Worker Representatives

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March 27, 2023

Abstract

We study the selection of worker representatives and how representation affects worker outcomes. We focus on the case of powerful German works councils. These shop-floor representatives are elected from the workforce and have broad authorities. We paint a comprehensive picture of representatives' characteristics spanning a period of more than forty years, combining rich administrative panel and representative survey data. Contrary to other domains of power where blue-collar workers are often underrepresented, we document that blue-collar workers have been proportionally represented among works councilors for the past four decades. Although in the 1970s and 1980s, men with vocational training were highly overrepresented among councilors, we observe a secular convergence over time, resulting in almost proportional representation along these dimensions today. Our findings reject theories of adverse selection and instead indicate that worker representatives are positively selected in terms of their earnings and person-fixed effects. They tend to have more extroverted, more open, and less neurotic personalities, and show greater interest in politics while leaning left politically, compared to the populations they represent. Drawing on event study designs around scheduled works council elections, as well as an instrumental variables strategy building on representatives retiring, we study the effects of blue-collar representation on worker outcomes. We find that electing blue-collar representatives protects workers from involuntary layoffs and leads to small increases in wages and apprenticeship training. Our results align with the idea that blue-collar representatives place greater emphasis on job security, in line with higher worries about layoffs and risk of unemployment faced by blue-collar workers.

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1   Introduction

Blue-collar workers are underrepresented in many domains of power, ranging from the US Congress (Carnes, 2013; Feigenbaum et al., 2018) to the highest echelons of corporations (Ellersgaard et al., 2013). While extensive research has explored the characteristics of political or corporate leaders (Hartmann, 2000, 2006; Dal Bó et al., 2017) and how these individuals affect outcomes in their respective spheres (Jones and Olken, 2005; Malmendier and Tate, 2005; Bennedsen et al., 2020; Acemoglu et al., 2022), little attention has been paid to the representation of blue-collar workers among union leaders and other forms of worker representation. This is surprising in light of work stressing the importance of unions and worker representation for wages, working conditions, and the social safety net, and highlighting the role of preference heterogeneity among union members, particularly between blue- and white-collar workers (Acemoglu et al., 2001; Korpi, 2006; Becher and Pontusson, 2011; Ibsen and Thelen, 2017; Cronert and Forsén, 2021). To address this gap in the literature, we examine the impact of blue-collar representation by German works councils (*Betriebsräte*) — one of the most powerful codetermination institutions (Jäger et al., 2022b,c) — and study whether changes in the composition of white- and blue-collar representatives, who differ in terms of characteristics and attitudes, shape works council activity.

Our analysis focuses on members of German works councils, or works councilors, who are elected from the workforce by non-managerial employees for four-year terms (with the possibility of re-election). In the election, different unions or employee groups compete for votes. Works councils have the right to be informed and consulted on and even directly affect a range of personnel and business decisions, such as company restructuring, layoffs, working conditions, and the introduction of new technologies. They can also make proposals for improving working conditions and participate in the negotiation of firm-specific bargaining agreements. Works councilors also frequently serve as worker-elected directors on boards of firms with board-level codetermination.

To characterize worker representatives, we draw on and combine three distinct data sets. The first data set is the German Socio-Economic Panel (SOEP), which provides detailed information about the preferences, personality traits, and employment histories of a large and representative sample of German workers (Goebel et al., 2019). The second data set is the Integrated Employment Biographies (IEB), which allows us to track employment trajectories for over 45 years and study workforce composition within a given establishment. While the IEB does not provide direct information on works council membership, we make use of detailed occupation and industry information to identify full-time works council members. We implement several validation checks to assess the accuracy of data on worker representatives in the IEB and also cross-validate our measures across datasets. The third data set is the Betriebsrätebefragung (WSI survey), which is a yearly survey of works council membership in German establishments with at least 20 employees.[1] By leveraging these complementary data sets, we are able to provide a comprehensive picture of worker representation in Germany and how it has changed over time.

Based on representative survey data from the SOEP from 1999 to 2019, we first document important dif-

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[1] For a short summary of the 2007 wave methods and results see Schäfer (2008). The data for the survey years 2007-2011 are directly available from the The Institute of Economic and Social Research (WSI).

ferences in attitudes between white- and blue-collar workers.[2] We find that blue-collar workers have higher economic anxieties and perceive greater anticipated unemployment risk than their white-collar counterparts. Blue-collar workers are 20% (6.5ppt) more likely to have experienced unemployment in the past. Further, they are more likely to expect to lose their job in the next two years with positive probability (5% or 3.5ppt), and are substantially more worried about their job security and economic situation. They also report greater stress levels associated with anticipated job loss, and are more likely to assess their current wage as well as their promotion prospects as unfair given their effort.

We document a gradual convergence in characteristics of worker representatives compared to the workers they represent: whereas worker representatives tended to be more educated (in terms of vocational training), more likely to be men, and more likely to be German citizens in the 1970s, we see substantially smaller gaps in these dimensions by 2020. In contrast to theories of adverse selection (but mirroring results for politicians in Dal Bó et al., 2017), worker representatives are positively selected in terms of their earnings rank within their firm or their AKM person effect (both measured prior to becoming a representative). Additionally, we find that worker representatives are more prosocial, politically left-leaning, open to experience, and extroverted compared to the workers they represent. Finally, we show that blue-collar workers have been equitably represented on their works councils in the last four decades.

To gain insights into the effects of worker representatives, we leverage two complementary identification strategies. First, we use an event study specification that takes advantage of the changes in works council composition induced by works council elections held every four years. Simply put, we compare establishments in which the share of blue-collar workers on the works council increased sharply in an election year compared to matched control establishments with similar characteristics but no comparable change in blue-collar representatives. Second, we utilize an instrumental variables (IV) strategy that relies on retirement-induced changes in works council representation. Essentially, our IV strategy compares two establishments with a similar worker structure over time, where one has a blue-collar representative retiring and the other has a white-collar representative retiring. The former establishment is more likely to see a change to a white-collar representative, while the opposite is true for the latter.

Our analysis shows that blue-collar representation significantly reduces worker turnover, especially involuntary turnover into unemployment. We find a sizeable reduction of worker turnover around 3 percentage points (from a base of 12) for both blue- and white-collar workers. We further dissect these results into voluntary turnover (moves to other employers) and involuntary turnover (separations involving unemployment spells). We find no differences in voluntary turnover and find the entire reduction in turnover to be driven by reductions in involuntary turnover. These results are consistent with blue-collar representatives advocating for greater employment protection for the workers they represent, including both white- and blue-collar workers. The fact that voluntary turnover remains unchanged indicates that blue-collar representation does not affect the overall perceived utility of working at a particular establishment.

We then examine the impact of increased employment protection on wages across the firm's wage distribu-

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[2]We identify blue-collar workers as those working in simple manual occupations, qualified manual occupations, technical occupations, and agricultural occupations drawing on the occupational categorization in (Blossfeld, 1985). As alternative definitions, we consider workers in manual occupations only or workers with a vocational training (compared to a university-level education).

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tion. Contrary to the negative compensating differential predicted by the insurance view of the increased employment protection (i.e. where workers pay for employment protection in the form of lower wages (see, e.g., Malcomson, 1983), we find some evidence of small positive effects on wages at the lower end of the wage distribution. This suggests that greater bargaining power or skills may translate into higher wages. Overall, we find some indication for small wage increases that would be, on balance, more in line with the latter view though we also caution that we cannot reject zero effects on wages in most specifications.

In addition to wages, we also investigate the effects of increased employment protection on the investment in firm-specific skills. Consistent with the idea that greater employment protection encourages investment in firm-specific skills (Estevez-Abe et al., 2001; Wasmer, 2006), we find that the reduction in involuntary separations induced by blue-collar representation is associated with small positive effects on the share of workers hired as apprentices (although this result is not robust across all definitions of blue-collar work).

Our results lend support to the idea that blue-collar representatives place greater emphasis on employment protection, possibly reflecting the greater job security concerns expressed by blue-collar workers that we document in our study. These results also lend support to the hypothesis that a crucial dimension of heterogeneity in union membership and representation is the blue-/white-collar divide and the employment risk that workers are exposed to (Becher and Pontusson, 2011; Ibsen and Thelen, 2017; Cronert and Forsén, 2021)).

Our findings contribute to several additional strands of the literature. First, it adds to a growing body of research examining the characteristics of worker representatives or union leaders, and how these characteristics affect union policy and worker outcomes. For example, (Boudreau et al., 2021) study union leaders in Myanmar's garment sector and find that they are positively selected in terms of education and grit, and have lower neuroticism compared to the workers they represent. Corradini et al. (2021) study a gender quota among Brazilian union leaders and find that it leads to an increase in female-centric amenities in affected establishments. Second, our study of selection into worker representation complements work analyzing the selection into union membership. Farber et al. (2021) analyze union membership (as well as the effects of unions) in the United States over time and document that disadvantaged groups, in terms of occupation, education, and race, were overrepresented relative to the workforce during peak union density years (from the 1940s through 1960s) in the United States. (Batut et al., 2021) study characteristics of union members in West Germany (and the UK, France, and Italy) over time and find that blue-collar workers and less educated workers were overrepresented in the 1960s, though the gap has since shrunk (but has remained positive for blue-collar workers). While a large share of workers who are works councilors are members of a union, *all* eligible workers in an establishment can vote in the works council election regardless of their individual union status. Third, our paper contributes to the literature on the effects of German works councils (see Addison, 2009; Jäger et al., 2022b,c, for summaries of the literature). Finally, our paper contributes to the literature on structural changes leading to significant shifts of employment away from manufacturing and blue-collar work witnessed in many countries (Acemoglu et al., 2016; Autor et al., 2019; Helm et al., 2022). While our findings indicate stable blue-collar representation among works councils, the overall share of German workers covered by works councils has declined by around 10 percentage points over the last thirty years (Ellguth and Kohaut, 2021). This decline in blue-collar representation may have contributed to the overall decline of

manufacturing and blue-collar employment in Germany.

The remainder of the paper is organized as follows. Section 2 describes the institutional setting of worker representation in Germany as well as the data we use. Section 3 characterizes worker representatives in Germany from 1976 to today. Section 4 presents causal effects of representation. The last section concludes.

2   Context and Data

2.1   Works Councils and Worker Representation in Germany

Two Channels of Worker Representation: Sectoral Bargaining and Codetermination   In Germany, Worker representation operates through two distinct channels: sectoral bargaining and codetermination. Sectoral bargaining refers to the negotiation of collective agreements at the industry level to arrange wage floors and working conditions. Codetermination gives workers a voice in the decision-making process through works councils and by allowing them to elect representatives to sit on the supervisory boards of larger companies.

Sectoral Bargaining   Sectoral bargaining in Germany is organized through a system of collective bargaining agreements negotiated between unions and employers' associations (or individual firms). The agreements are specific to particular sectors and regions (typically the state level) and cover a range of issues related to working conditions and wages. The negotiations take place between representatives of the unions and the employers. Once an agreement is reached, it binds employers who negotiated an individual agreement or who are part of an employer association concluding an agreement. Coverage through sectoral or firm-level bargaining agreements has declined from around 70% of workers covered in the 1990s to 51% of workers covered by 2020 (Ellguth and Kohaut, 2021).

Works Councils: History and Legal Basis   Works councils are an institution to provide worker voice and codetermination at the establishment and firm level. They were first introduced in Weimar Germany through an agreement between moderate trade unions and industry leaders and then codified into law through the Works Council Act of 1920. Their modern form was codified in the aftermath of World War II through the Works Constitution Act (*Betriebsverfassungsgesetz* or *BetrVG*) of 1952.

The Works Constitution Act gives workers in establishments with at least five workers a right to form a works council. The size and responsibilities of the works council are a function of the firm size. Our analysis of the administrative data will focus on establishments with more than 200 employees where at least one works council member has a right to be released from other duties to work full-time on works council duties.

Information, Consultation, and Codetermination Rights   Works councils have a range of competencies granted to them by law, which include information, consultation, and codetermination rights. These rights allow works councils to be actively involved in various aspects of a company's operations, such as working hours, remuneration, workplace safety, and social matters. Specifically, works councils have the right to access company information, such as financial statements and personnel planning, which enables them to engage in discussions with management.

One significant area of co-determination for works councils is personnel matters. They have the right to participate in decisions related to hiring, transfers, promotions, and dismissals of employees. In cases of large-scale layoffs or significant changes to company operations that may have consequences for employees, such as a mergers or restructuring, works councils are entitled to be consulted and potentially negotiate social compensation plans (*Sozialpläne*) to mitigate adverse effects on the workforce by defining layoff criteria (e.g., by seniority, age, disability status, as well as family obligations such as the presence of children in the household).

Additionally, works councils play a crucial role in maintaining workplace safety and health. They have the right to be involved in the design and implementation of occupational safety measures, the introduction of new technologies, and the organization of working hours. Furthermore, they can initiate measures to improve working conditions and reduce hazards in the workplace. They are also tasked with monitoring compliance with labor law and provisions from applicable sectoral bargaining agreements.

