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Arnd Kölling
Berlin School of Economics and Law

Claus Schnabel
University of Erlangen-Nürnberg

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Friedrich-Alexander-Universität Erlangen-Nürnberg
Institute for Economics
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Owners, external managers, and industrial relations in German establishments*

Arnd Kölling and Claus Schnabel[a]

Abstract: Using data from the representative IAB Establishment Panel in Germany and estimating a panel probit model with fixed effects, this paper finds a negative relationship between the existence of owner-management in an establishment and the probabilities of having a works council or a collective bargaining agreement. We show that family firms which are solely, partially or not managed by the owners significantly differ in the presence of works councils and collective bargaining agreements. The probabilities of having works councils and collective agreements increase substantially if just some of the managers do not belong to the owner family. We argue that these differences cannot simply be attributed to an aversion of the owners against co-determination and unions but require taking account of the notion of socio-emotional wealth prevalent in family firms. In addition, our results support the idea that external managers mainly act as agents rather than stewards in family firms.

Zusammenfassung: Mit repräsentativen Daten des IAB-Betriebspanels und bei Schätzung eines Panel-Probit-Modells mit fixen Effekten finden wir eine negative Beziehung zwischen der Beteiligung von Eigentümern am Management eines Betriebes und den Wahrscheinlichkeiten für die Existenz eines Betriebsrates bzw. eines Tarifvertrages. Wir zeigen, dass Familienunternehmen, die ganz, teilweise oder gar nicht von Eigentümern geleitet werden, sich signifikant bezüglich des Vorhandenseins von Betriebsräten und Tarifverträgen unterscheiden. Die Wahrscheinlichkeiten für die Existenz eines Betriebsrates und einer Tarifbindung sind deutlich höher, wenn nur einige der Manager nicht zur Eigentümerfamilie gehören. Diese Unterschiede sollten nicht allein auf eine Aversion von Eigentümern gegen Mitbestimmung und Gewerkschaften zurückgeführt werden, sondern das in Familienunternehmen zu findende Konzept eines „sozial-emotionalen Reichtums“ ist ebenfalls zu berücksichtigen. Zudem deuten unsere Ergebnisse darauf hin, dass sich externe Manager in Familienbetrieben eher als eigenständige Agenten und weniger als Interessenwahrer der Eigentümer verstehen.

JEL classification: J53, M54, G32

Keywords: industrial relations, co-determination, works council, collective agreement, family firm, Germany

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[a] Arnd Kölling, Berlin School of Economics and Law, Germany; arnd.koelling@hwr-berlin.de
Claus Schnabel, University of Erlangen-Nürnberg, Germany; claus.schnabel@fau.de

1. INTRODUCTION

Although works councils and collective bargaining agreements are the two most important pillars of industrial relations in Germany and are strongly backed by labour law, empirical studies find a negative relationship between these two variants of worker representation and the existence of owner-management in an establishment (see, e.g., Oberfichtner and Schnabel 2019). This finding is sometimes attributed to an aversion of the owners against co-determination and unions, and there are plenty of examples of anti-union and anti-works council behaviour of employers even in Germany (Schlömer-Laufen 2012, Behrens and Dribbusch 2013). But employer opposition may seem suboptimal or even irrational given that various theoretical approaches like exit-voice theory and institutional economics as well as many empirical studies suggest that worker representation via unions or works councils and collective bargaining may improve firm performance (for a review, see Doucouliagos et al. 2017).

Potential advantages of worker representation and collective bargaining are, *inter alia*, that they reduce transaction costs, allow workers to safely express their dissatisfaction with working conditions (instead of quitting the job), and enable management to run a more efficient personnel policy. The downsides may be that they involve a re-distribution of profits, reduce company flexibility, and limit management's leeway in running the company. In the case of family firms, which are important players in the economy,[1] owners are said to avoid worker representation and collective bargaining mainly because they want to maintain their full managerial freedom (Müller and Stegmaier 2017). However, this explanation is probably too simple and difficult to reconcile with the fact that many family firms also employ external managers – paternalistic owners who are keen to preserve their prerogatives should in the same vein avoid worker participation and hiring external managers. This paradox suggests that there may be a complex relationship between owner-managers, external managers, and the organization of industrial relations in family firms that is worth investigating.

The growing literature on the behaviour of family businesses (see, e.g., Tabor et al. 2018, Klein and Bell 2007) argues that the main goal of owners is maximizing their socio-emotional wealth rather than simply profits. In addition to profits, socio-emotional wealth comprises the long-run control of the owner in firms' decision-making as well as the reputation of the owner family (see, e.g., Gomez-Meija et al. 2007, 2011). Against this background of socio-emotional wealth, it could be rational for owners to forgo some

[1] At the end of 2017, about 90 percent of private sector firms in Germany were controlled by families, and 86 percent were managed by the owners. 58 percent of employees worked in family-controlled firms, and 53 percent in owner-managed firms (see Stiftung Familienunternehmen 2019).

(short-term) gains of worker representation if a higher amount of socio-emotional wealth is at risk, e.g. control or reputation. In addition, the existence of formal institutions like works councils or collective agreements reduces owners' possibilities of personally taking care of their employees' problems and solving them informally, in such a way reducing paternalistic owners to "normal" employers.

It is an open question how such a thinking of owners affects the hiring of external managers in family firms and carries over to their behaviour concerning co-determination and collective bargaining. If the predominant goal of owners was "being the ultimate bosses" (Jirjahn and Mohrenweiser 2016, p. 815), they should at the same time oppose worker participation and avoid hiring external managers. Of course, employing external executives might be helpful if a family firm is growing or reorganizing, if management workload increases and/or if there is a lack of managerial skills in the owner family, but external managers probably reduce owners' control of company decisions and thus socio-emotional wealth. This potential problem may be mitigated if it is mainly executives agreeing with the goals of family firms who are hired or who self-select themselves into such firms. This type of executives would act as stewards and their management style should be similar to the behaviour of the managers from the owner family (cf. Miller and Le Breton-Miller 2006, Fang et al. 2016). Consequently, they should have the same attitude towards worker representation as owners have, and we should find no differences in the presence of works councils and collective agreements between firms that are managed by owners or external managers.

On the other hand, if external managers are not stewards but agents with their own goals (such as increasing productivity, profits, and manager bonuses), they are probably more interested in a firm's economic performance than in maximizing socio-emotional wealth. This kind of manager is more likely to rely on (or at least not oppose) formalized industrial relations in a plant such as collective bargaining agreements and works councils that promise to reduce transaction costs and increase economic performance. In this case, we should see that in family firms where management is mixed (i.e. composed of owners and external managers), collective bargaining agreements and works councils are more likely to exist than in establishments with pure owner management. But their existence should be less likely than in externally managed establishments where owners are not involved in management.[2]

[2] Another possibility is that employees show different attitudes towards external managers (be they stewards or agents) than towards paternalistic owners and are therefore more likely to set up a works council when external managers are present.

This complex relationship between various compositions of the management in family plants (only owners, only external managers or mixed) and worker representation via works councils and collective bargaining has not been investigated so far. Against this background, the present study contributes to the literature mainly in three ways: Firstly, using a representative establishment panel data set for Germany and a heteroskedastic panel probit model with fixed effects, we show that family firms that are solely, partially or not managed by the owners substantially differ in the presence of works councils and collective bargaining agreements. We demonstrate that the organization of industrial relations already changes if only some of the managers do not belong to the owner family. Secondly, we take into account that the hiring of external managers and the composition of management in family firms is potentially endogenous. Thirdly, we point out that the black-and-white story of paternalistic owner opposition against co-determination and unions is not the whole story and that the notion of socio-emotional wealth should be given more attention in explaining the behaviour of family firms concerning their industrial relations.

The paper is organized as follows: Section 2 sketches the institutional background of industrial relations, worker representation, and family firms in Germany and provides a brief overview of the extant literature. The data and some descriptive evidence are presented in section 3. Section 4 describes our empirical model, a heteroskedastic panel probit model with fixed effects that takes account of potential endogeneity. The results of our econometric estimations are discussed in section 5. Section 6 concludes.

2. INSTITUTIONAL BACKGROUND AND EXTANT LITERATURE

The German system of industrial relations is mainly based on two important pillars, namely collective bargaining agreements and worker co-determination at the workplace.[3] Principally, firm owners and managers are free to choose whether they want to make use of collective bargaining or conclude individual labour contracts with each employee. In contrast, it is the employees in an establishment who decide whether they want to set up a works council as a formal body of worker representation and co-determination, which could happen as a response to owner or management behaviour. The rationale behind both decisions may be different in family firms where owners are said to act more paternalistic and less profit-maximizing. Both pillars of industrial relations and their connection with firm ownership will now be explained in more detail.

[3] For descriptions of these two pillars and their recent developments, see Addison et al. (2017) and Oberfichtner and Schnabel (2019).

Starting with collective agreements, the constitutionally protected principle of bargaining autonomy gives employers (or employers' associations) and trade unions in Germany the right to regulate wages and working conditions without government interference. Collective bargaining agreements can be concluded either as multi-employer agreements at industry level or as single-employer agreements at company level. They are legally binding on all members of the unions and employers' associations involved, but in general they are extended to all employees working for the employers involved (no matter whether they are union members or not). Collective agreements determine wages as well as job classifications, working time, and working conditions. These collectively agreed norms are minimum terms in that companies bound by collective agreements may not undercut but only improve upon these terms and conditions (e.g. by paying higher wages).

From the perspective of company owners and managers, one important advantage of collective bargaining agreements is that they reduce transaction costs by substituting one set of negotiations for a large number of individual bargains and by standardizing working conditions. In addition, multi-employer bargaining largely takes wages out of competition, shifts bargaining and industrial conflict to a level above the company (so that the working atmosphere within the plant is not negatively affected), and enables employers to pool their strength in fighting union demands (see, e.g., Schnabel et al. 2006, Addison et al. 2013). The downside of collective bargaining agreements is that they reduce company flexibility and wage differentiation (particularly if they are concluded as multi-employer agreements). Probably even more important from the perspective of owners and managers, compared to contract negotiations with individual workers, collective bargaining agreements restrict managements' leeway in running the company. Consequently, many employers try to avoid collective bargaining (see Behrens and Dribbusch 2013).

Empirical studies for Germany have found that the incidence of collective bargaining agreements in an establishment is related to factors such as the size, age, and sectoral affiliation of the establishment or the composition of its workforce, but it may also play a role whether establishments are under foreign ownership/control or are individually-owned (see, e.g., Kohaut and Schnabel 2003, Schnabel et al. 2006, Addison et al. 2013). Surprisingly, there seem to exist no studies for Germany that have explicitly investigated whether establishments are more or less likely to adopt collective bargaining agreements if they are (fully or partially) run by owner-managers.[4]

[4] There are two partial exceptions: Oberfichtner and Schnabel (2019) analyse the joint presence of both collective agreements and works councils in German plants, reporting that this specific status is negatively related to the presence of owner-managers. Lehmann (2002) finds a negative association between collective bargaining coverage and the participation of owners in a plant's workforce (not necessarily as managers), which is statistically significant in some specifications.

Switching to the second pillar of industrial relations in Germany, the Works Constitution Act stipulates that works councils representing the interests of workers may be set up in all establishments that exceed a size threshold of five permanent employees. The size of the works council is fixed by law and rising with the number of employees in an establishment. Works councils have extensive rights of information (on all matters related to the discharge of their statutory functions) and consultation (on issues such as planned structural changes to the plant and manpower planning) prescribed by law. In addition, German works councils have co-determination rights on what are termed "social matters". These include remuneration arrangements, health and safety measures, and the regulation of working time. Unlike unions, works councils must not call a strike, and they are also excluded from reaching agreement with the employer on wages or working conditions that are normally settled by collective agreements between trade unions and employers' associations at industry level.

Note that although works councils are mandated by law, they are not automatic: they must be elected by the entire workforce in the establishment, and employees are free not to set up a works council. There is some evidence (mainly from case studies) that employees occasionally decide not to set up a works council because of the more personalized relations between owner-managers and their workforce (Schlömer-Laufen 2012) and/or because they do not want to affront their paternalistic employers (Hauser-Ditz et al. 2008). Employers may not stop the election of a works council, but sometimes firm owners or management try to prevent the introduction of a works council because they fear a restriction of their power and leeway (Behrens and Dribbusch 2013). This is somewhat astonishing given that works councils reduce transaction costs (both for employers and employees) and have been found to have positive effects on firm productivity, so that owner-managers' opposition to worker co-determination may primarily reflect their wish to remain the ultimate boss in the establishment (see, e.g., Jirjahn and Mohrenweiser 2016, Müller and Stegmaier 2017).

Empirical studies for Germany have found that the existence of works councils is related to establishment characteristics like the size and age of the plant, the composition and union density of its workforce, and the prevalence of collective bargaining (see, e.g., Addison et al. 2003, Hauser-Ditz et al. 2008, Ertelt et al. 2017). There is also some evidence that works councils are likely to be set up for defensive reasons, i.e. when the economic situation and employment prospects are bad (Jirjahn 2009, Oberfichtner 2019). Some studies have investigated the role of firm ownership, finding that works councils are relatively rare in family firms (Schlömer-Laufen et al. 2014) and that employees in owner-managed establishments are less likely to set up a works council (see, e.g., Schlömer-

Laufen 2012, Hauser-Ditz et al. 2013, Jirjahn and Mohrenweiser 2016, Ertelt et al. 2017, Gerner et al. 2019).

The negative relationship between owner management and the existence of a works council is often explained by an aversion of the owners against worker co-determination (which may be respected by the employees as long as industrial relations in the plant are good). However, this explanation may be too simple and neglects some important aspects of family firms and owner management. There is a growing literature on the behaviour of family firms that is said to differ from that of other entities (cf. Tabor et al. 2018, Klein and Bell 2007). In particular, this research assumes that family firms follow both economic and non-economic goals, like the maximization of so-called socio-emotional wealth (Gomez-Mejia et al. 2007), where the reputation of the family and the long-term influence of the owners on the company are as important as the profits created by those firms. Moreover, several studies show that owner-run firms have a lower degree of formalization and a more personalized culture (cf. Stewart and Hitt 2012, Block et al. 2016). Then, one possible threat to the amount of socio-emotional wealth in the firm is the employment of non-family workers and the implementation of formal worker representation structures.

If non-family members are hired as executives, this could possibly result in a higher degree of formalization and better market performance, but also in owners' loss of control over the firm (e.g., Madison et al. 2018, Fang et al. 2016, Chrisman et al. 2014, Stewart and Hitt 2012, Chua et al. 2009, Sonfield and Lussier 2009). When maximizing socio-emotional wealth, the decision to hire external executives should depend on the trade-off between firm performance and family-centered goals (cf. Salvato et al. 2012). Therefore, employing an external executive is often associated with a larger weight of economic goals (Fang et al. 2016). In addition to an economically sub-optimal degree of formalization and a more personalized culture, there are two other reasons why family-managed firms are likely to show economic underperformance. Firstly, there may be a lack of managerial skills within the owner family, especially when the firm grows and the need for these skills increases (Lin and Hu 2007, Sonfield and Lussier 2009). Secondly, although family firms are often seen as strongly value-oriented organizations that care about traditions and are loyal to their employees, possible family conflicts, nepotism, less attractive working conditions, and the potential conflict between family goals and business goals create the impression of highly complex organizations that have a large probability of economic failure (cf. Block et al. 2018). Against this background, it is not surprising that the majority of empirical studies find that external executives improve the business performance of family firms (cf. Sciascia and Mazzola 2008, Lin and Hu 2007, Miller et al. 2013, 2014, Yopie and Itan 2016).

The impact of external managers on the structure and performance of family firms also depends on the role of non-family executives within the company. The structures of family-run entities could be very attractive to employees who share the same informal values and who prefer environments with a family-like attitude (e.g., Block et al. 2018, 2016, Fang et al. 2016, Miller and Le Breton-Miller 2006). This can lead to stewardship behaviour, where the goals of the owners are identical to the goals of the external executives, namely increasing the socio-emotional wealth of the firm (Miller and Le Breton-Miller 2006). Then, stewards are likely to be not interested in changing these structures by introducing a higher degree of formalization and professionalization in the family business.

On the other side, there are potential conflicts in the economic goals between family members and external executives (Chrisman et al. 2014, Chua et al. 2009). In this case, external managers act as agents who pursue their own goals. Assuming that these agents take a short-run instead of a long-run perspective and that they try to maximize profits instead of socio-emotional wealth, external executives should favor a stronger formalization and a stricter application of economic methods over non-economic family-centered goals. Some empirical studies show indeed that a hiring of external managers comes from the need of stronger formalization of firm structures (Chua et al. 2009, Fang et al. 2016). If these managers act as agents rather than stewards, we will see a higher degree of formalization not only in the production process or in administration but also in employer-employee relationships. In the German situation this should show up in a higher probability of observing collective agreements and works councils if at least some of the managers are not members of the owner family.

Against this theoretical and empirical background, we propose the following five hypotheses:

1) Works councils are less likely to exist in establishments where executives are exclusively from the owner family compared to establishments where owners are not involved in the management of the firm.
2) In family firms where management is mixed (i.e. composed of owners and external managers), works councils are more likely to exist than in establishments with pure owner management (but still less likely than in establishments where owners are not involved in management).
3) Collective bargaining agreements are less likely to exist in establishments with owner-managers compared to establishments where owners are not involved in the management of the firm.

4) In family firms where management is mixed, collective bargaining agreements are more likely to exist than in establishments with pure owner management (but still less likely than in establishments where owners are not involved in management).
5) According to stewardship theory, it is mainly executives agreeing with the goals of family firms who are hired or self-select themselves into such firms. Since the management style and attitude towards worker representation of this type of executive should be similar to that of the managers from the owner family, the probabilities of observing a works council or a collective agreement do not differ between establishments with and without external executives.

3. DATA AND DESCRIPTIVE EVIDENCE

The only dataset that allows us to continuously analyse both the coverage of collective bargaining and works councils in Germany and that also contains information on owner-managers is the IAB Establishment Panel (for details, see Ellguth et al. 2014). Starting in 1993 (1996) in western (eastern) Germany, the IAB Establishment Panel annually surveys plants from all industries using a stratified random sample of all plants that employ at least one worker covered by the social security system at the 30th June of a year. The representative survey is carried out orally by way of personal interviews with the owner or management of the establishment that are conducted on behalf of the Institute for Employment Research (IAB) of the German Federal Employment Agency. Since 1996 the number of plants interviewed in each year has almost doubled and from 2001 onwards it has amounted to approximately 16,000 plants, which are representative of the underlying population (see Bossler et al. 2018). The IAB Establishment Panel shows a very high response rate of over 70 to 80 percent for establishments that have participated more than once. The data is unbalanced, however, as new establishments are included to replace panel mortality through exits and non-response.

Our period of observation ranges from 2008 to 2017 because one of our explanatory variables (competition) is only available since 2008[5], and 2017 was the last wave available for research when our empirical estimations were conducted. Throughout the analysis, we examine only establishments (not firms) with five or more employees because works councils can only be set up in these plants. We also exclude not-for-profit organizations and establishments in the public sector where owner-management does not play a role. In total, more than 90,000 observations of the establishments are available for the subsequent analyses. Due to item-non-response in some variables, more than

[5] The variable that indicates family ownership has been collected since 2007.

70,000 complete observations are used in the regressions, with slightly differing numbers of observation in each estimation.

Since the IAB Establishment Panel has been set up for the needs of the Federal Employment Agency, detailed information on the number of workers, the composition of the workforce, the plant's exporting activity and production technology, its business policies and training activities constitutes a major part of the questionnaire. Most important for our analysis, establishments are also asked whether there exists a works council in the establishment and whether they are covered by collective agreements at industry or company level. The answers to these two questions are the dependent variables in our empirical analysis of family ownership and worker representation. If a works council exists in an establishment, our first dummy variable becomes 1 (and zero otherwise). The second dummy variable on collective bargaining coverage is 1 when the survey indicates a collective agreement at the industry or company level (and zero otherwise)[6].

The covariate of major interest concerns the composition of an establishment's ownership and management. Although the data does not contain direct information whether an establishment is family-owned, the IAB Establishment Panel surveys the composition of the establishment's management and reports whether the owners manage their establishment or not. It is possible to distinguish three different situations: Firstly, establishments that are managed solely by the owners or family members of the owners. Secondly, establishments where some business executives are family members (and others are not), and finally establishments without members of the owner families in the company's management. The latter group, which will be our reference group, comprises all establishments that are exclusively managed by external managers, no matter whether they are family-owned or not. Although this may be regarded as a shortcoming of the data, what is important is that we can clearly identify if members of the owner family are involved in running the establishment. We hypothesize that establishments are likely to act differently than other entities if they are managed by the owners. Therefore, the regressions contain two dummy variables indicating the two different types of full or partial owner management (with establishments without family members on the management board being the reference category).

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[6] We do not distinguish between collective agreements at the industry and the company level for two reasons. Firstly, both types of agreements contain similar legal restrictions and thus should be of equal relevance to owners (and managers). Secondly, the share of establishments with collective bargaining agreements at company level in the data is rather low (5.5 to 7.5 percent per year) depending on establishment size and industry affiliation, which means that we would be unlikely to estimate a particular effect of these kind of contracts.

[Table 1 near here]

In the following, we present some descriptive statistics for family-managed establishments in our sample of establishments with five or more employees. Table 1 shows the share of family-managed firms according to region, worker representation, year and establishment size. During the observation period from 2008 to 2017, 57.79 percent of all establishments surveyed in the panel were exclusively managed by members of the owner family, while 9.62 percent were at least partly managed by owners. About one third of the observations report no ownership management. The figures are quite similar in the western and eastern part of Germany. The slightly higher values in (post-socialist) Eastern Germany may reflect that establishments are smaller there on average. Among establishments that report to be bound by a collective agreement only 44.11 percent were exclusively managed by owners, whereas almost 47 percent of these establishment show no family management. In addition, among establishments with a works council we find a much lower share of exclusively family-managed firms compared to the total average (16.25 vs. 57.79 percent). This corresponds to the results for establishments without any worker representation, i.e. establishments that have neither works councils nor collective agreements. The share of family-managed firms is much higher and the value for entities without owner management is much lower in this group. The share of firms without family managers steadily increases with establishment size. The same applies to establishments that are partly managed by external managers, but only up to an establishment size of 200 employees.[7] Finally, the values in Table 1 do not show a clear trend in family management over time.

[Table 2 near here]

As the values in Table 1 indicate remarkable differences in worker representation between family and non-family-run firms, we now have a look whether the two variables are correlated with each other. For worker representation (works councils and collective agreements), we only have dummies indicating whether they exist or not. Concerning family management, we can identify three different types (1 representing exclusively owner-run firms, 2 indicating entities with some external managers, and 3 belonging to establishments without family members in management). Table 2 thus reports the Spearman correlation coefficients of ownership management and different types of worker representation. We find highly significant coefficients indicating a positive correlation between worker representation and external management. Interestingly, the

[7] In the context of our investigation, it is interesting to note that larger establishments are not only less likely to be family-managed but are also more likely to have works councils and collective bargaining agreements (see Oberfichtner and Schnabel 2019).

correlation between external management and the existence of works councils is much larger than the correlation with collective agreements. However, the size of the calculated correlation coefficients is rather low and does not exceed 0.55.

