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**Working Paper**

## Wage determination in the shadow of the law: The case of works councilors in Germany

SOEPpapers on Multidisciplinary Panel Data Research, No. 1122

**Provided in Cooperation with:**

German Institute for Economic Research (DIW Berlin)

*Suggested Citation:* Goerke, Laszlo; Pannenberg, Markus (2021) : Wage determination in the shadow of the law: The case of works councilors in Germany, SOEPpapers on Multidisciplinary Panel Data Research, No. 1122, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin

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# 1122<sup>2021</sup>

**SOEP** papers  
on Multidisciplinary Panel Data Research

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Laszlo Goerke and Markus Pannenberg

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ISSN: 1864-6689 (online)

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# Wage Determination in the Shadow of the Law: The Case of Works Councilors in Germany\*

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## Abstract

The German law on co-determination at the plant level (Betriebsverfassungsgesetz) stipulates that works councilors are neither to be financially rewarded nor penalized for their activities. This regulation contrasts with publicized instances of excessive payments. The divergence has sparked a debate about the need to reform the law. This paper provides representative evidence on wage payments to works councilors for the period 2001 to 2015. We find wage premia of 2% to 6% in OLS-specifications, which are more pronounced for long-term works councilors. Moreover, we observe no wage premia in linear fixed-effects panel data specifications, suggesting that the OLS-results capture the effect of selection into works councillorship. We obtain no evidence for a delayed compensation or a special treatment of works councilors released from work. Hence, our results indicate that payments to works councilors are broadly in line with legal regulations.

Keywords: Labor Law, Wages, Works Councils, Socio-Economic Panel (SOEP).

JEL-code: J 30, J 51, J 53, J 83, K 31

\* We are grateful for comments by colleagues in Trier, as well as by participants of the 2020 TriECON (online) workshop on Co-determination at the IAAEU and the 2020 annual (online) congress of the Verein für Socialpolitik. Furthermore, special thanks to Knut Wenzig for data support.

# 1. Introduction

## 1.1. Motivation

The German system of industrial relations rests on two main pillars: Collective bargaining mostly at the sectoral level and co-determination within establishments. Currently, more than 50% of private (and the overwhelming majority of public) sector employees are covered by collective agreements and about 42% (around 90%) of eligible employees are represented by works councils (personnel or staff councils) (Oberfichtner and Schnabel 2019). The basic idea of codetermination is that many plant-level matters can be settled cooperatively between employer and the works council, whereas distributional issues are negotiated outside the plant via collective bargaining. While both pillars have lost relevance (Ellguth and Kohaut 2020), the relative importance of plant-level co-determination has rather increased. This is because the fall in collective bargaining coverage and the rise in so-called opt-out clauses and other means of introducing flexibility into collective contracts (cf. Addison 2016) have made negotiations at the plant level and, hence, works councils more important. Moreover, turnout in works council elections has remained high, suggesting continuing support for such institutions among the workforce (Niedenhoff 2007, Kestermann et al. 2018).

Given the importance of co-determination at the plant-level, works council have been intensively studied (cf. Addison 2009). The literature has largely viewed them as homogeneous entities and focused on the determinants of their existence and on their economic consequences. Their members, i.e. works councilors, have attracted much less attention. This is surprising because the effects of works councils depend on the nature of the relationship between councils and management (see, for example, Pfeifer 2014, Backes-Gellner et al. 2015, Dill and Jirjahn 2017, and Arnold et al. 2018) and, therefore, also on the willingness of works councilors to cooperate with the firm's representatives.

One aspect which can strongly influence attitudes and behavior of works councilors is their remuneration. If being a works councilor results in a decline in income, this may foster antagonistic behavior or deter employees from becoming one. If, in contrast, being a works councilor goes hand in hand with an improvement in pay, this may affect the bargaining position vis-à-vis the employer and the incentives to become a candidate in an election. The possibility that firms influence the behavior of works councilors and their selection by adjusting wages, had clearly been anticipated by the legislator when setting up the German law on works councils, the Works Constitution Act (WCA; Betriebsverfassungsgesetz). First, according to the law, obstructing council elections and favoring or putting elected councilors

at a disadvantage are punishable acts. Second, the relevant part of the law has the explicit goal of preserving the independence of works councilors and of enabling them to fulfil their obligations properly (Weber 2018, p. 1130). In order to limit the scope for interference, the WCA contains explicit regulations relating to the pay of works councilors. In particular, it states that being a works councilor is a voluntary activity and that a councilor is compensated for a loss of income, which is due to holding this office. This implies that works councilors cannot be paid for their activity as councilors. In particular, the law requires that they must be treated neither favorably nor detrimentally because of their councillorship.

Against the background of this legal objective, instances of employer resistance to the establishment of a works-council and obstructions of their work on the one hand, and especially of excessive wage payments to councilors on the other hand have aroused substantial public and academic interest. The former chairman of the works council of Volkswagen, for example, received an annual income of apparently more than € 500,000 (Tatje 2019). He started his career as qualified blue-collar worker. Hence, his remuneration is hard to reconcile with the requirement that works councilors must not be paid additionally for their activities. The disclosure of excessive remuneration of works councilors has also sparked a renewed debate among legal scholars about the suitability of the relevant law. In contrast, numerous examples of detrimental treatments of works councilors, as documented in trade union publications or on union webpages, have not triggered a comparable legal discussion. These (perceived) instances of pressurizing works councilors occasionally involve wage reductions (Mey 2015), while narratives of illegal attempts to dismiss works councilors during their term in office are much more common (Behrens and Dribbusch 2020).

## 1.2. Contribution

The reported instances of violating the WCA are usually anecdotal. Accordingly, the discussion about the treatment of works councilors suffers from a substantial lack of representative information. Therefore, in this paper we use data from the Socio-Economic Panel (SOEP) for the period 2001 to 2015 to systematically investigate whether being a works councilor affects pay, as it is often claimed on the basis of individual cases.

As our first contribution, we document the features of works councilors in comparison to other employees in co-determined plants on the basis of longitudinal, representative data for two decades. We, *inter alia*, observe a slight underrepresentation of females and a declining share of union membership amongst works councilors. Furthermore, we consistently detect

higher wages for employees of co-determined plants, relative to those who work in establishments without works councils.

As our second and main contribution, we systematically investigate wage payments to works councilors. In our empirical analysis, we start with pooled OLS-specifications. The results indicate that works councilors receive a wage premium, relative to comparable employees who are not a member of a works council. This is particularly true for part-time and blue-collar workers, employees in manufacturing, and for long-term councilors. Moreover, for part-time and blue-collar works councilors we observe higher wages than for comparable colleagues also prior and subsequent to their stint in office. However, the positive wage differentials can no longer be observed in two-way fixed-effects specifications and in difference-in-differences-specifications. Our results suggest that the wage premia observed in OLS-estimates are due to selection effects. Individuals with time-invariant, but to the researcher unobservable characteristics, which contribute to higher wages, become works councilors. This assessment is also true when we focus on those works councilors whose remuneration has sparked most public interest, namely full-time councilors who are released from their standard work duties. Finally, we do not observe any wage differentials for members of a staff council in the public sector.

While there are clearly individual cases of adverse or beneficial treatment of works councilors, we, thus, obtain no evidence of a comprehensive violation of the law. Therefore, the remuneration of works councilors does not impede the functioning of the WCA by biasing works councilors in their dealings with management. Moreover, our results indicate that the calls for a reform of the WCA and its provisions governing remuneration of works councilors, as put forward by legal scholars (see, *inter alia*, Rieble 2008, Byers 2014, Blattner 2018), lack an empirical basis.

### 1.3. Related Literature

Since our analysis commences with descriptive evidence on characteristics of works councilors, we can compare these results to earlier investigations which employ various, usually non-representative data sets. They include a large-scale survey containing information on works councilors by the Institute of Economic and Social Research (WSI) (cf. Baumann 2015, Brehmer and Emmeler 2019). In addition, the German Trade Union Federation (DGB) and the German Economic Institute (IW) systematically analyze outcomes of works council

elections.<sup>1</sup> All of these studies rely on information obtained at the plant level. In contrast, Behrens (2009) utilizes a one-time survey of somewhat more than 1,000 employed individuals and compares works council members and other staff in council plants. Störmer (2010) and Bellmann et al. (2019) each employ basically one wave of the German Socio-Economic Panel (SOEP) and focus on personality characteristics and job satisfaction, respectively. Moreover, Goerke and Pannenberg (2007) employ two SOEP waves to analyze the nexus between works council membership and unionization.

