice model, *voice* is to be contrasted with *exit*. The latter is a market mechanism: faced with a divergence between desired and actual conditions at the workplace, the worker quits the firm to search for better employment. However, there is an alternative to exit. The worker may instead engage in voice, discussing with his/her employer the conditions that need changing without quitting the job. In the collective voice model developed by Freeman and Medoff (1984) voice dominates data on quits as a source of information on worker preferences or discontent because of on-the-job skills specific to the firm and the costs attaching to worker mobility and labor turnover in continuity markets. Although quit behavior can provide such information – either inferentially or directly via exit interviews – such information is likely to suffer from selection biases, problems of motivating the worker to disclose information, and the sheer cost of the process of trial and error in determining the efficacy of contract innovations. The expression of collective voice on the other hand can outperform individual activity for various reasons. One reason is the public goods problem of preference revelation. Nonrival consumption of shared working conditions and common workplace rules create a public goods problem of preference revelation. Without some collective form of organization – equated by the authors with autonomous unionism – there will be too little incentive for the individual to reveal his or her preferences since the actions of others may produce the public good at no cost to that individual. Unions collect information about the preferences of all workers and "aggregate" them to determine the social demand for such public

goods, and the substitution of average for marginal preferences and the arbitraging of worker preferences may be efficient in such circumstances.

The expression of collective voice is expected to reduce quits and absenteeism, namely two of the five outcome indicators examined in the present inquiry. The reduction in quits is expected to lower hiring and training costs and increase firm-specific investments in human capital. Lower quits may of course also occasion less disruption in the functioning of work groups. Nonetheless, apart from the reduction in quits as a result of the union providing direct information about worker preferences inter al., the connection between voice and performance is opaque in the model. Moreover, in discussing the reduction in quits, the union voice model appears to emphasize dissatisfaction (Freeman 1976: 367). That said, the difference in expressed complaints between union and nonunion labor is also interpreted as an expression of democracy rather than as indicating a true shortfall in satisfaction, the difference between 'true' and 'voiced' dissatisfaction reflecting the nature of the voice institution (Freeman and Medoff 1984: 139).[2]

The second aspect of voice is governance. The context is again the continuity of the employment relation. Governance refers to the policing or monitoring of incomplete employment contracts and thus includes the use of grievance and arbitration procedures and other mechanisms to mitigate what are seen as problems stemming from the authority relation. Such procedures should also help improve the flow of information between the two sides. Even if the specialized procedural arrangements typically associated with union regimes are not unique to those settings, a union may make it easier for the firm to negotiate and administer these practices (Riordan and Wachter 1983).

Freeman (1976: 364) and Freeman and Medoff (1984: 11) claim the union governance aspect of the voice model is quite consistent with the modern contracts literature, the argument

being that the presence of a union can facilitate long-term efficient contracting of this nature. They argue that a union specializing in information about the contract and in the representation of workers can prevent *employers* from engaging in opportunistic behavior. Workers may withhold effort and cooperation when the employer cannot credibly commit to take their interests into account. Thus, fearing dismissal, workers may be unwilling to invest in firm-specific skills or disclose information facilitating pro-productive innovations at the workplace. The formation of a union and the introduction of a system of industrial jurisprudence is one way of protecting employees' interests. In this way, unions may generate worker cooperation, including the introduction of efficiency-enhancing work practices.

Thus, the governance function of unions has the potential to improve employee motivation and the flow of information between the two sides and reduce strike activity attributable to mistakes stemming from informational asymmetries. Employee motivation and strike incidence are two further behavioral outcomes also examined in the present treatment. But if a union can make credible the employers' *ex ante* promises (Malcomson 1983), there must be some threat of credible punishment by the union, which hinges on the union having bargaining power. Subsequent development of the collective voice model recognizes the problem of bargaining power. We refer to Freeman and Lazear's (1995) purpose-built analysis of the employee workplace representation – specifically, the works council and its codetermination/joint governance power at the workplace.[3] Freeman and Lazear argue that codetermination will be underprovided by the market because institutions that give power to workers will affect the distribution as well as the size of the joint surplus. Some means of third-party regulation limiting bargaining power has thus to be found if the societal benefits of worker voice are to be realized. Two features of the German *Betriebsrat* commend that institution to

Freeman and Lazear in this regard. First, German works councils cannot strike under the "peace obligation" (or *Friedenspflicht*). Second, neither can they formally engage in bargaining over wages and other conditions of employment unless authorized to do so under the relevant industry-level or regional collective bargaining agreement. In this respect, the authors speak of a potential decoupling of the factors that determine the size of the surplus from those that determine its distribution made possible by labor law and the dual system of industrial relations. Left open is whether or not there is a *sufficient* decoupling in practice.[4]

In the light of the foregoing, a potentially crucial case can be made for distinguishing between types of workplace representation as determinants of the behavioral outcomes examined here. We refer in the first instance to works council bodies on the one hand and union agencies on the other. However, although the works council may be viewed as the exemplar of collective voice, more instructive in this regard may be the distinction between types of works councils (and union agencies), at least when the data permit this further distinction to be made. Thus, for example, rising union membership of works councils may produce a different kind of works council, even a different kind of union workplace agency. That is to say, the information and consultation agency may have strong links with unions at the workplace level that may undercut its deliberative function.

The foregoing also indicates that the attitude and role of collective bargaining should be taken into account. In particular, is workplace representation is associated with more positive behavioral outcomes under particular collective bargaining regimes? Any such discussion should also accommodate the decentralization and hybridization of bargaining modes widely acknowledged to have occurred in recent years.

A final issue is the quality of industrial relations or the cooperation between management and labor. Freeman and Medoff (1984) emphasize the importance of the quality of industrial relations, stating that good labor relations are more likely to produce positive performance whereas antagonistic forms or bad industrial relations can lead to bad performance effects. Indeed, they argue (p. 179) that *"…unionism per se is neither a plus nor a minus to productivity. What matters is how unions and management interact at the workplace*." For this reason, the collective voice model is properly described as the collective voice/institutional response model, with management reaction to the expression of collective voice by unions and union feedback in response to any ensuing (re)organization of the work process as (no less?) critical inputs. Although its authors do not elaborate on the theme, following the literature we use management perceptions of the climate of industrial relations to fashion an indicator of the quality of industrial relations. This will be our fifth and final outcome indicator.

III. Literature Review

In what follows, we largely confine our review of the cross-country literature to studies that use the European Company Survey (ECS) and which provide a backdrop to the dependent and independent variables used in the present inquiry. That said, we shall also make passing reference to *German* empirical studies that have a bearing on the industrial relations climate.

The key comparative articles are van den Berg et al. (2013), Jansen (2014), Forth, Bryson, and George (2017), and Braakmann and Brandl (2016). The first and the third study focus squarely on employee workplace representation, and on (one measure of) firm performance and (three) behavioral outcomes, respectively. The second study examines the broader issue of the organizational power of trade unions in explaining strike activity. The final

study is something of an outlier not only because it is the only one to use the most recent ECS but also because its focus is upon the relationship between firm performance and collective bargaining proper.

The study by Forth, Bryson, and George (2017) is notable in distinguishing between union and works council forms of employee representation, noting the considerable variation across countries in the share of workplaces with either form of representation; with some countries having just one type (e.g. the works council in Germany and Austria, as compared with exclusive trade union workplace representation in Sweden) and yet others with both forms. Three behavioral outcomes are examined: management-identified problems in retaining staff (the proxy for quits), either a "quite strained" or a "very strained" work climate (the indicator of industrial relations quality), and situations in which the manager respondent reports low employee motivation (the motivation measure). While admitting the ambiguity of the collective voice model with respect to the overall climate of industrial relations – on the grounds that this may deteriorate in the presence of effective workplace 'social dialogue' – the authors emphasize the base prediction of that model that quit rates will be reduced by effective voice.

The authors regress their three binary indicators on trade union/works council representation and a full set of workplace characteristics. In a first specification, the authors consider the contribution of a simple presence of any trade union or works council representation as opposed to no workplace representation. In a second specification, they replace this overarching measure with three categorical indicators, namely trade union representation only, works council representation only, and the presence of both union and works council representation. The result of the former exercise is that the presence of either form of representation is associated with a greater probability of observing a strained work climate.