Works councils have the authority to negotiate and conclude establishment-level agreements (*Betriebsvereinbarungen*) on matters not covered by sectoral bargaining agreements. Although these agreements can only deviate from sectoral bargaining provisions if they benefit workers, a shift towards increased decentralization through opening and hardship clauses in sectoral bargaining agreements has given rise to establishment-level agreements that can also deviate from a sectoral bargaining agreement in terms of lower wage levels or longer hours (Rehder, 2003; Jäger et al., 2022b) Such agreements, often dubbed *pacts for employment*, have become common during economic crises as a means of preserving jobs.

In summary, German works councils hold a range of legally granted competencies that enable them to actively participate in company decisions-making processes. Their primary focus is to represent employees' interests and promote communication and cooperation between workers and management.

Elections   Elections to the works council are regularly held every four years. All non-managerial employees of a firm with at least six months of tenure are eligible to vote, including apprentices as well as employees without German or EU citizenship. Turnout in the last regularly-held works council elections was at 69% (Kestermann et al., 2022). When multiple platforms (e.g., unions or alternative lists) compete in the works council election, eligible workers vote for individual platforms (about 40% of works council elections Kestermann et al., 2022). In smaller establishments with fewer than 100 employees or where there is no competition of different unions or lists, workers vote directly for individual candidates for the works council (as is the case for about 60% of works council elections Kestermann et al., 2022).

Compensation   Workers are generally not compensated for serving on the works council. Part-time works council members continue to receive their regular salary. Full-time works council members also continue to receive a salary. Until a recent ruling by the Federal Court of Justice (BGH, 10.01.2023 - 6 StR 133/22), it was common for full-time works council members to be compensated in accordance with a hypothetical career that comparable workers would have achieved (leading to substantial compensation in some cases, e.g., of more than EUR 750,000 per year for a senior Volkswagen works council member). On average, works council membership appears associated with a salary premium of about 4.6% in manufacturing and a salary penalty of 3.7% in the service sector (Brábion, 2022).

Coverage   As of 2020, around 40% of employees in Germany in establishments with at least 5 workers (the size limit at which the right to form a works council kicks in) are covered by a works councils (Ellguth and Kohaut, 2021). The share of workers covered by a works council has declined from close to 50% in the 1990s (Jäger et al., 2022b).

Board Representation   In larger German firms, workers have a right to be represented on their firm's supervisory board. In firms with 501 to 2000 workers, workers can elect one third of the directors on the supervisory board. In firms with more than 2000 workers, 50% of directors on the supervisory board are elected by workers although the capital side retains the tie-breaking vote. The works council organizes the elections of the worker-elected directors and, frequently, the works council members themselves also serve as worker-elected directors (Jäger et al., 2020). Board representation may thus also be a channel through which works council members exert influence.

2.2   Data and Sample Selection

We utilize three complementary data sets to provide a detailed and comprehensive overview of worker representation in Germany and its evolution over time.

The first data set we employ is the German Socio-Economic Panel (SOEP), a large and representative panel survey of German households that has been fielded annually since 1984. The survey contains detailed questions about preferences, personality traits and employment trajectories. From 2001-2019, the survey included modules that inquire about individual works council membership and the existence of a works council at respondents' current workplace in five distinct waves, namely in 2001, 2006, 2011, 2015, and 2019.[3] Our final sample (see below for details) includes 1,261 individuals, who had been member of a works council at some point during this time period, and 12,383 represented employees.

Second, we draw on the Integrated Employment Biographies (IEB), the universe of employer-employee data administered by the Institute for Employment Research (IAB).[4] This dataset allows us to compile a sample of employed individuals and follow their employment trajectories for over 45 years from 1975 until 2020. It contains detailed information on employment status, earnings, occupation and basic demographics such as gender and nationality. Importantly, it allows to study workforce composition within a given establishment. Although it lacks a direct identifier for works council membership, we can use detailed occupational and industry information to identify an important subset of works council members — those who are released from their regular work to concentrate fully on their representational duties (henceforth: full-time members). These full-time works council members are assigned a unique occupational code and can be distinguished from other representatives, like union leaders and employer representatives, using industry information. In 2007, full-time works council members made up about 11% of total works council members in West Germany (calculations based on the WSI survey for 2007). They devote their entire working time to representational duties and are more common in larger establishments. In consequence, compared to regular council members

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[3]In these years, individual works council membership is elicited. The presence of a works council at the respondent's workplace is assessed in all years except for 2015. For the year 2015, we use information from 2016 whenever individuals report to not have changed their place of employment in between. Membership is additionally surveyed in 2003 and 2007, however, works council existence is not.

[4]We use version V15.00.00-201912 of the IEB for our analysis.

these members are more specialized in their representational role and arguably play a more pivotal role in negotiations with the employer side. In addition, we can directly compare the works council information in the SOEP data and the IEB data for SOEP-respondents for whom we could link responses in the SOEP data with their records in the IEB data.[5]

Third, we use the *Betriebsrätebefragung* (henceforth WSI survey), a detailed and representative establishment-level survey of works council members. This yearly survey is a stratified random sample of all establishments in Germany with at least 20 employees and asks detailed questions about the role of works councils at the establishment. However, due to its establishment-level survey mode, it only elicits a limited number of questions about the composition of the general workforce, which limits the dimensions for comparing works council members to the general workforce. Moreover, access to the survey is available only for a shorter period of time, from 2007 to 2011. However, the WSI allows to distinguish some characteristics between full-time and part-time members, such as gender, serving as a useful validation exercise (see below).

Identifying Works Council Members For the SOEP and the WSI-survey, we can identify works council membership based on direct questions about membership; for the IEB data we can identify it indirectly based on a combination of occupational and industry codes.

The SOEP asked employed individuals in the years 2001, 2006, 2011, 2015 and 2019 whether they are works council members, along with questions on membership in other organizations.The question (translated from German) reads: "Are you a member of one of the following organizations or associations?" We code all individuals that tick the option "in a works council" as council members and those who do not as regular employees. For all years, the SOEP also asks whether a works council exists at the current place of work, which allows us to compare council members and regular employees, who are working in an establishment with a works council.

The IEB does not provide direct information on works council membership, but we propose a way to identify full-time works council members using occupational and industry information. We use the three-digit occupational classification from 1988 of the Federal Employment Agency (KldB 1988) and — from 2011 onwards— the corresponding crosswalk to the occupational classification of 2010 (KldB 2010). To begin with, we identify all individuals with the code *Association Leader* and *Officials* ("Verbandsleiter, Funktionäre", occupational code = 763), which includes not only full-time work council member but also other organization and association representatives, such as union leaders, employer representatives and sports association officials. To exclude non-works council representatives, we use detailed information on the establishment's industry. Typically, non-works council representatives are employed in specific industries (such as employed by unions or employer associations), while works council members are employed across all industries. For example, we can expect employer representatives to be overwhelmingly employed by employer organisations, which in turn can be identified via their industry code. To further refine our measure, we exclude representatives from the two-digit industry "Interest groups as well as church and other religious associations" based on the time-consistent industry classification of 2008 (industry-code = 94). This exlusion helps us to identify full-time council members in other industries accurately. The resulting group of workers in relevant occupations across

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other industries is our measure of full-time council members in the IEB.

For the WSI survey the existence of a works council is a prerequisite for participation. In each year a number of questions regarding the composition on the works council as well as the general work force is asked, which allows to compare the characteristics of works councils and non-works councils at the establishment level. In particular, the WSI questions allow to distinguish between characteristics of all works council members (observed in the SOEP) and those of full-time works council members (observed in the IEB), thus serving as a useful validation for our other identification approaches.

Sample Selection From each of our data sets, we construct a sample that allows us to compare characteristics of works council members with characteristics of the employees they represent, i.e. regular employees working in an establishment with works council characteristics, that are neither part of a works council nor in a management position.

For the two individual data sets – SOEP and IEB – we select the sub-sample of individuals represented by the works council using the following criteria: age 20-64, full-time regular social security employment (IEB) or self-reported full-time employment (SOEP), and a works council in the current establishment. Further, we exclude individuals in management positions[6] and those we observe as a works council member at least once. For the SOEP, we additionally exclude civil servants and the self-employed, two groups not observed in the IEB and with different or no employee representation. The sub-sample of work council members is based on the identification procedures above, where we take all individuals classified as a works council member without imposing any further sample restrictions. Lastly, we restrict our main analysis to establishments in West Germany. Because the WSI contains information only at the establishment level we cannot impose similar restrictions, but also only consider establishments in West Germany.

For the SOEP, this leaves a sample of 1,652 works council member individual-year observations (1,261 individuals) and 21,812 employee individual-year observations (12,838 individuals) over five waves. Note, however, that not all outcomes in the SOEP are surveyed in all waves. For an overview of outcomes variables and details on the timing of different SOEP questions see Appendix Section B. In the WSI survey, we observe a total of 6,378 establishment-year observations over the years 2007-2011 (excluding 2009 where no work council demographics are surveyed). In 2007, the survey includes 1,755 establishments with a total of 881,004 employees represented by 14,124 work council member (1,605 full-time). In the IEB draw, we observe a total of 228,855 establishment-year observations (23,173 establishments) where establishments have a works council with at least one full-time works councilor. In 2009, this implies a total of 1,808,429 employees meeting the sample criteria above represented by 6,580 full-time works council members in 3,851 establishments.

In a next step, we construct establishment-level characteristics of works council members and regular employees which we can later use to characterize worker representation at that level. In the IEB data, we collapse our individual × year data to the establishment × year level. The WSI survey is directly conducted at that level. For the SOEP data we skip this step, as we cannot observe multiple individuals at that level[7].

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[6]KldB 1988 Code 751: Entrepreneurs, managing directors and division managers ("Unternehmer, Geschäftsführer, Geschäftsbereichsleiter"). As we discussed in Section 2.1, managers are not represented by the works council and neither eligible to vote nor stand in works council elections.

[7]One advantage of the linked SOEP-ADIAB data is that we can study the establishment level as well which we plan to do

2.3 A Validation Exercise for Full-Time Works Council Membership in the Administrative Data

We perform several validation exercises on our measure for full-time works council members using the administrative data. While the administrative data is generally considered to be of high quality, the occupational code used in this data is not necessary for calculating social security contributions and may, therefore, be somewhat less reliable. However, our sample consists of large establishments that typically have their own HR departments with high reporting standards.

To empirically investigate the validity of our full-time council measure empirically, we conduct three distinct tests, all of which are displayed in Figure 1. The first test compares the expected variation in the size of works councils based on the number of employees with the actual variation in the data. By law, the number of councils eligible for full-time slots varies with the number of employees and has remained constant since 2001. Panel (a) displays the actual and expected sizes of works councils for the period of 2001-2018. The expected and actual numbers closely track each other throughout the establishment-size distribution, with the actual number hoovering around the expected size.

Our second exercise tests a prediction resulting from the fact that works councils are elected nationwide in the same year, usually every fourth. As elections are competitive and individuals can decide to not run again (for example because of approaching retirement age), one basic prediction is that we should expect to see excess turnover of works council members in election years. Panel (b) shows the exit rates of individuals from the works council into other occupations among those who remained at the establishment. The exit rates are detrended using a linear trend. We observe clear excess turnover in almost all of the election years, with exit rates being about 2 percentage points higher in these years, which is approximately 50% above mean turnover in non-election years. Finally, we contrast the pattern we observe for our admin measure for females with the corresponding pattern in the WSI survey who has information for female full-time works councils as well as regular works councils. Panel (c) shows that the pattern in WSI and admin are similar with the WSI somewhat lower, with the 95% CIs of the two lines overlapping.

In sum, all three measures support the reliability of our measure for full-time works council members in the admin data.

3 Worker Representation over Time

3.1 Measuring Worker Representation

We construct aggregate measures of worker representation at the yearly level to describe the trend in worker representation over time.

We first define employee representation at time t and establishment e by the mean difference of characteristic

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in the future.

Y_{it} between work council members and employees:

$$\Delta \bar{Y}_{et} = \bar{Y}_{et}^{wc} - \bar{Y}_{et}^{emp} = \frac{1}{N_{et}^{wc}} \sum_{i:wc_i=1} Y_{iet} - \frac{1}{N_{et}^{emp}} \sum_{i:wc_i=0} Y_{iet}. \tag{1}$$

Thus, a positive $\Delta \bar{Y}_{et}$ implies over-representation along dimension Y (e.g. the share of individuals with characteristic Y is higher among works councilors than among employees if Y is binary), whereas a negative value corresponds to under-representation in the works council. We denote the number of employees and members of the works council in a given establishment by N_{et}^{emp} and N_{et}^{wc}, respectively.

