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**When do employees choose to be represented on the board of directors? Empirical
analysis of Board-Level Employee Representation in Denmark**

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Abstract

Drawing on transaction costs economics and longitudinal data on Danish corporations we analyze the distribution of board-level employee representation (BLER) and the characteristics of employee directors in a context where workers have the possibility (but not also an obligation) to nominate representatives to the board of directors. We show that BLER is less likely instituted in firms with CEO or family-related members on board, but more likely observed in larger, older firms and in those with high firm-specific human capital and union density. Firm-specific human capital, qualifications and union membership also determine individual worker's probability to become a board member.

1. Introduction

Legal provisions granting employees seats on corporate boards (board-level employee representation - BLER) are a common but also a debated feature of the European social model (Conchon, 2011). This mechanism of employee participation in decision-making has been recently capturing new interest, as anecdotal and empirical evidence shows that employee directors were instrumental in facilitating labor cost adjustments alternative to employment reductions during the Great Recession (Gregorič and Rapp, 2019). Scholarly research outlines a number of other benefits of BLER. By facilitating the use of information from the employees, the negotiation of cooperative solutions between them and their employers, and by encouraging human capital formation, BLER increases workers' productivity (Fitzroy and Kraft, 2005; Renaud, 2007). Workers in companies with BLER are also more satisfied and less likely to leave (Ben-Ner and Jones, 1995; Kraft, 1986). The model of BLER has however not been free of critique, as some scholars and practitioners refer to the constitution of BLER, the German mandatory model of board-level employee representation in particular, as a social-political move that has affected the division of surplus between labor and capital and raised the costs of firm governance (e.g., Jensen and Meckling, 1979; Pistor, 1999; Berglund and Holmen, 2016).

This paper seeks to contribute to the current understanding of board-level employee representation (BLER) by analyzing how BLER distributes across firms in a system where workers have the option but not also an obligation to elect their representatives to the board. Specifically, we

analyze workers' decisions on whether to nominate their representatives to the board of directors within a cost-benefit framework that draws on transaction costs theory and the related work on employee voice (Williamson, 1975; Bryson et al., 2007; Willman et al., 2014). Accordingly, we frame the benefits of employee board representation in terms of scope (formal rights assigned to employee directors) and efficacy. This framing follows scholarly work highlighting that employee preferences for voice depend on both the formally defined rights associated with a specific voice mechanism and the actual possibility of successfully implementing these rights (Ben-Ner and Jones, 1995; Diamond & Freeman, 2001; Willman et al., 2003). We outline the circumstances under which the expected benefits of BLER might outweigh the costs of such representation and subsequently hypothesize how the value of BLER, from the workers' perspective, varies depending on the characteristics of their employers (firms) and the environment in which these firms operate. Specifically, we expect that BLER is more likely to be adopted in firms (1) that rely more strongly on firm-specific investments in human capital, (2) with higher union density, (3) whose CEO is not part of the board, and (4) that are not family-controlled. As a novelty to the literature, we examine how the cost-benefit considerations impact the characteristics of the individuals that employees elect to the board; we associate the probability of becoming an employee director with the candidate's qualifications, firm-level expertise and union membership.

We test our proposition using the Danish system of voluntary BLER and firm-level (or employer-employee matched) data from 2001 to 2006. Since the mid-seventies, employees of Danish private and public limited companies employing at least 35 full-time individuals (on average over the previous three years) have had the option to implement BLER. The right to board representation can be requested either by a group comprising 10 percent of firm employees, a majority of cooperation committee members (an institution similar to a works council), or by a union representing at least 10 percent of the employees. Majority worker support is required for the implementation of BLER and for the election of specific employee candidates to the board. If they decide to exercise this option, employees elect half of the number of directors nominated by firm owners (rounding up if the number is uneven). Not all employees in Danish firms have chosen to implement BLER. This allows us to

study whether BLER occurrence varies according to the benefits and costs of representation, as proposed in the theoretical literature.

Our paper makes several contributions to the literature. We add to the stream of literature on employee voice by analyzing how the benefits and costs of BLER, as perceived by the employees, impact their decision to utilize BLER and their selection of those elected to the board. In this, our work is related to the study by Berglund and Holmen (2016), who analyze the diffusion of BLER in Swedish publicly listed firms. The focus of their study is on individual worker's aversion towards the responsibilities of directorship, as an explanation for the low incidence of BLER. Our study builds on a broader theoretical perspective. Drawing on transaction costs economics, we investigate how BLER-related costs and benefits that accrue to workers collectively (in their role as firm stakeholders) affect the implementation of BLER. In our framework, the costs of BLER implementation, such as the costs of finding the candidates for board positions, are therefore only one of the factors affecting the implementation of BLER. Our study also relates to and complements the scholarly work on the determinants of works council establishment (Addison et al., 1997; Addison et al., 2002; Jirjahn, 2009; Mohrenweiser et al., 2012). We draw on theoretical and empirical insights offered by this literature, while accounting for the differences in the BLER's and works council's domains of activity and influence. We also advance the literature on employee voice by providing new evidence on the relationship between non-union and union forms of employee representation. We corroborate findings in the literature (Wood and Fenton-O'Creevy, 2005; Bryson et al., 2007) in showing that different models of employee voice are complementary rather than substitutive. The complementarity of BLER and unions, observed in our study, is in line with the formal differences in the scope of their activities as unions are primarily involved in workplace-related issues, while employee directors participate in strategic decision-making. Finally, we contribute to the literature on employee voice by analyzing the characteristics of employee directors. This issue has not been previously documented.

2. Theoretical framework

2.1 Transaction costs in employment relations and the use of voice

The economic approach to studying employee voice builds on transaction costs economics, thereby viewing employee voice as a governance solution to issues related to information asymmetry and opportunism in employer-employee contracting (Williamson, 1975; Wilkinson et al., 2014; Willman et al., 2014). The adoption of voice mechanisms in this framework is a result of employers'¹ or employees' rational decisions that involve trading off the costs and benefits inherent in the specific mechanism of employee voice (Farber and Western, 2002; Wilkinson et al., 2014). Drawing on this literature and adopting the *workers' perspective* on the issue, we frame the expected value (net benefits) of BLER in terms of three dimensions: (1) the gross returns to employees from adopting BLER, which we relate to the scope of BLER functions (Ben-Ner and Jones, 1995), beyond those in the domain of other voice mechanisms, such as work councils and unions, (2) the efficacy of BLER and (3) the costs of BLER implementation (Willman et al., 2014).

Expected gross returns to employees. We define the returns that BLER conveys on employees on the basis of the strategic functions of the board of directors. These delineate the range of issues that employee directors might influence and that are not in the domain of works' councils or unions. First, by participating in the strategic decision-making, employee directors have the opportunity to detect and prevent opportunistic actions by shareholders or managers and mitigate workers' exposure to uncertainties and strategic decisions that might cause a deterioration of their rents. In this, BLER complements works councils and unions in securing workers a fair share of organizational rents (Smith, 1991; Freeman and Lazear, 1994). Secondly, by contributing to strategic decisions, employee directors also have the opportunity to influence the size of organizational rents. Specifically, worker directors facilitate the transmission of firm-specific knowledge (i.e., the skills and knowledge that increase worker productivity in a specific firm but not in other firms as well; Becker, 1962; Wang et al., 2009) to managers, shareholders and their representatives on the board. It has previously been suggested that this knowledge might improve boards' strategic decisions and employee-employer

¹ With the term *employers* we in this paper refer to both the firms' shareholders and managers.

cooperation, increase organizational productivity and total firm surplus, thus benefiting both employees and shareholders (Ben-Ner and Jones, 1995; FitzRoy and Kraft, 2005; Fauver and Fuerst, 2006).

Efficacy of BLER. The formal rights to participate in strategic decision-making might translate poorly to actual influence on boards. Lower influence implies lower efficacy of the mechanism; the low efficacy reduces the anticipated benefits from BLER and, consequently, makes it less likely that workers will make use of this particular voice mechanism (Hill and Jones, 1992; Wever, 1994; Klaas et al., 2012). In the literature, voice efficacy has been linked to the employers' attitudes towards workers' voice (Bryson, 2004; Holland, 2014; Jirjahn and Mohrenweiser, 2016). Drawing on these studies, we expect that the efficacy of BLER will be higher when employers are more supportive of BLER. The latter will be more likely when employers acknowledge the positive effects of BLER, in terms of higher employee commitment, investments in firm-specific knowledge, productivity, and improved employee-employer cooperation. Indeed, scholarly research underlines that, while firm-specific knowledge and skills are key factors for firms' long-term success, the magnitude and contribution of these factors to firm performance depends on the existence of governance mechanisms, such as BLER, that reduce workers' exposure to employers' opportunism and motivate workers' investments in firm-specific human capital (Freeman and Lazear, 1994; Wang et al., 2009; Osterloh et al., 2011). From the employers' perspective, BLER might also represent an important channel for information exchange between the board (shareholders, CEO) and the employees. By facilitating such information exchange, employee directors contribute to board decision-making, while also fostering mutually beneficial (as opposed to competitive) agreements between the shareholders and employees (Aoki, 1984; Freeman and Lazear, 1994; Fauver and Fuerst, 2006; Gregorič and Rapp, 2019).