However, workplace representation as measured plays no role in influencing motivation or staff retention. Turning to the second specification, only the dual channel regressor is statistically significant; specifically, workplaces with *both* works council and trade union representation are again more likely to have a strained climate but on this occasion less likely to report problems with staff retention.

In their study of workplace representation and economic performance, again using the 2009 ECS, van den Berg et al. (2013) estimate the impact of "the information and consultation body" on the economic performance of the firm, as proxied by the subjective evaluation of the management respondent of the 'economic situation' of the firm on a 5-point Likert scale. The model also includes the presence or otherwise of a trade union in the firm. In a second specification, the 'attitudes' of the employee representation body, either positive or negative as assessed by management, enter as added regressors.[5]

At this point, we should note that management attitudes toward the works council are used to identify different types of works council in the German literature. For example, a recent study by Pfeifer (2014) identifies three types of works councils according to management's characterization of their role in managerial decision making as alternately mostly in line with management, different but consistent in practice with management, or opposed to consensus in principle – and where the two latter types also engage in bargaining. The typologies are linked to nine human resource management problems including high turnover, high absenteeism, and low work motivation. Using data from the 2006 wave of the IAB Establishment panel (n = 11,563) Pfeifer reports that negative effects on motivation and absenteeism are found for antagonistic councils and favorable effects on turnover (strictly, quits of skilled workers) for the two more cooperative works council types. Dilger (2006) obtains similar results to Pfeifer but identifies

works council types on the basis of the perceptions of *both* sides as to the state of mutual cooperation.

Returning to the study by van den Berg et al. (2013), although no distinction is drawn between forms of workplace representation, the hallmark of the authors' treatment is the prior grouping of nations into five clusters, according to whether worker representation conforms to the Germanic, French, Anglo-Saxon, Scandinavian, or Transitional Economy models. Their model thus offers an alternative to or sensitivity test of a baseline model estimated over all countries.

Controversially, it is reported that the information and consultation body has a *negative* impact on performance in the Germanic 3-nation cluster (Germany, Austria, and the Netherlands) but is very positive in the 2-nation Anglo-Saxon cluster (the U.K. and Ireland). The interpretation offered is that where worker involvement is voluntary the firm may benefit from installing such representation. It is also reported that union presence has a negative effect in the French and Transitional Economy clusters "underscoring the more active and ideological role of trade unions in these parts of the EU" (van den Berg et al. 2013: 42).[6] For the authors' second specification, which introduces the attitude variables, it is reported that a positive management view of the worker involvement process is associated with improved economic performance in all but the Anglo-Saxon and Transitional Economy clusters.

Again using data from the 2009 ECS, Jansen (2014) examines strike incidence. The main contribution of this study resides in its attempt to identify the extent to which variations in union organization are associated with strike incidence at the level of individual firms. The focus is upon union organization factors rather than employee workplace representation bodies – all of which agencies are referred to as "works councils." In examining how company-level effects

differ across countries, Jansen deploys a mixed effects logistic regression procedure. This application, as well as the attention paid to union organization arguments, is also followed in the present inquiry.

Abstracting here from that part of his analysis that exploits cross-level effects of national indicators (i.e. differences in national trade unions systems), other than to note the finding that density, number of union confederations, and degree of decentralization[7] are found to independently increase strike activity, and focusing therefore upon his company-level effects specification, Jansen reports that the likelihood of a strike is some 1.4 times greater where a collective agreement is negotiated at a level higher than company level. For their part, the proportion of union members in the workforce, multi-unionism, and union penetration of the "works council" are all positively correlated with strike incidence. Most notably, companies in which trade union members make up more than one-half of the local works council are 1.3 times more likely to confront a strike than their counterparts where there is no union majority.

The final study considered here is the sole treatment to use data from the 2013 ECS. Braakmann and Brandl (2016) examine the effect of the collective bargaining system on a subjective measure of the labor productivity of the firm. This productivity measure is largely collapsed into a single dummy variable taking the value of 1 if labor productivity increased, 0 otherwise. It is regressed on a comprehensive, 12-element categorization of bargaining type that combines information in the ECS on the collective agreement obtaining in the firm (individual bargaining, company or establishment, sectoral, and national) with external information on integrative interaction between bargaining units (i.e. whether single-level sectoral bargaining and two-and three-level bargaining systems can be regarded as either horizontally

coordinated/uncoordinated or vertically governed/ungoverned, respectively (see also Traxler, Blaschke, and Kittel 2001).

Although the study has a detailed set of control variables, including dummies for the presence of a works council and a union representative, only coefficient estimates for the 12 bargaining types are reported. It is found for the base specification that, vis-à-vis the reference category of individual bargaining, the share of companies with productivity increases is significantly higher for coordinated sector and national bargaining in single-level systems; for governed company and sector bargaining, and governed company and national bargaining in two-level systems; and for governed company, sector, and national bargaining in three-level systems. The authors ultimately conclude that coordinated sector collective bargaining, governed company and sector bargaining, and governed national, sectoral and company level agreements – identified with Austria, Germany, and the Nordic countries, respectively – are associated with superior relative performance, whereas company and individual level bargaining regimes post only an "average" performance rating compared with all other categories.

Given the long standing interest in the efficacy of different collective bargaining systems in the macro policy literature, coupled with the seeming transformation/hybridization of national collective bargaining systems in recent years (Addison 2016; Visser 2013, 2016), we shall replace the 4-element ECS typology of collective bargaining used in much of our analysis with the 12-element Braakmann-Brandl measure in some of our own specifications to see if it adds to our understanding of the determinants of our four behavioral outcomes.

IV. Data and Methods

The dataset

Our main data source is the 2013 European Company Survey (ECS), an establishment-based inquiry covering 32 European nations. We focus here on the 28 member countries of the European Union. The raw data was downloaded from the U.K. Data Service site at *https://www.ukdataservice.ac.uk/*.

The Survey includes detailed information on employee representation at the workplace, which as we have seen is a key aspect of our analysis. However, various data manipulation procedures on the original files were required in order to establish relevant categories for the empirical investigation. In particular, we need to identify mutually exclusive types of worker representation body as either works councils or union bodies. The problem is that although employees may be represented by a works council or a union agency, they may also be represented by both. Clearly in countries such as Germany (Sweden) where only works council (trade union) representation is allowed, assigning mutually exclusive worker representation agencies is automatic. And there is also no assignment problem in the case of establishments having only one type of representative body in situ even if both are possible. But what of establishments with two institutions present, in which – as in all cases – only one worker representative is interviewed? Here, all that is required is information on the type of respondent. Thus, if the person interviewed is a works councilor, then the works council is the leading institution; and if the respondent is a member of the trade union agency, then the union is the principal entity. This procedure is based on the fact that the respondent for the ER interview (see below) is, by definition, a person who is entitled to represent the opinions of the leading employee representation body (see the 3rd ECS Sampling Report, p. 26/81). As a result, we end up with mutually exclusive situations in which the works council or the union agency is the *prevalent* form of worker representation: a prevalent works council if there is either a unique

works council at the workplace or where the works council entity can be adjudged more influential than the corresponding union agency; and mutatis mutandis for a prevalent union agency. We shall also refer to prevalent works councils as a works council-type representation and to a prevalent union agency as simply union representation.

The 2013 ECS survey has two separate components: the Employee Representative Questionnaire (ER) and the Management Questionnaire (MM). In the former, the interviewee is questioned on various issues related to labor organization, namely union density at establishment level and whether the employee representation body has a majority of trade union members. For its part, the MM questionnaire elicits information on a variety of establishment characteristics, including the existing type of employee representation at the workplace and the type of collective agreement if any.

By construction, all the units in the ER survey have an employee workplace representation body. They are necessarily a fraction of the MM sample as only MM units with a workplace representation entity are eligible to answer the ER questionnaire (and of these not all are actually interviewed). As a result, the MM sample comprises some 27,000 units while the ER sample contains only 7,600 firms. Furthermore, given that the two sets of information are provided in separate files, in order to use the MM and ER variables in a single frame we have to link the two files.[8] Our matching procedure generated a matched MM-ER sample of some 1,400 units. In other words, the confidentiality constraints are such that only a part of the original ER sample can be safely linked to the MM sample. Finally, from the full MM sample, we also extracted the subset of establishments with formal workplace representation to obtain a reduced MM sample of some 13,000 units. As is the case of the full MM sample, no ER variables are available in this sample.