To get a measure of aggregate representation we then weight each establishment observation by its total share in employment (N_{et}^{emp}/N_t^{emp}):

$$\Delta \bar{Y}_t = \sum_e \Delta \bar{Y}_{et} \frac{N_{et}^{emp}}{N_t^{emp}}. \tag{2}$$

Both the IEB and WSI dataset allow us to observe $\Delta \bar{Y}_{et}$ at the establishment level. For the SOEP, however, we only observe a random sample from the German population without any detailed establishment information. To see how we can still construct a similar measure, note that our approach is equivalent to using observations at the level of works council members instead, where $\Delta \bar{Y}_{kt}$ is the difference between Y_{ket} of member k and mean employee characteristics, and subsequently aggregating using the share of total employment represented by member k as weights. Re-writing the expression in terms of a difference between works council member and employee gives:

$$\Delta \bar{Y}_t = \sum_e \sum_{i:wc_i=1} \frac{N_{et}^{emp}/N_{et}^{wc}}{N_t^{emp}} Y_{iet} - \frac{1}{N_t^{emp}} \sum_e \sum_{i:wc_i=0} Y_{iet}. \tag{3}$$

The second term, mean employee characteristics, can be computed using the SOEP sample. The first term is a weighted average of work council member characteristics where the weights are the share of total employment represented by a given works council member. These weights can in principle be derived from the size of each establishment because work council size is determined by law based on the number of employees. However, the SOEP does not survey establishment size at a sufficiently detailed level, thus we resort to computing unweighted means of work council member characteristics for now. Because the number of employees represented by each works councilor is increasing in establishment size, this will overweight observations from smaller establishments.[8]

In the following descriptive graphs we then plot $\Delta \bar{Y}_t$ as defined by equation (2) separately by survey for each year in the dataset. Positive values mean that characteristic Y is over-represented among work council members relative to the regular workforce, whereas negative values imply under-representation.

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[8]In future work we aim to impute weights using the linked SOEP-ADIAB data which allows us to observe the exact establishment size for the sub-sample of linked SOEP respondents.

3.2 Describing Representation over Time

Next, we will describe how the characteristics of worker representatives have evolved over time in relation to those of the employees they represent.

Convergence in Occupational Background and Demographic Factors Figure 2 illustrates the evolution of worker representation in terms of occupational background, education (both own and parental), and gender over time. Panel (a) considers occupational background for three complementary categorizations in the IEB data. These categories refer to (1) blue-collar occupations — our main group of interest —, (2) occupations that are characterized by predominantly manual work, and (3) occupations characterized by a high share of routine tasks. While these categorizations partly overlap, they are not identical; for details see Appendix Section C and Table A3. Blue-collar workers are represented roughly proportionally among full-time works council members throughout the period under study. In 1976, when our observation period begins, we cannot reject the hypothesis that blue-collar workers are a random draw among the workers they represent. Over the following three decades, they become slightly underrepresented, and from 2010 onwards, they are slightly overrepresented. However, this trend is relatively flat overall, with an absolute difference of less than 2 percentage points (ppt) in most years.

The pattern for manual workers looks very similar, with a slightly above-average group representation in the early years. However, workers in routine task occupations are noticeably underrepresented in the early period, with a difference of about 10 ppt below equal representation. Over time, this gap only narrows slightly, with a difference of approximately 5 ppt in 2018.

In Panel (b) of the same figure, we examine the representation of the same three occupational groups for all worker representatives in the SOEP. This representation is proportional over the observation period 2001-2019. Notably, routine occupations are represented proportionally over the entire period. However, while there are no clear trends in representation, there has been a secular decline in all three occupations. Appendix Figure provides an example for this decline, showing that the blue-collar worker share declined from almost 60% to slightly above 40% over the observation period for both representatives and employees.

Panel (c) in Figure 2 shows the evolution of representation of workers with a vocational or university degree over time. Initially, there was an over-representation of about 15 ppt at the beginning of the observation period. However, this difference converges to equal representation by the end of the observation period. When focusing on university-degree holder only in Panel (d), we observe a decline from about equal representation to under-representation of approximately 5 ppt. This is in spite of a substantial increase in the average education level over that period, as demonstrated in Appendix Figure 3.2. This pattern suggests a persistent over-representation of individuals with a medium-level education, particularly those with vocational degrees.

When considering representation for all representatives in the SOEP, we see a similar pattern, where vocational-degree holders are represented proportionally in the recent period, while university-degree holders are under-represented among works council members. The SOEP also allows us to examine not only own education, but also parental education. Panel (e) plots the representation of individuals with fathers who have a high school degree. The plotted difference is flat and close to zero, implying equal representation along parental

education. Overall, worker representatives are similar or exhibited convergence among a variety of domains that capture dimensions of blue collar workers and educational background.

In Panel (f) of Figure 2, we examine gender representation and observe a striking convergence in the representation of female workers in full-time works councils over the observation period. Starting out from an under-representation of 15 ppt in 1976, this gap has reduced to less than 5 ppt (but still persists as of 2018). Thus, women still remain somewhat underrepresented among full-time works councils members. The convergence occurred despite an increase in the share of females in the workforce over this period and a 2001 reform that mandated proportional representation of women (or men, if underrepresented).[9] Looking at all representatives in contrast, women are slightly overrepresented.

Ability and Labor Market Performance   Standard selection models suggest that worker representatives may be subject to adverse selection (analogous to politicians, see Dal Bó et al. (2017)) as workers who have lucrative regular careers may have higher opportunity costs of selecting into worker representation. However, higher-ability workers may also have a higher chance of electoral success, which could lead to positive selection of worker representatives.

To investigate this hypothesis, we compare the ability and labor market performance of worker representatives to those of the workforce they represent in Figure 3. Panel (a) shows the mean difference in a standardized short IQ test. The test consists of a word fluency test and a symbol correspondence test (see Appendix Section B for details), which we standardize for ease of interpretation. We find that the mean difference between the groups is slightly negative and statistically indistinguishable from zero over the whole observation period, indicating that cognitive ability is very similar between work counselors and the regular workforce.

Panel (b) then turns to differences in labor market outcomes and performance based on wages. For full-time councilors in the IEB, we use two outcomes: the log-wage difference between work-councilors and the median wage earner at the establishment, and the difference of individual fixed effects relative to the median from an AKM regression (Abowd et al., 1999). To measure earnings potential outside of councilor duty that is not confounded by potential wage-effects of being a councilor (see (Brábion, 2022; Goerke and Pannenberg, 2022) for a discussion), we measure these differences pre-membership. For residual log-wages we use the last year before becoming a full-time works council member, whereas for individual AKM fixed effects we use the last year of the previous AKM period.[10] For both measures, we use residualized versions that control for demographic factors such as gender, nationality, education and age, as well as labor market experience and a dummy for full-time status. We find that full-time councilors are positively selected, both in terms of log wages and AKM fixed effects. Compared to the median employee at their establishment, full-time councilors earn almost 10% higher wages throughout the observation period. The findings for individual fixed effects are very similar, with slightly larger differences to the median worker and again flat time trends.

As the SOEP does not allow us to compare within-establishment differences, we use the mean differences of log-wages as a complementary measure for the earnings differences between all councilors and the regular workforce. The residual wages of council members is very similar to that of the regular workforce and we

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[9]We do not detect a visible shift in representation of women on the works council after 2001.

[10]See Bellmann et al. (2020) for information on estimation periods and other construction details of the AKM fixed effects.

cannot reject equality at the 0.05 level. Our findings of similar ability are in contrast to theories of adverse selection, but mirror — together with positive selection in terms of wages — results for politicians (Dal Bó et al., 2017).

Preferences and Personality In order to gain insight into the selection process for worker representation and its potential effects on council member objectives (which is relevant, e.g., if representatives cannot credibly commit to policies they do not support; Besley and Coate, 1997; Lee et al., 2004), we examine a range of preference and attitude measures. The SOEP repeatedly collects detailed data on a variety of preferences and attitudes measure, which are not included in any of the other two data sets. We start by describing the evolution of career preferences, shown in Panel (a) of Figure 4. The underlying question asks respondents to rate how important career success is to them on a scale from 1 to 4 (with higher values implying greater importance). The mean difference in standardized responses between council members and the general workforce is negligible throughout the observation period. Panel (b) presents the mean difference in the importance of being there for others, rated on the same scale and standardized. The results show that the difference is close to zero in most years, with perhaps a slight, but insignificant, increase in the latest years. This finding suggests that pure altruistic motives are not the primary driver of becoming a council member.

Next, we investigate several political preferences in Panel (c) – (e). In Panel (c), we compare the importance placed on social or political activism by worker representatives and regular employees using again a standardized measure based on a similar question as for the importance measures discussed above. In contrast to previous preference outcomes, we observe a clear difference: council members report a 0.25 standard deviation higher importance of social or political activism as a life goal. This difference is significant at the 0.05 significance level and remains relatively constant over time. Similarly, when asked about their level of political interest, work council members are about 0.20 to 0.25 of a standard deviation more interested in politics than regular employees, a pattern that remained constant over the past two decades. Additionally, we find that council members have political views different from the average worker. Panel (c) of Figure 4 shows that council members are about 0.15 standard deviations more left-leaning than the regular worker. While this difference is not significant in most years separately, the difference becomes significant when pooling years (see Appendix Table A2).

We now turn to an assessment of differences in personality traits between works councilors and the regular workforce. In Figure 5, we examine differences in each of the Big Five personality traits and in locus of control, using standardized measures for each of these constructs.[11] Panel (a) illustrates that council members report higher levels of openness, with the difference being significant for most years. Specifically, the difference ranges between 0.15 to 0.2 of a standard deviation. Panel (b) displays differences in conscientiousness. Except for the first observation year, where councilors report a somewhat higher conscientiousness, differences are close to zero and insignificant. Council members are more extrovert, as shown in Panel (c), with a statistically

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[11]The Big Five traits are assessed using a short inventory of 15 items that were conceptualized based on the five-factor structure of the Big Five approach (Costa and McCrae, 1985). The items used in this short scale were taken from the Ten-Item Personality Inventory (TIPI) by Gosling et al. (2003) and the BFI-25. John et al. (1991) developed the BFI-25 through a principal component analysis and validated in a SOEP pretest. For more information about the development and validation of the scale, see Gerlitz and Schupp (2005) and Lang et al. (2011). Locus of Control (Rotter, 1966) is measured using a ten-item scale, of which seven items can be combined into an overall scale with good reliability (Specht et al., 2013).

significant difference of 0.2 to 0.25 of a standard deviation over the whole observation period. In terms of agreeableness, council members appear somewhat less agreeable although the differences are small and not significant. Panels (d) and (e) depict neuroticism and locus of control, respectively, and show that council members are comparable to the regular workforce, with differences that are insignificant and close to zero.

In sum, works council members are similar to the regular work force in terms of life goals, locus of control and Big Five personality traits conscientiousness, agreeableness, and neuroticism , but are notably more politically interested, more left-leaning and show a substantially higher degree of openness and extraversion. These quantitative findings square well with qualitative studies on why workers chose to run for council membership (see also Boudreau et al. (2021) for evidence from union leaders in Myanmar). For example, (Jürgenhake et al., 2011, p. 34) reports the following quote on the motivation to run for full-time councilor (translated from German): "I have always been interested, open-minded, and also someone who dared to ask questions at company meetings. That already makes you stand out a bit: 'She dares, she speaks up.´ So, I was asked, and at first, I did not want to. Because I already do other things voluntarily in my private life, which is also very time-consuming. But afterwards, I decided to run for it anyway."

4   Effects of Worker Representation

4.1   Blue-Collar Jobs as Core Dimension of Heterogeneity

Several studies have emphasized the importance of unions and worker representation in shaping wages, working conditions, and the social safety net. These studies have also highlighted the role of preference heterogeneity among union members, especially between blue- and white-collar workers (Korpi, 2006; Becher and Pontusson, 2011; Ibsen and Thelen, 2017; Cronert and Forsén, 2021). To explore the impact of blue-collar representation, we begin by analyzing heterogeneity in concerns and preferences between blue- and white-collar workers in our context.

Using data from the SOEP, we present the mean of preferences and characteristics separately for blue- and white-collar workers in Columns (1) – (2) of Table 1, along with the corresponding differences between the two groups (Column (3)). Panel (a) shows differences in demographic background and unemployment experience. Blue-collar workers are less likely to be female, hold a university degree, or have a father with a high-school degree. Notably, blue-collar workers have a 6.5 ppt higher likelihood of having experienced unemployment in the past. Panel (b) shows that blue-collar workers are also substantially (8.3 ppt) more worried about their economic situation in general and in particular their job-security (12.8 ppt). They are moderately more worried about the devaluation of skills (4 ppt) and are slightly (0.065 of a standard deviation) less satisfied with their job. These differences manifest also in the subjective probability of various job changes, as shown in Panel (c). Blue collar workers report a 16% (3.1ppt) higher probability of losing their job within the next two years, are slightly more pessimistic about getting promoted (1.2 ppt), and view it substantially less likely to receive further training (12.8 ppt). Despite these assessments, blue-collar workers view it as less likely that they would quit voluntarily over the next two years. Turning to job-related burdens in Panel (d), we see that blue-collar workers are more likely to describe their current working conditions as characterized by "job at risk" (3.8 ppt.), "wage not fair given effort" (3.2 ppt), and "insufficient recognition from superiors" (3.2 ppt). However, they name significantly less often "interruptions at work" as a burden.