Our brief review of the literature on worker representation has pointed to some other variables that may explain the existence of a collective agreement or a works council. In the subsequent regressions, we therefore include additional covariates usually employed in the literature (see, e.g., Schnabel et al. 2006, Hauser-Ditz et al. 2013, Addison et al. 2013, and Oberfichtner and Schnabel 2019). Firstly, we control for the composition of the workforce in the establishments by including the employment shares of low skilled workers, employees with a university degree, female workers, part-time employees and temporary employed individuals. The IAB Establishment Panel also enables us to control for establishments' export activities and foreign ownership. We use both variables as dummies that become one if the establishment is an exporter respectively if it has a foreign owner. Also, it is possible to take account of the legal form of the company. Using individually-owned firms as reference category, the regressions include dummies indicating partnerships and corporations as two additional covariates. Another dummy indicates whether the establishment is a single establishment (dummy equals one) or a branch plant of a company that has several establishments. Further dummy variables show whether the establishment reports to operate in a market with high competition and whether it is located in Eastern Germany. Finally, our empirical model contains several sets of dummy variables such as year dummies and dummies for establishment size, industry affiliation and the founding year of the establishment.

In order to account for the possible endogeneity of our owner-manager variable, the subsequent analysis applies an instrument variable approach (cf. Wooldridge 2015). This requires the use of additional variables that explain the existence of family-managed firms and fulfill the exclusion restriction. Here we will use information about the act of founding of the firm, indicating a start-up (i.e. a completely new establishment), a spin-off, a change of ownership, and an unknown founding process (our reference category). We propose that firms' ownership structure is closely related to the act of founding, whereas the existence of works councils and collective bargaining agreements is not. The act of founding is a decision by the owner(s) that in the case of start-ups takes place before personnel for the new firm is hired and institutions like works councils and collective bargaining are set up. If we regard the predominant owner or founder as an entrepreneur, then he or she is probably involved in running the newly founded firm (be it a start-up or a spin-off), whereas this is less likely to be the case if there is just a change of ownership. Descriptive statistics for the principal variables used in this paper are presented in the Appendix (Table A.1).

4. EMPIRICAL MODEL

The empirical model is based on the dichotomous nature of the endogenous variables, i.e. the (non-)existence of collective agreements and of works councils. Assuming a normal distribution of the observations on these kinds of worker representation, we use the following probit estimation model (Wooldridge 2010):

(1) $P(y_{it} = 1|x_{it}) = \Phi(x_{it}\beta)$,

where y_{it} becomes 1 if establishment i has a works council or a collective agreement; t = 1, …, T, and x_{it} is a vector of covariates containing the explanatory variables discussed in the previous section as well as an intercept. β are the parameters of the variables, and Φ is the standard normal cumulative distribution function (cdf). From equation (1), the partial effects not only depend on the estimated β's, but also on the density function ϕ. Average partial (or marginal) effects are the given by:

(2) $$\frac{\partial(y_{it}=1|x_{it})}{\partial x_{it}} = \beta N^{-1} \sum \phi(x_{it}\beta),$$

with N as the total number of observations. As the cdf is a monotonic function, the value of β identifies the direction of the partial effect, although the size of the effect depends on all x_{it}. There are several inferences that might bias the regression outcome of the probit model in equation (1). In particular, the subsequent regressions should take into account unobserved firm-fixed heterogeneities, the probable endogenous nature of ownership management, and heteroskedasticity of the disturbances that possibly arise from the nature of the unbalanced panel data and the endogeneity of ownership variables.

If we introduce unobserved firm specific effects and assume an additive model, equation (1) and (2) become:

(3) $P(y_{it} = 1|x_{it}, c_i) = \Phi(x_{it}\beta + c_i)$

(4) $$\frac{\partial(y_{it}|x_{it})}{\partial x_{it}} = \beta N^{-1} \sum \phi(x_{it}\beta + c_i),$$

where the c_i are the firm-specific heterogeneities. Unfortunately, because of the unobserved nature of c_i, it is not possible to estimate equation (3) and calculate the partial

effects from equation (4). One possibility applied to calculate the partial effects in this model is the Mundlak/Chamberlain device (Mundlak 1978, Chamberlain 1982) to model the unobserved heterogeneity as a normally distributed variable conditional on the averages of the time-varying exogenous regressors (Wooldridge 2010, Papke and Wooldridge 2008):

(5) $c_i = \psi + \bar{x}_i\xi + a_i,$

where $a_i|x_i \sim \text{Normal}(0, \sigma^2)$, $\bar{x}_i$ are the averages of time-varying x_{it}, ψ as a constant and ξ as the parameters of $\bar{x}_i$. As equation (5) is only applicable for balanced panel data, Wooldridge (2019) proposes a linear function of the time averages with different coefficients for each number of observations for an entity if unbalanced data is used:

(6) $c_i = \Sigma_r(\psi_r + \psi_r\bar{x}_i\xi_r) + a_i,$

with r as the number of observations for each firm in the data and ψ_r becomes 1 if r observations are available for an establishment and zero otherwise. This formulation also has implications for the variance of c_i. It is possible that the variance is not constant but depends on the number of observations for each establishment. A way to model and to test for probable heteroskedastic disturbances is to allow changes in the variance according to the number of observations for each establishment and the means of the covariates:

(7) $\text{Var}(c_i|\psi_r, \bar{x}_i, r) = [\exp(\Sigma_r\psi_r\nu_r + \bar{x}_i\lambda)]^{0.5}$

Applying equations (6) and (7) to equations (3) and (4) yields:

(8) $$P(y_{it}=1|x_{it}, \psi_r) = \Phi\left(\frac{x_{it}\beta + \Sigma_r(\psi_r + \bar{x}_i\xi_r)}{[\exp(\Sigma_r\psi_r\nu_r + \bar{x}_i\lambda]^{0.5}}\right)$$

(9) $$\frac{\partial(y_{it}=1|x_{it}, \psi_r)}{\partial x_{it}} = \beta N^{-1}\sum\phi\left(\frac{x_{it}\beta + \Sigma_r(\psi_r + \bar{x}_i\xi_r)}{[\exp(\Sigma_r\psi_r\nu_r + \bar{x}_i\lambda]^{0.5}}\right),$$

The decision of a specific ownership and management structure of a company is possibly influenced by variables that also determine an establishments' adoption of a works council or a collective agreement. For instance, the notion of maximizing socio-emotional

wealth includes keeping control over the family business (Gomez-Mejia et al. 2007, 2011). Both, external managers and worker representation could weaken the influence of the owners on the firm. Therefore, both decisions, the employment of external managers and the introduction of works councils and/or collective agreements, probably rely on the same covariates and one must take care when approaching the endogeneity of being a family firm. Here, we apply a two-step control variable approach, where the residual of estimation on the first stage is used as an additional variable in the estimation of the model on the second stage (Wooldridge 2015). The idea to add residuals of a first stage estimation to control for endogeneity was introduced by Hausman (1978). Then, equation (8) is modified according to introduce possible endogeneity. The y_{it} are subsequently named y_{1it} and the covariates x_{it} now consists of strictly exogenous variables z_{1it} and an endogenous variable y_{2it}; $x_{it} = (z_{1it}, y_{2it})$:

$$(10) \qquad P(y_{1it} = 1 | z_{1it}, y_{2it}, \psi_r, \upsilon_{it}) = \Phi\left(\frac{z_{1it}\beta + y_{2it}\alpha + \Sigma_r(\psi_r + \bar{x}_i\xi_r) + \upsilon_{it}}{[\exp(\Sigma_r\psi_r\nu_r + \bar{x}_i\lambda]^{0.5}}\right),$$

where υ_{it} is a time-varying omitted factor that can be correlated with y_{2it}, the potentially endogenous variable. Subsequently, an instrumental variable approach is applied to control the probable endogeneity. This requires some additional exogenous variables z_{2it} that are not part of equation (8) to fit the exclusion restriction: $z_{it} = (z_{1it}, z_{2it})$. In the following, we assume that the possible endogenous variable y_{2it} is related to all exogenous variables z_{it}, including three additional dummy variables that describe the act of founding of the firm. Here we can distinguish between a completely new establishment, a spin-off, a change of ownership, and an unknown founding process (our reference category, see above).