The firm-specific economic consequences of works councils, also relating to wages, are surveyed by Addison (2009) and Schnabel (2020). Most importantly, the question of whether the remuneration of works councilors in Germany conforms to legal requirements has, to the best of our knowledge, not been examined based on representative data.

The only partial exception is the prior paper by Brébion (2020) who focusses on the behavior of employers and employees in wage negotiations leading to strategic discrimination. To this end, Brébion (2020) considers specific workings samples of the SOEP data. For example, he only considers the longest employment spell observed for full-time workers, who stay with their firm. Moreover, the age restriction (20 to 64 years), the omission of apprentices and workers in agriculture, the exemption of workers with fixed-term contracts, and the inclusion of full-time employees with executive duties result in working samples, which contain individuals who cannot become works councilors and exclude some who are eligible for election. Brébion (2020) finds positive (negative) wage effects of council membership in manufacturing (some selected private services) in linear fixed-effects specifications, but no such consequences based on his pooled samples.

The remainder of the paper proceeds as follows: Section 2 describes the legal situation and the regulations concerning the remuneration of works councilors. In Section 3, we provide information on the data and delineate our empirical strategy. Section 4 presents our main results and investigates different types of heterogeneity, while Section 5 concludes our paper.

## 2. Legal Background

The Betriebsverfassungsgesetz (Works Constitution Act, WCA) replaced a predecessor from the 1950s and was first enacted in 1972. It contains regulations governing the founding of

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<sup>1</sup> See, inter alia, Greifstein et al. (2011, 2017), Stettes (2011, 2015) and Kestermann et al. (2018). Moreover, there are various smaller scale, usually not representative surveys. Baumann (2015) surveys of some of them.



works councils, their rights and obligations and entitlements of its members. Works councils can be established by employees in all private sector establishments, which have at least five permanent employees who are entitled to vote in a works council election (§ 1 WCA).<sup>2</sup>

Employees in many firms do not request these elections. Therefore, in 2019 about 9% of all relevant plants had a works council. Since they are more prevalent in large establishments, the share of employees working in works council plants is about 41%. This percentage has declined by about 10 percentage points in the last two decades (Ellguth and Kohaut 2020).<sup>3</sup>

Works councils are legally obliged to cooperate with management to the advantage of the workforce and the establishment (§ 2 WCA). They have information, consultation and co-determination rights, which become more extensive the larger the plant is. Furthermore, legal entitlements of works councils are more widespread with regard to personnel policy and social affairs, and less pronounced with respect to financial and economic aspects. Co-determination rights exist in particular with respect to 'social matters' (§ 87 WCA).

The employer has to provide the council members with adequate resources and grant them sufficient time to perform their obligations. In line with this requirement, the stipulated number of the works councilors increases with establishment size (§ 9 WCA). Moreover, a firm has to release one councilor from their work obligations if the establishment passes a size threshold of 200 employees. The number of works councilors who are released from work also increases with plant size (§ 38 WCA). The costs of a works council, including the wages of its members, are borne by the employer.

While a works council can be set up at any time, regular elections take place between March and May every four years. Basically, all employees with a minimum tenure of six months and at least 18 years of age, who do not have executive duties, can become a works councilor (§ 5, 7, 8 WCA). The law furthermore (§ 15 WCA) states that a works council "should be composed as far as possible of employees of the various organization units and the different employment categories of the workers employed in the establishment."<sup>4</sup> While this constitutes no binding requirement, the subsequent restriction does: "The gender that accounts for a minority of staff shall at least be represented according to its relative numerical strength

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<sup>2</sup> While the law exclusively uses the expression 'establishment' (Betrieb), for stylistic reasons we employ the terms 'plant' and 'firm' as equivalents.

<sup>3</sup> Co-determination at the plant level via works councils has to be distinguished from co-determination at the level of the enterprise. The latter grants the workforce representation on company boards in enterprises with at least 500 employees. Moreover, it is compulsory, and its extent varies with firm size (see Addison 2009).

<sup>4</sup> This translation of a passage of the WCA, and also subsequent ones, are provided by the language service of the Federal Ministry of Labour and Social Affairs (see: [http://www.gesetze-im-internet.de/englisch\\_betrvlg/](http://www.gesetze-im-internet.de/englisch_betrvlg/)).

whenever the works council consists of three or more members." The passage was included in an amendment of the law in 2001 in order to promote equal opportunities for women.

With regard to pay, the WCA (§ 37(1)) explicitly states that "(t)he post of member of the works council shall be unpaid", the so-called 'Ehrenamtsprinzip' (principle of voluntary service). Moreover, the workload of councilors has to be adjusted in such a way that they can perform their duties in a properly manner. Most importantly, works councilors must not incur an income reduction because of their activity, the 'Lohnausfallprinzip' (principle of no loss of wage income). In particular, § 37(4) WCA establishes a lower threshold for income: "During his term of office and for one year thereafter the remuneration of a member of the works council shall not be fixed at a lower rate than the remuneration paid to workers in a comparable position who have followed the career that is usual in the establishment." This comparison group is made up of employees who had a similar job as the works councilor at the time of taking up the office and are also similar with regard to personality, qualification and performance (Weber 2018, p. 1166). If wages of comparable employees develop differently over time, the progress experienced by the majority of the members of the comparison group is decisive (Annuß 2020, Blattner 2018).

The regulation in § 37 WCA gives substance to a more general passage entitled "Protective Provisions" (§ 78 WCA): "Members of the works council ... shall not be interfered with or obstructed in the discharge of their duties. They shall not be prejudiced or favored by reason of their office; this principle shall also apply to their vocational development." Since this section does not explicitly refer to the comparison group of employees mentioned in § 37 WCA, a performance of councilors which exceeds that of workers in a comparable position can be rewarded appropriately (Annuß 2020, Blattner 2018).

Lastly, members of a works council enjoy special protection against dismissals. According to § 15(1) of the German Protection Against Dismissal Act (Kündigungsschutzgesetz), works councilors who have a permanent contract cannot be dismissed during and for one year after the end of their term in office, unless circumstances exist which entitle the employer to dismiss for good cause without notice, and the required consent of the works council (according to § 103 WCA) has been obtained.

In sum, the WCA, on the one hand, shields works councilors from a disadvantageous treatment by the employer and preserves their bargaining power. On the other hand, a favorable financial treatment or according career paths because of councillorship are illegal. The restrictions apply both to works councilors who continue to do their normal job and only

spend part of their working time for council matters and to those who have been released from their work duties and act as full-time councilors.

In addition to works council in the private sector, there are so-called personnel or staff councils in the public sector in Germany. They are more widespread than works councils, as about 90% of all public sector employees are represented by such institutions (see Addison et al. (2003), Ellguth (2003), Schnabel (2007), Ellguth and Kohaut (2011) and Oberfichtner and Schnabel (2019) for information on coverage rates for various years). There are separate laws establishing the rights and obligations of personnel councils at the federal level and for the Bundesländer (federal states). While there may be some differences, for example, concerning the length of election periods or minimum size thresholds, the relevant laws basically mimic the WCA. Hence, in our subsequent empirical analysis we focus on wage effects of works council membership in the private sector, where the WCA is applicable and only briefly report on the wage effects of personnel council membership in the public sector.

### 3. Data and Empirical Strategy

Our empirical analysis is based on the German Socio-Economic Panel (SOEP), a nationally representative longitudinal data set that was started in 1984.<sup>5</sup> We focus on employees in the private sector who work in plants with at least five employees, since the WCA only applies to such establishments. To the best of our knowledge, the SOEP is the only representative data source that provides consistent information on individual works council membership over a longer time period for Germany. This information is available for the survey years 2001, 2003, 2006, 2007, 2011 and 2015, i.e. our working sample is an unbalanced panel data set for these years. All respondents in the working sample are required to have worked full-time, part-time or as an apprentice in at least one of these years. Furthermore, they are aged between 18 and 65. The WCA does not apply to so-called executive staff. Therefore, we use questions in the SOEP on the respondents' occupational position to exclude employees with extensive managerial duties from our estimating sample. Finally, observations with item non-response on relevant variables are omitted from the empirical analysis.

In addition, the SOEP provides information on whether a works council is present at the respondent's workplace for the survey years 2001, 2006, 2011 and 2016. Therefore, we add the plain information on the presence of a works council in the respondent's firm to our

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<sup>5</sup> See Goebel et al. (2019) for details.

working sample for the years 2001, 2006 and 2011 and impute the information for the years 2003, 2007 and 2015 in the following manner: If information on the presence of a works council is available for both adjacent years (i.e.: 2001/2006, 2006/2011, 2011/2016) and indicates no change in council status we require that employees must not have moved to another firm during the corresponding time period. If information on a works council in the firm is only available for the years 2006 or 2016, we require that employees must not have moved to another firm between 2003 and 2006, 2006 and 2007, or 2014 and 2016, respectively, to impute the values for 2003, 2007, and 2015, because regular works council's elections took place in 2002, 2006, and 2014. To check whether the simple imputation procedure has an impact, we also conduct a complete case analysis based on the years 2001, 2006 and 2011.