Most, though not all, of the differences in job-related preferences and worries between blue- and white-collar workers carry over to works council members (who have strong job protection while serving on the works council). Columns (4) – (6) of Table 1 repeat the previous analysis but restricted to individuals that report being members of a works council. In particular, even though perceived job security is notably higher for all groups, blue-collar workers still worry significantly more about their own economic situation and job security than their white-collar counterpart.

Taken together, blue-collar workers exhibit notably different preferences and worries related to characteristics of a job, which they keep as council members and might affect which firm policies blue-collar workers favor.

4.2 Two Complementary Identification Strategies

We employ two complementary identification strategies to estimate the effect of representation on worker outcomes: An IV specification that leverages retirement-induced changes in the works council composition and an event-study specification, that explores the sudden change in works council composition relative to comparable control firms without such an increase.

Retirement IV   Our IV strategy uses the fact that in Germany a large share of individuals retires in their early 60s. This creates turnover in works council members around election years that also generate changes in the composition of the works council, depending on who exits. If a blue-collar member exits, it is likely that at least in some cases the replacement member is white-collar, while the opposite is true if a white-collar worker were to exit.

Equation 4 formalizes this intuition into an expected share of the works council of in-group g at time t and establishment e, which we will use as our instrument. This share depends on past years share of in-group g in the works council $\frac{Nwc_{e,t-1}^g}{Nwc_{e,t-1}}$, with $Nwc_{e,t-1}^g$ referring to the number of works councils in group g and $Nwc_{e,t-1}$ to the overall number of employees in the works council. In addition, it depends on a term in which the number from out-groups $(Nwc_{e,t-1,exit}^{g'})$ enters positively and that of in-groups $(Nwc_{e,t-1,exit}^g)$ negatively. The term $s_{e,t-1}^g$ represents the share of the work-force of the in-group and captures that exits from out-groups are more likely to be replaced by an in-group worker, the higher its share among the total workforce.

$$E[swc_{e,t}^g] = \frac{Nwc_{e,t-1}^g}{Nwc_{e,t-1}} + \frac{Nwc_{e,t-1,exit}^{g'} \times s_{e,t-1}^g - Nwc_{e,t-1,exit}^g \times (1 - s_{e,t-1}^g)}{Nwc_{e,t-1}} \tag{4}$$

The exit-induced variation employed by this instrument is arguably exogenous to unobserved workplace conditions that might jointly affect member-ship composition and outcomes. We further add establishment and calendar year fixed effects to our IV specification, which purges out constant establishment and year factors such as the leniency of an establishment to have a higher in-group share at the establishment. In all specifications, we cluster standard errors on the establishment level.

The first stage regresses the actual in-group share in year t on the predicted share displayed in Equation 4. Instead of using the yearly share, we use an imputed version, where we count every individual for the

full election period as member. Thus, we effectively use only variation between election periods. Figure 6 visualizes the first stage as a binned scatter plot and shows how well the expected in-group share of works council members predicts the actual share after controlling for establishment and year effects. There is a strong linear relationship for all groups: In the case of blue-collar workers, the estimated coefficient is 0.305 and highly significant (se=.01) with a t-stat of above 30 alleviating any potential weak-IV concerns.[12]

$$Y_{eg,t+4} = \alpha + \beta s\hat{wc}_{e,t}^g + \delta s\hat{wc}_{e,t}^g \times I(g=0) + \theta_{eg} + \eta_{tg} + \varepsilon_{egt} \tag{5}$$

Equation 5 shows our second stage equation. We measure outcome Y in t+4 if not noted otherwise, due to the 4-year nature of election years. We are not only interested in how an increase in the in-group share affects in-group outcomes, but also whether the out-group is affected and in particular how effects differ between in-and out-group. To capture this heterogeneity, we estimate our second stage on the establishment $\times$ year $\times$ group level, where we control for establishment$\times$group (θ_{eg}) and group$\times$ year fixed effects (η_{tg}). Here, β estimates the in-group effect and $-\delta$ estimates the in-group minus out-group effect, both of which we will focus on in our discussion of the results. We cluster standard errors on the establishment level.

Event Study Specification We complement our IV specification with an event-study design. We concentrate on the first large increase ($\geq 33\%$) in an establishments' in-group share in the works council. We further restrict to retirement-induced events, i.e. events that coincide with a large increase in the predicted works council share in the event study year or one of the three previous years. The event-study specification thus uses a comparable variation than the IV specification, while in addition addressing potential concerns about differences in time-trends more directly. The IV specification on the other hand results in a larger sample size.

To get a comparable control establishment, we match a never-treated control establishment within the pre-treatment year. The matching allows us to compare similar treated and control establishments, with plausibly similar trends, as is common practice in the job-loss literature (Schmieder et al., 2022; Illing et al., 2021). Our set-up also avoids the concern of multiple periods or variation in treatment timing raised in the recent event-study literature (Johansen et al., 2022). We use 1:1 nearest-neighbor matching. As matching variables, we use the in-group share in the workforce and among the works council, the log number of employees as well as 10 establishment size groups as well as 16 state dummies. Appendix Table A4 compares the pre-event characteristics in the treatment group with a control group before and after matching. Before matching, establishments in the treatment group are notably larger and more likely located in West Germany. After the matching, establishments are comparable along these and other dimensions, including some not used for matching, like industry composition.

$$Y_{et}^g = \alpha_e + \beta_t + \sum_{\substack{h=-5, \\ h\neq-1}}^{5} \tau_h I\{t = c_e + h\} \times I(treat_e = 1) + \sum_{\substack{h=-5, \\ h\neq-1}}^{5} \delta_h I\{t = c_e + h\} + \varepsilon_{et} \tag{6}$$

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[12]A slope of below one implies that the replacement of an exiting council member is more likely to be of the same group than would be predicted by chance, suggesting some inertia that favors the existing group and highlights the importance of using an instrument-based variation in the first place.

Equation 6 shows our event-study specification which we employ on the establishment e times year t level, separately for each group g. We use 5 leads and lags, with c_e denoting the establishment-specific treatment year. To make these estimate representative for the represented work-force, we weight it with the number of regular employees, capped at the 95th percentile of the establishment-size distribution to reduce the influence of outliers.

Besides the establishment fixed effects α_e we also include year-fixed effects β_t and relative time fixed effects δ_h. Coefficient τ_h shows the treatment effect in year h relative to treatment, with $h - 1$ constituting the reference year. We estimate this specification separately for each group. In addition, we estimate a pooled version where we collapse all years into a pre-and post period and estimate a simple difference-in-differences specification as well as a triple-diff specification that pools both groups and from which we extract the in-group-effect relative to the out -group. Standard errors in all specifications are clustered on the establishment level.

Panel (a) of Figure 7 shows the event-induced change in the group composition in the works council: In the event year, the share of in-group councils increases by almost 50 percentage points — from about 13% to 61% — compared to the pre-event year. The trend is sudden, with pre-tends flat and indistinguishable from zero in most years. In the post-event years the share remains high and declines only slightly in the five years after treatment.

4.3 Results

We now turn to discussing our main findings of how different outcomes are effected by group representation. We discuss jointly the results for the event-study- and IV-specification.

Separations Panel (b) of Figure 7 shows event-study results for the propensity of separating from the current establishment from one year to the next without permanently leaving the labor force and how it evolves before and after the event of a large increase in the in-group share of work councils members. In the years before the event, the in- and out-group evolve flat and indistinguishable from zero.[13] Exits decrease suddenly in year $h = 0$ (in which establishments are partially treated due to defining exits between the current and next year) and continues to decrease in year $h = 1$, and are slightly more than 2 ppt lower in that year relative to the pre-event year. The effects stay at around that level for the remaining period and are significant at the .05 level in all years. Notably, the effect sizes are very similar for the in- and out-group with differences both economically and statistically insignificant. To distinguish different types of exits we split up between likely voluntary and involuntary employment switches. As voluntary switches, we classify all employment switches with interruptions of shorter than one month between current and next employer, whereas employment switches with interruptions of more than three months hint to unemployment periods between employment spells, which is why we classify these types of exits as involuntary. Panel (c) and (d) show event-study figures for voluntary and involuntary exits respectively. The event-study estimates for voluntary exits are flat over the entire period, with no sign of responding to the event. The pooled estimate for the in-group effect is 0.1 ppt and can reject a decrease of more than 0.7 ppt on the .05 significance level. The estimate for the involuntary separation in contrast tracks closely the estimates of the combined

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[13]We note some evidence for trend violation in year $h = -5$ before the event.

exit specification: Separations are flat before the event and then decrease by slightly more than 2 ppt, highlighting that the entire separation responses are driven by a reduction in involuntary separations.

We examine the same separation outcomes using our IV specification in Panel (A) of Table 2, Columns (1) – (4). Column (1) shows IV estimates for any (permanent and non-permanent exits). In-group estimates are significant, with the point estimate implying an about 1 ppt reduction in separations (over a base of .14) for an increase in the in-group share from 0% to 100%. The effect size is about one-quarter of that of the respective event-study specification. The group-difference estimates are of the same size as the in-group estimates, implying that, unlike for the event-study results, effects are entirely driven by in-group responses. For non-permanent separations in Column (2), the effect sizes reduces to 0.55 ppt (over a base of 0.07) with group difference estimates speaking again to in-group responses only. Turning to voluntary and involuntary separations in Column (3) and (4), the point estimate of involuntary separations are about twice as large as for voluntary ones, though these are insignificant. Overall, the IV results are broadly consistent with our event-study specification, with the main difference being that effect sizes in the IV specification are smaller and mainly driven by in-group effects, with separations for the out-group remaining largely unaffected.

Wages Panel (d) and (e) of Figure 7 show event-study estimates with log-wage at the 10 percentile and median log-wage as outcomes respectively. The estimates point to a slightly positive effect on wages, which appears somewhat stronger for the in-group effect (.8 percent vs. .4 percent in the pooled specification) but effect sizes are relatively small and insignificant at common significance levels. In addition, we note some indications for trends pre-event, impeding somewhat the interpretation of these findings.

Column (5) – (7) in Table 2 shows corresponding IV-estimates for the same outcomes. The in-group effects go in the same direction as the event-study specification and are slightly larger but of a similar magnitude as those of the event-study specification, They are however more precisely estimated. The in-group effect for log wage at the 10th percentile (Column (5)) yields an estimated effect of 2 percent for an increase in the in-group council share from 0% to 100% and is significant at any common significance level. For the median (Column (6)) and the mean (Column (7)), the effect size is close to 1 percent and still precisely enough estimated to distinguish it from 0. Comparing in-group and out-group estimates, effect sizes for out-groups are notably stronger than in-group estimates for all wage outcomes.

Hires, Apprenticeship Training, and Promotions We also investigate how hires and promotions are affected by changes in the in-group council share. Table 3 of Panel (A) shows IV estimates for blue-collar workers. Columns (1) – (6) examine outcomes for newly hired workers. We consider all workers as new hires in year t, that appear in this year for the first time at the establishment. Column (1) examines the group-specific number of log-hires. The estimate of in-group hires is insignificant and close to zero. Investigating the composition of hires, Column (2) shows that the composition of regular in-group workers are not affected. In contrast, Column (3) suggests that there is an increase in the share of apprentices by a significant 1.3 ppt (over a base of 21%), while the share of mini-jobs, marginal (below 10 hours a week), usually low-paid employment contracts, decreases by a similar 1.6 ppt (over a base of 4%), suggesting a shift from marginal employment to new apprentices in blue-collar occupations. Examining the group difference from in-group to out-group, Column (1) implies a 13% higher in-group than out-group share, which is driven by a lower number

of hires in the out-group. Looking at the composition of hires, the lower number of new hires in the out-group is not at the expense of regular employees, whose share increases. In contrast, the share of apprentices seem to decrease somewhat, for the out-group, suggesting a shift from out-group to in-group apprentices. In addition, the share of mini-jobbers decreases in the out-group by almost 5 ppt (and approximately 2 ppt more than for the in-group). Taken together, the results point to a shift away from marginal employment to apprentices, with the latter concentrated among in-group workers. Regular workers appear not affected.

Looking at wages for all newly hired (Column (5) and Column (6)), we see slightly positive but insignificant wage effects for the in-group. Looking at group differences we see an increase in the out-group wages when looking at all hires, though this reflects at least partially the shift towards usually higher payed regular workers in the out-group and group differences in hiring wages drop considerably when looking at regular workers (though they are still higher).

Finally, we examine the promotion-induced wage changes in Columns (7) and (8). Here we turn to the stock of employees and define promotion-induced wages as the mean wage difference between year t and $t + 2$ and year t and $t + 5$, (i.e. we assign a worker that switches occupation between the mean wage level difference between these occupations, where individuals staying in the same occupation mechanically receive 0 wage change). For both definitions, the in-group as well as the out-group difference are economically small and insignificant in most cases. This reflects in part that the vast majority of individuals stay in their original occupation, suggesting that promotions are rare.