Due to the nature of the endogenous variable, an indicator that has three possible ordered outcomes, an ordered probit model is applied here (Wooldridge 2010). Using the Chamberlain/Mundlak-method to control for unobserved heterogeneity results in the subsequent expression:

$$(11) \qquad P(y_{2it} = j | z_{it}) = \Phi(\mu_j + z_{it}d + \bar{z}_i\varphi) - \Phi(\mu_{j-1} + z_{it}d + \bar{z}_i\varphi), \; j = 1, 2, 3.$$

The correspondent latent variable model is given by:

$$(12) \qquad y_{2it}^* = z_{it}d + \bar{z}_i\varphi + v_{it},$$

with d and φ as parameters, μ_j as cut-points and v_{it} as residual of the model. The endogeneity of y_{2it} is then given if υ_{it} is correlated with v_{it}, the disturbances of the ordered probit model:

(13) $\upsilon_{it} = \kappa v_{it} + e_{it}, e_{it} \sim \text{Normal}(0, \sigma_e^2)$.

Inserting (13) into (8) includes the generalized residuals of the first stage estimation:

$$(14) \qquad P(y_{1it} = 1 | z_{1it}, y_{2it}, \psi_r, v_{it}) = \Phi\left(\frac{z_{1it}\beta + y_{2it}\alpha + \Sigma_r(\psi_r + \bar{x}_i\xi_r) + v_{it}\kappa}{[\exp(\Sigma_r\psi_r + \bar{x}_i\lambda]^{0.5}}\right).$$

On the first stage, equation (11) is estimated. From the outcome, the residuals of the probit are calculated and added as a further covariate in equation (14). Because of the nature of the dependent variable, the model is estimated with a probit regression. If the estimate of κ is statistically significant, endogeneity of y_{2it} cannot be neglected. The corresponding average marginal effects of the variables are then given by:

$$(15) \qquad \frac{\partial(y_{it} = 1 | z_{1it}, y_{2it}, \psi_r, v_{it})}{\partial x_{it}} = \beta N^{-1} \sum \phi\left(\frac{z_{1it}\beta + y_{2it}\alpha + \Sigma_r(\psi_r + \bar{x}_i\xi_r) + v_{it}\kappa}{[\exp(\Sigma_r\psi_r + \bar{x}_i\lambda]^{0.5}}\right).$$

The results of the empirical regressions are now presented in the subsequent section.

5. Econometric results

This section provides the results of fixed-effects probit estimations of the existence of works councils and collective bargaining agreements according to equations (3) and (14). Equation (3) is the base model in our analysis, whereas the model in equation (14) additionally controls for unobserved firm-fixed heterogeneities, endogeneity of the decision to be a family-managed firm and heteroskedastic structures of the disturbances. We assume that location and industry affiliation do not change over time (neither does the year of founding). Therefore, the regressions do not contain the means of these variables. Equation (14) is our preferred specification as we find that the factors mentioned before significantly influence the regression results. In Table 3 we present the average marginal effects calculated from equations (4) and (15), rather than the estimated, difficult-to-interpret parameters of the non-linear regressions (which are available on request). The dependent variable in columns (a) and (b) is the probability of

adopting a works council, and columns (c) and (d) present the corresponding results for the existence of a collective agreement. Columns (a) and (c) are the outcome of our base models whereas columns (b) and (d) contain the average marginal effects of our preferred specifications in equation (14).

[Table 3 near here]

The results of the base models in columns (a) and (c) largely confirm the outcome of previous research (see, e.g., Jirjahn 2009, Addison et al. 2013, Jirjahn and Mohrenweiser 2016, Ertelt et al. 2017, Oberfichtner 2019). The probabilities of having a works council and of being bound by a collective agreement show a statistically significant negative relationship with the shares of female employees, low skilled workers and temporary employed workers. Single establishments and exporting firms record lower probabilities of having works councils and collective bargaining agreements. In contrast, establishments that are located in Western Germany or experience higher competition show a higher probability of worker representation. Other relationships differ between the regressions for works councils and collective agreements. Although the probability of observing a works council increases for establishments with a large share of employees holding a university degree and for establishments that are partnerships or corporations rather than single-owner entities, we find opposite effects of these variables when estimating the equations for collective bargaining agreements. Moreover, we report statistically significant associations with establishment age, year of observation, industry affiliation, and establishment size.

The variables of major interest in this analysis concern the management structure of the observed establishments. We use firms without family management (i.e. employing only external executives) as reference category and estimate the differences to entities with complete or partial owner management. In addition, we test whether the calculated average partial effects of establishments that exclusively employ executives from the owner family significantly differ from the effects in firms with partly external executives. The results of these tests will be presented in Table 4.

First looking at columns (a) and (c) in Table 3, we see that in the base models the estimated effects of family management on worker representation are negative and statistically significant, both for establishments that are exclusively or partially managed by the owners. The probability of observing a works council in an establishment without external executives is 18.2 percent lower than in establishments without owner management. The corresponding marginal effect for establishments with partial family management indicates a 10.9 percent lower probability. Moreover, the difference of 7.3

percentage points between these two marginal effects is statistically significant at the 1 percent level (see Table 4). The effect of family management on the existence of a collective bargaining agreement is also negative, but there is no statistically significant difference between the effects of full or partial owner management (see Tables 3 and 4). The results for the base model imply that the probability of being covered by a collective agreement is 15.7 to 16.0 percent lower in establishments with (full or partial) family management.

[Table 4 near here]

When turning to the results of our preferred specifications in columns (b) and (d) of Table 3, we observe some remarkable changes compared to the base models. These estimates control for the endogeneity of family management, unobserved firm-fixed effects and heteroskedasticity. As described in section 4, we use a two-step control function method to account for the probable endogeneity of the family management variables. Therefore, in the first step, we conduct ordered probit regressions of family management according to the model in equation (11). The results of these regressions are presented in the Appendix (Table A.2). Then, we calculate the generalized residuals from the outcome of the estimations and use this as an additional covariate in the main regressions on the second stage. As the average marginal effects of the generalized residuals of the estimations on the first stage (control variables) in columns (b) and (d) are statistically significant, we cannot reject a possible influence of endogeneity. In addition, Wald-Tests of joint statistical significance of the variables that indicate firm-fixed effects and heteroskedasticity show large and highly significant outcomes. Therefore, we prefer the results presented in columns (b) and (d) compared to the outcomes of the base models.

In our preferred specifications in columns (b) and (d) of Table 3, most of the covariates discussed above become insignificant. In addition to our ownership management variables, only the dummy variables for region, year of founding, year of observation, industry affiliation and establishment size show some statistically significant association with the probability of observing a works council or a collective bargaining agreement. All other variables have a rather small and insignificant impact on the endogenous variables. To our knowledge, this finding is new to the literature and underscores the importance of controlling for potential endogeneity and unobserved firm-fixed effects. Also, the effect of ownership management on worker representation becomes larger in absolute terms. Establishments that are partly managed by non-family executives record a more than 20 percent lower probability of having a works council or a collective bargaining agreement. This value increases for firms without external managers. In these completely owner-managed establishments, we find a 36.4 percent lower probability of observing a works

council and a 25.8 percent lower probability of being covered by a collective bargaining agreement. Moreover, the differences between establishments with complete and partial ownership management are statistically significant for both models in column (b) and (d). Put differently, the probabilities of having a works council or a collective agreement increase by more than 16 and 5 percentage points, respectively, if external managers join establishments that hitherto were managed exclusively by executives from the owner family (see Table 4).

Note that our main results are robust to different specifications of the model controlling for heteroskedasticity, endogeneity and fixed effects separately. The probability of observing works councils and collective bargaining agreements always increases significantly if external managers work in the establishments. Our insights also do not change when taking account of potential interdependencies between these two variants of worker representation by estimating bivariate probit regressions or a fixed-effects probit regression on the joint non-existence of both works councils and collective agreements in an establishment. The outcome of these regressions is available from the authors on request.

These results are in line with our first four hypotheses. According to the estimates, works councils and collective bargaining agreements are less likely to exist in establishments where executives are exclusively from the owner family compared to establishments where owners are not involved in the management of the firm (hypotheses 1 and 3). Moreover, works councils and collective agreements are more likely to be found in family firms where management is mixed than in establishments with pure owner management, but they are less likely to exist than in establishments where the owners are not involved in management (hypotheses 2 and 4). These findings suggest that it is not only the attitudes of the owners that (negatively) affect the existence of works councils and collective agreements. Another important, but hitherto neglected factor is the influence of external managers who increase the probability of worker representation even if the owner is still present in the board of executives. These outcomes contradict our fifth hypothesis that there should be no further formalization of industrial relations since external managers act as stewards rather than agents in family firms.

6. Concluding remarks

Using data from the representative IAB Establishment Panel in Germany for the period 2008 to 2017, this paper has found a negative relationship between the existence of owner-management in an establishment and the probabilities of having a works council

or a collective bargaining agreement. This finding is consistent with previous results in the literature (e.g., Hauser-Ditz et al. 2013, Addison et al. 2013, Oberfichtner and Schnabel 2019), and it is sometimes attributed to an aversion of the owners against worker co-determination and trade unions. In the case of family firms, which are in the focus of this paper, owners are said to avoid worker representation and collective bargaining mainly because they want to maintain their full managerial freedom. We have argued that this explanation is difficult to reconcile with the fact that many family firms also employ external managers. If paternalistic owners were so keen to preserve their prerogatives, they should in the same vein avoid worker participation and hiring external managers.

Going beyond the extant literature, we have taken into account the potential endogeneity of the owners' decision to employ external managers, arguing that the specific ownership and management structure of a company may be influenced by variables that also determine the decisions of setting up a works council or having a collective agreement. Estimating a heteroskedastic panel probit model with fixed effects, we have found that family firms that are solely, partially or not managed by the owners significantly differ in the presence of works councils and collective bargaining agreements. Our results show that the probabilities of having works councils and collective agreements increase substantially if only some of the managers do not belong to the owner family, which has not been investigated so far.

Several factors may play a role in explaining the complex relationship between owner-managers, external managers, and the organization of industrial relations in family firms. Although owners attempting to maximize their socio-emotional wealth and control of the establishment may be reluctant to hire external executives, they may be forced to do so if there is a lack of managerial skills in the owner family, if management workload increases and/or if a family firm is growing or reorganizing. Possibly, this goes along with a higher need for formalized structures and with a larger weight given to economic principles in securing the existence and development of the family firm rather than following non-economic family goals. The external executives hired seem to be more willing than owners to adopt (or at least not oppose) collective bargaining and works councils, probably since worker representation reduces transaction costs, allows employees to safely express their dissatisfaction with working conditions instead of quitting the job, and enables management to run a more efficient personnel policy. But if it is mainly executives agreeing with the goals of family firms who are hired or who self-select themselves into such firms, this type of executives would act as stewards and their management style and attitude towards worker representation should be similar to that of the managers from the owner family. However, since we have found substantial

differences in the presence of works councils and collective agreements between firms that are (partially) managed by external managers and by owners, this stewardship hypothesis is not supported by the data.

Obtaining more information on the characteristics of external managers hired in family firms should be an interesting avenue of future research and could shed more light on the stewardship hypothesis. Another limitation of our data is that we only know whether external managers are employed but not how large their share in the board of managers is. Moreover, our data consist of establishment data rather than observations at the company level. Whereas this makes no difference for small companies with only one establishment (and we have controlled for this status in our estimations), for larger entities we have to assume that the behaviour at the establishment level is a good instrument for the behaviour of the whole company.

Despite these limitations and caveats, our empirical analysis suggests that the black-and-white story of paternalistic owner opposition against co-determination and trade unions – though not fundamentally flawed – is probably not the whole story. The hiring and the strategic behaviour of external managers in family firms must also be taken into account. In doing so, the notion of socio-emotional wealth should be given more attention in explaining family firms' stance on industrial relations.

REFERENCES

Addison, J. T., L. Bellmann, C. Schnabel, J. Wagner (2003). German Works Councils Old and New: Incidence, Coverage and Determinants. *Schmollers Jahrbuch* 123(3): 339-358.

Addison, J. T., A. Bryson, P. Teixeira, A. Pahnke, L. Bellmann (2013). The Extent of Collective Bargaining and Workplace Representation: Transitions between States and their Determinants. A Comparative Analysis of Germany and Great Britain. *Scottish Journal of Political Economy* 60(2): 182-209.

Addison, J. T., P. Teixeira, A. Pahnke, L. Bellmann (2017). The demise of a model? The state of collective bargaining and worker representation in Germany. *Economic and Industrial Democracy* 38(2): 193-234.

Behrens M., H. Dribbusch (2013). Anti-unionism in a coordinated market economy: the case of Germany, in: Gall, G., T. Dundon (eds.): *Global anti-unionism: nature, dynamics, trajectories and outcomes*, Houndmills: 83-103.

Block, J. H., C. O. Fisch, J. Lau, M. Obschonka, A. Presse (2016). Who prefers working in family firms? An exploratory study of individuals' organizational preferences across 40 countries. *Journal of Family Business Strategy*, 7(2): 65-74.

Block, J. H., C. O. Fisch, J. Lau, M. Obschonka, A. Presse (2018). How Do Labor Market Institutions Influence the Preference to Work in Family Firms? A Multilevel Analysis Across 40 Countries. *Entrepreneurship: Theory and Practice*. DOI: 10.1177/1042258718765163.

Bossler, M., G. Geis, J. Stegmaier (2018). Comparing survey data with an official administrative population: Assessing sample-selectivity in the IAB Establishment Panel. *Quality and Quantity* 52(2): 899-920.

Chamberlain, G. (1982). Multivariate Regression Models for Panel Data. *Journal of Econometrics* 18(1): 5-46.

Chrisman, J. J., E. Memili, K. Misra (2014). Nonfamily managers, family firms, and the winner's curse: The influence of noneconomic goals and bounded rationality. *Entrepreneurship Theory and Practice* 38(5): 1103-1127.

Chua, J. H., J. J. Chrisman, E. B. Bergiel (2009). An agency theoretic analysis of the professionalized family firm. *Entrepreneurship Theory and Practice* 33(2): 355-372.

Doucouliagos, H., R. B. Freeman, P. Laroche (2017). *The Economics of Trade Unions: A Study of a Research Field and Its Findings*. London and New York.

Ellguth, P., S. Kohaut, I. Möller (2014). The IAB Establishment Panel – methodological essentials and data quality. *Journal for Labour Market Research* 47(1-2): 27-41.

Ertelt, S., B. Hirsch, C. Schnabel (2017). Betriebsräte und andere Formen der betrieblichen Mitarbeitervertretung – Substitute oder Komplemente? *Industrielle Beziehungen (The German Journal of Industrial Relations)* 24(3): 297-321.

Fang, H., R. V. Randolph, E. Memili, J. J. Chrisman (2016). Does size matter? The moderating effects of firm size on the employment of nonfamily managers in privately held family SMEs. *Entrepreneurship Theory and Practice* 40(5): 1017-1039.

Gerner, H. D., H. Reinemann, A., Dutzi, D. Ludwig (2019). Voraussetzungen und Effekte betrieblicher Interessenvertretung in eigentümergeführten Unternehmen. *Zeitschrift für KMU und Entrepreneurship (ZfKE)* 67(2): 113-144.

Gómez-Mejía, L. R., K. T. Haynes, M. Núñez-Nickel, K. J. Jacobson, J. Moyano-Fuentes (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative science quarterly* 52(1): 106-137.

Gómez-Mejía, L. R, C. Cruz, P. Berrone, J. De Castro (2011). The Bind that Ties: Socioemotional Wealth Preservation in Family Firms. *Academy of Management Annals* 5(1): 653-707.

Hauser-Ditz, A., M. Hertwig, L. Pries (2008), *Betriebliche Interessenregulierung in Deutschland*. Frankfurt, New York.

Hauser-Ditz, A., M. Hertwig, L. Pries (2013). Collective employee representation in German companies. *Employee Relations* 35(5): 509-526.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica* 46(6): 1251–1271.

Jirjahn, U. (2009). The introduction of works councils in German establishments—rent seeking or rent protection? *British Journal of Industrial Relations* 47(3): 521-545.

Jirjahn, U., J. Mohrenweiser (2016). Owner-managers and the failure of newly adopted works councils. *British Journal of Industrial Relations* 54(4): 815-845.

Klein, S., F. A. Bell (2007). Non-family executives in family businesses: A literature review. *Electronic Journal of Family Business Studies* 1(1).

Kohaut, S., C. Schnabel (2003). Zur Erosion des Flächentarifvertrags: Ausmaß, Einflussfaktoren und Gegenmaßnahmen. *Industrielle Beziehungen (The German Journal of Industrial Relations)* 10(2): 193-219.

Lehmann, K. (2002). *Stabilität und Veränderung der Flächentarifbindung von Arbeitgebern in Deutschland*. Münster.

Lin, S.H., S.Y. Hu (2007). A family member or professional management? The choice of a CEO and its impact on performance. *Corporate Governance: An International Review*, 15(6): 1348-1362.

Madison, K., J. J. Daspit, K. Turner, F. W. Kellermanns (2018). Family firm human resource practices: Investigating the effects of professionalization and bifurcation bias on performance. *Journal of Business Research* 84: 327-336.

Miller, D., I. Le Breton-Miller (2006). Family governance and firm performance: Agency, stewardship, and capabilities. *Family Business Review* 19(1): 73-87.

Miller, D., I. Le Breton-Miller, A. Minichilli, G. Corbetta, D. Pittino (2014). When do Non-Family CEO s Outperform in Family Firms? Agency and Behavioural Agency Perspectives. *Journal of Management Studies* 51(4): 547-572.

Miller, D., A. Minichilli, G. Corbetta (2013). Is family leadership always beneficial? *Strategic Management Journal* 34(5): 553-571.

Müller, S., J. Stegmaier (2017). Why is there resistance to works councils in Germany? An economic perspective. *Economic and Industrial Democracy*. Online first (DOI: 10.1177/0143831X17734296).

Mundlak, Y. (1978). On the Pooling of Time Series and Cross Section Data. *Econometrica* 46(1): 69-85.

Oberfichtner, M. (2019). Works council introductions in Germany: Do they reflect workers' voice? *Economic and Industrial Democracy* 40(2): 301-325

Oberfichtner, M., C. Schnabel (2019). The German Model of Industrial Relations: (Where) Does It Still Exist? *Journal of Economics and Statistics* 239(1): 5-37

Papke, L. E., J. M. Wooldridge (2008). Panel Data Methods for Fractional Response Variables with an Application to Test Pass Rates. *Journal of Econometrics* 145(1-2): 121-133.

Salvato, C., A. Minichilli, R. Piccarreta (2012). Faster route to the CEO suite: Nepotism or managerial proficiency? *Family Business Review* 25(2): 206-224.

Sciascia, S., P. Mazzola (2008). Family involvement in ownership and management: Exploring nonlinear effects on performance. *Family Business Review* 21(4): 331-345.

Schlömer-Laufen, N. (2012). *Die Entstehung von Betriebsräten in kleinen und mittleren Familienunternehmen – Eine theoretische und empirische Analyse der Determinanten von Betriebsratsgründungen durch Arbeitnehmer*. Wiesbaden.

Schlömer-Laufen, N., R. Kay, M. Holz (2014). Works Councils in Family Businesses in Germany – why are there so few? IfM Working Paper No. 03/14, Bonn.

Schnabel, C., S. Zagelmeyer, S. Kohaut (2006). Collective Bargaining and its Determinants: An Empirical Analysis with British and German Establishment Data. *European Journal of Industrial Relations* 12(2): 165-188.

Sonfield, M. C., R. N. Lussier (2009). Non-family-members in the family business management team: a multinational investigation. *International entrepreneurship and management journal* 5(4): 395-415.

Stewart, A., M. A. Hitt (2012). Why can't a family business be more like a nonfamily business? Modes of professionalization in family firms. *Family Business Review* 25(1): 58-86.

Stiftung Familienunternehmen (ed.) (2019). *Die volkswirtschaftliche Bedeutung der Familienunternehmen*, 5th ed., Mannheim, München.

Tabor, W., J. J. Chrisman, K. Madison, J. M. Vardaman (2018). Nonfamily members in family firms: A review and future research agenda. *Family Business Review* 31(1): 54-79.

Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data.* Cambridge: MIT Press (2nd ed.).

Wooldridge, J. M. (2015). Control function methods in applied econometrics. *Journal of Human Resources* 50(2): 420-445.

Wooldridge, J. M. (2019). Correlated random effects models with unbalanced panels. *Journal of Econometrics* 211(1): 137-150.

Yopie, S., I. Itan (2016). CEO-Family vs. CEO-Nonfamily: Who is a Better Value Creator in Family Business? *Journal of Applied Management Accounting Research* 14(2): 37-46.

Table 1: Share of Family Managed Firms (in percent)

Share	Exclusively managed by owner families	Partly managed by owner families	No owner management	Obser-vations
Total	57.79	9.62	32.58	79,945
Eastern Germany	59.18	9.86	30.96	34,417
Western Germany	56.90	9.47	33.62	48,629
Collective Agreement	44.11	9.11	46.78	34,030
Works Council	16.25	12.94	70.82	22,773
Without any worker representation (neither works council nor coll. agreement)	75.06	8.65	16.29	19,412
Establishment size (no. of employees)				
5 – 9	87.67	3.10	9.24	14,313
10 – 19	79.08	5.11	15.81	16,950
20 – 49	61.88	9.34	28.78	19,512
50 – 99	44.10	14.04	41.86	10,948
100 – 199	29.44	16.82	53.74	8,193
200 – 499	18.77	16.75	64.47	7,330
500 and more	10.30	12.83	76.87	3,844
Year				
2008	56.97	9.88	33.15	8,003
2009	56.68	9.23	34.09	8,075
2010	58.41	9.31	32.27	7,988
2011	57.88	9.65	32.47	7,908
2012	56.22	10.07	33.70	8,020
2013	57.29	10.01	32.70	8,111
2014	57.54	9.69	32.77	8,001
2015	58.11	9.45	32.44	8,092
2016	59.61	9.38	31.01	7,907
2017	59.33	9.54	31.13	7,842

Source: IAB Establishment Panel 2008–2017, establishments with 5 and more employees.