The definition and sample means of the selected MM and ER variables are given in Appendix Table 1. The first set of variables shown are the outcome indicators, namely the objective strike incidence measure (a stoppage or strike in the establishment in the last 12 months, extracted from the ER questionnaire) and the four dichotomous industrial relations performance indicators derived from management responses: a good or a very good the general work climate in the establishment; high levels of sickness leave; difficulties in retaining employees; and low workforce motivation. The second set of variables relate to workplace representation and union organization. This group includes union density at establishment level as well as union membership of the employee workplace representation bodies. The latter information allows us to further distinguish between our two types of workplace representation as either union-dominated or otherwise. Establishments are also grouped by employment size, industry affiliation, and private/public ownership. Other establishment characteristics include information on whether an establishment is a single entity or a part of a wider organization, its workforce composition, as well as various measures of organizational change and performance-based pay.

The information on the existence of collective agreements is assembled in two different ways. The first reclassifies the raw information (i.e. company, sector, and national agreements) according to the categories of company level, higher than company level, and mixed level bargaining. (Observe that individual bargaining between worker and firm remains the omitted category.) This re-classification is pursued so as to facilitate comparison with the existing literature based on the 2009 ECS (e.g. Jansen 2014). The second application follows Braakmann and Brandl (2016) to derive a country- and establishment-based classification with twelve collective bargaining system dummies, individual bargaining again serving as the reference

category (see section III). Finally, we deploy two country-level synthetic indicators of union decentralization and bargaining centralization. This classification has a basis in the *Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts* (or ICTWSS) database (see Visser 2013). Bargaining centralization captures bargaining level, articulation, and use of opening clauses. For its part, union decentralization captures union power in local wage bargaining, appointment of workplace representatives, finances of local branches, strike funds and strike vetoes. In both cases, the indicator is given by increasing order, on a 0-5 and 0-7 scale, for the bargaining centralization and union decentralization, respectively.

For the (full) MM sample, and focusing on workplace organization and collective bargaining types, workplace representation is present in approximately 50 percent of the cases, with the prevalent union and prevalent works council entities having about the same share (unweighted statistics). In turn, in one-third of the cases establishments are not covered by any type of collective agreement, while single-level company, sector, and national bargaining are present in one-quarter of the cases. The remaining instances comprise either two- or three-level bargaining situations.

For the MM-ER matched sample, union density averages 44 percent. For all these establishments with a formal workplace representation, there is a union-dominated works council (i.e. a works council with a majority of councilors who are trade union members) in 26 percent of the cases, while the share of union-dominated union bodies is 19 percent. In the remaining 55 percent of the cases, there is therefore no union domination in the sense that the majority of the representatives do not have a trade union affiliation. The matched MM-ER sample is also relatively more populated with works councils, which constitute approximately 60 percent of the total. (We do not comment separately on the make-up of the MM subset here.)

Modeling

We test the potential role of the selected institutions on industrial relations performance by specifying a two-level mixed-effects logit model that controls for a wide set of observables, including performance-based pay, organizational change, workforce composition, industry affiliation, establishment size, private ownership, single establishment, and training participation.

In a compact manner, the corresponding logistic regression model can be specified as:

$$\Pr(y_{ij} = 1 \mid X_{ij},\ u_j) = H(X_{ij}\beta + u_j), \qquad (1)$$

where $H(.)$ is the logistic cumulative distribution function and establishment i is nested in group (country) j, with $i, = 1, 2, \dots, I,$ and $j = 1, 2, \dots J.$ X_{ij} includes all the observed establishment characteristics, while u_j is the random intercept. y_{ij} is the selected 1/0 outcome indicator. In order to simplify the interpretation of the results, we will only report the marginal effects, obtained by fixing the random effects at their theoretical mean (i.e. zero) and all control variables at their sample mean.

The information at the first-level (i.e. the establishment) is therefore nested within countries or clusters (the second level). A model that ignores this hierarchy and looks at the data as simply an enlarged sample would treat the observables as independent information, which has implications for the conventional statistical tests. In particular, standard multiple regression analysis with one dependent variable at the establishment level and a set of regressors from all available levels will fail to recognize that (a) observations within clusters are correlated because individual responses from establishments are influenced by the social groups or countries to which they belong, and (b) the properties of countries are influenced by the set of establishments that make up the group. In this context, respondents from the same country are thus much more alike than respondents from different countries as a result of some unobserved cluster effect. If

this aspect is not taken into account in the modeling strategy, the estimated standard errors are likely to be too small, thus generating spuriously significant results.[9]

Conjectures

To repeat, the principal goal of the modeling exercise is to shed light on the operation of workplace representation. At the most general level, is it to be viewed as a classic vehicle of collective voice or might not the overall tenor of industrial relations "suffer in the presence of effective social dialogue"? (Forth, Bryson, and George 2017: 428). As we have seen, the theory is equivocal, only unambiguously predicting a negative relationship between the expression of collective voice and quits. In distinguishing between types of workplace representation, our maintained hypothesis is that works council type bodies are less likely to engage in distributive bargaining and exert a more positive influence upon the behavioral outcomes identified here. Equally, we have argued that works councils are not a datum and may be expected to be influenced (differentially) by union organization and collective bargaining. The attitude of the works council may in turn be reflected in employer appreciation or disquiet with the functioning of worker representation as expressed in the separate quality of industrial relations variable. When it comes to the association between workplace representation and collective bargaining, although there are indications that works council effects may be positive when its deliberations are anchored in a system where wages are largely determined at sectoral level, the picture is clouded by changes in collective bargaining detected in the macro literature. That is to say, relationships once present in the data (say the 2009 ECS) may no longer be apparent in the 2013 data. Moreover, the changes in question may have blurred anticipated differences in outcomes between the two types of workplace representation, bringing the two agencies closer together – and possibly for the better. With these conjectures and caveats in mind, and the further caution

that correlation does not establish causation, we now turn to an examination of the empirical evidence.

V. Results and Discussion

Our first set of results is contained in Table 1, which uses data from the (full) Management questionnaire. It will be recalled that the selected outcomes are all subjective measures and cover the industrial relations climate, absenteeism, worker retention, and worker motivation.

[Table 1 near here]

Summary regression results are provided in the four main columns of the table. The evidence provided in main column A of the table indicates that the employee workplace representation body (be it a union agency or a works council-type entity) is associated with a pessimistic management view of the prevailing state of the climate of industrial relations in the establishment vis-à-vis the situation where formal employee workplace representation is absent. On average, compared with the control group, council-type representation implies a reduction of around 2 percentage points in the predicted probability of there being a good/very good industrial relations climate. For its part, a trade union agency implies a larger, 5 percentage point reduction. In contrast, applicable collective agreements, especially those containing terms and conditions set at higher than company level, are seen as favorable to the climate of industrial relations. Note that the potential role of these institutions – workplace representation and collective bargaining – is found to be largely insensitive to the inclusion of synthetic, country-wide indicators, flagged here by the union decentralization indicator and the bargaining centralization index. The former is statistically significant at the .05 level in column A(2) and negative in sign while the latter, in column A(3), lacks statistical significance at conventional levels.

In column A(4) the four types of collective agreements included in column A(1) are replaced by the detailed, 12 collective bargaining categories from Braakmann and Brandl (2016), with individual bargaining again forming the omitted category. There is the suggestion that the three-level system of company, sector, and national bargaining is associated with a more positive view of the quality of industrial relations, while coordinated sector bargaining seems marginally favorable as well. But there is no strong indication that coordination in single level systems or governed bargaining in multi-level systems plays a decisive role in influencing positive management perceptions of industrial relations performance. Management seems generally happier if the wage setting process is not restricted to individual bargaining, or to the company level, seeing wider agreements as broadly favorable to a good working environment, largely irrespective of the degree of governability or coordination. Taking wages out of competition might also of course be reflected in this result.

The results for sickness/absenteeism are given in main column B. Observe that both works councils and union representation bodies are strongly positively associated with higher absenteeism, the corresponding marginal effects having approximately the same magnitude as those obtained in main column A. Also note that collective bargaining now yields few benefits in this respect in contrast to the results for the climate of industrial relations. On net, we would interpret both results as aspects of worker power, with worker representation offering protection from management sanction in respect of sickness and absenteeism.