Cost of BLER implementation. BLER is a collective form of employee voice. Compared to individual representation, it might be more costly to organize, due to collective action problems (Willman et al., 2014). Based on the literature, we envision the costs of implementing BLER primarily in terms of the set-up costs (Bryson et al., 2007), the time and effort required to find competent candidates willing to serve on the board (Berglund and Holmen, 2016), and the effort and

resources employee directors need to spend gathering workers' preferences and organizing collective representation (Hansmann, 1990; Willman et al., 2014).

2.2 Firm characteristics and the anticipated net benefits of BLER for employees

Drawing on transaction costs economics and scholarly research on works councils we next propose that the anticipated net benefits of BLER vary across firms, depending on the nature and characteristics of employee-employer relations, and the presence of other mechanisms of employee voice in the firm. These factors will also affect the workers' decision on whether to implement BLER. Consequently, we propose that probability of observing BLER in a firm will depend on the level of firm-specific human capital in the firm, union density, and corporate governance characteristics, namely the presence of CEO and the influence of family owners on board.

Firm-specific investments in human capital. First, we anticipate that the benefits of BLER will be higher in companies (sectors) that rely heavily on firm-specific skills and knowledge to achieve competitive advantage, and where employees are therefore expected and required to make substantial firm-specific investments in human capital (Wang et al., 2009; Willman et al., 2014; Holland, 2014). When employees develop firm-specific knowledge and skills, their returns from employment in the current firm exceed the returns from alternative employment, making them vulnerable to employers' opportunism and poor strategic decisions (Hansmann, 1990; Smith, 1991; Jirjahn, 2009; Mohrenweiser et al., 2012). Consequently, these types of workers might benefit more from BLER, as it will provide them with the opportunity to influence strategic decisions, reduce uncertainty and consequently secure a proper return on their firm-specific investments.

Firm-specific knowledge further raises the benefits of BLER by leveraging the power of worker directors, which increases the efficacy of BLER. Firm-specific human capital gives employees power, because they can threaten to withhold these resources (Rajan and Zingales, 2000). Thus, the efficacy of BLER will be greater in firms with significant firm-specific knowledge since in these firms employers are more inclined to support BLER; this mechanism helps them sustain the accumulation of firm-specific resources in the firm and fosters a cooperative relationship with the employees (Freeman and Lazear, 1994). Moreover, when critical resources are present at different

organizational levels, the specialized knowledge, a valuable ingredient in strategic decision-making, is no longer concentrated at the top (Holland, 2014). The value of employee contributions to board decision-making (through transmission of firm-specific information) is thus likely to be higher in such firms. In sum, in the pursuit of high employee commitment and more informed decision-making, the employers are likely to be more supportive of BLER in firms that depend heavily on firm-specific knowledge and skills (Smith, 1991; Wang et al., 2009; Holland, 2014). The efficacy of BLER will consequently also be higher in such firms.

Union density. We propose that the efficacy of BLER and, consequently, the benefits that BLER brings to the employees, is also higher in firms with more powerful unions. While unions might constitute an alternative mechanism for expressing employees' preferences and strengthen the threat of exit (Hill and Jones, 1992), they might also act as a complementary stakeholder with whom employee directors build coalitions to reinforce their influence on the board of directors (Näsi et al., 1994). Unions have at their disposal collective power and resources that make the employee voice less susceptible to managerial (shareholder) influence (Wood and Fenton-O'Creevy, 2005; Holland, 2014). Moreover, employers might see alternative voice mechanisms, such as BLER, as a mediator in the employer-union bargaining (Holland, 2014); such mechanism are likely more relevant in firms with higher union density. The coexistence of union and non-union voices moreover provides for multiple channels of employer-employee interactions; this might increase employers' support to BLER and increase its efficacy. That is, the unions take care of issues that might otherwise create conflicts and obstruct employee-shareholder interaction on the board, such as working conditions, etc. (Freeman and Lazear, 1994; Bryson, 2004). As other workplace-related issues are taken off the table, worker directors might be better able to focus on strategic issues. In the anticipation of this, the employers will be therefore more supportive of the establishment of BLER.

Moreover, labor unions reduce the costs of BLER. Specifically, through the provision of cognitive and other resources, unions are critical to the ability of non-union mechanisms to strategically exploit the rights assigned to them (Wever, 1994; Addison et al., 1997). As an independent representative of worker interests, a union also assists employee directors with gathering and aggregating workers' preferences. This reduces the costs of employee board representation.

Indeed, if all the different preferences are to be considered, lengthier and more challenging decision-making in the boardroom is to be expected (Hansmann, 1990).

Corporate governance characteristics. The benefits of BLER (from the perspective of employees) will also depend on other elements of firm governance that affect workers' influence on boards. In this respect, we underline two key characteristics, i.e., the presence of the CEO (executives) on the board and family control. The ways in which boards are organized vary depending on country jurisdictions. In one group of countries, such as UK, US, the executive and non-executive directors are both part of the board of directors. In other countries, such as Germany, executive and non-executive directors are formally separated into a management and a supervisory board. Differently from these two groups, Scandinavian countries subscribes to a mix of the two systems, namely a dual board system. In the latter case, non-executive directors are formally separated from management but the shareholders can decide that one executive only (usually the CEO) will be a member of the non-executive board of directors. We hypothesize that the benefits of BLER for employees will be higher in firms where the CEO is *not* also a member of the board of directors. Being a company insider, the CEO is able to convey firm-relevant information to the board (Coles et al., 2008). This might reduce the potential for worker directors' contribution to the board and, in turn, probably also the employers' support for BLER. Moreover, under certain conditions, managers might align with the employees (Pistor, 1999; Pagano and Volpin, 2005) and represent them directly on the board, thereby providing a substitute for BLER. Both of the outlined circumstances limit the anticipated returns from BLER to the employees.

We also anticipate that the benefits of BLER will be lower in family-controlled firms. The long-term orientation and values typically associated with family ownership are more in line with employee preferences. This alignment mitigates the workers' exposure to employers' opportunism and strategic uncertainties. Family owners might be also more inclined to honor implicit contracts with employees or resort to alternative mechanisms (e.g., trust, reputation) to secure firm-specific investments (Sraer and Thesmar, 2007; Bach and Serrano-Velarde, 2015). These values and commitments substitute for BLER, thereby reducing the anticipated benefits that BLER generate for the employees. Moreover, not only the expected benefits, the efficacy of BLER will probably also be

lower in family-controlled firms compared to other firms. While potentially better at internalizing employee concerns, family owners are probably less inclined to support workers' involvement in corporate decisions. This is because family owners attribute higher value to control and tend to resist any formal arrangements that would limit their power in the corporation (Jirjahn and Mohrenweiser, 2016). Moreover, the competitive strategies of family firms build on assets that are kept and maintained within the family, such as an organizational culture based on family values and social (stakeholder) networks (Bennedsen et al., 2015). These strategies are less dependent on workers' firm-specific knowledge and skills, thus reducing employer (family owner) support for workers' representation on the board.

2.3 Employee director characteristics

Once employee board representation has been put in place, workers elect their representatives to the board. In most countries with BLER, these representatives are elected from among those employed in the firm. Once elected, employee directors are formally equal to shareholder-elected directors in all aspects of board work. They have the same right to put items on the agenda and their votes carry the same weight but they are also subject to the same duty of confidentiality as shareholder representatives, and they personally bear the liability of tort.