Table 1 summarizes information on data availability. Waves marked in yellow are employed for the complete case analysis, whereas the years indicated by yellow or light blue describe the waves, which we use for our main analyses.

- Table 1 about here -

Our working sample includes observations from all years in which the information on works council membership is available and allows us to define two different populations at risk, i.e., populations with a positive probability of being a works councilor: (a) All employees working in establishments with a works council and (b) all employees working in establishments subject to the WCA. In most of our empirical work we rely on estimating sample (a) because the WCA restricts the remuneration of works councilors relative to comparable employees in the same establishment.<sup>6</sup> In our main analysis below, we will additionally present results for estimating sample (b) to demonstrate the robustness of the results.

Because our estimating samples are unbalanced panel data sets, we employ the following linear unobserved effects panel data model:

$$w_{it} = wc_{mit}\delta + x_{it}\beta + z_t\lambda + c_i + \varepsilon_{it} \quad (1)$$

In equation (1),  $w_{it}$  is the real monthly gross wage, including variable bonus payments and adjusted for inflation (*CPI, base year 2015*) of individual  $i$  in year  $t$ . The variable  $wc_{mit}$  equals 1 if employee  $i$  is a member of the works council in year  $t$ . The WCA requires that the pay of works councilors develops over time just as if they had pursued their pre-office career.

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<sup>6</sup> Unfortunately, the SOEP does not enable us to identify comparable employees working in the *same* establishment, given its character as household panel.

Courts and legal experts interpret this obligation as a requirement to adjust wage changes to variations of wages of employees in the same establishment who were comparable to the works councilor at the beginning of their term in office. Our covariate vector  $x_{it}$  adheres to this prerequisite as closely as possible. It consists of variables such as age, age squared, dummy variables for gender, having a migration background, having completed an apprenticeship, obtained a university degree, being married, working part-time, being a blue- or white-collar worker, being a civil servant<sup>7</sup> and living in East Germany, as well as (the log of) actual weekly hours worked and tenure (*in years*). Furthermore,  $x_{it}$  includes various firm size categories (5 to 19, 20 to 99, 100 to 199, 200 to 1999, and 2000 or more employees) and dummy variables indicating the industry in which the respondent works (based on NACE 2-digits).

In equation (1),  $z_t$  is a vector of time dummies, the unobserved individual effect is given by  $c_i$  and  $\varepsilon_{it}$  is the idiosyncratic error term. Hereafter, we refer to equation (1) as a two-way fixed effects specification (TWFE). The main parameter of interest is  $\delta$ , indicating the average wage premium of works councilor. We use pooled OLS as well as the standard within-estimator to estimate the parameters of interest and employ SOEP-weights to account for survey design as well as panel attrition.

Throughout their term in office, works councilors must deal with important firm-specific economic issues. Hence, they can acquire further human and social capital. Moreover, works councilors may receive a reward for their activity only after their membership of this institution has terminated. To evaluate the validity of such considerations, we extend equation (1) in the following way:

$$w_{it} = pre\_wcm_{it}\kappa + wc\_m_{it}\delta + post\_wcm_{it}\tau + x_{it}\beta + z_t\lambda + c_i + \varepsilon_{it} \quad (2)$$

The dummy variable  $post\_wcm_{it}$  equals 1 for every year after the end of an individual's term as a works councilor. Accordingly, the parameter  $\tau$  indicates average wage differentials of former works councilors. The dummy variable  $pre\_wcm_{it}$  indicates every observed year prior to becoming a works councilor. The corresponding parameter  $\kappa$  signals average wage differentials before acting as a works councilor and might serve as an indicator for self-selection into works council membership. Note, that we can identify all three councilor-

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<sup>7</sup> There are some individuals who worked as a civil servant in a formerly state-owned company, which was subsequently privatized and then belonged to the private sector, who retained their job and status as civil servant.

related parameters in our pooled OLS-specifications only. In the two-way fixed effects specifications, we focus on the variables  $wc_{m_{it}}$  and  $post_wcm_{it}$ .

When we use the estimating sample (b) with all employees in firms subject to WCA, we add a dummy variable  $wc\_exist_{it}$  to specifications (1) and (2), which indicates whether the employee works in an establishment in which there is a works council.

Because employees become members of a works council at different points in time and the length of their stint in office varies, treatment effects may be heterogeneous across groups and/ or over time. In this case, treatment effect estimates of two-way-fixed effects specifications might be biased (e.g. De Chaisemartin and D'Haultfoeuille 2020 a/b). De Chaisemartin and D'Haultfoeuille (2020 a/b) suggest unbiased difference-in-differences estimators as alternatives to the standard TWFE-specifications. To check the robustness of our TWFE-results, we also apply them to our main samples.

## 4. Results

In this section we first present descriptive evidence. We compare employees in firms with and without works council, as well as members of a works council and non-members in plants in which there is such an institution. Moreover, we describe the development of selective characteristics of works councilors over time. Second, we present the main regression results. Third, we investigate different types of heterogeneity.

### 4.1. Descriptive Evidence

Employees working in firms with a works council are on average older, are more likely to have a university degree, stay longer with their employer, work less often part-time and earn more than employees in non-works council establishments (see Table A1 in the Appendix).<sup>8</sup>

Turning to employees who work in establishments in which a works council is present, we find that about 6.3% of all private-sector employees in our sample are members of a works

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<sup>8</sup> These descriptive findings are broadly consistent with estimation results of other studies which consider various outcome variables. Hübler and Jirjahn (2003), Addison et al. (2001), Kraft and Lang (2008), Gürtzgen (2009) and Addison et al. (2010), for example, find positive wage effects of works councils. The studies by Frick and Sadowski (1995), Frick (1996), Addison et al. (2001), Frick and Möller (2003), Boockmann and Steffes (2010), and Hirsch et al. (2010) provide evidence of lower staff turnover, fewer dismissals and quits and, hence, of higher tenure in firms with a works council, though not always for all groups of employees or types of firms.

council.<sup>9</sup> Table 2 indicates that works councilors are on average 2.5 years older than their colleagues, have higher tenure, are more likely to have completed vocational training and to be a union member, but are less likely to have earned a university degree and to work part-time.<sup>10</sup> Furthermore, a comparison of the means of the monthly real wages indicates a raw works council membership wage premium of 5.4%.

- Table 2 about here -

Turning to developments over time, the descriptive findings in Table 3 indicate that neither the share of works councilors in firms subject to WCA nor the share of works councilors in firms with a works council have changed substantially over the period 2001 to 2015. Table 3 also documents the fraction of works councilors who are members of a trade union. This percentage has declined notably, with some variations, to about 50% in 2015.<sup>11</sup> This percentage is much higher than the union membership rate in the entire sample (19%) and also substantially greater than among employees of firms with a works council (28.8%). However, it indicates that works councilors are not necessarily representatives of trade unions at the plant level.

- Table 3 about here -

Finally, Table 3 provides information on the impact of the change in the WCA in 2001. According to the novel §15(2) WCA, each gender should be represented in the works council to an extent that matches its relative strength in the workforce. Since, on average, females were underrepresented, an increase in the share of female councilors could have been expected. However, we only observe a modest rise over time and the share of female works councilors relative to the share of females in establishments with a works council (*relative share of female works councilors*) attains a value of less than unity in 4 out of 6 years.<sup>12</sup> Thus, there is a slight underrepresentation of females, which appears to have decreased (see, for example, Behrens 2009, Stettes 2011, 2015, Baumann et al. 2017, Kestermann et al. 2018).

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<sup>9</sup> This percentage is similar to that reported by Behrens (2009), employing another data source, and lower than in Brébion (2020) whose computations are based on a somewhat selective SOEP sample.

<sup>10</sup> These findings are broadly consistent with observations reported by Behrens (2009) and Emmler and Brehmer (2019) who utilize other data sets.

<sup>11</sup> Based on a somewhat selective sample, Kestermann et al. (2018) report a fraction of about 60% for 2018. Similar numbers are provided by Behrens (2009) for 2008 (63%), Brehmer and Emmler (2019) for 2015 (62%), Greifenstein et al. (2017) for 2014 (61%), and Stettes (2015) for 2014 (64%).

<sup>12</sup> § 15(2) WCA only applies if the works council has at least three members, which will be the case if there are more than 20 employees in the plant. If we apply this condition to the data at hand, our main conclusion holds.