In principle, if voice substitutes for exit, then workers should be less likely to quit as their concerns are addressed by management. Yet we find no suggestion in main column C of workplace representation of either type of workplace representation being associated with reduced difficulties in retaining staff, echoing the rather pessimistic results first reported in main

column A. However, we note parenthetically that we do find that training reduces the difficulties in retaining staff: the regression coefficient for this argument being both negative and highly statistically significant. (This finding and results for other regressors not identified in the table are available from the authors upon request.)

Interestingly, collective agreements appear generally favorable to worker retention and, as shown in A(2) and A(3), increasing (decreasing) levels of bargaining centralization (union decentralization) also seem broadly beneficial to worker retention. Moreover, the coefficients of all the more detailed collective agreement categories identified in column A(4) are always negative, and in four cases statistically significant at conventional levels, again vis-à-vis the reference category of individual bargaining between worker and firm.

Finally, in main column D, we present the results for the fourth outcome indicator. We find no confirmation that worker representation is associated with higher perceived levels of worker motivation. Indeed, there is some evidence to the contrary: for employee workplace representation secured through a union agency there is a strong direct association with low motivation, with a marginal effect in the 5 percentage point range. As was the case for staff retention, a higher degree of union decentralization elevates problems (although on this occasion greater bargaining centralization does not ameliorate them). Finally, observe that the more detailed disaggregation of collective bargaining systems offers little value added.

In Table 2, in addition to the set of covariates included in Table 1, we control directly for union 'influence' on workplace representation (via our union 'domination' construct) and also for establishment-level union density. As this key information on labor organizational power is only available in the ER questionnaire, the corresponding regressions are carried by matching the two subsets of the ECS database (viz. the ER and MM samples),[10] which as mentioned earlier

yields a reduced (matched) sample of only some 1,400 establishments. More positive is our ability to deploy an additional indicator of industrial relations performance – the strikes incidence variable – which is only available in the ER questionnaire. By construction, the *no workplace representation* comparator is absent from these matched sample regressions.

[Table 2 near here]

We begin our discussion of Table 2 by first reporting findings for the four subjectively defined behavioral indicators considered earlier before turning to the association between employee workplace representation and our objective indicator of the quality of industrial relations, namely strike incidence. In the first place, as shown in main column A of the table, union density at the workplace does not seem to improve management's assessment of the perceived quality of industrial relations. Higher union density is likely to flag a more politicized voice. In this case, management perceptions will be that contestation is higher and industrial relations quality duly lower. No parallel effect can be detected in main columns B through D, where the union density term is at best only weakly statistically significant. This argues against the likelihood of a 'negative judgment bias by management,' whereby an adverse evaluation of the industrial relations climate by management permeates the other (subjective) behavioral outcome indicators. The role of collective agreements in columns A through D is also less pronounced than in Table 1. A similar result is found for the bargaining system arguments; in general, the associated coefficient estimates and respective marginal effects are largely statistically insignificant, and certainly never statistically significant at the 0.01 level. One explanation might be that once worker representation is present at the workplace – which, by construction, is true for all establishments in this sample – the wider collective bargaining environment becomes less of a factor.

The key finding, however, is the negative marginal effect of the union-dominated union agency in main column A, which is significant at the 0.05 level and relatively large in magnitude. Thus, if dominated by union members, union workplace representation bodies are not associated with a good workplace climate. For its part, absenteeism seems to have no strong connection with unionism at the workplace, as none of the variables contained in the workplace representation/labor organization subset is statistically significant. In the case of worker retention, union dominance is associated with greater problems for union agency, albeit only at the 0.10 level of significance. In turn, motivation tends to be lower in the case of both the union agency and the works council if they are union dominated. Once again, however, these results are only weakly statistically significant.

The results for strike incidence given in the final main column of Table 2 are statistically stronger. Under the hypothesis that strikes are mainly bargaining failures, given the informational content of the collective voice model the expectation would be that strikes will be less in evidence whenever there is an employee workplace representative body in place. However, it will be recalled that there is no absence-of-workplace-representation comparator in the matched sample and that we can only distinguish between union- and nonunion-dominated works councils, union- and nonunion-dominated union agencies, and nonunion-works councils and nonunion-dominated union agencies. Against this backdrop, the indications are that: (a) works councils are generally associated with a lower strike incidence when compared with the union counterpart (if neither is union dominated); and (b) that strike incidence is increasing if the majority of the works councilors are members of a trade union, with a marginal effect in the 8 to 9 percentage point range that is statistically significant at the 0.01 level. The suggestion is that in the former case the expression of voice is more collaborative under works council-type

representation than union agencies, while in the latter case voice is more politicized. Note also that in supportive vein higher union density at the workplace is associated with higher strike incidence. Finally, given that we control in all regressions for a variety of sources of discontinuity or disruption at plant level (e.g. changes in pay systems and in working hours), the reported effects are net of any impact arising from measured/observed organizational changes.

Another means of distinguishing between types of worker representation (but not between workplace representation and its absence) is to use a subset of the MM sample, selecting only those establishments with formal workplace representation. In this way, we compare works council-type bodies with their union counterparts, sacrificing information on whether or not the representation body has a majority of union members and no longer controlling for union density at establishment level. Other things equal, if works councils enhance collaboration rather than amplify disagreement, their presence should be associated with more favorable outcomes. The results of this implementation are provided in Table 3.

[Table 3 near here]

Main column A of Table 3 confirms at the 0.01 level that the industrial relations climate at the workplace is viewed as superior in works council establishments. From main column B there is also the suggestion that absenteeism is also perceived to be lower in works council establishments (statistically significant at the 0.05 level). Worker motivation in main column D is also strongly associated with works council representation. Only in the case of worker retention is statistical significance lacking. In all the other cases, the estimated marginal effects are in the 3 to 5 percentage point range. The comparator it will be recalled is the union counterpart of the works council. Although not dramatic, the regressions for the reduced MM

sample are supportive of a differentiated role of worker representation, namely one that favors the works council variant at least from the perspective of management.

We also performed two further sensitivity tests, in both of which Table 1 serves as the comparator. In the first set of tests, we differentiate between several types of formal representation, namely, works council representation only, union representation only, and the presence of both union and works council representation. We subsequently retain the first two categories but differentiate the third, now identifying two distinct situations: one in which the works council is the more important of the two and the other in which the union agency is the more important (see section IV).[11] The second sensitivity test addresses the role of country clusters by presenting separate estimation results for such groups: the Germanic, French, Anglo-Saxon, Nordic, and Transition clusters, respectively.

The results of the first set of sensitivity tests are given in Table 4. In case A we recall from Table 1 that both works council and union representation were negatively associated with the perceived quality of industrial relations, with the latter entity recording a higher (in absolute value) marginal effect. This result is confirmed in panel (a) of the table, with the 'works council only' marginal effect displaying the lowest magnitude and either a 'union only' or a union and works council (irrespective of which body is prevalent) presence having larger marginal effects. Panel (b) of the Table introduces a further clarification: if both types of representation are present, the magnitude of the marginal effect is smaller when the works council representation is the more important of the two entities. This results holds in all three columns, A(1) through A(3). (For reasons of economy we do not replicate column A(4) of Table 1.)

[Table 4 near here]

These results carry over to sickness/absenteeism in main column B. Situations in which either the works council is the sole agency or the more important of the two entities – see panels (a) and (b) respectively – again show smaller marginal effects. As in main column C of Table 1, the relevant marginal effects are not statistically significant in main column C of Table 4, and so the staff retention results are not further discussed here. On the other hand, the results for worker motivation, shown in main column D, confirm the result that works councils either alone or where the more important agency of the two are less associated with lower employee motivation than is the case for union representation alone or a predominant union agency where both entities are present.

Overall, the results in Table 4 would suggest that the effects of unions and works councils at the workplace are not additive. That is to say, the simultaneous effect reported in the table seem after all to be limited to union and predominantly-union effects. These results are furthermore consistent with our maintained hypothesis of the relative efficacy of works council versus union agency voice.

The search for commonalities across countries has been the main goal in this paper. Now we look to possible national singularities. Table 5 offers a replication of Table 1, based on the assumption that countries in the sample can be clustered in five distinct groups after van den Berg et al. (2013). We note at the outset that the sample comprises 25 countries rather than the 28 nations in Table 1 – as Croatia, Cyprus and Malta are not included in van den Berg et al. – and also that we include Luxembourg in the Germanic cluster (rather than in the French cluster), given that all the respondents from Luxembourg in the 2013 ER survey have works council representation.