Table 2: Spearman Correlation between Worker Representation and Ownership Management (exclusively = 1, partly = 2, no owner management = 3)

	Ownership Management (Observations)
Collective Agreement	0.2593** (79,652)
Works Council	0.5502** (79,820)
Without Worker Representation	-0.2095** (79,281)

Source: IAB Establishment Panel 2008–2017, establishments with 5 and more employees.

Table 3: Average Partial Effects from Probit Regressions of the Existence of Works Councils and Collective Agreements

Specification	(a)	(b)	(c)	(d)
	Works Council		Collective Agreement	
Firms exclusively with executives from owner family	-0.182** (0.005)	-0.364** (0.017)	-0.157** (0.008)	-0.258** (0.019)
Firms partly with external executives	-0.109** (0.007)	-0.201** (0.009)	-0.160** (0.011)	-0.206** (0.011)
Generalized residuals of first-stage estimation (from Table A.2, controlling for endogeneity)	-	-0.100** (0.008)	-	-0.059** (0.009)
Share of low skilled workers	-0.019* (0.008)	-0.011 (0.009)	-0.054** (0.010)	-0.019 (0.013)
Share of employees with university degree	0.070** (0.014)	0.009 (0.022)	-0.020 (0.022)	0.047 (0.033)
Share of female workers	-0.031* (0.012)	-0.010 (0.021)	-0.086** (0.016)	0.019 (0.028)
Share of part-time workers	0.005 (0.014)	-0.027 (0.016)	0.021 (0.017)	0.004 (0.021)
Share of temporary employed	-0.098** (0.017)	-0.007 (0.020)	-0.045* (0.020)	-0.013 (0.026)
Exporting establishment	-0.008 (0.006)	-0.003 (0.006)	-0.099** (0.008)	-0.012 (0.009)
Foreign ownership	0.001 (0.008)	-0.013 (0.011)	-0.021 (0.013)	-0.015 (0.017)
Partnership	0.086** (0.019)	0.030 (0.024)	-0.049** (0.014)	-0.021 (0.023)
Corporation	0.121** (0.015)	0.030 (0.025)	-0.043** (0.010)	0.012 (0.019)
Single establishment	-0.066** (0.005)	0.010 (0.006)	-0.097** (0.008)	0.014 (0.010)
High Competition	0.012** (0.004)	0.005 (0.004)	0.024** (0.005)	0.005 (0.005)
Western Germany	0.021** (0.006)	0.029** (0.003)	0.115** (0.008)	0.124** (0.004)
Wald-Test year-of-founding dummies χ^2 (df.)	124.88** (27)	506.85** (27)	217.40** (27)	582.61** (27)
Wald-Test time dummies χ^2 (df.)	68.98** (9)	66.75** (9)	197.86** (9)	243.75** (9)
Wald-Test industry dummies χ^2 (df.)	508.78** (40)	1503** (40)	2,330** (40)	6,297** (40)
Wald-Test firm size dummies χ^2 (df.)	2,704** (6)	1,662** (6)	678.46** (6)	872.36** (6)

Cont. Table 3:

Pseudo-R^2	0.4934	0.5088	0.2144	0.2271
Log. Likelihood	-20,925	-20,095	-37,774	-36,791
Wald-Test χ^2 (df.)	5,689** (96)	759.27** (228)	4,864** (96)	649.85** (228)
Wald-Test ln(σ^2) χ^2 (df.)	-	380.11** (21)	-	276.34** (21)
Wald-Test FE χ^2 (df.)	-	931.21** (149)	-	1,032** (149)
Observations (no. of establishments)	70,894 (19,877)	70,169 (19,823)	70,757 (19,867)	70,036 (19,814)

Source: IAB Establishment Panel 2008–2017, establishments with 5 and more employees.

Note: The model also includes the following dichotomous and auxiliary variables: nine time dummies, establishment size (six dummies), industry (forty dummies), year of founding (twenty-six dummies) and a constant. The number of observations differs across regressions because of missing values in the dependent variables and in the first stage estimation residuals. The Chamberlain/Mundlak approach for unbalanced panels in (b) and (d) requires including the means of the time-varying covariates and an indicator that identifies the number of observations of each unit respectively the interactions of both in the regression (Wooldridge 2019). (a) and (c): Standard errors are adjusted for clustering on establishments. (b) and (d): Bootstrapped standard errors in parentheses (1000 repetitions) and control for heteroscedasticity and serial correlation. ** and * denote significance at the .01 and .05 level, respectively.

Table 4: Differences in the Coefficients for Firms without External Executives and Firms partly with External Executives

	(a)	(b)	(c)	(d)
Firms with partial non-family management vs. firms exclusively with external executives	-0.073** (0.007)	-0.163** (0.009)	-0.003 (0.010)	-0.052** (0.012)

Note: Z-tests of the difference between the particular parameter estimates of the mentioned variables in Table 3. ** and * denote significance at the .01 and .05 level, respectively. The calculation uses STATA's command "lincom".

APPENDIX

Table A.1: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Share of part-time workers	89,980	0.227	0.250	0	1
Share of temporary employed	91,192	0.067	0.142	0	1
Share of female workers	91,958	0.412	0.295	0	1
Share of low skilled workers	91,639	0.183	0.250	0	1
Share of employees with university degree	89,970	0.055	0.011	0	1
Exporting establishment	81,637	0.292	0.455	0	1
Foreign ownership	88,111	0.066	0.248	0	1
Single establishment	90,924	0.704	0.457	0	1
High competition	91,744	0.409	0.492	0	1
Individually owned	91,603	0.173	0.379	0	1
Partnership	91,603	0.048	0.214	0	1
Corporation	91,603	0.660	0.474	0	1
Act of Founding:					
Start-up	90,230	0.389	0.488	0	1
Spin-off	90,230	0.071	0.257	0	1
Change of owner	90,230	0.095	0.293	0	1
Unknown founding process	90,230	0.445	0.497	0	1

Source: IAB Establishment Panel 2008–2017, establishments with 5 and more employees.

Table A.2: Mundlak/Chamberlain Ordered Probit Estimations of Being a Family Managed Firm (exclusively = 1, partly = 2, no owner management = 3; control function for endogeneity)

	(a)
Act of founding (reference: unknown founding process)	
Start-up	-3.306** (0.296)
Spin-off	-2.925** (0.146)
Change of owner	-3.264** (0.107)
Share of low skilled workers	-0.038 (0.037)
Share of employees with university degree	0.049 (0.071)
Share of female workers	0.028 (0.075)
Share of part-time workers	-0.014 (0.055)
Share of temporary employed	-0.042 (0.063)
Exporting establishment	0.008 (0.022)
Foreign ownership	0.217** (0.054)
Legal form of firm (reference: individually owned)	
partnership	0.655** (0.126)
corporation	1.122** (0.115)
Single establishment	-0.050 (0.029)
High Competition	0.000 (0.011)
Western Germany	-0.071* (0.028)
Pseudo-R^2	0.3227
Log. Likelihood	-42,603
Wald-Test χ^2 (df.)	8,955** (208)
Observations (no. of establishments)	70,244 (19,836)

Source: IAB Establishment Panel 2008–2017, establishments with 5 and more employees.

Note: The table contains estimated coefficients (not average partial effects). The model also includes the following dichotomous and auxiliary variables: time dummies (nine dummies), establishment size (six dummies), industry (fourty dummies), year of founding (twenty-seven dummies) and a constant. The Mundlak/Chamberlain approach for unbalanced panels requires to include the means of the time varying-covariates and an indicator that identifies the number of observations of each unit respectively the interactions of both in the regression (Wooldridge 2010). Robust standard errors adjusted for clustering on establishments in parentheses. ** and * denote significance at the .01 and .05 level, respectively.