## 4.2. Main Regression Results

The upper part of Table 4 documents results from empirical specifications based on the estimating sample of employees who work in plants in which a works council is present.<sup>13</sup>

The average raw works council membership wage premium amounts to more than 5% in the pooled OLS-specifications with time dummies only (columns 1, 2). Allowing for dummies indicating the years before and after active works councillorship in these specifications reveals that former works councilors earn notably more in the years after their stint in office, i.e., we estimate a raw wage premium of almost 12%.

- Table 4 about here -

Including the full set of covariates, the OLS-wage premium of works council membership falls to about 2.5%, but is still significant at  $p = 0.1$ . However, the estimated coefficients of the lead and lag dummies are not significantly different from zero anymore. Therefore, the wage differentials between works councilors and other employees in establishments, in which such an institution is present, are partly due to differences in observable characteristics.

In the TWFE-specifications, none of the estimated works councilor-related coefficients is significantly different from zero. Hence, once we control for individual unobserved heterogeneity in a linear additive way there is no evidence of a works council membership wage differential. This difference between the results originating from OLS- and TWFE-specifications suggests that members of a works council exhibit time-invariant and wage-enhancing characteristics, which are not contained in the information available in the SOEP, but are discernible to the employer.

The lower part of Table 4 displays parameter estimates from pooled OLS- and TWFE-specifications, based on the estimating sample (b) of all employees in private sector firms, which are subject to the WCA. All these employees have the chance to be elected into a works council. We find a significant raw OLS-works council premium of about 6% in the pooled OLS-specifications with time dummies only. Controlling for selection on observables (pooled OLS, columns 3, 4), the wage premium shrinks to about 3%. As it is the case for the sample of employees who work in plants where a works council is present, we no longer observe a wage mark-up for former works councilors. Again, the estimated wage premia for works councilors vanish in TWFE-specifications. Table 4, furthermore, reveals a wage premium of employees in establishments with a works council of about 8% in the pooled

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<sup>13</sup> Tables A2 and A3 in the Appendix contain a full list of parameter estimates.



estimates and of about 5% to 7% in TWFE-specifications, including the broad set of covariates.<sup>14</sup>

As mentioned above, TWFE-estimates might be biased due to the presence of heterogeneous treatment effects (de Chaisemartin and D'Haultfoeuille 2020a/b). To check the robustness of our main results, we apply de Chaisemartin and D'Haultfoeuille's difference-in-differences estimator to our estimating samples. The estimated dynamic wage premia of works council membership are in the range of [-0.018, 0.026] based on the sample of employees in firms with a works council and in the range of [-0.012, 0.084] based on the sample of employees in firms subject to WCA. All these estimated wage premia are not significantly different from zero. Therefore, there is no evidence that our main TWFE-results are misleading.

The results in Table 4 are based on an estimating sample, for which we impute the missing information on the presence of a works council for the years 2003, 2007 and 2015. If we re-run all specifications documented above based on an estimating sample with complete cases from the years 2001, 2006 and 2011 only our main results do not change (see Table A4 in the Appendix).

All in all, the estimated wage differentials of works council membership provide no evidence of a wage penalty for works councilors. Moreover, they do not indicate that excessive payments of works councilors are used by employers in Germany to influence the behavior of elected works councilors. Rather, observed works council membership wage differentials vanish, once we control for individual observed and unobserved heterogeneity. Hence, we do not find evidence that wage payments to works councilors in Germany violate the legal framework of the WCA. Furthermore, there is no indication that works council membership pays off after the term in office. Our results are neither compatible with the view that works councilors acquire additional human capital during their term in office, for which they reap financial returns later. Rather, our results indicate the importance of positive self-selection into works council membership.

#### 4.3. Heterogeneity of Works Councilors

Our main results might mask heterogeneity with respect to works councillorship. Some works councilors are released from work, a notable fraction serves for more than one election period,

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<sup>14</sup> Studies based on establishment data, such as by Addison et al. (2001), Hübler und Jirjahn (2003), Gürtzgen (2009), Addison et al. (2010), Gerlach and Meyer (2010), Brändle (2013), and most recently Hirsch and Müller (2020), report similar wage effects..

and somewhat less than 60% belong to a trade union. Therefore, in this section we examine whether individual wages vary along these characteristics.

#### *Works councilors released from work*

Regulations in the WCA require that a plant must completely release one member of the works councils from work obligations if the establishment passes a size threshold of 200 employees. The number of full-time works councilors increases with plant size. About 0.2% of employees in corresponding plants are exempted from standard working obligations according to the regulations of the WCA (§ 38). Since the hypothetical development of an employee's career and remuneration is much more difficult to establish precisely for works councilors released from work than for those who continue working in their job, the scope for wage adjustments is much greater for the former group than the latter. Accordingly, they deserve special scrutiny.

Because the SOEP provides no direct information on this issue, we use an open text question regarding the employee's occupational activity. Searching for work council member's answers like "released works councilor" results in  $n = 33$  such responses in our estimating sample. We then use multiple imputation techniques to impute the missing information for all other works councilors (see Table A5 in the Appendix for an example, variable *wc\_released*). The estimated proportion of released works councilors to all employees in establishments with a works council and at least 200 employees in our data is 0.26%, which fits the proportion implied by the WCA quite well and suggests that about 3.2% of all works councilors in our sample are full-time councilors.<sup>15</sup>

The upper part of Table 5 clarifies that our main results considering the overall wage premia of works councillorship hold if we apply extended versions of specifications (1) and (2) to the multiply imputed data sets and adjust the obtained parameter estimates for missing-data uncertainty by means of Rubin's Rule. Furthermore, we do not find wage differentials between works councilors who are released from work and those who are not. Hence, our results show that the anecdotal evidence of excessive wage payments to chairpersons of works councils, who are usually also the first councilors released from their normal work obligations, is no indication of a wide-spread empirical phenomenon.

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<sup>15</sup> This number is comparable to the fraction reported by Greifstein (2017) and about half that of Brehmer and Emmeler (2019). The latter survey, however, excluded small firms and was based on responses by one individual per firm, often the chairperson of the works council.

### *Long-term works councilors*

About 21% of the works councilors in our estimating sample serve six or more years in office, i.e., are at least in their second term. The longer the time an employee is a works councilor, the more knowledge about intra-plant processes the person obtains. This knowledge might be helpful in climbing up the internal career ladder. In addition, a longer stint in office provides greater scope for wage adjustments, which are not obtained by comparable employees. Hence, wage effects may arise especially for long-term works councilors.

To check this conjecture, we add a dummy variable to our empirical specifications, which equals 1 if a works councilor is at least 6 years in office. Table 5 (lower part) suggests that our main OLS-results are partly driven by long-term works councilors. On average, they earn a membership wage premium of 8% during their time in office, while the main effect of works councillorship is not significantly different from zero. Furthermore, we add the information on long-term works councillorship to our MI-OLS-specifications on works councilors being released from work. We estimate similar wage premia for long-term stints in office, but no differential wage effects for being released from work or not (*results not documented*).

Table 5 also contains the findings for the TWFE-specification and incorporating information on long-term council membership. Once we control for unobserved individual heterogeneity, the substantial wage premia for long-term works councilors observed in OLS-specification vanish. These findings suggest that a positive selection of works councilors occurs primarily for those who are re-elected at least once.

### *Works councilors and union membership*

In our estimating sample about 58% of all works councilors are trade union members (Table 2). Wages of councilors may vary with union status because trade unions can inform their members about legally adequate wage trajectories or enhance their bargaining power.

To analyze this linkage, we exclude observations from 2006 from our estimating sample because information on union membership is not available in this year. We then estimate specifications with an additional main effect describing an individual's union membership and an interaction term of being a works council and a union member. Furthermore, we consider subsamples of union and non-union members. We do not find any wage differences between works councilors who are union members and their fellows in office who do not belong to a trade union (*results not documented*). Hence, union membership does not appear to mediate the wage effects of works councillorship.

#### 4.4. Group-specific Heterogeneity

The WCA stipulates that all employees should be represented in the works council, matching their relative strength in the workforce. Therefore, in this section we examine whether wage premia of works councillorship vary by selected employee characteristics.

- Tables 6 about here -

##### *Part-time vs. full-time workers*

Part-time workers becoming works councilors exhibit higher wages before, during and after their works councilor term based on the OLS-specifications (Table 6). However, the differences between wages before, during and after the term in office are not statistically significant (employing t-tests). These effects are mostly eliminated in the TWFE-specifications. We find a marginally positive wage differential while being a councilor, but this effect vanishes in the specification, which adds a post-office dummy, for which we estimate a marginally negative coefficient. Since most part-time work is done by women, one might speculate that the observed wage differential for part-time works councilors is driven by gender. However, regression exercises for subsamples of male and female workers do not support this view (see Table A6 in the Appendix). For fulltime employees, works councillorship is not associated with wage gains or losses.