[Table 5 near here]

Country clusters do of course reduce the size of the relevant estimation samples, and sometimes very substantially, but in no case are the signs of the statistically significant marginal effects in Table 5 reversed in comparison with the corresponding coefficients in Table 1 – that are again reproduced in the first column of the table. In main column A, in particular, it can be seen that the works council representation in the Germanic and French clusters is associated with reduced IR quality, while union representation is also negatively signed in countries within the French tradition, as well as in the case of Eastern European transition countries. The magnitude of the estimated marginal effects also accords with what we obtained in Table 1.

The same patterns can be observed in main columns B, C, and D. For example, in column B, the marginal effects are again statistically significant in the Germanic and French clusters, while in column C we replicate quite strongly the results obtained in Table 1 for all clusters. In case D we observe the strongest marginal effects for union-type representation. Contrary to Table 1, however, we now report that works council representation in Transition economies is negatively associated with lower levels of motivation, albeit only at the 0.10 level.

Of the results in Table 5, those for the United Kingdom and Ireland are frankly less impressive. Indeed, although the (bivariate) correlation coefficients (available to readers upon request) suggest, especially for the U.K., that union representation tends to be positively associated with high levels of sickness/absenteeism, difficulties in retaining staff, and low motivation, these relationships did not survive multivariate mixed effects estimation for that cluster. Although these countries may be deviants or at least indicative of substantial effect of heterogeneity, the issue of sample size is not without relevance here. The Anglo-Saxon cluster is by far the smallest of all five country groupings. Taken in conjunction with the fact that the marginal effects in Table 1 are modest to begin with, the lack of statistical significance may not

be altogether surprising. This still leaves the case of the Nordic cluster where no significant findings are reported in Table 5. Here we would enter the speculation that labor-management relations are more consensual than in other clusters, while the degree of employee representation is also greater. This concatenation of characteristics makes it more difficult to capture differences across establishments with and without worker representation. Recall that the omitted category in the case of worker representation is an absence of representation. More consensual labor-management relations and high degrees of employee representation may then play a part in explaining the lack of statistical significance of the parameters of interest for this group.

Overall, in comparing employee workplace representation with its absence, we do not then obtain a clear rejection of the notion that collective voice is mostly disputatious. Also, in those cases where there is information on majority trade union membership of worker representation agencies, the evidence also points in the direction of contestation. However, when comparing works councils and union bodies, there is a clear indication that the former vehicle is from the standpoint of management associated with the better overall industrial relations performance.

VI. Conclusions

We shall largely confine our concluding remarks to workplace representation. Beginning with *strike incidence*, there was some suggestion that the effects of workplace employee representation might be both beneficial and influenced by unionism. That is to say, nonunion-dominated works councils were associated with lower strike incidence than their counterpart (nonunion-dominated) union entities, while union-dominated works councils were associated

with greater strike activity than other works councils. Union density at the workplace was also associated with greater strike incidence.

If these results were in accordance with our priors, we found no strong suggestion that works councils or union bodies were associated with a better industrial relations climate – or that either entity was positively associated with IR quality when compared with an absence of representation. These results appear somewhat at odds with the strikes data. The qualification is the rather strong positive association between coverage by a collective agreement (versus no coverage) and industrial relations quality in both the full sample and (in part) for the matched sample.

Moreover, one of the strongest predictions of the collective voice model – that worker representation should improve labor retention– was *not* borne out for either of the above samples. Nevertheless, employee motivation was adjudged least favorable by management in circumstances where union agencies predominated in the case of the full sample and for work council and union entities in which a majority of the membership was unionized in the matched sample. However, any such disfavor emphatically does not carry over to collective bargaining proper.

Our strongest (and most consistent) results were for the reduced MM sample where works council and union representation situations are explicitly compared, although we can no longer control for union membership of the worker representation body or for plant-level union density. Specifically, situations in which works council-type bodies are either the sole representative body or the more influential agency (as compared with instances in which union workplace representation prevails) are correlated with favorable outcomes for three out of the four behavioral indicators.

Separate sensitivity analyses either confirmed the latter results or suggested more generally that our findings did not display any particular dependence on any specific country subset. But if our results offer qualified support for the collective voice model, there remains the vexed question of the influence of collective bargaining decentralization and hybridization. Although low levels of union decentralization are in general found to be associated with good industrial relations, improved labor retention and better worker motivation, the evidence for the bargaining centralization index is mixed. For its part, the refinement produced by combining the type of collective agreement applicable to the establishment with country-wide indicators of coordinated and governed bargaining did not on this occasion prove to be enlightening.

Endnotes

1. The legislation complements the information and consultation provisions of extant law on collective dismissals (Directive 98/59/EC of 20 July 1998), transfers of undertakings (Directive 2001/23/EC of 12 March 2001) and, in the transnational context, on European Works Councils (Directive 94/45/EC of 22 September 1994).

2. Moreover, recent research has suggested that when one controls for the endogenous selection induced by the sorting of workers into unionized jobs, the material difference in job satisfaction between unionized and non-unionized workers no longer obtains or is much reduced (see Laroche 2016 and the references contained therein). In short, a selection effect rather than a causal effect may characterize the relationship between union membership and dissatisfaction. Rather than dissatisfaction, distributional conflict (and mutual perceptions of the relationship between the two sides) may be more the more relevant consideration(s).

3. The content of collective voice is also spelled out in more detail in this treatment in terms of a continuum bounded by information provision at one extreme and participation/codetermination at the other, with consultation occupying the broad middle ground.

4. For an application of the Freeman-Lazear hypothesis, see Hübler and Jirjahn (2003) who conclude that, notwithstanding the two faces of works councils, the discipline of an industry collective agreement makes this decoupling more likely.

5. The two variables are based, respectively, on the following assessments of the manager respondent: (a) "The employee representation helps us in a constructive manner to find ways to improve the workplace performance"; and (b) "The involvement of employee representation often leads to considerable delays in important management decisions."

6. That said, the authors report an absence of any effect emanating from unions in the Scandinavian cluster, despite what is described as their strong position and fundamentally positive attitudes.

7. Union decentralization is defined as the inverse of the authority unions have over local branches, and we shall also have recourse to a similar such argument in the present paper. The decentralization phenomenon has been most for Germany with mixed results; see, inter al., Dustman et al., 2014; Ellguth, Gerner, and Stegmaier, 2014; Addison et al. 2017).

8. Specifically, in 2013, for our sample of countries in the MM dataset, we selected all establishments having valid information on the dummy variables ERTYPE_A, ERTYPE_B, …, ERTYPE_G. These variables flag the presence of a formal or informal ER body and the specific type of worker representation actually present at the organization. In a second stage, we used all the establishments in the ER survey and generated an establishment identifier. A third stage linked the MM and ER datasets by using the common raw variables w4_MM_emp_freq (i.e. the establishment weight), est_size3 (i.e. establishment size), and NACE6_R1_1 (i.e. sector). In the fourth and final stage we dropped all establishments in the ER dataset for which there was no unique matching. Unsurprisingly, the common set is rather restricted, otherwise matching would

be a trivial exercise. The limitation of the matching procedure is that it was not possible to map all the ER units across to the MM dataset.

9. We tested alternative multiple non-linear regression models. In particular, we ran an ordinary logit model with country dummies and cluster-robust standard errors. In this model there was no change in the sign of the regressors, while the t-ratios tended to be slightly higher. Since in virtually all the regressions reported in section V the log-likelihood ratio tests comfortably rejected the null that the random variation of the country intercepts is zero, our preference was to focus on the two-level mixed effects case.

10. The alternative would be to jettison all variables contained in the MM questionnaire and limit oneself to the more restricted arguments of the ER survey.

11. We are indebted to an anonymous referee for suggesting this approach.

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Table 1. Workplace Representation, Collective Bargaining Type, National Bargaining Systems, and Subjectively Defined Industrial Relations Performance, Management Survey Sample, 2013 ECS (Marginal Effects)

Outcome indicator	**A: Good or very good industrial relations climate** (Mean: 0.83)					**B: High level of sickness/absenteeism** (Mean: 0.16)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation (Reference=none):										
Works council-type representation	0.24	-.020***	-.020***	-.023***	-.018***	0.24	.027***	.027***	.029***	.028***
Union-type representation	0.23	-.050***	-.049***	-.050 ***	-.047***	0.23	.051***	.051***	.056***	.052***
Collective agreement type (Reference=no collective agreement):										
Company level	0.14	.017**	.016*	.015*		0.14	-.014*	-.014*	-.014	
Higher than company level	0.34	.025***	.023***	.026***		0.34	-.005	-.006	-.009	
Mixed	0.18	.025***	.024***	.026***		0.18	.003	.002	.001	
Country-level synthetic indicators:										
Union decentralization			-.012**					-.0095		
Bargaining centralization				.002					.014	
Bargaining system (Reference=individual bargaining):										
BB_1_company bargaining (single-level)					.011					-.010
BB_2_coordinated sector bargaining (single-level)					.019*					-.001
BB_3 uncoordinated sector bargaining (single-level)					.014					.007
BB_4_national bargaining (single-level)					.010					-.008
BB_5 governed company and sector bargaining (two-level)					.026					.019
BB_6_ungoverned company and sector bargaining (two-level)					.009					.0001
BB_7_governed company and national bargaining (two-level)					.037					-.022
BB_8_ungoverned company and national bargaining (two-level)					-.025					.038**
BB_9_governed sector and national bargaining (two-level)					.031					-.016
BB_10_governed sector and national bargaining (two-level)					-.006					-.019

BB_11_governed company, sector and national bargaining (three-level)					.074***					-.039**
BB_12_ungoverned company, sector and national bargaining (three-level)					.034**					-.018
Number of observations		20,231	20,231	19,025	20,394		20,205	20,205	19,001	20,369
$\hat{\sigma}_u^2$		.225	.191	.183	.204		.310	.289	.292	.310
(s.e.)		(.065)	(.056)	(.055)	(.059)		(.088)	(.082)	(.088)	(.088)
LR test		463.59	356.14	379.45	332.75		490.30	455.25	412.39	476.62

Table 1 (cont.)

Outcome indicator	**C: Difficulties in retaining staff** (Mean: 0.11)					**D: Low motivation of employees** (Mean: 0.20)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation (Reference=none):										
Works council-type representation	0.24	.001	.002	.002	.001	0.24	.003	.004	.005	.003
Union-type representation	0.23	.005	.004	.001	.004	0.23	.051***	.049***	.044***	.050***
Collective agreement type (Reference=no collective agreement):										
Company level	0.14	-.015**	-.014**	-.016**		0.14	-.010	-.009	-.013	
Higher than company level	0.34	-.009	-.008	-.004		0.34	-.002	.0001	-.003	
Mixed	0.18	-.019***	-.018**	-.013*		0.18	-.008	-.006	-.009	
Country-level synthetic indicators:										
Union decentralization			.016***					.023***		
Bargaining centralization				-.017**					-.015	
Bargaining system (Reference=individual bargaining):										
BB_1_company bargaining					-.016**					-.011
BB_2coordinated sector bargaining					-.016					-.017
BB_3_uncoordinated sector bargaining					-.011					-.019
BB_4_national bargaining					-.006					.005
BB_5_governed company and sector bargaining					-.011					-.025
BB_6_ungoverned company and sector bargaining					-.010					-.010

BB_7_governed company and national bargaining					-.075***					-.032
BB_8_ungoverned company and national bargaining					-.015					.013
BB_9_governed sector and national bargaining					-.035**					-.019
BB_10_governed sector and national bargaining					-.004					.016
BB_11_governed company, sector and national bargaining					-.026					-.048*
BB_12_ungoverned company, sector and national bargaining					-.032***					-.007
Number of observations		20,175	20,175	18,975	20,338		19,979	19,979	18,802	20,137
$\hat{\sigma}_u^2$ (s.e.)		.313 (.090)	.206 (.060)	.280 (.085)	.305 (.088)		.219 (.062)	.133 (.039)	.221 (.066)	.200 (.058)
LR test		382.54	291.21	332.03	368.82		507.09	313.49	480.46	349.38

Notes: The two-level mixed-effects logit model includes the following additional variables: performance-based pay, organizational change, workforce composition, industry affiliation, establishment size, private ownership, single establishment, and training participation. The full set of selected variables is given in Appendix Table 1. The actual implementation in Stata uses the *melogit* command. The log-likelihood ratio tests the null of an ordinary logit specification versus the two-level mixed effects model. The null is always comfortably rejected in favor of the mixed effects specification. In the interests of economy, the cluster-robust standard error of the reported marginal effect is omitted from the table. The reported mean corresponds to column (1). ***, ** and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 2. Workplace Representation, Collective Agreement Type, National Bargaining Systems, and Subjectively Defined Industrial Relations Performance, Employee Representative-Management Survey Matched Sample, 2013 ECS (Marginal Effects)

Outcome indicator	**A: Good or very good industrial relations climate** (Mean: 0.79)					**B: High level of sickness/absenteeism** (Mean: 0.25)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation/Labor organization:										
Union density at the workplace	0.44	-.001**	-.001**	-.001**	-.001**	0.44	.0001	-.0002	-.0001	.0001
Works council-type representation	0.62	-.080*	-.078*	-.086*	-.077*	0.63	-.051	-.037	-.030	-.062
Union-dominated works council	0.26	-.049	-.051	-.068	-.046	0.26	-.025	-.032	-.018	-.029
Union-dominated union body	0.20	-.163**	-.161**	-.180**	-.166**	0.20	.013	.008	-.066	.012
Collective agreement type (Reference=no collective agreement):										
Company level	0.19	.016	.015	.016		0.19	.047	.047	.067	
Higher than company level	0.39	.051	.045	.071		0.39	.030	.021	.023	
Mixed	0.26	.061	.056	.080*		0.26	.074*	.072*	.076*	
Country-level synthetic indicators:										
Union decentralization			-.012					-.036**		
Bargaining centralization				.006					.032	
Bargaining system (Reference=individual bargaining):										
BB_1_company bargaining					.018					-.009
BB_2_coordinated sector bargaining					.072*					-.046
BB_3_uncoordinated sector bargaining					.104*					.023
BB_4_national bargaining					.028					-.001
BB_5_governed company and sector bargaining					.091*					-.015
BB_6_ungoverned company and sector bargaining					.043					.047
BB_7_governed company and national bargaining					.001					-.065
BB_8_ungoverned company and national bargaining					.061					.152*
BB_9_governed sector and national bargaining					.051					-.037
BB_10_governed sector and national bargaining					-.064					-.161***
BB_11_governed company, sector and national bargaining (three-level)					.137**					.052
BB_12_ungoverned company, sector and national bargaining					-.022					.071

Number of observations		1,365	1,365	1,271	1,371		1,363	1,363	1,269	1,368
$\hat{\sigma}_u^2$		.308	.270	.242	.290		.463	.317	.300	.512
(s.e.)		(.147)	(.136)	(.125)	(.146)		(.211)	(.157)	(.173)	(.231)
LR test		31.99	24.50	21.47	25.49		33.92	26.03	16.28	35.49

Table 2 (cont.)