4.4   Robustness

We now turn to examine the robustness of our findings with respect to a variety of different specifications. We start by probing robustness of our findings when using other occupation-based group definitions, in particular manual workers and vocational degree holders. For the IV-specification, Panel (B) and (C) of Table 2 show the effect on exits and wages for manual workers and vocational degree holders, respectively. For manual workers, we see a similar effect on separations for both the in-group and group-difference estimates. Coefficients on wages are positive as for blue collars, but considerably smaller and insignificant. For vocational degree holders, we see no evidence for in-group effects on separations, though the group-differences are similarly small to blue-collars. For log-wages we see significant in-group effects, that are even stronger, but in a similar ballpark, than for blue-collar workers. Panel (B) and (C) of Table 3 examine the results for hires for manual workers and vocational degree holders. As for blue collar workers, we see an increase in the in-group share of full-time workers, and a reduction of mini-jobbers, though the effect for apprenticeships and some other outcomes are less aligned. For event-study estimates, Figure A7 and Figure A8 repeat the main event-study estimates for manual and routine jobs respectively. The effects on wages are in both cases similar to that of blue-collar workers. For separations, we do not see evidence of a reaction for manual workers. For routine tasks effects are qualitatively similar, though somewhat smaller compared to that of blue-collars, with separation effects appearing again mainly driven through unemployment exits.

We also look at how changes in the council composition of other groups affect outcomes. In particular, we examine changes in gender-composition (Panel (E) of Table 2, Panel (B) of Table 3 and Table 5) as well as changes in the composition of non-Germans (Panel (F) of Table 2, Panel (C) of Table 3). We plan to do

more in-depth robustness checks in the future.

5   Conclusion

Our study investigated the role of blue-collar representation in German works councils and its impact on worker outcomes. By leveraging multiple datasets, the analysis provided a comprehensive characterization of worker representation in Germany and its evolution over time. Our results demonstrated that blue-collar representation reduces worker turnover, particularly involuntary turnover into unemployment, while having a limited impact on wages. Our findings support the notion that blue-collar representatives emphasize employment protection, perhaps reflecting the greater job security concerns expressed by blue-collar workers.

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Figures

Figure 1: Validation Exercises for the Works Council Measure in the Administrative Data

(a) Expected vs. Actual Works Council Size by Establishment Size
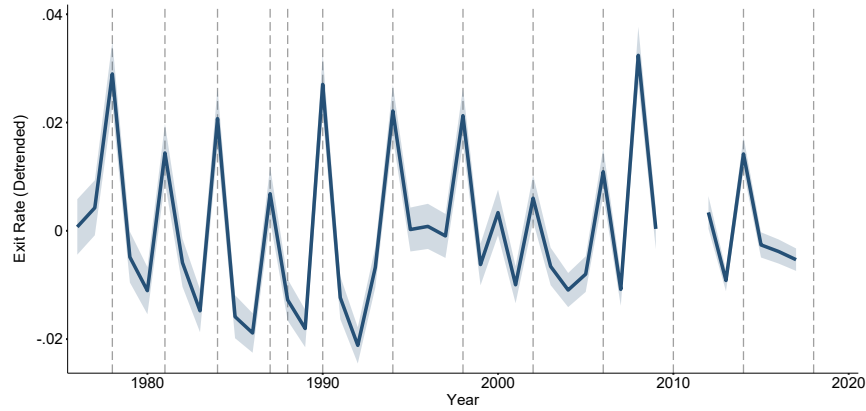

(b) Excess Works Council Exits in Election Years
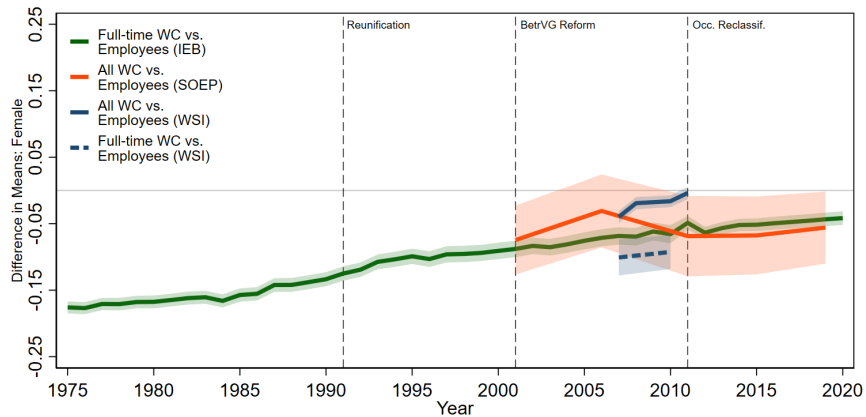
(c) Mean Difference Females in IEB, WSI and SOEP

Notes: This figure shows three different validation exercises for the full-time works council measure in the admin data. Panel (a) shows the alignment of the expected works council size by number of employees and the actually observed works council members for that period. Panel (b) contains a measure for exits on the yearly level defined as individuals leaving works council member-status but remaining at the establishment. The year 2011 is excluded due to occupational re-coding in that year. Panel (c) compares the mean difference of full-time works council members to employees in the admin data as well as the difference for all works council members in the SOEP, with a third data source — the WSI survey — that contains the shares for both. Shaded areas/horizontal lines indicate the 95% CI.
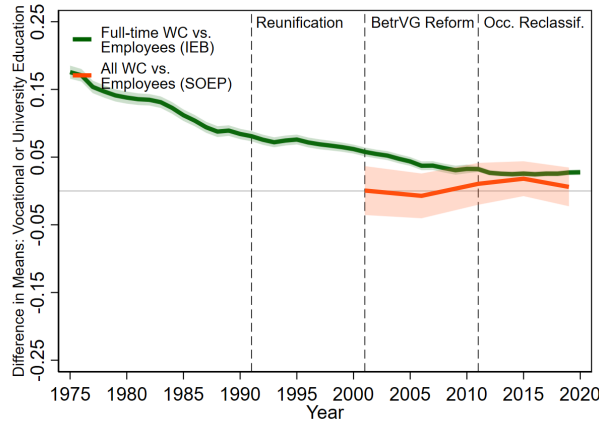
Figure 2: Work Council Representatives vs. Employees: Convergence in Demographic Factors and Parental Background
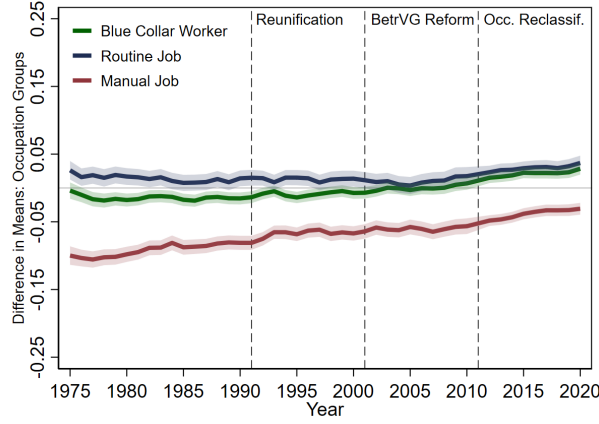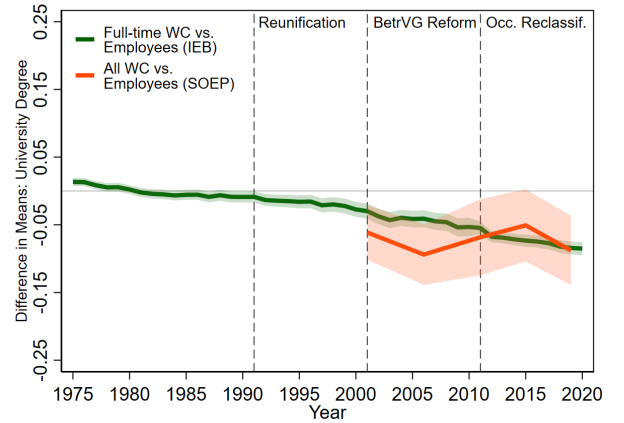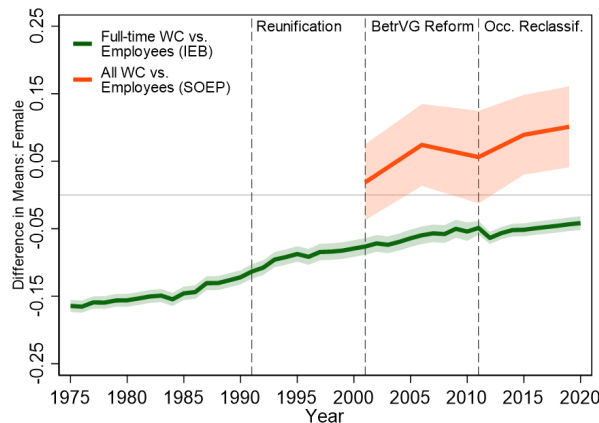

(a) Blue Collar, Manual, Routine (IEB)
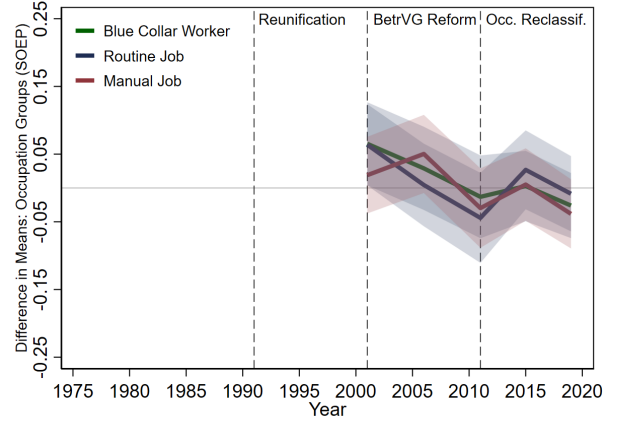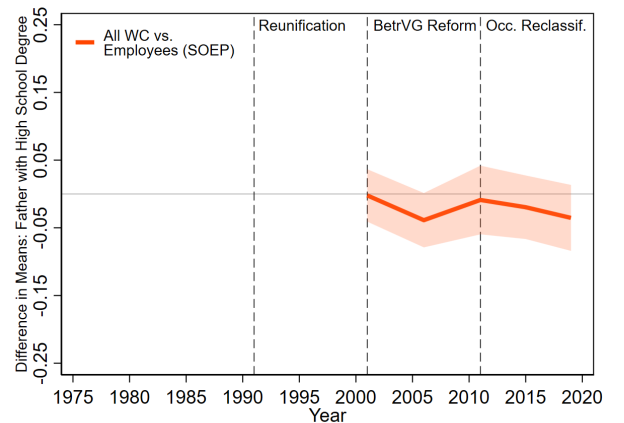
(b) Blue Collar, Manual, Routine (SOEP)

(c) Own Education: Vocational or University Degree

(d) Own Education: University Degree

(e) Female

(f) Parental Education: Father with High School

Notes: This figure shows the evolution of the difference in demographic characteristics between work council members and regular employees (not in a works council) in establishments with works councils over time. Shaded regions represent 95% confidence intervals. The time series for full-time work council members uses administrative data from the IEB, the time series for all work council members (full-time and regular) is based on the SOEP household panel. Both time series restrict to West Germany, based on place of work in the IEB and residency in the SOEP. For details on the datasets see section 2. The time series are weighted to be representative of (regular) employees at establishments with a works council. We correct the IEB time series for a break in 2011 due to the occupational reclassification by estimating an RD model with a second-order polynomial and a bandwidth of 5 years on each side and adding the estimated discontinuity to the *past* time series.