##### *Blue-collar vs. white-collar workers*

Taking the pooled OLS-results at face value, the wage effects of works councillorship are a blue-collar phenomenon (Table 6). However, these effects are no longer apparent, once we control for individual unobserved heterogeneity. For white-collar workers, there is no wage effect of works councillorship whatsoever.

##### *Working in manufacturing vs. private service sector*

Works council coverage differs between manufacturing and the private service sector (Ellguth and Kohaut 2020). Table 6 comprises the results from separate regressions for both sectors. Works councilors in manufacturing experience wage premia of 5% to 6% in the OLS-specifications. However, in line with the main results, we do not observe these wage effects in the TWFE-specifications and even a negative estimated coefficient for the post-office period. In the service sector, there are no significant wage differentials of works councillorship at all.

#### 4.5. Further Robustness Checks

##### *Using a different wage measure*

The dependent variable which we have used thus far, is the real monthly gross wage, including variable bonus payments. This indicator enables us to analyze not only changes in the standard remuneration, but also adjustments in variable payments, which employers may utilize selectively to reward or penalize works councilors. To check the robustness of these results we rerun all specifications for our main results with the plain real monthly gross wage as dependent variable. Our results do not change. Moreover, focusing on variable pay only, we cannot observe any pay differentials between works councilors and comparable workers (*results for both dependent variables not documented*). Therefore, we obtain no evidence of a correlation between being a works councilor and the salary structure.

##### *Collective bargaining coverage*

One might conjecture that the bargaining power of members of a works council differs depending on whether their plant is covered by a collective bargaining agreement or not. Unfortunately, joint information on works council membership and an establishment's collective bargaining coverage is available for the year 2015 only. Using these data, we do not find wage premia of works council membership in the pooled sample to start with. This result holds in specifications based on subsamples of employees in establishments with or without collective bargaining coverage, as well (*results not documented*).

#### 4.6. Personnel Councils in the Public Sector

Our analysis has, thus far, been restricted to private sector firms subject to the WCA. Personnel councils in the public sector are similar to works councils and their legal regulations mimic the WCA. However, wage bargaining and promotion procedures are very different in the public sector. To check whether we detect wage differentials between members and non-members of a personnel council, we use an estimating sample of public sector employees over the period from 2001 to 2015.

- Table 7 about here -

Table 7 clarifies that we cannot discern any wage effects of personnel council membership. This 'non-finding' may not be surprising since salaries are more strictly regulated in the public than the private sector. Further, the lack of wage differences for council membership between

OLS- and TWFE-specifications suggests the absence of selection effects for personnel council members in the public sector.

## 5. Summary and Conclusions

Co-determination at the plant level is an integral part of the German system of industrial relations. In firms, which have a works council, about 6% of all employees belong to it. Most of them continue to do their normal job and should be compensated for the additional work as works councilors by a reduction in the time they spend on other assignments. A small minority of works councilors is completely released from standard obligations and works as full-time councilor. The relevant law, the WCA, requires that works councilors are neither financially rewarded nor penalized for their activities. In the public debate, instances of large payments to prominent work councilors of global companies have attracted substantial attention. They have also sparked a debate about the reform of the relevant parts of the WCA. This debate suffers from a lack of information because there is no systematic empirical analysis of works councilors' wages.

In our empirical analysis, based on SOEP-data, we find wage premia for works councilors of 2% to 6% in OLS-specifications. They are more pronounced for part-time and blue-collar workers, long-term works councilors and workers in manufacturing, but cannot be detected for works councilors released from work and employees in the public sector. Moreover, these wage effects of works councillorship vanish in linear fixed effects specifications. Hence, our results indicate that payments to works councilors are broadly in line with legal regulations. Furthermore, we do not find evidence that active works council membership pays off after the term in office. Accordingly, our results provide no indication of delayed compensation for works councillorship. They are neither compatible with the view that works councilors acquire additional human capital in office, for which they later reap financial returns. Rather, our results indicate the importance of individual self-selection into works councils. Furthermore, there is no evidence of wage differentials or for selection effects for members of the public-sector's counterpart to works councils, namely personnel or staff councils.

In conclusion, our findings do not support the call for a reform of the WCA because the rules governing the remuneration of works councilors are not adhered to. It may be complicated and costly to determine the adequate compensation. However, this is a different aspect which, thus far, has not been at the forefront of the proposals to alter the WCA.

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## Tables

Table 1: Information Related to Works Councils Provided in the SOEP

<i>SOEP Waves</i>	98	01	02	03	06	07	10	11	12	14	15	16
Member of Works Council ( <i>wc_member</i> )		X		X	X	X		X			X	
Works Council exists ( <i>wc_exist</i> )		X		X	X	X		X			X	X
<i>wc_exist</i> (Simple Imputation)				X	X	X		X			X	
Regular Election of Works Council	X		X	X	X	X	X			X	X	

Notes: Complete Case: yellow columns. Years with imputed information on the presence of works council: light blue.

Table 2: Descriptive Statistics by Works Council Membership

	<i>wc_member</i> no mean	<i>wc_member</i> yes mean	t-test statistic
Age	41.95	44.49	4.27**
Tenure	12.42	15.45	5.41**
Male	0.650	0.671	/
German	0.895	0.912	/
Migration background	0.218	0.211	/
Apprenticeship	0.718	0.801	3.43**
University degree	0.203	0.124	-3.76**
Part-time work	0.134	0.102	-2.08**
Blue-collar worker	0.372	0.417	/
White-collar worker	0.584	0.561	/
Living in East Germany	0.135	0.149	/
Union membership <sup>†</sup>	0.261	0.577	14.18**
Log(monthly real wage)	7.993	8.047	2.19*
N	14844	995	

Notes: SOEP 2001-2016. SOEP weights are used. <sup>†</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

<sup>†</sup> No union membership info in year 2006. See main text for details.

Table 3: Shares of Works Council Membership over time

	2001	2003	2006	2007	2011	2015
<i>Works councilors as share of all employees in firms subject to WCA</i>	0.036	0.032	0.036	0.033	0.031	0.033
<i>Works councilors as share of all employees in firms with works council</i>	0.066	0.059	0.066	0.062	0.056	0.072
<i>Share of works councilors who are member of a trade union</i>	0.694	0.613	/	0.643	0.551	0.474
<i>Share of female councilors among all works councilors</i>	0.289	0.345	0.309	0.352	0.402	0.334
<i>Share of female works councilors relative to share of female employees in firms with works council</i>	0.887	1.033	0.863	0.986	1.089	0.941

Notes: SOEP 2001-2016. SOEP weights are used.

Table 4: Wage Effects of Works Council Membership in Germany

<i>Employees in Firms with Works Council</i>									
	<i>OLS</i>				<i>Two-Way Fixed Effects</i>				
pre_wcm		0.00649 (0.0404)		0.0140 (0.0250)					
wc_member	0.0519* (0.0243)	0.0560* (0.0251)	0.0238+ (0.0135)	0.0259+ (0.0141)	0.0129 (0.0150)	0.00801 (0.0181)	0.00556 (0.0126)	-0.0130 (0.0159)	
post_wcm		0.115** (0.0358)		0.0422 (0.0283)		-0.00940 (0.0232)		-0.0360+ (0.0193)	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes	Yes
<i>N</i>	15839	15839	15839	15839	10772	10772	10772	10772	10772
<i>R</i> <sup>2</sup>	0.010	0.011	0.718	0.718	0.070	0.070	0.369	0.370	
<i>Employees in Firms subject to WCA</i>									
	<i>OLS</i>				<i>Two-Way Fixed Effects</i>				
pre_wcm		0.0621+ (0.0373)		0.0274 (0.0217)					
wc_member	0.0559* (0.0245)	0.0616* (0.0253)	0.0302* (0.0143)	0.0322* (0.0148)	0.0157 (0.0155)	0.0148 (0.0215)	0.0130 (0.0136)	0.00361 (0.0174)	
post_wcm		0.120** (0.0328)		0.0332 (0.0265)		-0.00174 (0.0268)		-0.0192 (0.0218)	
wc_exist	0.380** (0.0147)	0.375** (0.0149)	0.0874** (0.0108)	0.0860** (0.0108)	0.0666** (0.0194)	0.0666** (0.0194)	0.0481** (0.0162)	0.0485** (0.0162)	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes	Yes
<i>N</i>	28592	28592	28592	28592	19865	19865	19865	19865	19865
<i>R</i> <sup>2</sup>	0.096	0.097	0.725	0.725	0.054	0.054	0.399	0.399	