	C: Difficulties in retaining staff (Mean: 0.10)					**D: Low motivation of employees** (Mean: 0.24)					**E: Strike incidence** (Mean: 0.11)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation/Labor organization:															
Union density at the workplace	0.44	-.0007*	-.0006	-.0006	-.0007*	0.44	.0002	.0002	.00002	.0001	0.44	.0008**	.0008**	.0009**	.0008**
Works council-type representation	0.63	-.025	-.023	-.021	-.029	0.63	-.038	-.036	-.033	-.036	0.63	-.047	-.045	-.050	-.052
Union-dominated works council	0.26	-.033	-.029	-.021	-.037	0.26	.088*	.090*	.083*	.085*	0.26	.078***	.077***	.092***	.081***
Union-dominated union body	0.20	.084*	.088*	.082*	.079*	0.20	.136*	.136*	.111	.139*	0.20	-.0006	-.0002	-.005	.001
Collective agreement type (Reference=no collective agreement):															
Company level	0.19	-.011	-.012	-.002		0.18	.018	.018	.004		0.19	-.054*	-.051	-.074*	
Higher than company level	0.39	.008	.013	.019		0.40	-.026	-.021	-.031		0.39	-.005	-.002	-.017	
Mixed	0.26	-.008	-.006	.005		0.26	-.047	-.044	-.053		0.26	-.003	-.0008	-.011	
Country-level indicators:															
Union decentralization			.012*					.008					.004		
Bargaining centralization				-.021**					-.014					.056**	
Bargaining system (Reference=individual bargaining):															
BB_1_company bargaining					-.013					.017					-.030
BB_2_coordinated sector bargaining					-.011					-.033					.014
BB_3_uncoordinated sector bargaining					.033					.046					.043
BB_4_national bargaining					.044					-.010					.036
BB_5_governed company and sector bargaining					-.040					-.071					-.031
BB_6_ungoverned company and sector bargaining					.028					-.068					.077

BB_7_governed company and national bargaining					-.015					.041					.106
BB_8_ungoverned company and national bargaining					.004					-.0006					.006
BB_9_governed sector and national bargaining					-.027					-.068					-.023
BB_10_governed sector and national bargaining					.047					-.053					-.035
BB_11_governed company, sector and national bargaining					-.050					-.130**					-.014
BB_12_ungoverned company, sector and national bargaining					.019					.052					.033
Number of observations		1,360	1,360	1,266	1,366		1,341	1,341	1,249	1,346		1,366	1,366	1,272	1,372
$\hat{\sigma}_u^2$ (s.e.)		.273 (.162)	.187 (.130)	.176 (.135)	.179 (.130)		.225 (.114)	.204 (.110)	.204 (.113)	.188 (.108)		1.673 (.771)	1.582 (.760)	1.355 (.669)	1.525 (.727)
LR test		13.48	6.91	4.98	6.38		26.7	19.7	18.83	14.93		85.19	65.08	74.86	61.18

Notes: See notes to Table 1. The two-level mixed-effects logit model includes three workplace representation dummy variables indicating the presence of a works council, a union-dominated union agency, and a union-dominated works council, respectively. Accordingly, given that in this sample a formal worker representation body is necessarily present at the establishment, the coefficient on the first variable (works council) gives the nonunion-dominated works council effect vis-à-vis the nonunion-dominated union body; the second (i.e. the union-dominated union coefficient) gives the union-dominated union effect vis-à-vis the non-union dominated union body; and the third gives the union-dominated works councils effect vis-à-vis the works council without union domination. The set of control variables pertaining to performance-based pay, organizational change and workforce composition are reduced to include only the statistically significant arguments. This procedure is designed to avoid a further reduction in the estimation sample. The reported mean corresponds to column (1). ***, ** and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 3. Workplace Representation, Collective Agreement Type, National Bargaining Systems, and Subjectively Defined Industrial Relations Performance, Reduced Management Survey Sample, 2013 ECS (Marginal Effects)

Outcome indicator	**A: Good or very good industrial relations climate** (Mean: 0.81)					**B: High level of sickness/absenteeism** (Mean: 0.21)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation (Reference= union-type representation):										
Works council-type representation	0.52	.038***	.036***	.037***	.037***	0.52	-.025**	-.026**	-.031**	-.026**
Collective agreement type (Reference=no collective agreement):										
Company level	0.21	.007	.006	.008		0.21	.0005	-.0001	.005	
Higher than company level	0.34	.022*	.020	.026*		0.34	-.001	-.003	-.003	
Mixed	0.27	.023*	.021*	.027*		0.27	.002	.001	.002	
Country-level synthetic indicators:										
Union decentralization			-.008					-.009		
Bargaining centralization				-.005					.021	
Bargaining system (Reference=individual bargaining):										
BB_1_company bargaining					.003					.002
BB_2_coordinated sector bargaining					.016					-.002
BB_3_uncoordinated sector bargaining					-.003					.017
BB_4_national bargaining					.019					-.007
BB_5_governed company and sector bargaining					.012					.003
BB_6_ungoverned company and sector bargaining					.013					.004
BB_7_governed company and national bargaining					.021					-.019
BB_8_ungoverned company and national bargaining					-.042*					.043*
BB_9_governed sector and national bargaining					.027					-.013
BB_10_governed sector and national bargaining					.009					-.027
BB_11_governed company, sector and national bargaining					.065**					-.038

BB_12_ungoverned company, sector and national bargaining					.051***					-.031
Number of observations		9,573	9,573	8,972	9,660		9,554	9,554	8,954	8,954
$\hat{\sigma}_u^2$ (s.e.)		.272 (.081)	.256 (.078)	.210 (.067)	.254 (.078)		.334 (.100)	.320 (.096)	.314 (.101)	.333 (.100)
LR test		305.53	230.27	239.64	215.13		261.26	262.30	218.27	240.38

Table 3 (cont.)

Outcome indicator	**C: Difficulties in retaining staff** (Mean: 0.10)					**D: Low motivation of employees** (Mean: 0.21)				
Variables	Mean	(1)	(2)	(3)	(4)	Mean	(1)	(2)	(3)	(4)
Worker representation (Reference= union-type representation):										
Works council-type representation	0.52	-.003	.0007	.001	-.002	0.52	-.052***	-.044***	-.041***	-.049***
Collective agreement type (Reference=no collective agreement):										
Company level	0.21	-.003	-.003	-.005		0.21	.003	.004	.003	
Higher than company level	0.35	.010	.012	.016		0.35	.004	.009	.010	
Mixed	0.27	-.013	-.011	-.005		0.27	-.004	-.001	-.001	
Country-level synthetic indicators:										
Union decentralization			.018***					.024***		
Bargaining centralization				-.022***					-.016	
Bargaining system(Reference=individual bargaining):										
BB_1_company bargaining					-.004					.006
BB_2_coordinated sector bargaining					.008					-.014
BB_3_uncoordinated sector bargaining					.035					.022
BB_4_national bargaining					.009					.001
BB_5_governed company and sector bargaining					-.006					-.029
BB_6_ungoverned company and sector bargaining					.003					.0006
BB_7_governed company and national bargaining					-.075***					-.018

BB_8_ungoverned company and national bargaining					.0002					.024
BB_9_governed sector and national bargaining					-.019					-.017
BB_10_governed sector and national bargaining					.040					.036
BB_11_governed company, sector and national bargaining					-.028					-.061**
BB_12_ungoverned company, sector and national bargaining					-.026*					-.015
Number of observations		9,548	9,548	8,950	9,635		9,456	9,456	8,873	9,541
$\hat{\sigma}_u^2$ (s.e.)		.374 (.114)	.239 (.076)	.307 (.100)	.362 (.112)		.187 (.056)	.109 (.035)	.191 (.061)	.157 (.051)
LR test		196.17	134.86	151.13	181.17		229.28	122.15	215.59	119.82

Note: See notes to Table 1.

Table 4. Replication of Table 1 Using the Variables *Works council representation only*, *Union representation only*, and *Both union and works council representation* (Marginal Effects)

Outcome indicator	**A: Good or very good industrial relations climate**			**B: High level of sickness/absenteeism**		
	(1)	(2)	(3)	(1)	(2)	(3)
(a)						
Union representation only	-.045***	-.044***	-.044***	.050***	.050***	.058***
Works council representation only	-.020***	-.021***	-.024***	.027***	.027***	.029***
Both union *and* works council representation	-.046***	-.046***	-.048***	.042***	.043***	.044***
(b)						
Union representation only	-.045***	-.045***	-.045***	.050***	.051***	.058***
Works council representation only	-.020***	-.020***	-.023***	.027***	.027***	.029***
Both, but where works council representation predominates	-.023*	-.023*	-.025*	.026*	.026**	.028*
Both, but where union representation predominates	-.056***	-.055***	-.058***	.051***	.052***	.052***

(Table 4 (cont.)

Outcome indicator	**C: Difficulties in retaining staff**			**D: Low motivation of employees**		
Variables	(1)	(2)	(3)	(1)	(2)	(3)
(a)						
Union representation only	.0003	.0002	-.002	.037***	.036***	.031***
Works council representation only	.001	.002	.002	.008	.009	.011
Both union *and* works council representation	.011	.010	.009	.045***	.044***	.040***
(b)						
Union representation only	.0004	.0003	-.002	.038***	.037***	.032***
Works council representation only	.001	.002	.002	.006	.008	.010
Both, but where works council representation predominates	.008	.008	.009	-.013	-.012	-.010
Both, but where union representation predominates	.012	.011	.009	.067***	.065***	.061***

Notes: The reference category is always the absence of worker representation case. In the interests of economy, the replication is only for columns (1) through (3) of Table 1.

Table 5. Replication of Table 1 for Five Country Clusters (Marginal Effects)

Outcome indicator	**A: Good or very good industrial relations climate**						**B: High level of sickness/absenteeism**					
Variables	Column (1) of Table 1	Germanic cluster	French cluster	Anglo-Saxon cluster	Nordic cluster	East European transition cluster	Column (1) of Table 1	Germanic cluster	French cluster	Anglo-Saxon cluster	Nordic cluster	East European transition cluster
Worker representation (Reference=none):												
Works council-type representation	-.020***	-.0228*	-.045***	.035	.019	.009	.027***	.048**	.046***	-.006	-.002	.0001
Union-type representation	-.050***	—	-.053***	.019	-.021	-.090***	.051***	—	.077***	.029	.038	.026
Number of observations	20,231	3378	6192	1317	2313	5993	20,205	3370	6184	1317	2310	5986
Number of countries	28	4	6	2	3	10	28	4	6	2	3	10
LR test	Yes	Null not rejected	Yes	Null not rejected	yes	yes	Yes	yes	Yes	Null not rejected	yes	yes

Table 5 (cont.)

Outcome indicator	**C: Difficulties in retaining staff**						**D: Low motivation of employees**					
Variables	Column (1) of Table 1	Germanic cluster	French cluster	Anglo-Saxon cluster	Nordic cluster	East European transition cluster	Column (1) of Table 1	Germanic cluster	French cluster	Anglo-Saxon cluster	Nordic cluster	East European transition cluster
Worker representation (Reference=none):												
Works council-type representation	.001	-.004	.023*	-.041	-.007	-.009	.003	.036***	.015	.010	-.027	-.046*
Union-type representation	.005	—	-.002	.027	-.007	-.008	.051***	—	.048***	.032	.007	.067***
Number of observations	20,175						19,979	3348	6123	1303	2303	5873
Number of countries	28	4	6	2	3	10	28	4	6	2	3	10
LR test	yes	yes	yes	Null not rejected	Null not rejected	yes	yes	yes	yes	Null not rejected	yes	yes

Notes: The first column on the left reproduces column (1) of Table 1. The five country clusters are provided in Table 2 of van den Berg et al. (2013). Contrary to their Table 2, we include Luxembourg in the Germanic countries cluster given that all respondents from Luxembourg are works council representatives. Cyprus, Malta and Croatia are not included in any of the selected clusters. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

Appendix Table 1. Variable Definition and Means of Selected Variables, Full MM and Matched MM-ER Samples

Variable	Mean (MM Sample)	Mean (MM-ER matched sample)	Definition
Industrial relations performance:			
Strike incidence	N.A.	11	1/0 dummy: 1 if there has been a stoppage or strike in the establishment in the last 12 months
General work climate (Manager view)	83	79	(IR_quality MM)1/0 dummy: 1 if the general work climate in the establishment is very good or good
Absenteeism (Manager view)	16	25	1/0 dummy: 1 if there is a high level of sickness leave
Difficulties in staff retention (Manager view)	11	11	1/0 dummy: 1 if there are difficulties retaining employees
Low employee motivation (Manager view)	19	23	1/0 dummy: 1 if there is low motivation of employees
Worker representation/Labor organization:			
Works council-type representation	25	63	1/0 dummy; 1 if a works council or a prevalent works council is present
Union-type representation	23	37	1/0 dummy: 1 if a union or a prevalent union representation is present.
Establishment union density	N.A.	44	Union membership at the establishment
Union-dominated union body	N.A.	19	1/0 dummy: 1 if a union or a prevalent union representation is present and the majority of representatives are trade union members
Union-dominated works council	N.A.	26	1/0 dummy: 1 if a works council or a prevalent works council is present and the majority of representatives are trade union members
Collective agreement:			
No collective agreement	34	16	No collective agreement
Company level	14	19	Company level
Higher than company level	33	39	Higher than company level
Mixed	19	26	Mixed (i.e. company level and higher than company level)
Changes in organization:			
Changes in the remuneration system	32	34	1/0 dummy: 1 if major changes in the remuneration system were introduced in the past three years. In 2013 the variable is defined simply as 'changes' in the remuneration system
Changes in the work process	39	45	1/0 dummy: 1 if changes in the organization of the work process were introduced in the past three years. In 2013 the variable is defined as changes in 'ways to coordinate and allocate the work to employees'
Changes in the working time	22	29	1/0 dummy: 1 if changes in the working time arrangements were introduced in the past three years
Restructuring measures	48	55	1/0 dummy: 1 if restructuring measures were introduced in the past three years. In 2013 the variable is defined as changes in the 'use of technology'
Changes in recruitment policies	23	27	1/0 dummy: 1 if changes in recruitment policies
Single establishment	67	53	1/0 dummy: 1 if single independent company or organization
Private sector	91	85	1/0 dummy: 1 if establishment belongs to the private sector
Sector:			
Industry	33	37	
Construction	7	9	

Commerce and hospitality	25	15	
Transport and communication	8	9	
Financial services and real estate	5	10	
Other services	21	20	
Establishment size:			
10 to 49 employees	51	23	
50 to 249 employees	32	52	
More than 250 employees	17	25	
Workforce composition:			
Workers with an OEC	84	85	Percentage of employees who have an open-ended contract (OEC)
Female workers	39	37	Percentage of employees who are female
Workers with a university degree	26	25	Percentage of employees who have a university degree
Part-time workers	14	14	Percentage of employees who work part-time (i.e. less than the usual full-time arrangement)
Training:			
On- and off-the-job training	36	44	Percentage of employees who in the past 12 months received paid time-off from their normal duties to undertake training, either off or on the job.
Performance-based pay:			
HVPBRES	41	43	1/0 dummy: 1 if payment by results, for example piece rates, provisions, brokerages or commissions
HVPINPER	51	58	1/0 dummy: 1 if variable extra pay linked to the individual performance following management appraisal
HVPGRPE	33	39	1/0 dummy: 1 if extra pay linked to the performance of the team, working group or department
HVPPRSH	38	48	1/0 dummy: 1 if variable extra pay linked to the results of the company or establishment (profit sharing scheme)
HVPSHOW	8	10	1/0 dummy: 1 if variable extra pay in form of share ownership scheme offered by the company
Country-level synthetic indicators:			
Union decentralization	3.5	2.4	0-7 scale: 0 is the lowest level of union decentralization. This is the Jansen (2014) scale. The raw variable (*unauthority*) can be downloaded from the ICTWSS database (Visser 2013).
Bargaining centralization	2.3	2.8	0-5 scale: 0 is the lowest level of centralization.
Bargaining system: (Country- and establishment-based classification)			
BB_0_individual bargaining	37	19	1/0 dummy: 1 if individual bargaining
BB_1_company bargaining	18	22	1/0 dummy: 1 if company bargaining
BB_2_coordinated sector bargaining	10	17	1/0 dummy: 1 if coordinated sector bargaining
BB_3_uncoordinated sector bargaining	5	3	1/0 dummy: 1 if uncoordinated sector bargaining
BB_4_national bargaining	9	9	1/0 dummy: 1 if national bargaining
BB_5_governed company and sector bargaining	3	5	1/0 dummy: 1 if governed company and sector bargaining
BB_6_ungoverned company and sector bargaining	4	5	1/0 dummy: 1 if ungoverned company and sector bargaining

BB_7_governed company and national bargaining	1	1	1/0 dummy: 1 if governed company and national bargaining
BB_8_ungoverned company and national bargaining	3	4	1/0 dummy: 1 if ungoverned company and national bargaining
BB_9_governed sector and national bargaining	2	5	1/0 dummy: 1 if governed sector and national bargaining
BB_10_governed sector and national bargaining	3	2	1/0 dummy: 1 if ungoverned sector and national bargaining
BB_11_governed company, sector and national bargaining	2	4	1/0 dummy: 1 if governed company, sector and national bargaining
BB_12_ungoverned company, sector and national bargaining	3	4	1/0 dummy: 1 if ungoverned company, sector and national bargaining

Note: Means are given in percentage points.