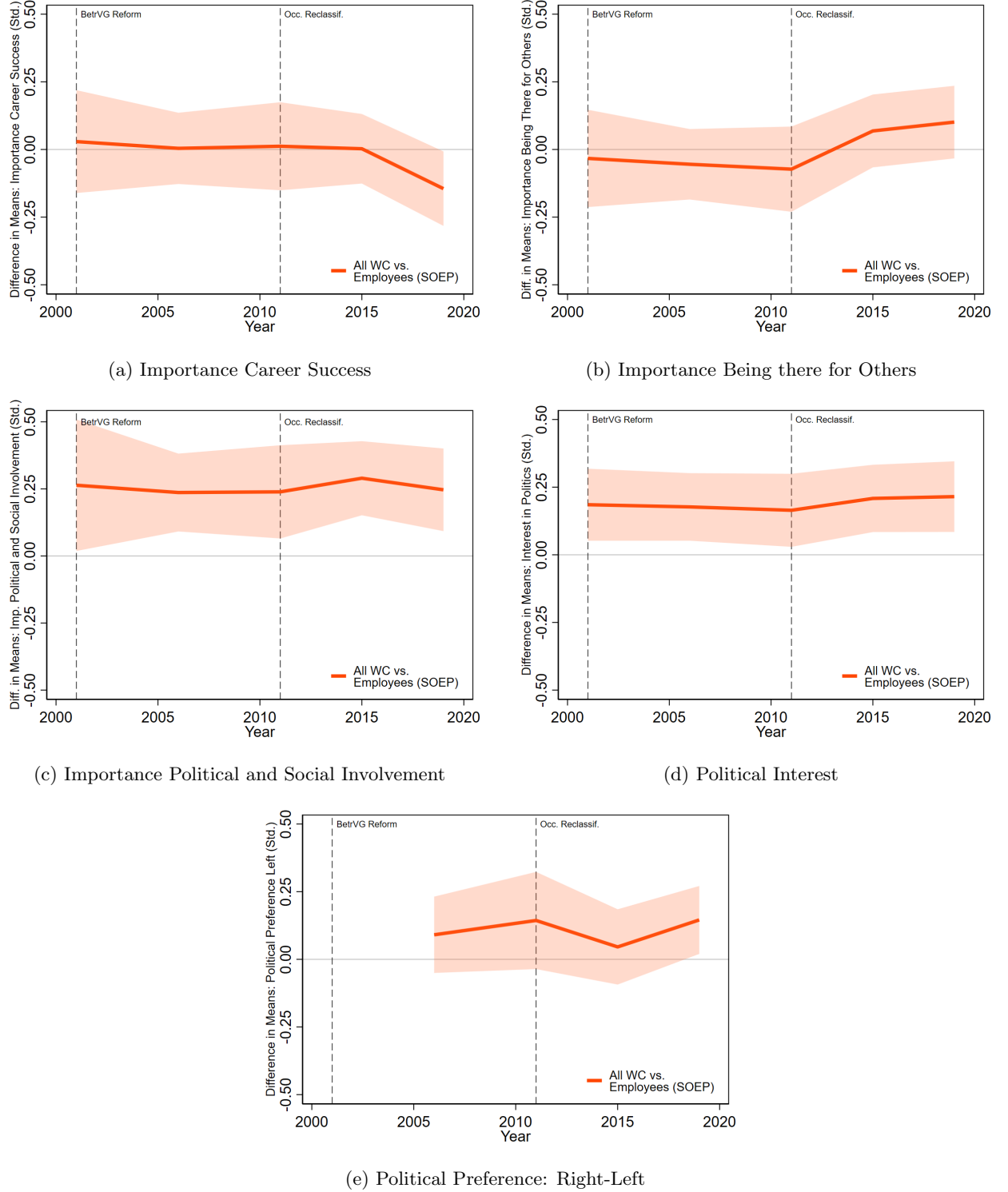Figure 3: Work Council Representatives: Ability and Labor Market Performance
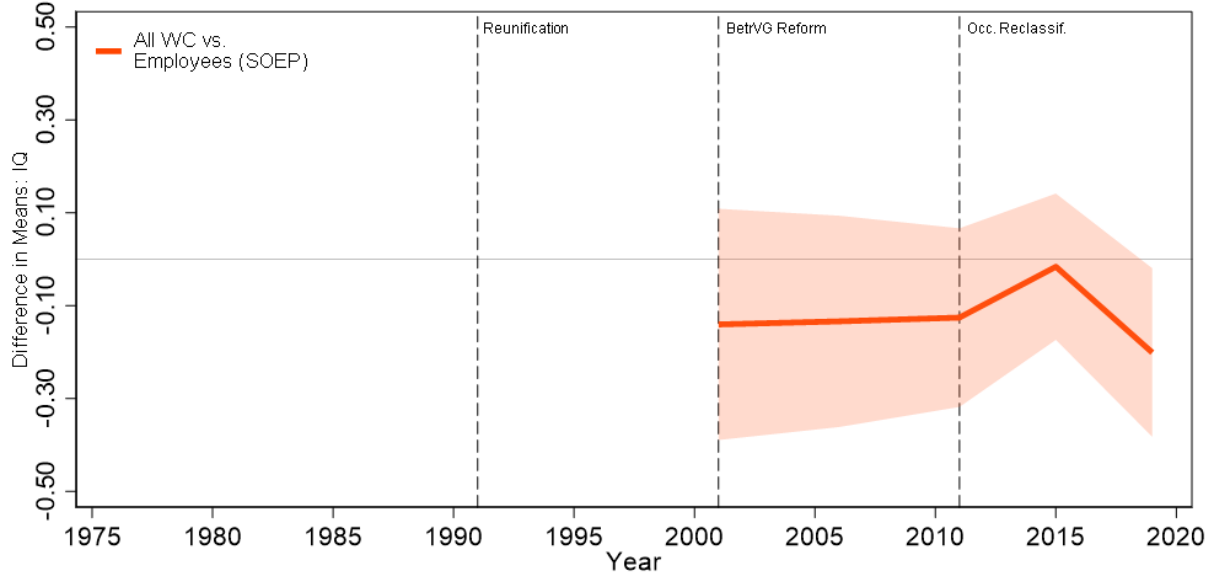
(a) IQ (Symbol Short-scale, Std.)
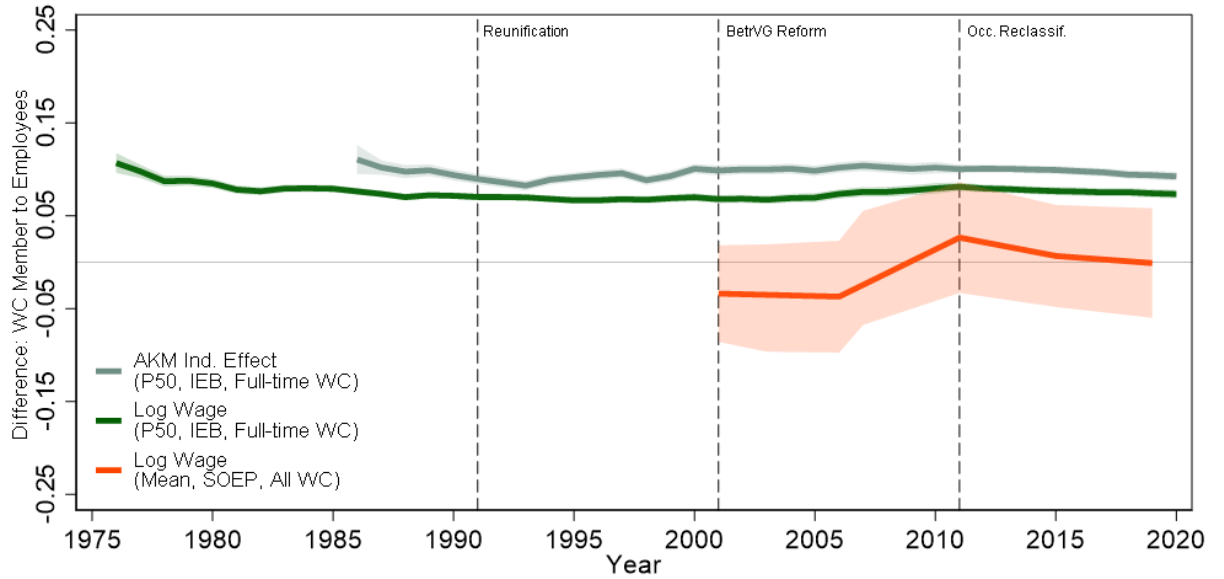

(b) Difference in Wages and AKM Fixed Effects

Notes: This figure shows the evolution of ability and labor market performance of individuals comparing work council members and the employees they represent in establishments with works councils. Wages in the IEB time series are from yearly employer notifications for the social-security system. SOEP wages are self-reported, for details see Appendix Section B. All wages are before taxes and deflated with base year 2010 using the CPI. For the AKM individual fixed effect and the log wage time series (IEB) we first take the difference between each works council member and their respective establishment median and then average over all works council members. Both measures are residuals from a regression on tenure, age, employment status, education, gender and nationality. For the log wage time series using SOEP data we don't observe establishment wage distributions and instead plot the mean wage difference between works council members and employees. We correct the IEB time series for a break in 2011 due to the occupational reclassification by estimating an RD model with a second-order polynomial and a bandwidth of 5 years on each side and adding the estimated discontinuity to the *past* time series.

Figure 4: Work Council Representatives: Political Preferences

(a) Importance Career Success

(b) Importance Being there for Others

(c) Importance Political and Social Involvement

(d) Political Interest

(e) Political Preference: Right-Left

Notes: This figure shows political preferences surveyed in the SOEP for both work council member and non-member employees. Non-member employees are only included for workplaces with a work council. All survey outcomes are plotted in years in which work council membership is surveyed. For survey years in which a given outcome and work council membership are not surveyed simultaneously, we impute outcomes forward in time. For details see Appendix Section B. Shaded regions are 95% confidence intervals.

Figure 5: Work Council Representatives: Personality
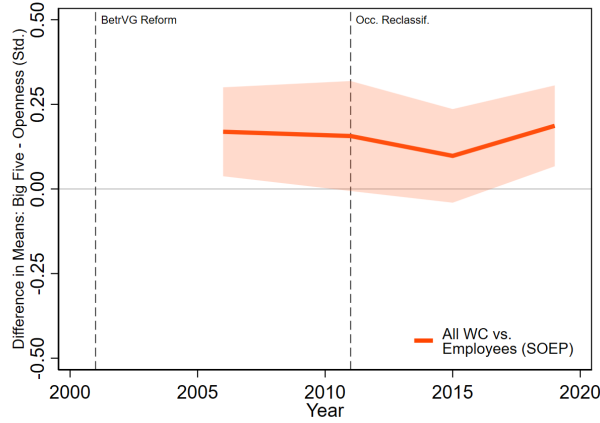
(a) Big 5: Openness

(b) Big 5: Conscientiousness

(c) Big 5: Extraversion
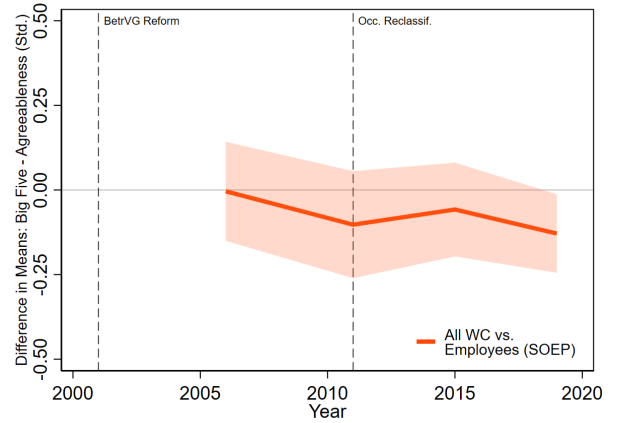
(d) Big 5: Agreeableness
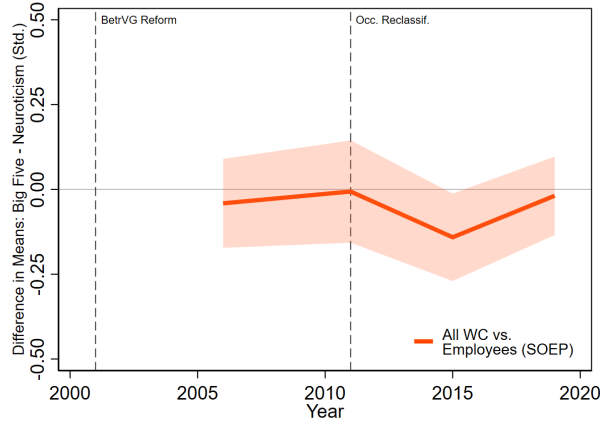
(e) Big 5: Neuroticism
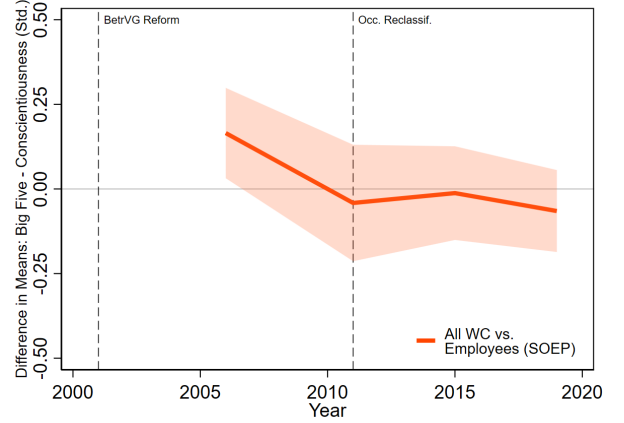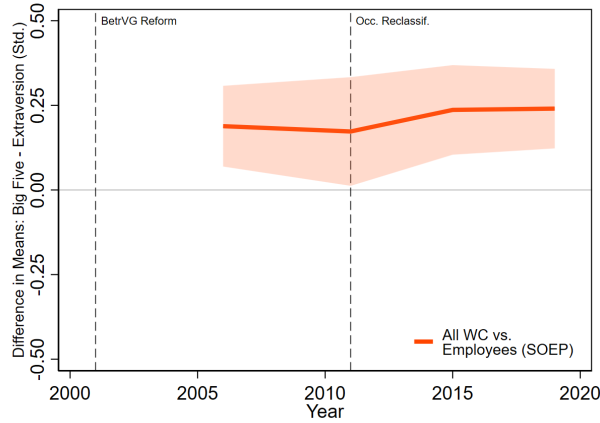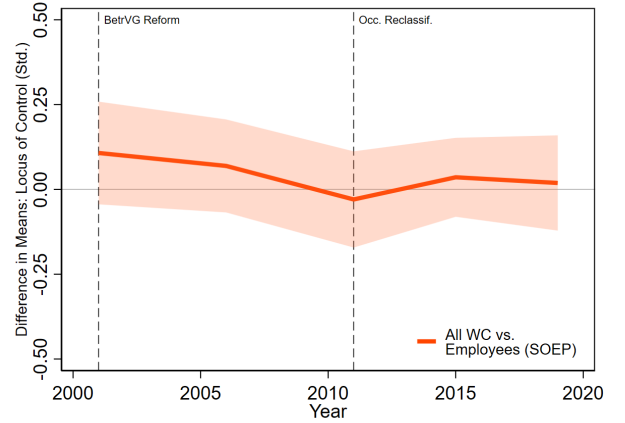
(f) Locus of Control

Notes: This figure shows personality measures surveyed in the SOEP for both work council member and non-member employees. Non-member employees are only included for workplaces with a work council. All survey outcomes are plotted in years in which work council membership is surveyed. For survey years in which a given outcome and work council membership are not surveyed simultaneously, we impute outcomes forward in time. For details see Appendix Section B. Shaded regions are 95% confidence intervals.

Figure 6: First Stage of Group Representation: Actual (Imputed) - and Predicted Works Council Share


(a) Blue Collar Worker

(b) Manual Jobs

(c) Routine Jobs

(d) Vocational Degree

(e) Females

(f) Non-Germans
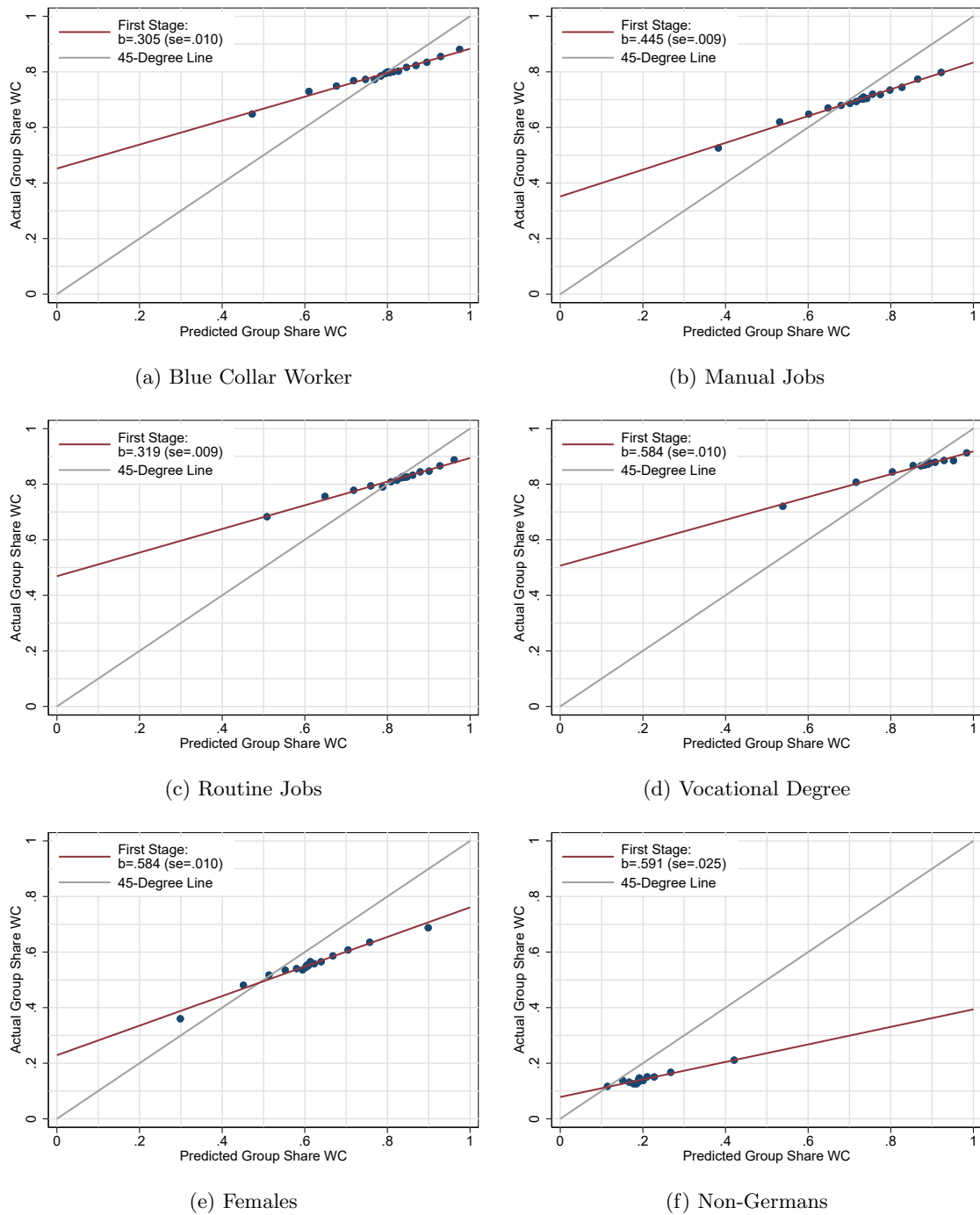
Notes: This figure shows the first stage binned scatter plots from regressing the actual group-share on the expected (exit-induced) group-share, controlling for establishment and year FE. First stage-coefficients and SE (clustered on the establishment level) are reported in the legend. Displayed figures are conditional on the IV being non-zero. The corresponding 2nd-Stage IV Estimates are displayed in Table 2.

Figure 7: Event Study Estimates: Effect of Large Increase in Share Blue-Collar Works Councils on Worker Outcomes
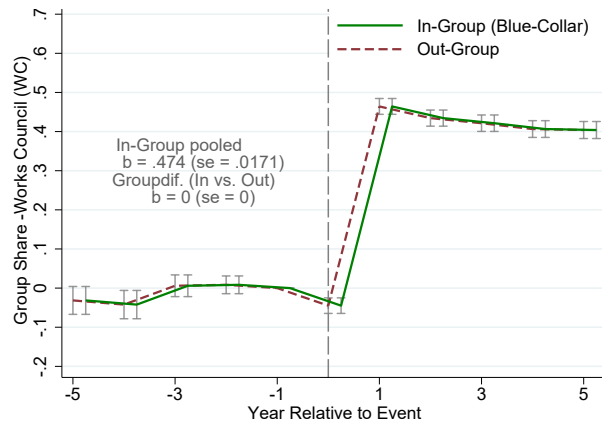
(a) Share of Blue Collar Works Council members

(b) Turnover (Non-Permanent)
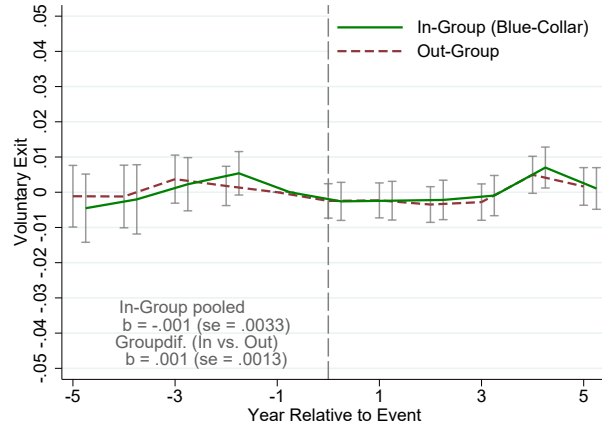
(c) Voluntary Turnover (Non-Permanent)
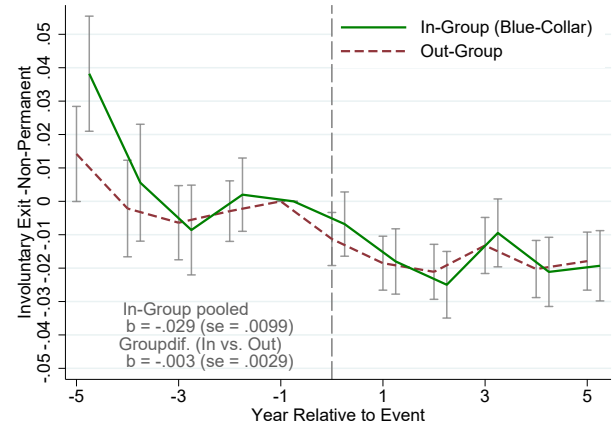
(d) Involuntary Turnover (Non-Permanent)
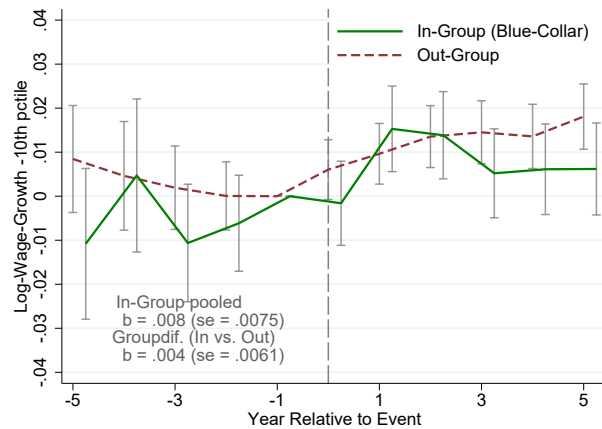
(e) 10th Pctile Log-Wages
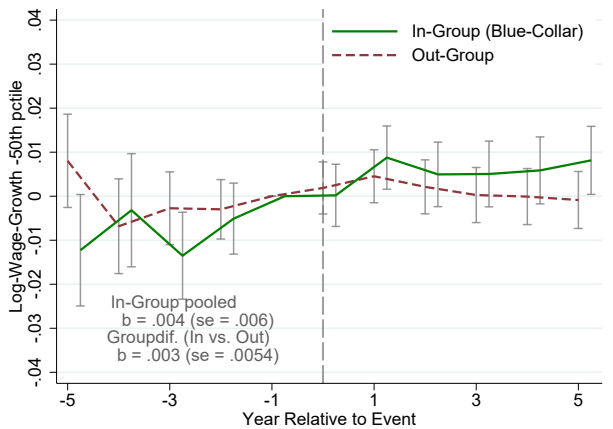
(f) Median Log-Wages

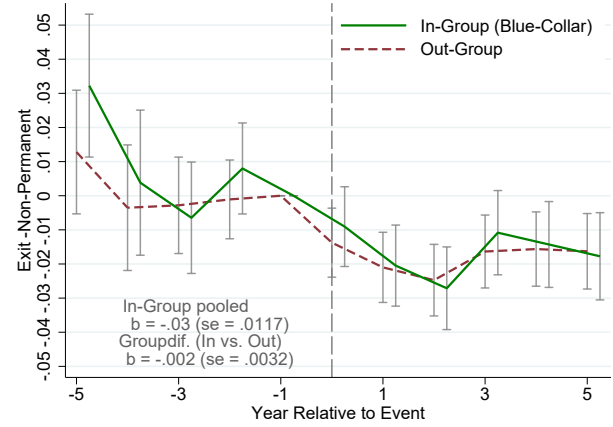**Notes**: This figure shows event-study estimates of the first large increase in the share of blue-collar workers in the works council (increase of $\geq 33\%$ relative to pre-event year) at treated establishments. It restricts to retirement-IV-induced events. Event-study specifications include matched control never treated establishment pre-event (1:1 pscore matching in year prior to event, matching variables include log-firm-size and firmsize dummies, blue-collar composition of the workforce and works council, and state-dummies). Event study specifications are estimated separately for each group, include establishment, year-to-event and year FE and are weighted with the size of the workforce (excluding full-time Works Council members). SE clustered on the establishment level. The green line shows outcomes for the (own) blue-collar group, the red line outcomes for the (other) white-collar group.