Notes: SOEP 2001-2016. Robust standard errors in parentheses. SOEP weights are used. +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table 5: Heterogeneity of Works Councilors

<i>Works Councilors Released from Work (Multiple Imputations (MI))</i>									
<i>OLS</i>					<i>Two-Way Fixed Effects</i>				
pre_wcm		0.0066 (0.0404)		0.0140 (0.0250)					
wc_member	0.0536* (0.0255)	0.0577* (0.0262)	0.0208 (0.0139)	0.0229 (0.0145)	0.0137 (0.0147)	0.0088 (0.0181)	0.0043 (0.0130)	-0.0121 (0.0162)	
post_wcm		0.1146** (0.0358)		0.0420 (0.0283)		-0.0095 (0.0231)		-0.0319 (0.0196)	
wc_released	0.0200 (0.268)	0.0209 (0.2679)	0.0799 (0.0706)	0.0799 (0.0704)	-0.0608 (0.0944)	-0.0606 (0.0949)	0.0391 (0.1000)	0.0395 (0.0998)	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes	Yes
<i>N</i> ( <i>m</i> =200)	15839	15839	15839	15839	10772	10772	10772	10772	10772
<i>Long-Term Works Councilors</i>									
<i>OLS</i>					<i>Two-Way Fixed Effects</i>				
pre_wcm		0.00710 (0.0404)		0.0160 (0.0243)					
wc_member	0.0220 (0.0255)	0.0261 (0.0263)	-0.00133 (0.0146)	0.000676 (0.0152)	0.0106 (0.0159)	0.00561 (0.0189)	-0.00435 (0.0134)	-0.0237 (0.0167)	
post_wcm		0.115** (0.0358)		0.0395 (0.0299)		-0.00961 (0.0232)		-0.0373 <sup>+</sup> (0.0198)	
long-term_wcm	0.144* (0.0625)	0.144* (0.0624)	0.0801* (0.0325)	0.0806* (0.0325)	0.0344 (0.0331)	0.0347 (0.0330)	0.0320 (0.0313)	0.0335 (0.0320)	
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes	Yes
<i>N</i>	15839	15839	15839	15839	10772	10772	10772	10772	10772
<i>R</i> <sup>2</sup>	0.010	0.011	0.722	0.722	0.070	0.070	0.380	0.380	

Notes: SOEP 2001-2016. Estimating sample: Employees in Firms with Works Council. MI: Each imputed data set ( $m = 200$ ) is an unbalanced panel with  $N=15839$ . Robust standard errors in parentheses. SOEP weights are used. <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table 6: Group-specific Heterogeneity

		<i>Part-Time</i>				<i>Full-Time</i>			
		<i>OLS</i>		<i>Two-Way Fixed Effects</i>		<i>OLS</i>		<i>Two-Way Fixed Effects</i>	
pre_wcm			0.155** (0.0500)				-0.00251 (0.0263)		
wc_member	0.0819+ (0.0432)		0.0906* (0.0447)	0.0547+ (0.0302)	0.0105 (0.0429)	0.0181 (0.0143)	0.0194 (0.0150)	0.00262 (0.0135)	-0.0125 (0.0171)
post_wcm			0.114* (0.0562)		-0.0733+ (0.0435)		0.0319 (0.0301)		-0.0300 (0.0207)
<i>N</i>	2373		2373	1304	1304	13466	13466	9175	9175
<i>R</i> <sup>2</sup>	0.594		0.597	0.287	0.289	0.671	0.671	0.350	0.351
		<i>Blue-Collar Workers</i>				<i>White-Collar Workers</i>			
		<i>OLS</i>		<i>Two-Way Fixed Effects</i>		<i>OLS</i>		<i>Two-Way Fixed Effects</i>	
pre_wcm			0.0772* (0.0333)				-0.0424 (0.0301)		
wc_member	0.0612** (0.0175)		0.0686** (0.0187)	0.0150 (0.0171)	0.00855 (0.0184)	-0.0157 (0.0176)	-0.0169 (0.0183)	-0.0120 (0.0152)	-0.0205 (0.0171)
post_wcm			0.0792* (0.0384)		-0.0109 (0.0228)		0.000308 (0.0375)		-0.0190 (0.0245)
<i>N</i>	5521		5521	3738	3738	9580	9580	6344	6344
<i>R</i> <sup>2</sup>	0.614		0.616	0.126	0.126	0.693	0.693	0.298	0.298
		<i>Manufacturing</i>				<i>Private Service Sector</i>			
		<i>OLS</i>		<i>Two-Way Fixed Effects</i>		<i>OLS</i>		<i>Two-Way Fixed Effects</i>	
pre_wcm			0.0384 (0.0374)				-0.00263 (0.0311)		
wc_member	0.0578** (0.0201)		0.0613** (0.0211)	0.0202 (0.0198)	-0.00712 (0.0245)	-0.00916 (0.0221)	-0.00915 (0.0229)	-0.00907 (0.0178)	-0.00492 (0.0182)
post_wcm			0.0458 (0.0396)		-0.0587* (0.0296)		0.00220 (0.0457)		0.00801 (0.0273)
<i>N</i>	7448		7448	5233	5233	6782	6782	4101	4101
<i>R</i> <sup>2</sup>	0.690		0.690	0.332	0.334	0.710	0.710	0.361	0.361

Notes: SOEP 2001-2016. Estimating samples: Employees in Firms with Works Council. Year dummies and covariates included. Robust standard errors in parentheses. SOEP weights are used.  
<sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table 7: Wage Effects of Membership in a Personnel/ Staff Council

<i>Public Sector</i>								
<i>Employees in Establishments with Personnel/ Staff Council</i>					<i>Employees in Establishments in which Personnel/ Staff Council can be Elected</i>			
	<i>OLS</i>		<i>Two-Way Fixed Effects</i>		<i>OLS</i>		<i>Two-Way Fixed Effects</i>	
pre_wcm		0.0118 (0.0209)				0.0159 (0.0199)		
wc_member	0.00945 (0.0147)	0.0113 (0.0153)	-0.000616 (0.0120)	0.0165 (0.0166)	0.00789 (0.0147)	0.00995 (0.0152)	-0.00611 (0.0122)	0.00703 (0.0169)
post_wcm		0.0290 (0.0253)		0.0305 (0.0200)		0.0305 (0.0262)		0.0235 (0.0197)
wc_exist					0.0849** (0.0189)	0.0846** (0.0189)	-0.00540 (0.0197)	-0.00518 (0.0198)
<i>N</i>	11635	11635	8714	8714	12981	12981	9664	9664
<i>R</i> <sup>2</sup>	0.667	0.667	0.317	0.318	0.679	0.679	0.316	0.317

Notes: SOEP 2001-2016. Year dummies and covariates included. SOEP weights are used. +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

## Appendix:

Table A1: Employees in Firms without or with Works Council (*wc\_exist*)

	<i>wc_exist</i>	<i>wc_exist</i>	t-test statistic
	no mean	yes mean	
Age	40.06	42.12	7.81**
Tenure	7.709	12.63	21.19**
Male	0.563	0.652	6.96**
German	0.912	0.896	-2.01*
Migration background	0.201	0.218	/
Apprenticeship	0.742	0.723	-1.66+
University degree	0.144	0.197	5.51**
Part-time work	0.196	0.132	-7.61**
Blue-collar worker	0.382	0.375	/
White-collar worker	0.559	0.582	1.84+
Living in East Germany	0.208	0.136	-7.18**
Union membership <sup>⋈</sup>	0.0608	0.271	24.27**
Log(monthly real wage)	7.609	7.996	26.68**
Collective bargaining <sup>⋈</sup>	0.452	0.802	17.33*
N	12753	15839	

Notes: SOEP 2001-2016. SOEP weights are used. +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

<sup>⋈</sup> No union membership info in year 2006. <sup>⋈</sup> Information in survey year 2015 only. See main text for details.



Table A2: Wage Effects of Works Council Membership in Germany.