In theorizing about the characteristics of those that employees elect to the board, we therefore have to consider that, in order to be elected, the candidates need to gain the support of their co-workers. However, as individuals, they are also expected to carry out the same tasks and bear the same legal responsibilities as shareholder-elected members. The latter restricts the pool of candidates able and willing to assume directorships (Berglund and Holmen, 2016). In terms of workers' support for candidates, we therefore expect it depends on both (1) the extent to which an employee director represents the various employees in the firm, particularly those anticipated to benefit the most from BLER and (2) the extent to which a candidate's characteristics (i.e., qualifications, expertise) are likely to secure effective worker representation on the board. Differently put, we hypothesize that, while reflecting the weights of the different interest groups in the corporation (Hyman, 1997), the

election of employee representatives will also be driven by strategic considerations, namely the aspiration to maximize the returns and efficacy of BLER.

We earlier associated BLER returns to directors' ability to secure fair returns on workers' firm-specific investments and to their contribution to cooperative solutions and to firms' decision-making through the transfer of firm-specific information to the board. We linked efficacy primarily to owners' support for BLER. Based upon these factors, and the consideration of directors' legal accountability and director responsibilities, we hypothesize that highly qualified individuals are more likely to be elected to the board (e.g., Ben-Ner and Jones, 1995). A certain level of education might be necessary for an employee director to be considered seriously by shareholder-elected directors; the level of employee director education will therefore also affect the efficacy of BLER. At the same time, less educated employees might be less prone to put themselves forward for board positions, due to the associated legal responsibilities (Berglund and Holmen, 2016). Following this reasoning, we also expect that worker directors will be elected among those with higher firm-specific knowledge and longer work experience (tenure) in the firm. Due to this experience, such individuals are both more knowledgeable and willing to take on board responsibilities, as well as more efficient in interpreting and conveying firm-specific information. As representatives of workers with higher accumulated firm-specific human capital, these members will be more welcomed by shareholder-elected directors, raising the odds of BLER being an effective employee voice mechanism.

Finally, we anticipate that union members are more likely to be elected to boards. Unions are often instrumental in the constitution and implementation of non-union voice mechanisms. This will in turn be also reflected in higher support in elections to those associated with labor unions. An employee that is both a member of the union and a board member will also identify more readily with both parties (employees and employers) and therefore more efficiently promote cooperation between them. This will increase the returns and efficacy of BLER.

3. Empirical analysis

3.1 Data and empirical proxies

Our empirical analysis builds on information on Danish public and private limited companies during 2001-2006. To identify employee directors, we rely on data from the Danish Business Authority's registers. Using anonymized firm and individual identifiers, we combine this information with administrative registers of Statistics Denmark, which provide us with information on the composition of the workforce, workers' tenure, wages, job function, directors' family relations, firm and regional characteristics. We then merge this information with accounting variables that Statistics Denmark gathers based on firms' reports to the tax authority (The actual firm and personal numbers are anonymized by Statistics Denmark before data are made available for research purposes; several other data protection restrictions apply). From this sample, we exclude non-active firms, and further restrict the sample to firms legally subject to codetermination (i.e., employing at least 35 full-time employees on average over the three-year period before the focal year of our analysis). This final restriction reduces our sample to around 19,304 firm-year observations for 2001-2006 (about 3,275 firms in any given year, on average).

To test our theoretical propositions on BLER we run a probit regression using a dummy for the presence of at least one employee director on the board (*BLER*) as our dependent variable. In terms of our main explanatory variables, different measures have been suggested to quantify the specificity of human capital; some studies rely on the length of employees' tenure (Bingley and Westergaard-Nielsen, 2003; Oberfichtner, 2016), while others propose more complex skill-based measures (Leping, 2009). Based on the literature and data availability, we employ three different empirical proxies to capture firm-specific investments in human capital: (1) workers' tenure in the firm, measured by the average tenure of workers in the firm (*Employee tenure*); (2) distribution of workers by qualifications, since highly qualified employees are indeed more likely to become specialized to their current employer (Hansmann, 1990); we measured employee qualifications by the average length of education for the employees in the firm, in months (*Employee education*) and, alternatively, by workers' job position, namely the incidence of professionals and top-level employees among all workers (*Experts, Top-level employees*); (3) industry-level measures (2-digit NACE code) of the relevance of workers' skill and specialization, namely labor costs as a percentage of total firm

sales (*Labor costs*) and intangible assets per employee, in 1000 DKK (*Intangible assets*; Belloc, 2016).

The strength of labor unions is measured by the percentage of firm employees that are union members, which we proxy with the percentage of employees that hold unemployment insurance (*Union*; for more information, see below). The presence of the CEO on the board is measured by a dummy variable (*CEO on board*). We capture family control by the percentage of shareholder-elected family members present on the board of directors (*Family control*). We define family connections as connections between spouses, parents and children, and siblings.

All our regressions comprise a battery of control variables. To capture the extent to which employees might be ‘locked in’ to the firm, for reasons not related to knowledge and skill investments, we control for the percentage of workers that live in the region where they work (*Work & live in the region*). These employees likely invest in the community, with their children accustomed to local schools; such links to the region make them more vulnerable to employers’ opportunistic behavior (Hansmann, 1990). Because more candidates might be available for board positions in larger firms, thereby reducing the costs of BLER, we control for firm size, measured by the logarithm of the total number of employees (*Firm size*). Moreover, the information asymmetry between the non-executive board members and the employees is likely higher in larger firms (Coles et al., 2008). Therefore, any mechanism transmitting firm-level information to the board will probably be perceived as more useful in large firms, from the perspectives of both employees (higher returns to BLER) and employers (higher efficacy of BLER).

We also control for firm age (measured in logarithms; *Firm age*). The perceived benefits of BLER are likely higher in environments with strong institutional support for BLER (codetermination), as was the case in the late seventies in Denmark, when the legislation on codetermination was adopted. Considering this and the non-zero switching costs (Bryson et al., 2007), we expect BLER to be more common in firms that have been operating since the late seventies. We include a number of other characteristics that might correlate with our key explanatory variables and BLER, such as the tangibility of firms’ assets (plant, property and equipment, scaled by total assets, *Tangibility*), and *Leverage* (firm’s financial debt scaled by total assets). All our regressions include

sector dummies (31 dummies based on intermediate SNA/ISIC aggregation) and 11 regional dummies.

As of 2006, BLER is observed in 27 percent of firms subject to codetermination legislation (i.e., firms employing more than 35 full time employees on average), in nearly 65 percent of large firms (firms employing more than 250 employees) and in 21 percent of small and medium-sized firms. When they are on a board, employee directors collectively most often hold between 33 and 40 percent of board seats; in line with legal provision, they are never in the majority. Overall, the frequency of BLER does not change significantly during 2001-2006 (for more information, see below). We provide the definitions of the key variables in Table 1 and the descriptive statistics, separately for firms with and without BLER, in Table 2.

Insert Table 1 and Table 2

3.2 Results on the BLER distribution across firms

In the theoretical section outlined above, we related the benefits and costs of BLER to human capital specificity, union density, CEO presence on the board and family control. To test these propositions, we next present a number of regression models with BLER dummy as the dependent variable. Our data range over 2001-2006 but the frequency of employee representation does not change substantially during this period. Consequently, for part of our models we tabulate the estimates only for a single year of data. We choose the year 2006 because it is the most recent year in our sample that precedes an administrative change that altered the definitions of regions in Denmark, which we use to define a number of variables. For robustness, we did estimate all the models also for each of the other years and using panel data estimators; for the sake of space, we report the additional estimates only for the key models (other results are available on demand).

We start with model (1) in Table 3, where we capture firm-specific human capital by workers' tenure and education (*Employee tenure*; *Employee education*). As shown in the table, firms with on average longer employee tenure, and those with more highly educated workers, are more likely to have board-level employee representation (BLER). These results support the hypothesized

relationship between employee investments in firm-specific human capital and their motivation to be represented on the board of directors². Higher union density also positively correlates with BLER. Firms whose CEO is not represented on the board of directors are more likely to have BLER, while the opposite holds for firms with stronger family role in governance, measured by the share of family-related members on board. The regression coefficients for the key variables of interest remain of the same sign and statistically significant when we replicate our analysis on the subsample of large firms, which constitute about 14 percent of our sample firms, in model 2(a) and the subsample of small and medium-sized firms in model 2(b) of Table 3; the only exception is the average employee education, whose relationship with BLER in large firms is positive but not statistically significant. The estimates reported in model (1) are also robust to estimating the regression model for different time periods (see models 1(a) – 1(e) in Table 3) and when using alternative estimators. With regards to the latter, we report the estimates for pooled probit estimator in model 1(f); model 1(g) tabulates probit random effects model, while we report the estimates for the OLS model with random effects in column 1(h). In all three cases, we allow for the standard errors to cluster at firm level. In terms of control variables, the coefficient for the percentage of employees that live and work in the same region is positive and statistically significant, as anticipated. We also confirm a positive association between firm size, firm age and BLER; the latter results are in line with our expectations and the evidence presented by Berglund and Holmen (2016). Firm-level asset tangibility has no significant relationship with BLER; BLER is less likely found in more leveraged firms, although the relationship between BLER and firm leverage is not confirmed across all years and when using alternative estimators.

Insert Table 3

In probit models, the sign of the coefficients is sufficient to determine whether the explanatory variables are positively or negatively related with the probability of BLER; the magnitude of the

² Alternatively, we measure workers' tenure by a variable measuring the percentage of employees whose relative tenure (tenure in the firm scaled by firm age) is longer than the average relative tenure for employees of the same gender, job position, industry (2-digit NACE) and region. The results (not tabulated for the sake of space) are in line with what reported in Table 3. That is, the probability of observing BLER is higher in firms with a higher percentage of employees whose relative tenure exceeds the tenure of comparable individuals employed in other firms.

coefficients capturing the effect of the explanatory variables on the latent variable, however, does not have a straightforward interpretation (e.g., Wooldridge, 2002). Accordingly, to provide an insight into the economic significance of the described relations, we rely on calculus and derive the partial effects of selected explanatory variables (i.e., marginal effects evaluated at the sample average of explanatory variables) based on the coefficients tabulated in model (1), Table 3. We find that a one-year-longer average employee tenure associates, on average, with a 3 percentage point higher probability of BLER. A year longer average education of firms' employees implies about 2 percentage point higher likelihood of BLER. Increasing union membership by 10 percentage points results in a 4 percentage point higher likelihood of BLER. Companies with the CEO on board are, on average, by 12 percentage point less likely to have BLER; a 10-percentage-point increase in family board representation implies a 2 percentage point lower probability of BLER.

In the continuation, we provide robustness tests in relation to the empirical proxies used to measure workers' firm-specific human capital and union strength in the firm. In Table 4, model 1(a) and 1(b) we—at the place of workers' education—measure workers' expertise by skill composition or job category, namely the percentage of white-collar workers employed in professional functions (*Experts*) and the percentage of top-level employees (*Top-level employees*). Model 1(a) is a probit for 2006, while model 1(b) reports the estimates for probit model over the entire 2001-2006 period; the results are consistent when estimating the models for each individual year or using alternative estimators (results not reported for the sake of space). In line with our propositions, we find that probability of observing BLER is on average higher in firms with a greater share of highly qualified workers, namely experts and top-level employees. However, when comparing the results for large firms (model 2(a) in Table 4) and other firms (model 2(b)) we find that the positive relation between workers' skills and BLER only holds for the latter subsample of firms. In large firms (250 employees or more), the likelihood of BLER is positively related to workers' average tenure, while (as for the case of education, see Table 3) workers' qualifications have no significant relationship with the BLER. The signs for other key variables of interest are in line with what reported in Table 3.

Given the empirical setting (e.g., limited changes in the incidence of BLER within the period of analysis), we in our empirical analysis primarily aim to provide evidence in support of the outlined

theoretical propositions, rather than to make causal inferences based on the tabulated coefficients. Regardless, we next try to mitigate endogeneity issues in relation to workers' tenure, skill composition and BLER, by relating the BLER dummy to industry-based measures of human capital, namely the industry-average of intangible assets per employee and the industry-average ratio of labor costs to firm sales. Specifically, we want to test whether BLER is more likely found in industries in which firm competitiveness depends more heavily on workers' general knowledge and investments in firm-specific human capital. We tabulate the results for all firms in model 3(a), Table 4, and separately for large firms, and non-large firms respectively in models (3b) and (3c), Table 4. For the entire sample, the coefficient for industry-average of intangible assets is positive, but not statistically significant. In line with our expectations, the probability of observing BLER is higher in firms that rely more heavily on labor; the coefficient for the *Labor costs* reported in model 3(a) of Table 4 is positive and statistically significant. In line with what reported in models 2(a) and 2(b) of Table 4, the size of the labor costs significantly relates to the likelihood of BLER in small and medium-sized firms, while this is not the case for large corporations. Moreover, in small and medium-sized firms, BLER is also positively associated with the industry-average of intangible assets per employee. Thus, our propositions in relation to workers' firm-specific human capital and BLER are confirmed for the subsample of small and medium-sized firms but not for large firms. The coefficients of other variables, namely union density, the presence of CEO on board, family control, and of the control variables are in line with Table 3 and hold for both firm subsamples.

Insert Table 4

The results tabulated in Table 4 suggest that workers' qualifications and human capital specificity might be a stronger driver of the implementation and maintenance of BLER in small and medium-sized firms compared to large firms. We can think of three main explanations for the observed difference. First, nearly half of the large firms in our sample have existed since the time of the adoption of codetermination legislation in Denmark. In a positive institutional climate, the employers might be more inclined to support codetermination (Bryson et al., 2007). This suggests that—at those times—the perceived benefits of BLER were broader than what suggested by transaction costs theory.

Due to positive switching costs, some of these old large firms will have remained ‘locked in’ to the BLER model until today (Bryson et al., 2007). Accordingly, BLER is present in 75% of the large old firms (i.e., firms founded before 1982, see below), compared to 53% in large firms founded after 1982. Second, the higher information asymmetries in large companies might justify the adoption of board-level employee representation regardless of skill specificity in these firms. Indeed, as outlined above, the incidence of BLER within the subsample of large firms is significantly higher (nearly 65%) compared to the incidence of BLER in small and medium-sized firms (21 percent). Our third explanation relates to institutional pressure as a driver of the BLER adoption in large firms. Specifically, we allow for the possibility that the employees and employers in large corporations, which are more exposed to the public eye, are supportive of BLER simply because having employee directors is an established practice in many other firms in the local environment (e.g., Oliver, 1991).

To distinguish between these potential explanations, we estimate model 3(b) from Table 4 separately for firms that were established or in existence around the implementation of codetermination law and before the political change that reduced support to BLER in early 1980-ties (i.e., before 1982), and younger large firms. To capture the possibility of BLER being considered an institutionalized practice, we moreover include a variable capturing the percentage of other firms in the region that have employee board representation (*Other firms with BLER reg*; for old large firms, this percentage refers only to firms in existence before 1982). As shown in models 4(a) and 4(b) in Table 4, while labor cost positively relate to the probability of BLER in old large firms, they have no significant impact in the subsample of younger large firms; the level of intangible assets in industry does not seem to be relevant in any of the subsamples of large firms. In the case of younger large firms, however, we do observe a positive and significant relationship between the likelihood of BLER in a focal firm and the incidence of BLER among other firms in the region. This suggests that, indeed, employees and employers in younger large firms might decide to constitute BLER following the example of other firms in the region. Overall, while the results in model 4(a) and 4(b) are preliminary and should be taken with caution, they provide stronger support to the third and, eventually, second explanation for the differences in the distribution of BLER in large compared to other firms.

We turn to labor unions in Table 5. In our analysis we measure the power of unions by the percentage of workers with private unemployment insurance (*Union*). Traditionally, (voluntary) unemployment insurance in Denmark was run by the trade unions, meaning that—at least for the period of analysis—it is reasonable to assume that most individuals with such private insurance are also members of a union. Non-union-linked funds do exist, and they do have a non-negligible membership base, but their existence has not broken the correlation between unionization and unemployment insurance. Reassuringly, this proxy produces aggregate outcomes very similar to those reported in the European Social Survey (e.g., Schnabel and Wagner, 2007). However, because of how our measure of union density is constructed, we cannot exclude the possibility of the union coefficient capturing the workers’ perceived risk of unemployment, rather than the unions’ organizational support for BLER, as proposed in our theoretical arguments. Higher perceived unemployment risk might motivate workers to join unions to increase the credibility of the threat of exit, and a higher threat of exit might imply lower demand for voice. The opposite, however, could also be true. To account for this, we include two alternative variables that capture outside employment opportunities. First, for each employee in our data set, we calculate the corresponding average number of weeks in unemployment, during 2001-2006, for all other employees in the sample of the same gender, occupational position, industry and region. Then, we aggregate this employee-level information to the firm level, and refer to it as workers’ potential weeks without work (*Weeks without work*). This variable captures the overall length of unemployment that individuals similar to those employed by the focal firm experienced during each year over 2001-2006. Alternatively, we capture unemployment risk by considering both employed and unemployed individuals, thus calculating the average number of weeks of unemployment in a specific year for all individuals (employed and unemployed) in the region (*Regional unemployment, weeks*).

Insert Table 5

In model (1), Table 5, we regress our measure of union density on both measures of unemployment risk and our set of firm-level controls. While union membership positively correlates with both measures, we only observe a significant relationship for the first variable (*Weeks without work*).

Regardless, we in the second step include both measures of unemployment risk as additional controls in our regression for the presence of BLER, and report the results in models 2(a)-2(f) for each of the years 2001-2006 in Table 5. After controlling for unemployment risk, the coefficient for union density (*Union*) remains positive and statistically significant. The size of the coefficients are similar across different years, and when distinguishing between large and other firms (results for the latter not tabulated but see, for example, models 3(b) and 3(c) in Table 4). In some of the years, we also observe a positive relationship between regional unemployment (*Regional unemployment, weeks*) and the likelihood of BLER, suggesting that regional characteristic (beyond what captured by union density) might in part explain the differences in the BLER distribution across firms. To the contrary, the variable capturing overall length of unemployment of individuals similar to those employed by the focal firm has no or even negative relation to BLER. Overall, the positive impact of union density on BLER, beyond what explained by unemployment concerns, directs us to the conclusion that unions indeed provide relevant resources in support of BLER, as hypothesized above.

We implement a number of other robustness checks (results not tabulated for the sake of space). First, we replicate all our regressions while excluding about 5 percent of firms in industries related to scientific research, education and other public services. To control for the potential impact of workforce diversity on the costs of BLER (Hansmann, 1990), we replicate our regressions while adding additional controls, such as the standard deviation of workers' wages, education and age. To further isolate the impact of family control, we re-run our models adding the percentage share held by the largest owner in the firm as a measure of ownership concentration. The results are robust to these additional tests.

Finally, we run a linear regression with firm fixed effects over the entire period of analysis. As less than 5 percent of firms in our sample introduce BLER during this period, these results need to be treated with some caution. Keeping this in mind, we observe a positive and significant coefficient for employee tenure and union density, and a negative coefficient for CEO presence on the board; these three coefficients are only significant at the 10 percent level but are in line with the results reported above. Finally, the works council literature points to the possibility that workers use voice mechanisms for rent-seeking purposes (Addison et al., 2013; Hubler and Jirjahn, 2003; Jirjahn, 2009).

However, such rent-seeking is restricted in environments with collective bargaining, as the latter, through wage negotiation, assumes the primary distributive function. Moreover, employee directors are legally obliged to act in the interests of the corporation, which additionally limits the rent-seeking opportunities. Although theoretically less plausible, we check for this possibility by testing whether the introduction of BLER during 2001-2006 period depends on firm operating performance; a positive relationship between firm performance and the introduction of BLER would suggest that employees constitute BLER also to secure higher rents. The results of the robustness test do not provide any support to such conclusion.

3.3 Results on employee director characteristics

We next analyze the characteristics of those elected to the board. Since we cannot observe the elections directly, these characteristics reflect both the individuals' decision to run for the elections and the electors' support (we also accounted for this when framing our theoretical propositions). For the purpose of the empirical analysis, we restrict the sample to companies with board-level employee representation ($BLER = 1$). For these firms, we construct an employer-employee matched sample, thereby combining firm and board-level information for these firms with individual (employee) information in terms of tenure, age and job position. Besides the restriction to companies with BLER, in this analysis we only consider employees for whom we are able to clearly identify all the stated characteristics (i.e., for some employees, mostly newly hired employees, we for example have no information on job category).

We start our analysis with basic checks of the relationship between the representation of job categories (skill groups) in the workforce and on the board. In line with the presumed relevance of co-worker support for an individual's election to the board, we observe that, on average, the representation of various job categories (top-level employees, experts, middle-level employees and blue-collar workers) in the boardroom largely corresponds to their share in the workforce. To verify this, we run a number of firm-level regressions, where we relate the representation of a specific job category on the board (e.g., % of employee directors that are blue-collar employees) to its and other

categories' representation in the workforce, and a set of control variables. For all categories, we confirm a positive relationship between a job category's representation in the workforce and in the boardroom, although the relationship is economically stronger for top-level employees and experts, than for other job categories (results not tabulated).

In the second step, we test whether selected individual characteristics explain the probability of an individual acting as a worker representative on the board. We tabulate the results of these empirical tests in Table 6. In model (1) we use employee tenure and education in the firm as the primary measure of individuals' firm-specific skills and knowledge. In model (2), Table 6, we additionally include individual job category, in order to allow for the possibility that better educated employees within the same job category are more likely to act as employee board representatives. We estimate this expanded model for our reference year and selected additional years in models 2(a) – 2(f) in Table 6.

Insert Table 6

Looking at models (1) and 2(a)-2(f) in Table 6 we observe—in line with our expectations—that workers with longer firm tenure and higher expertise, captured by job category, are more likely to act as worker representatives. In support of the high responsibilities and demands associated with directors' work, we also confirm a positive relationship between a worker's formal education and her probability of becoming an employee director. The impact of education indeed weakens although remains positive and significant also when controlling for the job position held by individuals; this suggests that even for individuals within the same job category, those that are better educated are more likely to become employee directors. As hypothesized, union membership also implies a higher probability of becoming an employee representative. Female employees are, *ceteris paribus*, less likely to become employee directors; this evidence is in line with generally lower female representation observed for shareholder-elected members. For workers living the same region of their work, the probability of becoming employee director is overall not significantly different compared to other employees; except for year 2006, the coefficient for this variable ($D_{work\&live\ in\ the\ region}$) is not statistically significant.

We look at the relevance of these factors for each of the job categories separately in model 3(a) of Table 6. For robustness, we report the estimates also for year 2004 and 2002 in models 3(b) and 3(c) in Table 7. For all three groups, longer tenure implies a higher probability of board membership. More educated employees are also more likely to be elected, although this relationship is robust across different years only for blue-collar workers. For other job categories, the relationship between education and probability of becoming an employee director becomes insignificant when we replicate the analysis for other years (see Table 7) or exclude firm-level controls (for the latter, the results are not tabulated). Living in the same region has a positive impact on the probability of being a representative on the board for blue-collar workers, although only in year 2006, but not for other categories. Union members are more likely, on average, to become employee representatives, although this effect is robust only for the category of blue-collar workers. In sum, these results suggest that a certain minimum level of formal education is necessary for an employee to be elected to the board of directors. Moreover, employees with stronger links and commitment to the company are more likely to act as employee directors; for high-level employees, these links are primarily captured through firm-specific investments in human capital (tenure), while other types of connections, i.e. such as links to the region (e.g., Hansmann 1990) and to unions are more relevant for blue-collar employees.

Insert Table 7

Before concluding, we use our employer-employee matched data to provide some further evidence in support of our explanation for the negative relationship between CEO presence on board and BLER that we presented in previous section. We proposed that, as employees of the firm, CEOs might act as a substitute for other worker representatives. Other explanations might, however, apply. For example, CEOs might align with shareholders in opposing employee representation, since workers could potentially act as additional monitors of the CEO (Fauver and Fuerst, 2006; Acharya et al., 2011). Empirically (models 4(a) and 4(b), Table 7), we observe that the probability of a top-level employee being part of the board, compared to blue-collar employees, is lower in the sub-groups of firms where the CEO is a member of the board. For other two job categories (i.e., expert employees and middle-

level employees), the coefficients remain rather similar across the two sub-groups of firms. Although further investigation into this issue is necessary, these results suggest that the CEO, indeed, is perceived as a substitute for the participation of top-level employees in strategic decision-making. This result corroborates our proposition on the relationship between CEO presence on board and the workers' motivation to nominate their representatives to the board of directors.

4. Discussion and conclusions

This paper analyzes the distribution of board-level employee representation (BLER), drawing on the theoretical perspective of BLER as a potential solution to issues related to information asymmetries in employer-employee contracting. In line with the theoretical propositions, we show that workers are more likely to appoint directors to the boards of firms with, on average, more educated and more specialized workforces, and in industries that rely more heavily on labor. We show that these factors are particularly relevant for the constitution and maintenance of BLER in small and medium-sized firms, while other factors (i.e., higher information asymmetry, institutional pressure) might contribute to significantly higher incidence of BLER among the large corporations. Firm-specific skills are also found to play an important role in the selection of employee directors. Furthermore, we show that unions are important for both the implementation of BLER in large and non-large firms, and the selection of individuals to the board. To the contrary, BLER is less likely observed in firms with higher family control and in the firms where CEO is a member of the board of directors.

Our findings are closely related to and complement the study by Berglund and Holmen (2016) and to the literature on the determinants of works councils' establishment. Berglund and Holmen (2016) assume that the constitution of BLER is primarily driven by an independent individual utility maximization; in their setting, the benefits and costs of BLER are measured in terms of the benefits and costs that an employee anticipates from becoming a member of the board. Therefore, the benefits of BLER refer to the anticipated career advancement and related prestige from directorship; the costs involve the increased accountability and risk that individual employees bear in their role of company directors. Accordingly, Berglund and Holmen (2016) find that the likelihood of BLER is lower in

riskier and more internationalized firms, among others. Our study takes a broader theoretical perspective, viewing the establishment of BLER as a result of the trade-off between the benefits and costs that such representation offers to the employees collectively, by representing their interests in firm decision making. Therefore, potential barriers in finding individuals willing to take on directorships (a primarily theoretical driver in Berglund and Holmen 2016 study) represent only one factor (cost) underlying the decision to implement BLER in our framework. In view of that, we study BLER as a mechanism that allows workers as a group to manage uncertainties, secure their share of organizational rents, but also contribute to better and more informed strategic decisions. We also advance Berglund and Holmen (2016) study and related literature by providing evidence on the characteristics of those appointed to the board, an issue that has not been previously documented.

Our paper also complements the literature on the determinants of works councils (Addison et al., 1997; Addison et al., 2002; Jirjahn, 2009; Mohrenweiser et al., 2012; Jirjahn and Mohrenweiser, 2016; Oberfichtner, 2016) by studying a mechanism of employee voice that is complementary and sequential to works councils and labor unions. The special mandate entrusted to the board of directors, and in particular the role of worker directors in the formation of firm strategy, demands an adaptation of the cost-benefit considerations that apply to works councils, and a reconsideration of the factors leading to the implementation of a specific voice mechanism. This is also what we aimed to do in the present study, thereby proposing and analyzing a somewhat different (narrower) set of factors as relevant drivers of BLER. Our results corroborate some of the findings in the works council literature, thereby providing further support on the higher incidence of employee voice mechanisms in larger and older firms (Addison et al., 1997; Jirjahn, 2009), and on the relevance of owners' support for the implementation of employee voice (Jirjahn and Mohrenweiser, 2016). We complement the scholarly work on the relationship between labor unions and works councils by providing support to the relevance of labor unions also in the case of workers' representation at higher organizational levels, such as BLER, as well as for the selection of employee representatives to the board. We also offer some novel results that apply specifically to the case of BLER, such as the evidence on the negative relationship between family owners (as a specific type of large owners), the CEO's presence on the board and the incidence of BLER.

Our results carry important policy implications. By providing support for the role of BLER as a governance mechanism in employee-employer contracting, we provide a rationale for the existence of systems of employee board representation that are more modest than the German parity-based codetermination. This is important, considering that some countries, such as the UK, have been debating the introduction of some sort of non-controlling role for employees in firms' decision-making. Our results, however, suggest that the success of such systems is conditional on the firm-specific knowledge and skills of firm employees and, potentially, on the presence of other complementary mechanisms of employee voice that leverage the power and contribution of employee representatives to the board of directors.

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Table 1. Variable definitions

<i>Firm variables</i>	
<i>Firm age</i>	Number of years since firm establishment, in logarithms
<i>Firm Size</i>	Number of full time employees, in logarithms
<i>Tangibility</i>	Value of plant property and equipment, scaled by total assets (in %)
<i>Leverage</i>	Financial debt scaled by total assets (in %)
<i>Corporate governance variables</i>	
<i>BLER</i>	Dummy variable for the presence of board-level employee representation
<i>CEO on board</i>	Dummy variable for the presence of CEO on the board of directors
<i>Family control</i>	Percentage of family related members among all shareholder-elected directors
<i>Workforce variables</i>	
<i>Top-level employees</i>	Percentage of top level employees among all firm employees
<i>Experts</i>	Percentage of expert employees (professionals) among all firm employees
<i>Middle-level employees</i>	Percentage of middle level employees among all firm employees
<i>Blue-collar employees</i>	Percentage of blue collar workers among all firm employees
<i>Work & live in region</i>	Percentage of employees that live in the region of their employment
<i>Employee tenure</i>	Average workers' tenure in the firm (number of years)
<i>Employee education</i>	Average education of firm workers, measured in number of school months
<i>Union</i>	Percentage of employees that are union members, measured by A-kasse membership
<i>Individual variables</i>	
<i>D_{Top-level employee}</i>	Dummy variable for individuals that are top-level employees
<i>D_{Expert employee}</i>	Dummy variable for individuals that are experts (professionals)
<i>D_{Middle-level employee}</i>	Dummy variable for individuals on middle-level job positions
<i>D_{Work & live in the region}</i>	Dummy variable for individuals living in the region of their employment
<i>Female</i>	Dummy for female employees
<i>D_{Union}</i>	Dummy for individuals that are union members
<i>Individual education</i>	Number of months of education for individual employee, in logarithms
<i>Individual tenure</i>	Number of years since first employment in the firm for individual employee

Table 2. Descriptive statistics (2001-2006)

	BLER=1	BLER=0	BLER=1	BLER=0
	Mean		Std. dev.	
Firm variables				
<i>Firm age (number of years)</i>	30.94	20.40	19.47	13.23
<i>Firm Size (number of employees)</i>	320.31	87.88	883.40	120.88
<i>Tangibility</i>	39.03	34.87	22.18	22.76
<i>Leverage</i>	46.72	51.36	21.66	22.24
Corporate governance variables				
<i>Board size, number of members</i>	5.66	3.86	1.64	1.19
<i>Shareholder-elected members</i>	3.52	3.87	1.31	1.20
<i>CEO on board (% of firms)</i>	39.85	69.78	-	-
<i>Family control (% shareholder elec. family m.)</i>	4.36	23.76	16.57	35.30
<i>Ownership share of largest owner in %</i>	61.44	66.18	45.06	42.00
Workforce variables				
<i>Top level employees</i>	5.19	5.01	5.15	6.13
<i>Experts</i>	11.11	6.48	18.18	15.15
<i>Middle level employees</i>	20.46	17.12	16.40	18.92
<i>Blue-collar employees</i>	63.24	71.23	26.11	26.24
<i>Work & live in same region</i>	20.71	21.24	24.75	25.73
<i>Union</i>	85.36	77.52	11.24	15.09
<i>Employee education</i>	149.24	145.80	12.68	13.00
<i>Employee tenure</i>	6.90	5.47	2.62	2.42

Notes: BLER is a dummy indicating the presence of at least one employee director on the board of directors. As of 2006, there were 3278 firms in our sample; 892 firms (27 percent) had employee directors on board (BLER=1), while the remaining 2386 had no employee directors on board (BLER=0). Descriptive statistics refer to entire 2001-2006 period. Only firms subject to the law on employee board representation are included.

Table 3. Determinants of BLER

<i>Specification</i>	PROBIT								PROBIT (pooled)	PROBIT RE	OLS RE
	(1)	(2a)	(2b)	(1a)	(1b)	(1c)	(1d)	(1e)	(1f)	(1g)	(1h)
		Large firms 2006	Other firms	2005	2004	2003	2002	2001		2001-2006	
<i>Employee tenure</i>	0.120*** [0.013]	0.142*** [0.045]	0.120*** [0.014]	0.105*** [0.013]	0.110*** [0.014]	0.121*** [0.014]	0.163*** [0.015]	0.163*** [0.015]	0.122*** [0.011]	0.396*** [0.049]	0.012*** [0.002]
<i>Employee education</i>	0.011*** [0.004]	0.005 [0.009]	0.011*** [0.004]	0.009*** [0.004]	0.009*** [0.003]	0.007** [0.004]	0.012*** [0.003]	0.012*** [0.003]	0.010*** [0.003]	0.070*** [0.014]	0.002*** [0.001]
<i>Union</i>	0.017*** [0.005]	0.022*** [0.007]	0.016*** [0.006]	0.028*** [0.004]	0.026*** [0.003]	0.024*** [0.004]	0.018*** [0.003]	0.018*** [0.003]	0.021*** [0.003]	0.026*** [0.013]	0.001*** [0.0003]
<i>Work & live in region</i>	0.003** [0.001]	0.009* [0.005]	0.003** [0.001]	0.003** [0.001]	0.003** [0.001]	0.003** [0.001]	0.004*** [0.001]	0.004*** [0.001]	0.003*** [0.001]	0.014*** [0.004]	0.001*** [0.0002]
<i>CEO on board</i>	-0.463*** [0.062]	-0.435** [0.178]	-0.453*** [0.068]	-0.502*** [0.061]	-0.484*** [0.060]	-0.449*** [0.060]	-0.390*** [0.061]	-0.390*** [0.061]	-0.440*** [0.047]	-0.673*** [0.148]	-0.024*** [0.006]
<i>Family control</i>	-0.010*** [0.001]	-0.020*** [0.007]	-0.009*** [0.001]	-0.009*** [0.001]	-0.010*** [0.001]	-0.010*** [0.001]	-0.010*** [0.001]	-0.010*** [0.001]	-0.010*** [0.001]	-0.032*** [0.006]	-0.0004*** [0.0001]
<i>Firm size (ln)</i>	0.635*** [0.046]	0.424** [0.114]	0.638** [0.084]	0.705*** [0.040]	0.736*** [0.042]	0.735*** [0.047]	0.829*** [0.045]	0.829*** [0.045]	0.727*** [0.034]	2.837*** [0.282]	0.103*** [0.008]
<i>Firm age (ln)</i>	0.293*** [0.049]	0.304*** [0.103]	0.291*** [0.056]	0.329*** [0.048]	0.306*** [0.047]	0.333*** [0.047]	0.320*** [0.048]	0.320*** [0.048]	0.322*** [0.038]	2.125*** [0.293]	0.084*** [0.007]
<i>Tangibility</i>	0.002 [0.001]	0.003 [0.004]	0.002 [0.002]	0.001 [0.002]	0.002 [0.001]	0.001 [0.002]	0.0001 [0.001]	0.0001 [0.001]	0.0001 [0.001]	0.008** [0.004]	0.008** [0.004]
<i>Leverage</i>	-0.003** [0.001]	-0.012*** [0.003]	-0.002 [0.002]	-0.001 [0.001]	-0.003** [0.001]	-0.001 [0.001]	-0.002 [0.001]	-0.002 [0.001]	-0.002** [0.001]	-0.003 [0.003]	-0.000 [0.000]
<i>Observations</i>	3275	444	2818	3186	3175	3176	3259	3259	19304	19304	19304

Notes: All models include sector and regional dummies. Specifications 1(f) – 1(h) also include time dummies. Robust standard errors reported in parentheses. In models 1(f)-1(h), we allow standard errors to cluster at firm level. Note that the coefficients of model 1(h) are not directly comparable to other coefficients. *, **, *** denotes statistical significance of the estimated coefficient at 10, 5 and 1 percent level.

Table 4. Firm-specific investments in human capital and BLER (Probit regressions)

Specification	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(3c)	(4a)	(4b)
			Large firms	Other firms	All firms	Large firms	Other firms	Old large	Young large
	2006	2001-2006				2006			2006
<i>Top-level employees</i>	0.018** [0.007]	0.012** [0.004]	0.021 [0.023]	0.018** [0.004]					
<i>Experts</i>	0.004* [0.002]	0.005** [0.002]	-0.001 [0.006]	0.005** [0.002]					
<i>Employee tenure</i>	0.116*** [0.013]	0.117*** [0.011]	0.146*** [0.049]	0.115*** [0.014]					
<i>Other firms with BLER reg</i>								-0.003 [0.013]	0.038** [0.019]
<i>Labor costs</i>					0.014* [0.008]	0.009 [0.011]	0.017*** [0.006]	0.022* [0.013]	0.004 [0.012]
<i>Intangible assets per emp.</i>					0.086 [0.092]	0.002 [0.002]	0.001*** [0.0004]	0.052 [0.129]	0.085 [0.191]
<i>Union</i>	0.020*** [0.005]	0.023*** [0.003]	0.022*** [0.007]	0.019*** [0.006]	0.029*** [0.005]	0.033*** [0.004]	0.028*** [0.006]	0.024*** [0.005]	0.044*** [0.004]
<i>Work & live in region</i>	0.004*** [0.001]	0.004*** [0.001]	0.010** [0.005]	0.003** [0.001]	0.004** [0.001]	0.008* [0.005]	0.004** [0.001]	0.011* [0.006]	0.005 [0.006]
<i>CEO on board</i>	-0.466*** [0.062]	-0.443*** [0.047]	-0.430** [0.178]	-0.457*** [0.068]	-0.442*** [0.056]	-0.488*** [0.160]	-0.416*** [0.058]	-0.205 [0.168]	-0.572** [0.238]
<i>Family control</i>	-0.010*** [0.001]	-0.010*** [0.001]	-0.017*** [0.006]	-0.009*** [0.001]	-0.010*** [0.001]	-0.018*** [0.003]	-0.009*** [0.001]	-0.015*** [0.004]	-0.023* [0.013]
<i>Firm size (ln)</i>	0.651*** [0.044]	0.730*** [0.034]	0.434*** [0.114]	0.673*** [0.079]	0.557*** [0.054]	0.275** [0.120]	0.578*** [0.091]	0.051 [0.103]	0.255 [0.175]
<i>Firm age (ln)</i>	0.291*** [0.049]	0.321*** [0.038]	0.300*** [0.104]	0.291*** [0.056]	0.426*** [0.043]	0.417*** [0.082]	0.436*** [0.044]	1.275*** [0.369]	0.189 [0.163]
<i>Tangibility</i>	0.001 [0.001]	0.000 [0.001]	0.003 [0.004]	0.001 [0.002]					
<i>Leverage</i>	-0.003** [0.001]	-0.003** [0.001]	-0.012*** [0.003]	-0.002** [0.002]	-0.005*** [0.001]	-0.010*** [0.004]	-0.003*** [0.001]	-0.008 [0.006]	-0.012*** [0.004]
<i>Observations</i>	3273	19284	444	2816	3287	458	2829	225	233

Notes: Specifications 1(a), (1b), 2(a) and 2(b) includes sector and regional dummies; specification 1(b) also includes time dummies. Robust standard errors reported in parentheses. In model 1(b), we allow standard errors to cluster at firm level. In models 3(a)-3(c), we include regional dummies and allow the standard errors to cluster at the industry level, while in models 4(a) and 4(b) we allow the standard errors to cluster at the regional level. *, **, *** denotes statistical significance of the estimated coefficient at 10, 5 and 1 percent level.

Table 5. Union density and BLER (OLS and probit)

<i>Specification</i>	Union (%)		BLER (probit)				
	OLS (1)	(2a)	(2b)	(2c)	(2d)	(2e)	(2f)
	2001-2006	2006	2005	2004	2003	2002	2001
<i>Weeks with no work</i>	0.106*** [0.024]	0.005 [0.010]	0.002 [0.019]	-0.006 [0.011]	-0.012* [0.007]	0.005 [0.018]	-0.038** [0.016]
<i>Regional unemployment (weeks)</i>	1.142 [2.523]	0.187 [0.180]	0.146 [0.183]	0.296*** [0.105]	0.229** [0.104]	0.140* [0.09]	0.475*** [0.106]
<i>Union</i>		0.020*** [0.005]	0.030*** [0.004]	0.027*** [0.004]	0.026*** [0.004]	0.021*** [0.005]	0.023*** [0.005]
<i>Top-level employees</i>		0.023*** [0.006]	0.007 [0.006]	0.013*** [0.005]	0.008 [0.007]	-0.001 [0.008]	0.008 [0.007]
<i>Experts</i>		0.005** [0.003]	0.005*** [0.002]	0.005*** [0.002]	0.005** [0.002]	0.010*** [0.002]	0.008** [0.004]
<i>Employee tenure</i>		0.116*** [0.005]	0.102*** [0.008]	0.096*** [0.010]	0.115*** [0.013]	0.115*** [0.013]	0.148*** [0.018]
<i>Work & live in the region</i>		0.004*** [0.001]	0.002** [0.001]	0.003** [0.001]	0.003 [0.002]	0.004** [0.002]	0.004** [0.002]
<i>Family board</i>	-0.051*** [0.010]	-0.010*** [0.001]	-0.010*** [0.001]	-0.011*** [0.002]	-0.011*** [0.002]	-0.011*** [0.002]	-0.011*** [0.002]
<i>CEO on board</i>	-1.157* [0.521]	-0.473*** [0.056]	-0.519*** [0.056]	-0.478*** [0.086]	-0.442*** [0.098]	-0.397*** [0.057]	-0.435*** [0.081]
<i>Firm size</i>	0.225 [0.372]	0.666*** [0.050]	0.721*** [0.055]	0.734*** [0.070]	0.829*** [0.072]	0.810*** [0.069]	0.880*** [0.074]
<i>Firm age</i>	1.283*** [0.331]	0.294*** [0.038]	0.341*** [0.040]	0.300*** [0.036]	0.301*** [0.040]	0.348*** [0.041]	0.314*** [0.058]
<i>Tangibility</i>	-0.018 [0.011]	0.001 [0.001]	-0.000 [0.001]	0.002 [0.001]	0.001 [0.001]	0.001 [0.001]	0.000 [0.002]
<i>Leverage</i>	-0.023** [0.007]	-0.003** [0.001]	-0.002 [0.001]	-0.003*** [0.001]	-0.002* [0.001]	-0.002 [0.001]	-0.001 [0.001]
<i>Observations</i>	16223	3145	2897	2737	2587	2470	2359

Notes: Model (1) includes time and sector dummies. All other models include sector dummies and regional dummies. Standard errors (reported in brackets) are clustered at regional level. *, **, *** denotes statistical significance of the estimated coefficient at 10, 5 and 1 percent level.

Table 6. Determinants of individuals' appointments to boards

	All employees						Experts	Middle level	Blue-collar	
Specification	(1)	(2a)	2(b)	2(c)	2(d)	2(e)	2(f)		(3a)	
	2006		2005	2004	2003	2002	2001		2006	
Individual education	0.392*** [0.049]	0.298*** [0.054]	0.299*** [0.050]	0.279*** [0.050]	0.195*** [0.048]	0.270*** [0.047]	0.295*** [0.044]	0.416* [0.233]	-0.058 [0.133]	0.433* [0.064]
Individual tenure	0.030*** [0.001]	0.030*** [0.001]	0.032*** [0.001]	0.032*** [0.001]	0.033*** [0.002]	0.035*** [0.002]	0.039*** [0.002]	0.035*** [0.004]	0.028*** [0.003]	0.031*** [0.002]
D _{Top-level employee}		0.093** [0.045]	0.100** [0.043]	0.075* [0.043]	0.056 [0.045]	0.105** [0.044]	0.059 [0.043]			
D _{Expert employee}		0.134*** [0.033]	0.109*** [0.033]	0.126*** [0.033]	0.153*** [0.033]	0.123*** [0.033]	0.122*** [0.032]			
D _{Middle-level employee}		0.111*** [0.025]	0.081*** [0.024]	0.089*** [0.024]	0.123*** [0.024]	0.111*** [0.024]	0.094*** [0.024]			
D _{Union}	0.270*** [0.046]	0.272*** [0.046]	0.255*** [0.047]	0.223*** [0.045]	0.215*** [0.045]	0.204*** [0.046]	0.230*** [0.046]	0.240** [0.106]	0.036 [0.079]	0.367*** [0.078]
D _{Work & live in the region}	0.045* [0.024]	0.049** [0.024]	0.008 [0.025]	0.024 [0.022]	-0.004 [0.023]	0.007 [0.021]	-0.027 [0.021]	0.048 [0.067]	-0.029 [0.057]	0.090*** [0.031]
Female	-0.184*** [0.025]	-0.185*** [0.025]	-0.197*** [0.024]	-0.175*** [0.023]	-0.172*** [0.023]	-0.158*** [0.023]	-0.187*** [0.024]	-0.186*** [0.070]	-0.180*** [0.048]	-0.242*** [0.037]
Age	0.009*** [0.001]	0.009*** [0.001]	0.008*** [0.001]	0.007** [0.001]	0.008*** [0.001]	0.008*** [0.001]	0.008*** [0.001]	0.005* [0.003]	0.007*** [0.002]	0.013*** [0.001]
Firm size	-0.327*** [0.009]	-0.327*** [0.009]	-0.333*** [0.008]	-0.329*** [0.007]	-0.323*** [0.008]	-0.329*** [0.007]	-0.329*** [0.008]	-0.373*** [0.022]	-0.362*** [0.020]	-0.311*** [0.013]
CEO on board	-0.019 [0.014]	-0.019 [0.014]	-0.019 [0.013]	-0.016 [0.013]	-0.017 [0.014]	-0.017 [0.014]	-0.030** [0.013]	-0.026 [0.049]	-0.045 [0.039]	0.014 [0.023]
Family control (%)	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.001 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.003 [0.002]	-0.001 [0.001]	-0.000 [0.001]
Firm age	-0.015 [0.009]	-0.016* [0.010]	-0.022** [0.010]	-0.019** [0.010]	-0.021** [0.010]	-0.037*** [0.010]	-0.046*** [0.010]	-0.028 [0.010]	0.003 [0.025]	-0.023 [0.016]
Observations	254714	254715	253020	260918	257914	260956	247515	39545	54472	149829

Notes: Only employees that hold their main employment in firms with BLER and for which we have full information about job category, age, tenure, gender, education and home region are included in the analysis. All regressions include sector and regional dummies. Numbers in brackets are standard errors clustered at firm level. *, **, *** denotes statistical significance of the estimated coefficient at 10, 5 and 1 percent level.

Table 7. Determinants of individuals' appointments to boards

	<i>Experts</i>	<i>Middle level</i>	<i>Blue-collar</i>	<i>Experts</i>	<i>Middle level</i>	<i>Blue-collar</i>	<i>CEO on board</i>	<i>CEO not on board</i>
		(3b)			(3c)		(4a)	(4b)
		2004			2002		2006	2006
<i>Individual education</i>	0.400*	-0.156	0.437***	0.222	-0.102	0.389***	0.392***	0.291***
	[0.227]	[0.128]	[0.060]	[0.202]	[0.129]	[0.053]	[0.049]	[0.067]
<i>Individual tenure</i>	0.039***	0.028***	0.033***	0.040***	0.028***	0.038***	0.030***	0.032***
	[0.004]	[0.003]	[0.002]	[0.005]	[0.003]	[0.002]	[0.001]	[0.002]
<i>D_{Top-level employee}</i>							0.011	0.145**
							[0.067]	[0.059]
<i>D_{Expert employee}</i>							0.147***	0.141***
							[0.056]	[0.041]
<i>D_{Middle-level employee}</i>							0.098**	0.119***
							[0.041]	[0.031]
<i>D_{Union}</i>	0.398***	0.240**	0.299***	0.127	0.073	0.299***	0.244***	0.293***
	[0.121]	[0.106]	[0.070]	[0.105]	[0.084]	[0.071]	[0.075]	[0.059]
<i>D_{Work & live in the region}</i>	0.090	0.013	0.027	0.053	-0.027	0.024	0.016	0.077**
	[0.062]	[0.053]	[0.029]	[0.066]	[0.055]	[0.027]	[0.039]	[0.031]
<i>Female</i>	-0.253***	-0.245***	-0.150***	-0.030	-0.169***	-0.194***	-0.177***	-0.192***
	[0.077]	[0.048]	[0.032]	[0.065]	[0.048]	[0.031]	[0.043]	[0.032]
<i>Age</i>	0.001	0.006***	0.012***	0.002	0.006***	0.011***	0.008***	0.009***
	[0.003]	[0.002]	[0.001]	[0.003]	[0.002]	[0.001]	[0.002]	[0.001]
<i>Firm size</i>	-0.330***	-0.380***	-0.324***	-0.329***	-0.372***	-0.330***	-0.335***	-0.327***
	[0.021]	[0.021]	[0.013]	[0.021]	[0.020]	[0.012]	[0.014]	[0.010]
<i>CEO on board</i>	-0.020	-0.043	-0.002	-0.021	-0.019	-0.017		
	[0.048]	[0.040]	[0.021]	[0.050]	[0.041]	[0.020]		
<i>Family control</i>	0.004*	0.000	0.000	-0.001	0.003*	-0.001	-0.000	-0.000
	[0.042]	[0.002]	[0.001]	[0.003]	[0.002]	[0.001]	[0.001]	[0.001]
<i>Firm age</i>	-0.047	-0.040	-0.016	-0.011	-0.027	-0.052***	0.023	-0.031**
	[0.029]	[0.030]	[0.015]	[0.031]	[0.026]	[0.015]	[0.015]	[0.013]
<i>Observations</i>	32722	51663	163181	32997	45145	172888	77562	177153

Notes: Only employees that hold their main employment in firms with BLER and for which we have full information about job category, age, tenure, gender, education and home region are included in the analysis. All regressions include sector and regional dummies. Numbers in brackets are standard errors clustered at firm level. *, **, *** denotes statistical significance of the estimated coefficient at 10, 5 and 1 percent level.