Tables

Table 1: Differences between Blue and White Collar Workers

	Full Sample			Works Council Member		
	(1) Blue Collar	(2) White Collar	(3) Difference	(4) Blue Collar	(5) White Collar	(6) Difference
Panel A: Demographics and Labor Market Experience						
Female	0.179	0.551	-0.372***	0.115	0.510	-0.395***
Education: University	0.054	0.324	-0.270***	0.032	0.307	-0.275***
I: Father has Abitur	0.059	0.166	-0.107***	0.056	0.155	-0.099***
I: Has Unemployment Experience	0.393	0.328	0.065***	0.276	0.259	0.017
Panel B: Job Preferences						
How worried are you about ...						
... own Economic Situation	0.766	0.683	0.083***	0.736	0.678	0.059**
... Job Security	0.606	0.478	0.128***	0.544	0.448	0.096***
... Devaluation of Skills	0.294	0.255	0.040***	0.264	0.217	0.048
Career Success: Important or Very Important	0.842	0.823	0.019***	0.848	0.825	0.023
Job Satisfaction (Std.)	-0.045	0.020	-0.065***	-0.026	-0.024	-0.002
Panel C: Occupational Expectations over Next Two Years						
How likely is it that you will experience the following career changes within the next two years? (0-100%)						
Job Loss	22.747	19.624	3.123***	19.959	16.973	2.986*
Promotion	17.606	18.850	-1.244***	17.241	18.889	-1.648
Quit	7.204	8.864	-1.660***	5.112	6.036	-0.925
Further Training	28.610	41.457	-12.847***	33.320	47.392	-14.072***
Panel D: Job Situation						
With which statements about possible job-related burdens of your current job do you agree?						
Increasing Time Pressure	0.633	0.642	-0.010	0.669	0.670	-0.001
Interruptions at Work	0.445	0.609	-0.163***	0.564	0.658	-0.094*
Bad Promotion Prospects	0.626	0.621	0.005	0.624	0.675	-0.050
Job at Risk	0.180	0.142	0.038***	0.166	0.157	0.008
Insufficient Recognition from Superiors	0.383	0.351	0.032***	0.494	0.414	0.079
Wage not fair given Effort	0.552	0.520	0.032***	0.561	0.566	-0.006

Notes: This table shows differences between blue and white-collar workers using the SOEP survey data. Blue-collar jobs are defined as agricultural, simple and qualified manual occupations, technicians, see Appendix Section C for details. *Panel B*: Questions about individual worries are asked on a three-step scale. We standardize satisfaction variables to have mean zero and standard deviation one in the sample. *Panel C*: For all items, individuals are asked to consider: "How likely is it that you will experience the following career changes within the next two years?". Answers are on a 0 (definitely not) to 100 (certainly) scale in steps of 10. *Panel D*: Each item asks whether individuals agree that their current job is characterized by a given feature. For details on outcomes see Appendix Section B. Sample: Survey years 1999-2019, full-time or part-time employment and occupation information, age 20-65, not self-employed, in civil service, in an apprenticeship or school. Note some variables are only surveyed in a subset of years.

Table 2: Effects of Group Representation: Turnover and Wage-Growth - Retirement IV

| | Exit | | | | Log-Wage-Growth | | |
| | Any | Non perm. | Voluntary | Involuntary | 10th pctile | 50th pctile | Mean |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Blue Collar							
Own-Group (Blue-Collar)	-0.00941**	-0.00552*	-0.00181	-0.00396	0.0221***	0.00978**	0.0131***
	[0.003]	[0.003]	[0.001]	[0.002]	[0.005]	[0.003]	[0.003]
Groupdif. (In vs. Out)	-0.0123***	-0.00712***	-0.00194*	-0.00548***	-0.0376***	-0.0373***	-0.0253***
	[0.002]	[0.002]	[0.001]	[0.002]	[0.005]	[0.004]	[0.003]
Mean Dep Var	0.14	0.07	0.02	0.04	4.27	4.60	4.59
N	308434	308434	308434	308434	308434	308434	308434
Panel B: Manual Worker							
Own-Group (Manual Worker)	-0.0109***	-0.00720**	-0.00311**	-0.00400*	0.00826	0.00329	0.00270
	[0.003]	[0.002]	[0.001]	[0.002]	[0.004]	[0.003]	[0.003]
Groupdif. (In vs. Out)	-0.00664**	-0.00337*	-0.00222*	-0.00101	-0.00589	-0.00465	-0.00477
	[0.002]	[0.002]	[0.001]	[0.001]	[0.005]	[0.004]	[0.003]
Mean Dep Var	0.14	0.06	0.02	0.04	4.25	4.57	4.55
N	318502	318502	318502	318502	318502	318502	318502
Panel D: Vocational Degree							
Own-Group (Voc. Degree)	0.00610*	0.00237	0.00117	0.000999	0.0315***	0.0180***	0.0183***
	[0.003]	[0.002]	[0.001]	[0.002]	[0.005]	[0.004]	[0.003]
Groupdif. (In vs. Out)	-0.00280	-0.00258	0.000286	-0.00253	0.0103	-0.00336	-0.00372
	[0.003]	[0.002]	[0.001]	[0.001]	[0.007]	[0.005]	[0.004]
Mean Dep Var	0.14	0.07	0.02	0.04	4.27	4.60	4.58
N	328916	328916	328916	328916	328916	328916	328916
Panel E: Female							
Own-Group (Female)	0.00255	-0.000400	-0.00163	0.00149	0.00702	0.00288	0.00243
	[0.004]	[0.003]	[0.001]	[0.002]	[0.006]	[0.005]	[0.004]
Groupdif. (In vs. Out)	-0.00205	-0.00126	0.000230	-0.000919	-0.00577	-0.00699	-0.00518
	[0.003]	[0.002]	[0.001]	[0.002]	[0.007]	[0.006]	[0.005]
Mean Dep Var	0.14	0.07	0.02	0.04	4.24	4.55	4.54
N	332217	332217	332217	332217	332217	332217	332217
Panel F: Non-German							
Own-Group (Non-German)	-0.00394	-0.000413	-0.00522	0.00519	0.0210	0.00997	0.00975
	[0.012]	[0.009]	[0.003]	[0.008]	[0.015]	[0.015]	[0.014]
Groupdif. (In vs. Out)	-0.0108	-0.00302	-0.00363	0.000336	-0.00443	-0.00182	-0.00104
	[0.009]	[0.006]	[0.003]	[0.005]	[0.012]	[0.011]	[0.009]
Mean Dep Var	0.14	0.06	0.02	0.04	4.27	4.57	4.56
N	294821	294821	294821	294821	294821	294821	294821

Notes: This table shows the (second stage) IV estimate of a (retirement-exit induced) increase in the group-specific share of Works Council members on a variety of outcomes (measured for years later). It shows the own-group effect of increasing the Works Council share in that group from 0 to 100% and the group difference showing the effect of such an increase in the own-group relative to the out-group. All specifications include establishment× group and year × group fixed effects. Robust SE (in brackets) clustered on the establishment level. The corresponding first stage estimates are depicted in Figure 6.

Table 3: Effects of Group Representation: Hires, Promotion and Layoff-Selection

	(1) Log Number Hires	(2) Share Hires Regular (FT+PT)	(3) Share Hires Apprentices	(4) Share Hires Mini-Jobs	(5) Log Entry Wage All	(6) Log Entry Wage Regular (FT+PT)	(7) Promotion 2-Y	(8) Promotion 5-Y
Panel A: Blue Collar								
In-Group (Blue-Collar)	-0.00864	0.00127	0.0134*	-0.0160***	0.0211	0.00225	-0.0869*	0.0529
	[0.025]	[0.007]	[0.007]	[0.002]	[0.011]	[0.006]	[0.035]	[0.103]
Groupdif. (In vs. Out)	0.130***	-0.0489***	0.0309***	0.0232***	-0.132***	-0.0593***	-0.0392	-0.000286
	[0.027]	[0.008]	[0.008]	[0.003]	[0.015]	[0.008]	[0.046]	[0.138]
Mean Dep Var	2.62	0.72	0.21	0.04	3.80	4.21	0.18	0.98
N	261797	261797	261797	261797	261708	248776	292864	249656
Panel B: Manual Worker								
In-Group (Manual Worker)	-0.120***	0.0184**	0.00823	-0.0223***	0.0380**	-0.00277	-0.169***	-0.509***
	[0.028]	[0.007]	[0.006]	[0.004]	[0.012]	[0.007]	[0.042]	[0.135]
Groupdif. (In vs. Out)	-0.126***	0.0123	-0.00132	-0.00731*	0.00762	-0.0134	-0.132**	-0.570***
	[0.029]	[0.008]	[0.007]	[0.004]	[0.014]	[0.008]	[0.050]	[0.147]
Mean Dep Var	2.57	0.72	0.20	0.05	3.77	4.16	0.25	1.21
N	267523	267523	267523	267523	267417	253056	302841	259252
Panel C: Vocational Degree								
In-Group (Vocational Degree)	-0.0895**	0.0280***	0.00430	-0.0318***	0.0844***	0.0321***	0.0167	-0.0640
	[0.028]	[0.004]	[0.003]	[0.003]	[0.011]	[0.006]	[0.030]	[0.120]
Groupdif. (In vs. Out)	0.0449	0.0140	-0.0168*	-0.00494	0.0136	-0.0196*	0.0368	-0.0629
	[0.027]	[0.008]	[0.007]	[0.004]	[0.014]	[0.008]	[0.047]	[0.157]
Mean Dep Var	2.55	0.74	0.19	0.04	3.86	4.22	0.17	0.93
N	277330	277330	277330	277330	277254	263071	312297	265669

Notes: This table shows the (second stage) IV estimate of a (retirement-exit induced) increase in the group-specific share of Works Council members on a variety of outcomes (measured for years later). It shows the own-group effect of increasing the Works Council share in that group from 0 to 100% and the group difference showing the effect of such an increase in the own-group relative to the out-group. All specifications include establishment× group and year × group fixed effects. Robust SE (in brackets) clustered on the establishment level. The corresponding first stage estimates are depicted in Figure 6.

Table 4: Effects of Group Representation: Other Group Definitions

	(1) Log Number Hires	(2) Share Hires Regular (FT+PT)	(3) Share Hires Apprentices	(4) Share Hires Mini-Jobs	(5) Log Entry Wage All	(6) Log Entry Wage Regular (FT+PT)	(7) Promotion 2-Y	(8) Promotion 5-Y
Panel A: Routine Jobs								
In-Group (Routine Job)	-0.0497*	0.0116*	0.00348	-0.0161***	0.0294**	0.00117	-0.0178	-0.215*
	[0.021]	[0.006]	[0.005]	[0.003]	[0.010]	[0.006]	[0.029]	[0.098]
Groupdif. (In vs. Out)	0.00487	-0.0117	0.00983	0.00433	-0.0582***	-0.0408***	0.0159	-0.0533
	[0.024]	[0.007]	[0.007]	[0.004]	[0.014]	[0.008]	[0.045]	[0.151]
Mean Dep Var	2.54	0.74	0.18	0.05	3.85	4.22	0.14	0.78
N	278242	278242	278242	278242	278146	265812	313731	267402
Panel B: Females								
In-Group (Female)	-0.0344	0.000818	0.00702	-0.00826	0.0232	0.0327***	0.0209	0.382*
	[0.034]	[0.007]	[0.006]	[0.004]	[0.013]	[0.010]	[0.049]	[0.187]
Groupdif. (In vs. Out)	-0.0393	-0.00546	0.0113	-0.00387	-0.00904	0.000926	-0.0584	0.673**
	[0.026]	[0.007]	[0.006]	[0.004]	[0.013]	[0.009]	[0.063]	[0.221]
Mean Dep Var	2.55	0.70	0.21	0.05	3.75	4.17	0.17	0.98
N	285631	285631	285631	285631	285541	269762	315415	268293
Panel C: Non-Germans								
In-Group (Non-German)	-0.244**	-0.0112	0.0121	0.00442	-0.0130	0.00778	0.121	0.518
	[0.091]	[0.023]	[0.019]	[0.012]	[0.040]	[0.023]	[0.106]	[0.525]
Groupdif. (In vs. Out)	-0.0991	0.00246	-0.0249	0.0178	-0.0104	0.00863	0.0971	0.321
	[0.081]	[0.021]	[0.018]	[0.011]	[0.040]	[0.023]	[0.202]	[0.545]
Mean Dep Var	2.56	0.73	0.19	0.05	3.81	4.19	0.16	0.92
N	243735	243735	243735	243735	243661	230711	279324	236376

Notes: This table shows the (second stage) IV estimate of a (retirement-exit induced) increase in the group-specific share of Works Council members on a variety of outcomes (measured for years later). It shows the own-group effect of increasing the Works Council share in that group from 0 to 100% and the group difference showing the effect of such an increase in the own-group relative to the out-group. All specifications include establishment× group and year × group fixed effects. Robust SE (in brackets) clustered on the establishment level. The corresponding first stage estimates are depicted in Figure 6.

Table 5: Female Works Council Members and the Child Penalty

	(1) Wage-Loss 2-Y	(2) Wage-Loss (Incl. Exits) 2-Y	(3) Wage-Loss 5-Y	(4) Wage-Loss (Incl. Exits.) 5-Y	(5)
Share Female in Works Council	-0.0365*	-0.0125	-0.0340*	-0.0152	
	[0.016]	[0.008]	[0.013]	[0.010]	
Mean Dep Var	-0.17	-0.80	-0.17	-0.63	
F-Statistic	9599.44	25207.15	14184.38	25207.15	
N	27899	69001	41031	69001	
R^2	0.00	0.00	0.00	0.00	

Notes: This table shows the (second stage) IV estimates of (retirement-exit induced) increase in the group-specific share of Works Council-members on the child-penalty. Selected are all events where females are reported as mothers using ... All specifications include establishment and year fixed effects. Robust SE (in brackets) clustered on the establishment level. The corresponding first stage estimates are depicted in Figure 6.