<i>Employees in Firms with Works Council</i>								
	<i>OLS</i>			<i>Two-Way Fixed Effects</i>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre_wcm		0.00649 (0.0404)		0.0140 (0.0250)				
wc_member	0.0519* (0.0243)	0.0560* (0.0251)	0.0238+ (0.0135)	0.0259+ (0.0141)	0.0129 (0.0150)	0.00801 (0.0181)	0.00556 (0.0126)	-0.0130 (0.0159)
post_wcm		0.115** (0.0358)		0.0422 (0.0283)		-0.00940 (0.0232)		-0.0360+ (0.0193)
Age			0.0507** (0.00369)	0.0505** (0.00368)				
Agesq			-0.000563** (0.0000430)	-0.000562** (0.0000429)				
Male			0.181** (0.0133)	0.181** (0.0132)				
Married			0.0471** (0.0114)	0.0470** (0.0114)			0.0423** (0.0133)	0.0436** (0.0134)
Tenure			0.00787** (0.000631)	0.00784** (0.000628)			0.000896 (0.00182)	0.000845 (0.00182)
Ln(hours)			0.731** (0.0326)	0.731** (0.0325)			0.442** (0.0446)	0.443** (0.0446)
Part-time			-0.261** (0.0221)	-0.261** (0.0220)			-0.205** (0.0276)	-0.206** (0.0276)
Blue-collar			0.693** (0.0420)	0.693** (0.0420)			0.859** (0.0670)	0.859** (0.0668)
White-collar			0.967** (0.0407)	0.967** (0.0407)			0.885** (0.0680)	0.885** (0.0680)
Civil service			0.732** (0.0651)	0.733** (0.0650)			0.955** (0.108)	0.958** (0.108)
Firm size: 20≤x<100			0.0782** (0.0282)	0.0778** (0.0281)			-0.00500 (0.0342)	-0.00624 (0.0342)
Firm size: 100≤x<200			0.129** (0.0284)	0.129** (0.0282)			0.0212 (0.0342)	0.0199 (0.0342)
Firm size: 200≤x<2000			0.175** (0.0268)	0.175** (0.0267)			0.0264 (0.0345)	0.0255 (0.0344)
Firm size: x≥2000			0.280** (0.0268)	0.280** (0.0267)			0.0241 (0.0337)	0.0232 (0.0337)
East			-0.252**	-0.251**			-0.146+	-0.146+

Germany			(0.0148)	(0.0148)			(0.0777)	(0.0775)
Year_3	0.120**	0.116**	0.0555**	0.0537**	0.0660**	0.0663**	0.0590**	0.0601**
	(0.0167)	(0.0170)	(0.00906)	(0.00914)	(0.00920)	(0.00921)	(0.00813)	(0.00816)
Year_6	-0.0139	-0.0166	-0.0251*	-0.0261*	0.0626**	0.0630**	0.0459**	0.0479**
	(0.0193)	(0.0194)	(0.0102)	(0.0102)	(0.0104)	(0.0105)	(0.0117)	(0.0118)
Year_7	0.0590**	0.0525**	-0.00943	-0.0116	0.0807**	0.0814**	0.0516**	0.0545**
	(0.0182)	(0.0185)	(0.00981)	(0.00993)	(0.0105)	(0.0107)	(0.0131)	(0.0133)
Year_11	-0.0364 <sup>+</sup>	-0.0408*	-0.0495**	-0.0510**	0.115**	0.116**	0.0757**	0.0795**
	(0.0204)	(0.0206)	(0.0120)	(0.0122)	(0.0134)	(0.0140)	(0.0201)	(0.0205)
Year_15	0.101**	0.0961**	0.00210	0.000794	0.222**	0.223**	0.163**	0.168**
	(0.0197)	(0.0199)	(0.0111)	(0.0113)	(0.0162)	(0.0169)	(0.0269)	(0.0273)
Mining			0.00877	0.00538			-0.000275	-0.00161
			(0.0406)	(0.0420)			(0.0677)	(0.0676)
Manufact			0.121**	0.121**			-0.0219	-0.0222
			(0.0182)	(0.0182)			(0.0169)	(0.0169)
Electric			0.156**	0.156**			-0.000580	-0.00169
			(0.0414)	(0.0410)			(0.0323)	(0.0323)
Construct			0.0755**	0.0751**			0.00814	0.00774
			(0.0250)	(0.0250)			(0.0259)	(0.0259)
Wholesale			-0.108**	-0.108**			-0.0380	-0.0376
			(0.0219)	(0.0220)			(0.0321)	(0.0322)
Transport			-0.0125	-0.0119			-0.0109	-0.0104
			(0.0253)	(0.0253)			(0.0282)	(0.0283)
Financial_I			0.152**	0.151**			-0.0158	-0.0154
			(0.0242)	(0.0243)			(0.0336)	(0.0335)
Real estate			0.168*	0.167*			0.0529	0.0557
			(0.0693)	(0.0687)			(0.125)	(0.125)
Education			-0.0206	-0.0217			0.0175	0.0197
			(0.0340)	(0.0342)			(0.0472)	(0.0469)
Health			-0.0255	-0.0256			0.0251	0.0265
			(0.0265)	(0.0266)			(0.0493)	(0.0493)
Other_private			0.0575	0.0573			-0.00183	-0.00264
			(0.0362)	(0.0361)			(0.0399)	(0.0399)
<i>N</i>	15839	15839	15839	15839	10772	10772	10772	10772
<i>R</i> <sup>2</sup>	0.010	0.011	0.718	0.718	0.070	0.070	0.369	0.370

Notes: SOEP 2001-2016. Standard errors in parentheses. SOEP weights are used. <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table A3: Wage Effects of Works Council Membership in Germany.

<i>Employees in Firms subject to WCA</i>								
	<i>OLS</i>			<i>Two-Way Fixed Effects</i>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre_wcm		0.0621 <sup>+</sup> (0.0373)		0.0274 (0.0217)				
wc_member	0.0559* (0.0245)	0.0616* (0.0253)	0.0302* (0.0143)	0.0322* (0.0148)	0.0157 (0.0155)	0.0148 (0.0215)	0.0130 (0.0136)	0.00361 (0.0174)
post_wcm		0.120** (0.0328)		0.0332 (0.0265)		-0.00174 (0.0268)		-0.0192 (0.0218)
wc_exist	0.380** (0.0147)	0.375** (0.0149)	0.0874** (0.0108)	0.0860** (0.0108)	0.0666** (0.0194)	0.0666** (0.0194)	0.0481** (0.0162)	0.0485** (0.0162)
Age			0.0477** (0.00286)	0.0476** (0.00286)				
Agesq			-0.000538** (0.0000336)	-0.000538** (0.0000336)				
Male			0.187** (0.0114)	0.186** (0.0114)				
Married			0.0432** (0.00963)	0.0432** (0.00963)			0.0371** (0.0142)	0.0374** (0.0143)
Tenure			0.00824** (0.000499)	0.00823** (0.000498)			0.00174 (0.00111)	0.00174 (0.00111)
Ln(hours)			0.697** (0.0277)	0.697** (0.0277)			0.456** (0.0430)	0.457** (0.0429)
Part-time			-0.300** (0.0201)	-0.299** (0.0200)			-0.253** (0.0232)	-0.253** (0.0232)
Blue-collar			0.754** (0.0287)	0.754** (0.0287)			0.922** (0.0419)	0.922** (0.0419)
White-collar			1.006** (0.0283)	1.006** (0.0283)			0.952** (0.0422)	0.952** (0.0422)
Civil service			0.764** (0.0545)	0.763** (0.0544)			0.749** (0.168)	0.749** (0.168)
Firm size: 20≤x<100			0.0431** (0.0121)	0.0430** (0.0121)			0.0327* (0.0135)	0.0326* (0.0135)
Firm size: 100≤x<200			0.0891** (0.0157)	0.0888** (0.0157)			0.0683** (0.0171)	0.0681** (0.0171)
Firm size: 200≤x<2000			0.132** (0.0150)	0.132** (0.0150)			0.0739** (0.0181)	0.0737** (0.0181)
Firm size:			0.238**	0.238**			0.0874**	0.0873**

x $\geq$ 2000			(0.0151)	(0.0151)			(0.0196)	(0.0196)
East			-0.300**	-0.300**			-0.153**	-0.153**
Germany			(0.0111)	(0.0111)			(0.0492)	(0.0492)
Year_3	0.152**	0.149**	0.0507**	0.0498**	0.0675**	0.0675**	0.0504**	0.0508**
	(0.0141)	(0.0142)	(0.00775)	(0.00778)	(0.00753)	(0.00751)	(0.00602)	(0.00603)
Year_6	-0.00327	-0.00425	-0.0352**	-0.0354**	0.0473**	0.0473**	0.0215**	0.0222**
	(0.0150)	(0.0150)	(0.00841)	(0.00843)	(0.00875)	(0.00876)	(0.00816)	(0.00818)
Year_7	0.0788**	0.0755**	-0.0194*	-0.0201*	0.0676**	0.0677**	0.0268**	0.0277**
	(0.0149)	(0.0150)	(0.00853)	(0.00860)	(0.00884)	(0.00892)	(0.00902)	(0.00910)
Year_11	-0.0374*	-0.0392*	-0.0726**	-0.0729**	0.101**	0.101**	0.0358**	0.0369**
	(0.0161)	(0.0162)	(0.0103)	(0.0104)	(0.0128)	(0.0131)	(0.0139)	(0.0140)
Year_15	0.0973**	0.0963**	-0.00879	-0.00874	0.215**	0.216**	0.127**	0.129**
	(0.0161)	(0.0163)	(0.00924)	(0.00936)	(0.0140)	(0.0144)	(0.0168)	(0.0169)
Mining			0.00453	0.00229			0.0103	0.00995
			(0.0396)	(0.0410)			(0.0631)	(0.0631)
Manufact			0.0879**	0.0877**			-0.00442	-0.00452
			(0.0128)	(0.0128)			(0.0137)	(0.0137)
Electric			0.149**	0.149**			0.0128	0.0127
			(0.0372)	(0.0369)			(0.0456)	(0.0457)
Construct			0.0746**	0.0747**			0.0143	0.0144
			(0.0213)	(0.0213)			(0.0179)	(0.0179)
Wholesale			-0.0724**	-0.0724**			-0.0196	-0.0195
			(0.0153)	(0.0153)			(0.0194)	(0.0194)
Transport			-0.0453*	-0.0448*			-0.0146	-0.0145
			(0.0204)	(0.0204)			(0.0216)	(0.0216)
Financial_I			0.138**	0.138**			0.0281	0.0284
			(0.0207)	(0.0208)			(0.0366)	(0.0366)
Real estate			0.171**	0.170**			0.185 <sup>+</sup>	0.186 <sup>+</sup>
			(0.0469)	(0.0467)			(0.0982)	(0.0981)
Education			-0.0178	-0.0183			-0.0375	-0.0372
			(0.0347)	(0.0347)			(0.0543)	(0.0543)
Health			-0.00748	-0.00779			-0.00553	-0.00536
			(0.0178)	(0.0178)			(0.0305)	(0.0305)
Other_private			-0.0285	-0.0290			-0.0407	-0.0409
			(0.0253)	(0.0253)			(0.0389)	(0.0389)
N	28592	28592	28592	28592	19865	19865	19865	19865
R <sup>2</sup>	0.096	0.097	0.725	0.725	0.054	0.054	0.399	0.399

Notes: SOEP 2001-2016. Standard errors in parentheses. SOEP weights are used. <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table A4: Wage Effects of Works Council Membership in Germany: Complete Cases (*years 2001, 2006, 2011*)

<i>Employees in Firms with Works Council</i>								
	<i>OLS</i>				<i>Two-Way Fixed Effects</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pre_wcm		0.0165 (0.0457)		0.0287 (0.0306)				
wc_member	0.0632* (0.0301)	0.0668* (0.0306)	0.0268 (0.0166)	0.0286+ (0.0170)	0.0354 (0.0283)	0.0429 (0.0305)	0.00990 (0.0182)	-0.0217 (0.0225)
post_wcm		0.138** (0.0433)		0.0302 (0.0403)		0.0146 (0.0374)		-0.0617* (0.0304)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes
<i>N</i>	8780	8780	8780	8780	4594	4594	4594	4594
<i>R</i> <sup>2</sup>	0.001	0.002	0.720	0.720	0.053	0.053	0.405	0.406
<i>Employees in Firms subject to WCA</i>								
	<i>OLS</i>				<i>Two-Way Fixed Effects</i>			
pre_wcm		0.0809+ (0.0417)		0.0428+ (0.0242)				
wc_member	0.0666* (0.0301)	0.0723* (0.0305)	0.0240 (0.0169)	0.0258 (0.0172)	0.0430 (0.0306)	0.0406 (0.0376)	0.0128 (0.0189)	-0.00477 (0.0241)
post_wcm		0.147** (0.0410)		0.0197 (0.0378)		-0.00505 (0.0388)		-0.0363 (0.0300)
wc_exist	0.390** (0.0162)	0.386** (0.0163)	0.0928** (0.0124)	0.0918** (0.0124)	0.0852** (0.0255)	0.0852** (0.0256)	0.0591** (0.0210)	0.0597** (0.0210)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	No	No	Yes	Yes
<i>N</i>	16091	16091	16091	16091	9104	9104	9104	9104
<i>R</i> <sup>2</sup>	0.085	0.086	0.721	0.721	0.039	0.039	0.439	0.439

Notes: SOEP 2001-2016. Robust standard errors in parentheses. SOEP weights are used. +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table A5: Listing of Multiple Imputation procedure (*Stata 16*)

```

Logistic regression                               Number of obs   =   14,865
                                                  LR chi2(30)     =    55.55
                                                  Prob > chi2     =    0.0031
Log likelihood = -150.4964                       Pseudo R2      =    0.1558
  
```

<i>wc_released</i>	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ln(rwage)	.8734639	.6445589	1.36	0.175	-.3898484 2.136776
age	.2662278	.277697	0.96	0.338	-.2780483 .810504
agesq	-.0024021	.00287	-0.84	0.403	-.0080272 .0032229
male	-.4034694	.50669	-0.80	0.426	-1.396564 .5896247
migration_B.	-.1108484	.659842	-0.17	0.867	-1.404115 1.182418
apprent	.514267	.6393343	0.80	0.421	-.7388052 1.767339
uni	-.2712974	.6056427	-0.45	0.654	-1.458335 .9157405
married	.41129	.5428202	0.76	0.449	-.652618 1.475198
tenure	.0414675	.0230356	1.80	0.072	-.0036815 .0866165
ln(hours)	-1.892042	1.24841	-1.52	0.130	-4.338881 .5547961
part-time	-2.368784	1.307938	-1.81	0.070	-4.932296 .194728
bluecw	9.752208	814.949	0.01	0.990	-1587.519 1607.023
whitecw	10.48104	814.9489	0.01	0.990	-1586.79 1607.752
civils	11.88666	814.9497	0.01	0.988	-1585.385 1609.159
fsize_ge_2000	-.5812881	.4749413	-1.22	0.221	-1.512156 .3495798
east	-.6729095	.6820974	-0.99	0.324	-2.009796 .6639768
spd	.5736566	.4818834	1.19	0.234	-.3708174 1.518131
linke	2.530919	.6675517	3.79	0.000	1.222542 3.839296
year_11	.2251922	.5462855	0.41	0.680	-.8455078 1.295892
year_15	.232243	.5216581	0.45	0.656	-.7901882 1.254674
manufact	-.2588798	.6282507	-0.41	0.680	-1.490228 .9724689
wholesale	.1908176	.9069616	0.21	0.833	-1.586795 1.96843
transport	.1094513	.9278797	0.12	0.906	-1.70916 1.928062
financialI	-.8091741	1.138222	-0.71	0.477	-3.040047 1.421699
health	.9719631	.7741066	1.26	0.209	-.5452579 2.489184
otherpriv	1.287231	.8856096	1.45	0.146	-.4485316 3.022994
_cons	-24.73402	814.9921	-0.03	0.976	-1622.089 1572.621

Note: Dummy-variables indicating four quintiles of the distribution of the individual SOEP-weights are included.

```

Univariate imputation                       Imputations =   200
Logistic regression                          added =       200
Imputed: m=1 through m=200                  updated =        0
  
```

Variable	Observations per m			Total
	Complete	Incomplete	Imputed	
<i>wc_released</i>	14865	974	974	15839

(complete + incomplete = total; imputed is the minimum across m of the number of filled-in observations.)

Table A6: Group-specific Heterogeneity: Gender

<i>Employees in Firms with Works Council</i>								
<i>Females</i>					<i>Males</i>			
	<i>OLS</i>		<i>Two-Way Fixed Effects</i>		<i>OLS</i>		<i>Two-Way Fixed Effects</i>	
pre_wcm		0.0974*				-0.0272		
		(0.0425)				(0.0285)		
wc_member	0.0247	0.0329	-0.00994	-0.0322	0.0155	0.0142	-0.00476	-0.0190
	(0.0215)	(0.0224)	(0.0202)	(0.0200)	(0.0170)	(0.0179)	(0.0159)	(0.0203)
post_wcm		0.163**		-0.0423		-0.00844		-0.0280
		(0.0513)		(0.0308)		(0.0307)		(0.0250)
<i>N</i>	5796	5796	3750	3750	10043	10043	7022	7022
<i>R</i> <sup>2</sup>	0.714	0.717	0.455	0.456	0.662	0.662	0.371	0.372

Notes: SOEP 2001-2016. Year dummies and covariates included. Robust standard errors in parentheses. SOEP weights are used. <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ .