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The impact of works council membership on wages in Germany: a case of strategic discrimination?*

Clément Brébion†

Abstract

This paper provides new insight into the quality of cooperation between employers and workers in Germany by estimating the impact of works council membership on wages between 2001 and 2015. It falls within a stream of research on collective organisations that has shifted focus away from the perspective of covered firms and their average worker to concentrate on the actors leading the negotiations. To my knowledge, this is the first economic analysis of a non-unionised form of representation to adopt this orientation. The main model of identification is an OLS with time and individual fixed effects conducted on a subsample of the German Socio-Economic Panel. I find that for individuals switching status without changing firm, being a works councilor increases the hourly gross wage by 4.5% in the manufacturing sector, while a penalty of 4% is evidenced in the service sector. I present several types of evidence showing that the impact is causal. Finally, I show that politically active representatives receive most of the (negative or positive) premium. Turning back to the context, I explain why this is likely to reflect a strategic behaviour of employers and a decline in the quality of cooperation in the country.

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Introduction

> *"The main body of research on work councils has been conducted on a collective institutional level, neglecting work council members at an individual level. In times of changing industrial relations, the importance of work councils in management decision making has risen steadily and thus further research of its members is required."*
> (Störmer, 2010: 244)

Depending on a nation's institutions, two main types of elected actors can represent the labour force on the shop floor: union delegates and works councilors. The former take part in collective bargaining and act on behalf of a union which dimensions and preferences exceed the scope of the firm. The latter do not report their decisions before such a superseding organisation; they can only sign firm-level agreements, and their objectives are expectedly shaped according to the conditions that apply within the company. Despite the broad diversity in their entitlements across institutional frameworks, a common trend with regard to their functions can be highlighted (Baccaro and Howell, 2011). In a generalised context of the decentralisation of collective bargaining, works councilors and union delegates have gained in power nearly everywhere. They are entitled to negotiate with their employer over an increasing range of questions and, as such, they take on increasing strategic importance for both employers and employees.

The economic literature has been prolix on the causes and effects of firm-level negotiations from the perspective of covered firms and their average worker. However, very little is known about how representatives themselves fare. To my knowledge, only one stream of research has worked on the issue (Breda, 2014; Bourdieu and Breda, 2016). It focuses on union delegates in France and finds that exerting such mandates is associated with an average wage penalty of about 10%. Bourdieu and Breda suggest that the link is causal and could explain why few workers are running for these positions. More generally, in a context of decentralisation of the bargaining process, such pieces of work are likely to reveal much about the 'black box' of collective bargaining at the firm level.

In this paper, I focus on the fate of works councilors in Germany. It is indeed especially important to examine the influence of mandates on careers at the firm level in the country. The traditional German model of industrial

relations relies on two mainstays: collective bargaining at the branch level between unions and employers' associations and plant-level codetermination involving managers and works councilors. The German model is renowned for the cooperative features it entails on the shop floor, and the propensity of both national and foreign economic actors to praise it has remained strong and steady over time. In particular, German works councils are often considered the most promising collective organisation in terms of rent generation at the firm level. Traditionally released from negotiations over distributional questions, they still benefit from the strongest codetermination rights in the West. However, despite the resilience of the formal structure of negotiations in Germany (Thelen, 2009), strong forces for change have been exerted on the German institutions of collective bargaining since the reunification[3], to the point that they "have been subject to quite dramatic levels of change" (Baccaro and Howell, 2017). The extent to which the cooperative feature of the traditional German model – and, at its core, the ability of works councils to generate rents – still applies today is therefore unclear.

I use data from the German Socio-Economic Panel (GSOEP) to assess the impact of works council membership on earnings in the country between 2001 and 2015. Thereby, I fill a hole in the economic literature, and I introduce elements from the shop floor to the question of the demise of the cooperative model of reference in industrial relations (Hall and Soskice, 2001; Addison et al., 2017). The baseline regression is an OLS model with individual and time fixed effects that controls for union membership. It shows that for individuals switching status within a firm, works council membership increases the hourly gross wage by 4.5% in the manufacturing sector, while a penalty of 4% is evidenced in the private service sectors. In the manufacturing sector, I can show that the average causal gain in fact increases to 7% when correcting for the downward trend in earnings that representatives experience before their election. Such a pre-trend analysis is not possible in the service sector due to data limitations. A series of robustness checks of these results is then provided. Finally, I return to the context and build on Breda (2014) and Bourdieu and Breda (2016) to suggest that the strategic behaviour of rational employers is

[3] In particular, Kinderman (2005: 432) has highlighted employers' attempts to "subver[t] existing institutions from without (politically) and from within (in the industrial relations realm)".

likely to explain the results in both sectors. In particular, two last tables showing that wage (dis-) advantage mostly affects politically involved works councilors bring final statistical evidence in favour of this interpretation.

The text is organised as follows. I first review the economic literature on the impacts of collective organisations on covered firms as well as the few papers analysing the career trajectories of works councilors. Second, I describe the evolution of the German institutional context since reunification. After providing some details on the GSOEP database and presenting some descriptive statistics, I then turn to regressions that bring evidence that works council membership is associated with a differentiated premium according to the sector. I finish by presenting some elements of proof regarding the strategic discrimination that, I claim, is likely to be at play in both the private service sectors and the manufacturing sector.

1 The economic literature

1.1 The literature on collective labour organisations is mostly limited to the estimation of their impacts on covered firms and workers

Economic research on collective organisations has chiefly tried to disentangle their impact on employment, working conditions and performance in covered firms. Until the mid-to-late 1980s, such research mostly dealt with unionized forms of representation. The traditional neoclassical models on the matter emerged in Dunlop's article (1944), which treats unions per the model of firm monopolies. In this view, unions would alter the optimal frictionless equilibrium by negotiating higher wage levels than the competitive one, thereby leading firms to respond with a drop in both employment and production.

A few streams of research departing from the sole rent-seeking feature of unions emerged in the late 1970s. The first one builds on Freeman (1976), who applied Hirschman's exit-voice model (1970) – later completed by Bajoit (1988) – to the unionized world. It addresses the asymmetry of information regarding the satisfaction of employees with their working environment. According to this stream of research, an agent can react to dissatisfaction with her working

conditions in four different ways: 'exit', 'apathy or neglect', 'loyalty' and 'voice'. In the first case, she decides to leave the firm. In the second, she remains in the firm but shirks. When loyal, the agent continues believing in the employer and keeps her dissatisfaction to herself. In the last case, she decides to discuss the source of her dissatisfaction with her employer.

In this stream of research, management is willing to see workers remain in the firm and be involved in their job. Yet managers are unable to precisely observe workers' 'mood' and productivity. The two first options are therefore clearly suboptimal for such employers. 'Loyalty' and 'voice' ensure satisfactory levels of cooperation. However, the former may not constitute a long-lasting equilibrium if the employer is not aware of the source of discontent while the latter eases her task of dealing with it. By easing the 'voice' response to job dissatisfaction, the presence of union representatives therefore decreases asymmetries of information in the firm. Unions are then likely to limit turnover, thereby reducing hiring and training costs and increasing firm-specific investment from both employers and employees. Another way for unions to benefit the firm could also be through the completeness of contracts. In short, unions may have the ability to ensure that both employers and employees act in the bests interests of the firm rather than according to their sole interests, thereby reducing the recurrence of events unplanned in contracts (see Pencavel, 1977: 139).

The rising theoretical recognition of unions' capacity to generate rents opened the way for two robust streams of research. First, a large number of empirical papers have tried to disentangle which of the rent-seeking or rent-generating sides of unions dominate in covered firms by estimating unions' impact on wages, employment or working conditions. Detailing these results is beyond the scope of this paper; for a review, see, for instance, Ferracci and Guyot (2015).

Second, such research renewed scholars' interest in works councils. According to Freeman and Lazear (1995: 29), "in contrast to plant-level unions, councils cannot call strikes nor negotiate wages […]. Their function, often specified in legislation, is to foster labour and management cooperation with the goal of increasing the size of the enterprise 'pie'". As such, in contrast to unions, works councils have a limited capacity to seek rents while their ability to generate rents is maximised. This is particularly true in Germany. There,

collective bargaining agreements on most strategic issues (including wages) are relegated to the branch level, which limits conflicts on the shop floor. German works councils also benefit from the largest rights to co-determination and joint-management[4] in the Western world (see section 2 and box 1). At a time of de-unionisation and in a context of the absence of consensus regarding the economic benefits of unions, works councils have therefore appeared as a possible source of welfare gains, opening the way for empirical research on the matter. Since FitzRoy and Kraft's seminal series of papers (1985; 1987, 1990), most research has focused on Germany. A review is provided in box 1. Overall, the most recent research in industrial relations finds a positive impact of German works council on firm performance which is boosted when the firm takes part in branch-level collective bargaining. The impact on wages is more ambiguous both in itself and when combined with coverage of branch-level CBAs.

[4] Following Crifo and Reberioux (2019), I distinguish between co-determination and joint-management. The former is defined by a large share of workers' representatives serving on the firm board. The latter applies when representatives benefit from veto power on the consequences of strategic decisions (lay-offs, etc.), thereby constraining employers to find agreements beforehand.

Box 1: Review of the empirical literature on works councils in Germany

In this box, I briefly review the empirical literature regarding the impact of works councils and their interaction with bargaining coverage on firm performance and wages.

In their metadata analysis of the impact of works councils on firm performance, Addison et al (2004) classify the literature into three groups. The first includes studies with representative databases of specific sectors in the early 1990s or before. The second builds on representative surveys of the entire private sector in the 1990s. The third is more recent and based on administrative data. The authors show that the estimated causal impact of works councils on firm performance varies according to the type of studies: respectively, mostly negative, positive and ambiguous (though positive if anything). The explanation would stem from differences in sample size, the underlying populations and in the coverage of CBAs. Note that the third type of study has expanded since then; the impact in the 2000s seems unambiguously positive (Addison et al., 2006; Wagner, 2008; Jirjahn and Mueller, 2012; Brändle, 2017).

Works council coverage is then associated with larger wages (about +20%, Addison et al., 2001; Ellguth et al., 2014). However, the causal impact is not clear-cut. Addison et al (2001) and Kraft and Lang (2008) find no effect, whereas Addison et al (2010) and Brandle (2017) observe a positive impact of approximately 6 to 8%. This literature mostly treats selection into covered establishment by adding selectivity terms in the main equations. These are generally computed via side bivariate probits.

A further stream of research has shown that the role works councils play may depend on the coverage of collective bargaining agreements (CBAs). However, if a consensus has emerged on the importance of taking into account the interaction between the two institutions, its impact is still under debate. Note that in any case, coverage of CBAs should therefore be taken into consideration when addressing the endogeneity of works councils. This is barely the case in the aforementioned articles.

According to Jirjahn (2014: 3), CBAs can have "two moderating influences. First, [...] collective bargaining coverage limits the opportunities of a works council to engage in rent-seeking activities. Second, collective bargaining coverage increases the effectiveness of the work practices negotiated between works council and employer [and therefore the rent to be shared]". Both push towards an increase in productivity, but they go in opposite directions regarding wages (negative and positive, respectively). Depending on the sample and on the years, the results may differ. Thus, the impact of works councils on productivity is unambiguously stronger in firms covered with CBAs (Hübler and Jirjahn (2003), Mueller (2011), Brandle (2017)). But, the impact of the interaction on wages is positive for Hübler and Jirjahn (2003), non-significant for Addison et al (2010) and Brandle (2017) and negative for Gürtzen (2006) and Gerlach and Meyer (2010).

I turn now to the interaction between WoCos coverage and the existence or the use of derogations to CBAs (see section 2

for details on derogations to CBAs). Note first that, among firms covered by CBAs, the right to use opening clauses is more widespread among firms with a WoCo. According to Ellguth et al. (2014), this figure reflects the fact that opening clauses are not solely 'austerity measures' – which works councils would be expected to limit – but also 'stepping stone' changes to boost firms' competitiveness. The right to recourse to an opening clause is associated with a rise in wages that is cancelled when used in firms with no WoCo but not in those with a works council (ibid, with a lesser degree of significance, Brandle (2017) finds this same latter result). Note that, for Ellguth et al. (2014: 105), "these results should not be interpreted as sheer rent-seeking actions because it may also be true that works councils offer alternative or even better and more sustainable solutions to economic problems than simple wage reductions".

1.2 The case for analysing the impact of works council membership on wages in the German context

The aforementioned literature focuses on the impact of collective bargaining on firms and their average worker. It has shown that the overall impact of shop-floor labour organisations on working conditions, wages or firm performance depends on the institutional context and on representatives' willingness to cooperate. The value ascribed to labour representation by profit-maximising employers is therefore expected to vary according to these determinants, which are in turn likely to affect representatives' earnings.

These elements urge us to turn our attention towards the careers of shop-floor actors involved in collective bargaining. The economic literature on the matter is very thin[5]. As of today, to the best of my knowledge, the French stream of research led by Breda (2011, 2014) and Bourdieu and Breda (2016) remains the only economic research dealing with workers' representatives at the individual level.

The present paper falls within the scope of this research stream. In the two following subsections, I formalise the hypotheses according to which the

[5] In 2010, Stormer stated: "the main body of research on works councils has been conducted on a collective institutional level, neglecting works council members at an individual level" (Störmer, 2010: 244). Four years later, Breda wrote: "there is no quantitative economic paper in French or English dealing with the role of union leaders, either at the level of the firm or at the national level" (Breda, 2014: 6).

prerogatives of shop-floor representatives and their vehemence are expected to determine their wage trajectory.

1.2.1 The expected impact of representatives' strength and prerogatives on their earnings

Section 1 shows that large entitlements granted to shop-floor organisations over distributional matters are likely to result in conflictual relations between representatives and their employer and to hinder organisations' ability to generate rents. Conversely, binding collective agreements at a higher level are expected to ease cooperation between employers and representatives on the shop floor. Given these elements, it is therefore expected that works councilors generate stronger rents than union delegates because the latter benefit from more encompassing prerogatives over strategic issues. This is especially likely to be the case in Germany, where the traditional model of industrial relations (i) equips works councils with stronger co-determination rights than in most countries and (ii) ensures that industrial-level collective bargaining predominates on distributional questions.

Assuming that profit-maximising employers integrate the impact of collective organisations in representatives' earnings therefore leads to the following hypotheses.

H1: The more encompassing the prerogatives of a shop-floor labour organisation on distributional matters, the lesser the wage of its members.

H1.1: Works council mandates in Germany are better valued than union delegation in France.

H2: The larger the coverage of branch-level bargaining and the more binding it is, the higher the wage of shop-floor representatives.

Furthermore, Fairris and Askenazy (2010) have mentioned that collective organisations[6] need involvement of standard workers into cooperation to implement rent-generative policies. In particular, workers must show willingness to provide bottom-up suggestions. Yet, the authors make it clear that goodwill of the workforce depends on the reward. In these lines, two equilibria could appear depending on the capacity of collective organisations to ensure credible commitment from employers to share the surplus generated via cooperation.

In the first case, the works council is able to harm firm's profits[7] in the event where the employer does not respect her commitments. Employees are therefore willing to cooperate which produces some surplus ultimately shared between labour and employers. This is a 'win-win' situation in which works councilors are pivotal. Profit-maximising employers may therefore offer them a specific reward to ensure they 'properly' play their role. This first equilibrium is more likely to take place in high value added sectors where labour-employer cooperation can bring the largest surplus. Note also that the game is dynamic in the way that trust between actors is necessary to achieve rent-generation: behaviour in past periods has consequences on latter quality of cooperation. This 'win-win' equilibrium is therefore more likely to take place in sectors with a strong culture of cooperation.

Consider now a sector with low unionization rates and a weak culture of cooperation. Works council have a low ability to organise the workforce, to refer to unions in case of non-respect of codetermination laws and, in the end, have little capacity to harm firm performance. These situations are especially likely to take place in low value added sector with a strong turnover. There, cooperation on non-distributional issues is less likely to generate large surplus since the most strategic variable is wage levels. Employers therefore have weak incentives to share powers. The strong turnover also limits workers' incentives to invest into forward-looking bargaining. In this context, works councils cannot sufficiently involve employers and the workforce into cooperation. It sticks to its rent-seeking actions and employers lead councilor-busting policies.

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[6] Their arguments deal with works councils but can be extended to shop-floor unions.

[7] State-sanctioned codetermination rights help but are neither necessary nor sufficient (Fairris and Askenazy, 2010: 212).

This reasoning reinforces hypothesis *H2* given that a large coverage of branch-level bargaining is likely to reflect a strong culture of cooperation. More generally, it leads to the following hypothesis which, as mentioned, largely relates to *H2*:

> *H3: The stronger the culture of cooperation and unionization rates, the larger the premium of works councilors*

1.2.2 Vehemence and representatives' earnings

In their research, Breda (2011, 2014) and Bourdieu and Breda (2016) showed that French union delegates are at risk of facing "strategic discrimination". Their reasoning is based on the heterogeneity of labour representatives in a given institutional setting. Shop-floor representatives play two bargaining games at the same time with their employer: one through their mandate on behalf of their colleagues, and another about their own career evolution (promotions, working conditions, etc.), like any other employee. As a result, "two Nash equilibria can result from the interaction between the union representative and his employer" (Breda, 2014: 6). The first one is a cooperative equilibrium, where the representative trades laxity in her positions as an elected delegate against particular improvements in her working conditions relative to her colleagues. Conversely, a non-cooperative equilibrium will occur when the representative strongly negotiates for her colleagues. In this latter case, her employer could ensure that the delegate's career stagnates to deter further activism in the firm[8].

Turning to empirics, Breda (2014) and Bourdieu and Breda (2016) find an average wage penalty of about 10% for union delegates, which is positively correlated with the vehemence of the union to which they are affiliated. Bourdieu and Breda suggest that the penalty would stem from a smaller

[8] Note that this reasoning emphasises the rent-seeking feature of shop-floor representatives – for themselves or on behalf of their colleagues – and misses the positive impact that cooperation can have on the total surplus to be shared. As mentioned in section 1.2.1, negotiations on non-distributional issues are connected to wage bargaining and profit-maximising employers can have an interest in being generous in the latter to ensure cooperation of the workforce.

likelihood of being promoted. Accordingly, they consider that employers exert some 'strategic discrimination' against works councilors.

This literature raises a new hypothesis to be tested in the analysis of the impact of works council membership on wages in Germany:

H4: The premium associated with shop-floor mandates is negatively correlated with representatives' vehemence.

Note that it also reinforces hypothesis *H1.1,* according to which works council mandates in Germany are expected to be better valued than union delegation in France. Employers indeed more often characterise labour-employer relations as cooperative in Germany than in France (see box 2) – though the difference is less clear-cut in regard to workers' self-estimation.

Box 2: Quality of the employer – worker relations in the OECD countries

As suggested above, the nature of the relations between employers' and employees' representatives may affect the risk of encountering cases of strategic discrimination. In this box, I classify OECD countries per the quality of their labour-employer relations. Figure 1 displays the classification according to employers. Figure 2 gives a similar statistic according to employees.

Figure 1 uses a country × year index accounting for employers' estimation of the quality of labour-employer relations. It is taken from the Global Competitiveness Index Historical Dataset from the World Economic Forum. The larger the index, the more positive the estimation is. I display this index in 2007 and 2015 in a range of OECD countries.

Germany ranks in the second third, while France is nearly last on this scale. According to this ranking, if negative discrimination is positively correlated with confrontational relations on the shop floor, such discrimination is therefore expected to occur less often in Germany than in France.

Yet, employees' estimation of the quality of relations between management and employees gives a more nuanced picture. In Figure 2, I use a similar index from Figure 1 but, this time, according to employees' views. It is taken from the International Social Survey Program. Scores vary from 1 (very bad) to 5 (very good). As displayed in Figure 2, scores in 2015 do not strongly differ between countries or according to union status.

[**Figures 1 and 2 about here**]

2 The institutional context

Before turning to the data, this section describes the evolution of the German model of industrial relations. It leads to a fourth hypothesis to be tested.

Germany has long been described as an economy where a widespread dual system of industrial relations that relies on both branch-level and firm-level coordination ensures peaceful coordination between employers and employees, which is said to be favourable to rent generation. However, the extent to which this still applies today is unclear. I first describe the traditional structure of bargaining before highlighting how it recently evolved.

2.1 The two pillars of the traditional German model of industrial relations

Modern industrial relations in Germany are structured around two pillars (re)institutionalised by the 1949 Collective Bargaining Act and the 1952 Works Constitution Act. The first pillar consists of industry-wide regional (or sectoral) collective bargaining that takes place every four years between trade unions and business associations. It typically includes questions of wage, working conditions, working time and job classification. While the agreements reached by these bodies are legally restrained to unionized workers in firms with membership in the signatory association, they are generally also applied to their non-unionised colleagues within these companies. Conversely, they are rarely extended to the whole sector: in 2009, that was the case in only 1.5% of all sectoral agreements (Addison et al., 2017: 30). Importantly, unions are not entitled to call for strikes outside of these four-year rounds. Collective agreements can also be struck at the firm level between unions and a company, even though this possibility is rarely used[9].

The second pillar consists of firm-level bargaining between employers and works councils. When referred to by the workers, employers in private firms with at least five permanent employees are required by law to facilitate the

[9] It covers about 7% of all German employees according to Addison et al (2017, p. 15).

constitution of a works council and to bear its costs – including the cost of elections, works councilors' wage and training, and the cost of premises and equipment (2001 Works Constitution Act (WCA) (sections 20 and 40)). There are also works councils in the public sector ("Personalrat") but with fewer powers. Professional elections take place every four years. As previously mentioned, legally, works councils can only strike deals on issues that "have [not] been fixed or are [not] normally fixed by collective agreement" (WCA section 77-3). This can include pay systems, working time, holidays and social issues, but, in the end, they have few rights over distributional issues (wages[10], etc.).

Confined to these less conflicting questions of personal and social matters rather than to financial and economic decisions, works councils are expected to smooth relations between labour and employers at the plant level. Thus, the WCA (section 2) states that works councils should cooperate with management "in a spirit of mutual trust […] for the good of the employees and of the establishment". Both should therefore "refrain from activities that interfere with operations or imperil the peace in the establishment" (section 74). Nevertheless, works councils' powers should not be underestimated. They benefit from extensive information on firms' strategic orientations, they are very well represented in the supervisory board[11] and, for instance, have veto rights on some individual staff movements as well as co-determination rights on overtime and plans of reduced working time. Even though they cannot call for a strike, these entitlements provide them with some power resources to use over disagreements with management. Note that since 1989, the executive staff has been entitled to set up separate representative committees (Müller-Jentsch, 1995: 61) – although joint elections remain possible.

The two pillars are not fully independent for two reasons. First, when a collective agreement is reached, works councilors are in charge of checking its

[10] Even though they can indirectly influence earnings via wage classification or by negotiating wage premiums (Ellguth et al, 2014:106). See Müller-Jentsch (1995:59-60) for an extensive description of the works council's participation rights.

[11] E.g., half of the seats in the coal and steel industry, half minus one seat in other firms with more than 2000 employees, and a third in those with 500 to 2000 employees.

application in the signatory firm(s)[12]. Second, works councils depend *de facto* on unions: the latter supplies the former with expertise, and approximately two-thirds of works councilors are union members (slowly decreasing trend).

2.2 A departure from this theoretical case

Both national and foreign actors have praised the organisation of the traditional German model of industrial relations and, as of today, it remains attractive. In particular, it is deemed to minimise conflict at the firm level and to maximise works councils' capacity to generate rents. However, the collective feature of the model has experienced strong pressure since the mid-1980s, and industrial relations in the country have largely departed from the aforementioned equilibrium. Four main sources of pressure should be noted: (i) unionisation rates have plummeted; (ii) the financialisation of the economy has tilted the balance towards shareholders rather than stakeholders (Goyer, 2007); (iii) globalisation has magnified employers' interest in flexibility (Müller-Jentsch, 2018); (iv) the growing trade integration of the old Eastern bloc has increased threats of production shifts towards the East. In this context, employers have grown increasingly interested in bringing the core of industrial relations from the industrial or regional level back to the shop floor, and they have growing power resources to do so. Both an internal and external erosion of the traditional German model of industrial relations have therefore materialised.

2.2.1 Internal discrepancies with the traditional model of industrial relations

2.2.1.1 'Wildcat cooperation': works councils' illegal deals in firms covered by CBAs

De jure, any workplace agreement signed between an employer and his works council to deviate from a collective agreement – either positively or

[12] This was their actual primary responsibility when they were legally established in the Weimar Republic (Müller-Jentsch, 1995:53-54)

negatively – is null and void (Weiss and Schmidt, 2008). Yet, in practice, 'wildcat cooperation' has never been rare. According to Müller-Jentsch (1995: 62), "during the 1960s and 1970s it was usual for works councils in large companies to negotiate informally with management about additional wage increases after conclusion of an industry-wide wage agreement, although this practice was not authorized by the law". Thus, in his 1980 paper, Witte finds that 85% of the large manufacturing firms had signed works agreements exceeding works councils' legal rights to co-determination. This feature has strengthened since then, but, most importantly, the direction of these deviations has changed. Against downward pressure on employment, works councils are increasingly trading components that are negative for the workforce against more job security. For instance, representatives increasingly keep silent when employers do not apply a collective agreement. Bargaining over "amendments to every single individual employment contracts" (ibid) constitutes another example of widely spread circumvolutions of legal rules today.

Historically, institutional rules in Germany were designed to relegate workplace agreements to secondary importance behind CBAs. However, the spread of 'wildcat cooperation' highlights the strategic importance of works councilors, including for firms covered by CBAs. In these companies also, management has a strong interest in maintaining cooperative relations with labour representatives.

2.2.1.2 'Organised' erosion: the growing number and use of derogations

To limit recourse to 'wildcat' strategies, to accommodate firms' desires to depart from a 'one size fits all' approach and to counterbalance the downward pressure on membership rates, employers' associations and unions have been constrained to engage with innovative institutional designs. They are of several types (see box 3), and the trend is towards developing them strongly (see table 1 taken from Addison et al. (2017: 46)). These institutional innovations displace the core of industrial relations from the branch to the firm. As such, they strengthen the importance of works councils both positively and negatively.

Such importance is first strengthened positively because, in the aforementioned cases, works councilors can no longer rely on the mandatory character of branch regulations and therefore have to engage in bargaining over broader issues than in the traditional model. As a result, their claims have gained in strategic importance, and management has increasing incentives to take actions to favour more peaceful members against radical ones at election time.

The importance of councils is also strengthened negatively because management's utility may decrease when a works council is first voted in. Firms can indeed recourse to opt-out clauses and 'pacts for employment and competitiveness' (PECs) in the absence of a works council by bargaining directly with the workforce[13]. It is known that works councilors are more unionized than the average worker (respectively about 60% and less than 20%[14]), and they may therefore be more assertive in the concessions demanded from management. As a result, employers could be tempted to avoid the creation of a works council when it does not already exist in the plant or to undermine its continuation when it does exist. 'OT affiliations' are exemplary of this latter case. They go further than single clauses by allowing a firm to leave CBAs more broadly while remaining in the employer association (see box 3). By not taking part in branch collective bargaining, firms expose themselves to local strikes triggered by a union willing to enact collective firm-level agreements. Accordingly, one would expect employers benefitting from OT membership to be harsher against unionized workers – whose leaders are often works councilors – than firms with traditional membership.

[Table 1 about here]

[13] Most uses of opt-out clauses occur in establishments with no works council – although this is not true in terms of employees – and this feature is clearly strengthening (Addison et al., 2017: 46). Thus, counterintuitively, "there is little indication that the pronounced increase in the use of opening clauses has stimulated works councils since their relative incidence is little affected by activation or nonactivation".

[14] Addison et al (2006: 7) ; same in my data.

Box 3: Different types of institutional innovations deviating from branch-level collective agreements.

First established at the time of reunification, 'hardship clauses' applied to the case of firms in economic distress in Eastern Germany. Generalised to the West under the name of "restructuring clauses", they entitled an employer and a works council to sign agreements deviating from CBAs on the condition that the collective organisations ratified the clause. Note that the latter could ask for detailed economic information to ensure that the deal was indeed necessary and helpful for the company's recovery.

Branch-level unions and employers' associations later relaxed the conditions for local actors to bargain over topics that normally do not lie in their reserved area – including the possibility of deviating from the existing collective agreement.

More recently, the so-called 'opening clauses' are only subject to an explicit goal of increasing competitiveness, to a commitment to innovate or, more broadly, to future investments. Depending on the collective agreement, firms may have to justify their position against the collective actors or not.

Note that in both the case of 'hardship clauses' and 'opening clauses', for derogation to be used in a firm, the management and the workforce or the works council have to come to an agreement on the issue. The job alliance is therefore often reached against some explicit pledge on the employer's part to protect employment or to engage in investment programs. According to Seifert and Massa-Wirth (2005), 87% of all job alliances involved concessions from management in 2003. In this case, job alliances are generally branded 'company-level pacts' or 'pacts for employment and competitiveness' (PECs). Note that PECs do not necessitate the existence of a works council in the firm because the workforce can be directly consulted.

A third innovative institutional design is the development of OT (Ohne Tarifbindung) membership. This new type of affiliation provides a firm with the traditional services of an employers' association but does not compel it to apply the collective agreements signed by the association. Note that the capacity for an employer to have recourse to this form of affiliation relies on the lack of power resources of the industrial union to oppose it. As such, this form is mostly taken up by small and medium-sized firms where unionisation is the weakest (Haipeter, 2011a: 182).

2.2.2 External discrepancies: Incidence of works councils and coverage of collective bargaining

The traditional dual system of industrial relations is no longer the rule in Germany. To a certain extent, this has never been the case. According to the Codetermination Commission (1998) cited in Addison et al (2004: 401–402), in 1984, more than a third of all German employees were not working in a firm with a works council. In the private sector, the figure was approximately half, and it was even larger for small firms and in the service sector. To a lesser extent, this also applied to branch collective bargaining because approximately 20% of all German employees were not covered in 1980. Despite these figures, the traditional model still occupied a central position until the mid-1980s because non-covered firms often used the standards set up in the collective agreements as reference points (even though a mitigation by sector would be necessary).

The external erosion has deepened concomitantly with the aforementioned internal erosion. Accordingly, currently, of all German employees working in firms with five or more employees, only less than half are represented by a works council, and approximately 60% are covered by collective bargaining. In the end, only 40% benefit from both mainstays of the traditional German model of industrial relations (Oberfichtner and Schnabel, 2017: 22). Moreover, firm agreements in non-covered companies decreasingly take industrial collective agreements as a baseline (Haipeter, 2011a). The gap between covered and uncovered firms is therefore widening.

This process of external erosion has not affected all firms similarly (see table 2). In 1996[15], works councils and collective bargaining agreements were already more frequent in the manufacturing sector, the public sector and in large firms overall. But the difference became stronger since then. For collective bargaining coverage, the drop is negatively correlated with the establishment size. It is also stronger in services[16] than in the manufacturing sector, while the public sector is not affected (in relation to the respective

[15] Figures come from the IAB Establishment panel, which was first introduced in 1993 but included Eastern Germany only starting in 1996.

[16] Note the spread among services: the banking and insurance sector is widely covered whereas industrial services are at the opposite end of the spectrum.

situations in 1996). The trend is the same regarding works council coverage. For our case, we should keep in mind that a lower incidence of works councils and a stronger trend towards external erosion are likely to evidence a stronger opposition of employers against these institutions. Furthermore, given *H2 and H3*[17], hypothesis *H5* can be formulated:

H5: The premium associated with works council membership in Germany is expected to be larger in the manufacturing sector than in the service sector.

[Table 2 about here]

3 Data

The two previous sections have produced 3 hypotheses to be tested:

H1.1: Works council mandates in Germany are better valued than union delegation in France.

H4: The premium associated with shop-floor mandates is negatively correlated with representatives' vehemence.

H5: The premium associated with works council membership in Germany is expected to be larger in the manufacturing sector than in the service sector.

These hypotheses are tested using different sub-samples of the German Socio-Economic Panel (GSOEP). The database is a yearly survey, representative at the household and the individual levels (Haisken-DeNew and Frick, 2005). To my knowledge, it is the only database combining information

[17] *H2: "The larger the coverage of branch-level bargaining and the more binding it is, the larger the wage of shop-floor representatives". H3: "The stronger the culture of cooperation and unionization rates, the larger the premium of works councilors".*
Unionization rates are much larger in the manufacturing sector.

on wages and works council membership in Germany. Note that there is no firm identifier in the panel.

The availability of the main variables of interest per wave in the GSOEP is displayed in table 3. In particular, respondents are asked whether they are works councilors in 2001, 2003, 2006, 2007, 2011 and 2015. I therefore only use these waves in the main analyses.

[Table 3 about here]

Next, as previously mentioned, employees working in firms covered by a works council differ from the rest of the workforce on many observables (see section 4 and table A1.2 in appendix 1). It can therefore be expected that they also differ on a number of unobservables. In the estimation of works council membership on wages, a good control group for councilors can therefore not include uncovered workers. Information on works council coverage is only available in 2001, 2006, 2011 and 2016. I therefore need to approximate coverage status in 2003, 2007 and 2015. To do so, I assume that firms with no change in status between two consecutive waves with coverage information (e.g., between 2001 and 2006) experienced no variation on the matter in the intervening time. Coverage status for agents whose firm exhibits such a sequence can then be approximated[18,19]. The recoding procedure seems legitimate because works councils elections normally take place once every four years. The procedure allows me to infer works council status for approximately 40% of the respondents in waves 2003, 2007 and 2015. Among this population, approximately 75% work in a covered firm against 65% in the other waves. The difference likely stems from the stronger average seniority in covered firms. However, note that the share of works councilors among covered firms in the final sample (see below) is approximately 7.9% similar in each wave (year-to-year t-tests of equality in the yearly share of WC members is never rejected at the usual thresholds). Some robustness checks will still be

[18] Respondents do not change firms in the sample of analysis, see below.

[19] Concretely, I approximate the works council status in 2003 (resp. 2007, 2015) by the one that is applicable in 2001 and 2006 (resp. 2006 and 2011, 2011 and 2016) if the firm did not change status. For all waves, I then drop observations that are not covered by a works council.

performed in section 5 using an alternative sample built without these recoding assumptions.

Approximately two-thirds of works councilors are unionized. The impact of the two variables on wages should therefore be disentangled. Information on union status is given in all years of interest but 2006. For the respondents who answered in both 2006 and 2007, I therefore approximate the status in 2006 by the one that is applicable in 2007[20]. The other observations in 2006 are dropped. For the previous procedure, this method biases the sample towards longer seniority. I make sure to control for this in the regressions. The procedure is also likely to produce some noise.

I further restrict the sample to full-time workers[21] (i.e., between 30 and 60 working hours per week), aged between 20 and 64 and employed on open-ended contracts in firms with more than 5 employees. Civil servants are dropped, as are apprentices and interns, voluntary workers, members of the military and workers in the agricultural sector. Finally, to ensure that results are not driven by agents changing firms, for each individual, I restrict the sample to the longest of her working spells within a firm[22]. As the main model of identification is an OLS with individual and time fixed effects, estimations are therefore free of firm intrinsic characteristics that are constant over time. I finally drop individuals with only one observation.

The main dependent variable is the logarithm of the hourly gross wage. It is computed using the answers to the questions *"How high was your income from employment last month?"* and *"how many hours [per week] do your actual working-hours consist of including possible over-time?"*. The dependent variable is the ratio between the former and (4.3 times) the latter. Side regressions will also be performed separately on the two variables. They show

[20] By construction, the procedure applies to respondents who did not switch firms (see below). This makes the procedure more legitimate, as union status is associated with both the job and the industry. The method creates some noise in the data: using the other waves, it can be shown that yearly change in union membership affects approximately 5% of the sample.

[21] Focusing on full-time workers drops a significant number of works councilors. In some sectors, part-time work is indeed the norm and there are high chances that works councilors themselves work part time. The restriction is used because the evolution in working time after election is not clear-cut in the case of part-time workers. In particular, the stability brought by mandates may affect the results for simple mechanical reasons.

[22] Observations are too few in the other within-firm spells for these to be used.

that the main result mostly stems from an evolution in monthly wages rather than in working hours. To limit the risk of outliers driving the main results, I trim the bottom and top 1% of the yearly distribution of the gross hourly wage. More information on the earnings and timetables of works councilors is available in box 4. The distribution of earnings and wages in the main sample according to works council status are given in table A1.1 in appendix 1.

The final unbalanced panel therefore includes 9,253 observations from 2,762 respondents. On average, a respondent is observed 3.35 times over 6.8 years (corresponding to the time span between the first and last observations).

Box 4: Works councilors' timetables and earnings

In this box, I provide details on the number of works councilors per firm, their time of delegation, the way they are remunerated and the timing of elections.

The number of works councilors per firm and, among them, the number who receive full release depend on the firm size (see table A2.1, in appendix 2). The choice of who will benefit from a full release within the WoCo is taken through an internal ballot after professional elections. For these representatives, the amount of time to be spent on their mandate is clear-cut. For the others, the blurred definition of released time makes things more difficult.

The WCA states: "the members of the works council shall be released from their work duties [...] to the extent necessary for the proper performance of their functions, having regard to the size and nature of the establishment" (WCA, section 37-2). As a result, a works council member is expected to take the initiative on the amount of time needed to properly accomplish her mandate and inform her employer in due time. A conciliation meeting can be held if the employer considers this 'unproductive' time to be excessive.

In theory, as far as possible, any hour of representation must be spent during normal working hours. When impossible, overtime spent on a mandate should then be converted to time-off in the following 30 days and, only as a last resort, be paid (WCA, section 37-2).

As for wages, section 37-1 of the WCA states that "the post of member of the works council shall be unpaid". Being a works councilor is not a job in legal terms. It is an honorary position and, as such, an elected representative keeps working on the same contract as the one she had before. Accordingly, two works councilors spending identical amounts of time on their mandate (fully released, for instance) will not earn the same amount if they used to receive different wages prior to their election.

As for wage evolution, "during his term of office and for one year thereafter [it should] not be fixed at a lower rate than the remuneration paid to workers in a comparable position who have followed the career that is usual in the

establishment. The same shall apply to general benefits granted by the employer" (WCA, section 37-4). As a result, if a councilor used to receive a bonus for working on Sunday and, once elected, works only from Monday to Friday, she should keep receiving the aforementioned bonus if this is part of the remuneration of her 'comparable' colleagues.

Finally, elections normally take place every four years at the same time in all firms. Since 2000, they should have taken place between 1 March and 31 May in 2002, 2006, 2010, 2014 and 2018. Note, however, that there are non-negligible exceptions to the rule that, to my knowledge, are not quantified. This prevents me from using election timing in the identification strategy.

4 Descriptive statistics

Table 4 shows the incidence of works council and union memberships in the final sample. As previously mentioned, two-thirds of works councilors are unionized in the main sample. In total, members of the works council account for 7.9% of the sample. This figure may seem large in comparison with legal requirements (see table A2.1 in annex). The criteria applied to build the main sample indeed over-select works councilors: in particular, works councilors are rarely on short-term contracts or employed part time. Overall, a third of the sample is a member of a trade union. This rate is an average over the panel duration. Yearly rates do show a decreasing trend in the final sample, even though it is much weaker than in firms with no works council.

[Table 4 about here]

Table A1.2 in appendix 1 displays average values of different variables according to the WoCo membership status in the main sample. T-tests for mean difference are also provided. For information, an extra column shows the same statistics for workers before the main selecting procedures were applied. In the main sample, works councilors earn, on average, about one euro per hour less than their colleagues – significant at the 1% level. This accounts for approximately a sixth of a standard deviation in the hourly gross wage distribution of the main sample, or 5.5% of the average. This difference mostly stems from monthly earnings, although workers in offices do declare working approximately 25 minutes less per week. More generally, works council

members are, on average, older in age and seniority, less educated and more often males than their colleagues. They also work relatively more often in smaller firms; this is a mechanic consequence of the institutional rules on the matter (see table A1.2 in appendix 1).

5 Estimations

What follows is organised in 4 steps. First, the baseline regression is estimated. It is an OLS model with individual and time fixed effects. As mentioned, no firm identifier is available in the GSOEP, but agents do not change firms in the selected sample by construction. The dependent variable is the log of the hourly gross wage, and the independent variables of interest are union and works council memberships[23]. Then, I verify that the baseline results are driven by gross income rather than working hours. Third, robustness checks are led on a different sample (all respondents working in firms with more than 200 employees). I also show that attrition in wave *t+1* does not depend on works council membership in wave *t* for the subsamples of interest. Fourth, to ensure causality in the results, I test for the absence of difference in pre-trends between respondents about to be treated (i.e., about to become works councilor) and their colleagues in the manufacturing sector.

All estimations – except the one comparing trends in earnings (column (1) of table 7) – include the following control variables: gender, age categories (4), seniority categories (4), 9 SES dummies, 9 firm sector dummies, 6 firm size dummies, the month of interview and dummies to control for the region (East, West) and for whether a number of hours is specified in the individual's contract. A year fixed effect is also included. In the few regressions with no

[23] Given the large unionization rate of works councilors (table 4), multicollinearity should be discussed. Independent variables that are too correlated may generate a large variance in the associated coefficients. This can result in a lack of stability of estimates across samples and in coefficients being non-significantly different from 'anything'. However, these risks seem small in our case. First, correlation between works council and union membership is approximately 0.2 in the main sample; thus, it remains limited. In the main baseline regression (column (1) of table 5), the variance inflation factor of works council membership is approximately 2.9. Second, more pragmatically, one of the robustness checks consists of changing the sample. It appears that the main results remain stable (see section 5.3).

individual fixed effect, I also control for the level of education (6 categories) and sex. Standard errors are clustered at the individual level in these latter cases.

5.1 The impact of works council and union memberships on wages depends on the sector.

Table 5 displays the estimations of the baseline OLS regression with time and individual fixed effects. Column (1) shows that, overall, no association between works council membership and wages can be evidenced in Germany. However, when separately zooming in on economic sectors, it appears that works councilors in fact experience different situations depending on the sector.

In the manufacturing sector, works councilors on average earn 4.5% more during their mandate than before or after their election. This sector shows a pattern different from the rest of the private sector: a non-significant penalty of approximately 2% can be evidenced in both the construction[24] and the private service sectors.

Among private services, it is known that industrial relations in the financial sector stand apart – with very large degrees of coverage of both CBAs and works councils – to an even larger extent than in the manufacturing sector. Separate estimations on this sector are not robust due to the sample size and are therefore not displayed here. But, if anything, they show a non-significant positive association between works council membership and wages. Banking and insurance could be gathered with the manufacturing sector on the rationale that the traditional model of industrial relations applies in both sectors. The impact of works council membership rises to 4.8% in that case. This will not be continued in the rest of the paper, however, because the

[24] The construction sector is set aside in the analysis. As in the manufacturing sector, it shows high coverage by CBAs. Yet, as in the service sector, works councilors have limited relations with their sectoral union (Behrens, 2009) and works council coverage is very low and exhibits a strong negative trend.

two sectors remain too distinct[25]. When banking and insurance are removed from the rest of the services, the wage penalty works councilors experience during their mandate proves stronger (4%) and statistically significant (see column (5)). In the rest of the paper, analyses on the private service sectors will therefore never include banking and insurance.

[Table 5 about here]

In the private sector, works councilors therefore receive a positive premium in sectors where the traditional German model of industrial relations is the most developed. Conversely, at its periphery, the premium becomes negative. This result is consistent with hypothesis *H5* elaborated in section 2.2.2. However, the comparison with union delegates in France is less straightforward than hypothesised in *H1.1*. Overall, employers value works council mandates more in Germany than they value union delegation in France. However, the penalty in the service sector is in fact very close to what Breda (2014) and Bourdieu and Breda (2016) found in France overall[26]. Note that the difference in estimation method is not essential here. If individual fixed effects are dropped as in Breda (2014) and Bourdieu and Breda (2016), estimates only change at the margin (see Table A3.1 in appendix 3). Finally, no effect can be evidenced in the public sector for non-civil-servants (column (6)).

Importantly, estimates of the association between works council membership and wages displayed in table 5 are identified by workers changing status. Useful information on their numbers according to the different specifications is given in the very last appendix.

Estimates of the relation between works council membership and wages in table 5 are the resulting effect of both changes in status when voted in and

[25] In particular, the relation between unions and works councilors is much stronger in the manufacturing sector; rights to open clauses and firm agreements are also more widespread there.

[26] Recall that Breda (2014) and Bourdieu and Breda (2016) found a negative impact of union delegation in France of about 10% in net hourly gross wage.

out of the works council. Table A4.1 in appendix 4 disentangles the two, presenting results separately for the manufacturing sector and the private service sectors (not including banking and insurance). To simplify, I separate agents who switch status at least once (hereafter the "switchers") into three groups: respondents whose only change in status is to become a works councilor, respondents whose only change in status is to leave the works council and respondents who are observed both voted in and out of the organisation. In columns (1) and (3), 'switchers' from the second and third groups as well as respondents who are always in office are dropped from the sample. In these columns, the coefficient of interest is therefore only estimated with information from 'switchers' entering the treatment. Following the same principle, in columns (2) and (4), 'switchers' from the first and third groups as well as respondents who are always in office are dropped. Here, the coefficient of interest is estimated on the only agents who switched out of treatment. Interestingly, no significant difference can be observed per sector between the two types of estimations. In other words, the association between membership and wage plays all along the mandate, and the effects seem to vanish when voted out of the organisation.

As for union membership, table 5 shows an overall wage penalty of 1.3%, fully stemming from the private service sectors, where the penalty spikes to 6.5%**.** It is difficult to compare the size of the coefficients with previous literature given the difference in methods: the vast majority of articles dealing with the issue measure the difference between members and non-members, at a given time, generally within firms. Thus, Bourdieu and Breda (2016) find a penalty of 3.5% against union members in France, while Booth and Bryan (2004) evidence a non-significant impact in the UK. Booth uses a within-firm variation. Using within-wage quantile regressions (but between firms), Eren (2009) exhibits a wage benefit of 9% in the US. As for Germany, little has been done on the union wage premium. In an OLS setting simply controlling for individual and workplace characteristics, Blanchflower and Bryson (2002) find a positive but non-significant union premium of 4%.

The impact of all control variables for columns (1), (2) and (5) are displayed in table A4.2 appendix 4.

5.2 Works council and union memberships affect 'pure' incomes rather than working hours

In the baseline regressions, the dependent variable is calculated as the ratio between the monthly gross wage and the actual number of weekly working hours (multiplied by 4.3) – both self-declared. Both the numerator and the denominator can therefore drive the correlations between works council or union membership and the hourly gross wage. In table 6, I therefore lead regressions in a similar spirit as the baseline ones, but I do so separately using the actual number of weekly working hours and the log of the monthly gross wage as dependent variables. As mentioned, I only focus on the manufacturing sector and the private service sectors (not including banking and insurance).

It appears that for 'switchers', works council membership and union membership affect 'pure' incomes rather than working hours. Columns (1) and (2) of **table 6** indeed show significant results of very similar size as the results from **table 5** for both the manufacturing sector and the private service sectors. Note that the negative impact of works council membership on 'pure' incomes in the private service sector should not be read as a wage drop in nominal terms. Earnings are indeed computed from the question "How high was your income from employment last month?". As such, it is expected that respondents include extras such as bonuses or premia in their answer. A drop in such earnings is a first possible explanation. A differentiated rate of promotion between councilors and their colleagues is also possible. Recall that table 6 uses SOEP waves 2001, 2003, 2006, 2007, 2011 and 2015 rather than yearly waves. On average, respondents are observed every 3.05 years. Therefore, the combination of an average wage growth in the sector of about 1% and flat wage evolutions in earnings after election would be sufficient to generate a point estimate of about -3%.

No significant correlation can then be evidenced between works council or union memberships and working hours. Yet, if anything, the correlation tends to inflate the effects found on councilors' incomes in both sectors. This result may seem unexpected. It is sometimes argued that the time releases granted to councilors are not sufficient to fulfil their role and, more generally, that works councilors and union members spend extra time in meetings or in organising the labour force. The present estimation tells us that either (i) these

presuppositions are wrong; (ii) workers do not declare these extra hours as overtime; (iii) entering collective organisations does not significantly affect the number of extra hours. This latter case is compatible with the presence of individual fixed effects in the model. Switchers to and from the works council would show some intrinsic interest in dealing with work-related issues outside of working hours, which would be unaffected by their status.

[Table 6 about here]

5.3 Robustness checks – estimation of the baseline regression on an alternative sample and test of a differentiated attrition between the treated and control groups.

In this part, I perform two series of robustness checks. The first is motivated by the risks of measurement error stemming, on the one hand, from the self-declared feature of works council coverage and, on the other hand, from the recoding procedure explained in section 3**.** Regarding the first issue, despite the central importance of works councils in the traditional German model of industrial relations, employees may not be fully aware of whether their firm is covered. The use of self-declaration on the matter to restrict the main sample to covered workers may therefore have brought some endogeneity to the regressions[27]. Second, the recoding procedure prevented the loss of all observations in waves with no information on coverage, but increased the risk of measurement error. To ensure that previous results are not dependent on these choices, I build an alternative sample that includes the longest job spell of all workers – observed at least twice – from firms with more than 200 employees. There is indeed a strong positive correlation between works council coverage and firm size. Table A5.1 in appendix 5 shows that between 2001 and 2011, coverage in firms with more than 250[28] employees remained at a

[27] For instance, it is possible that, among non-elected workers, the least invested in their job are also the least aware about WoCo coverage. If they tend to have flatter careers and to underreport their WoCo coverage, the selection process would artificially decrease estimands.
[28] I could not find the figure for firms larger than 200. Figures for 2015 are not available yet.

high rate of approximately 90%. Note that sectoral collective agreements also cover the vast majority of employees in these firms. The same restrictions as in the main sample apply otherwise.

This alternative sample includes 9,874 observations, two thirds of which are common with the main sample. Table A5.2 in appendix 5 shows that all conclusions previously mentioned regarding the association between works council membership and wages still apply to this sample with no strong change in nature or magnitude. Conversely, correlations between wages and union status described in the baseline analysis are slightly less robust. The effect becomes significant in the manufacturing sector and loses its significance in the private service sectors.

Firm size and coverage status in fact seem to work in opposite directions on the link between union membership and wages. It can be shown that restricting the sample to (self-declared) covered workers employed in large firms leads to no change in the nature of the baseline results for both the manufacturing sector and the private service sectors. Conversely, if the regression is led on a sample built on a similar spirit as the main one, but this time including only workers from uncovered firms, it appears that union membership plays negatively on wages in the manufacturing sector and positively in the service sector – though not significantly in the former at the usual thresholds. Despite their weak representation in the alternative sample based on large firms, the presence of uncovered unionized workers could affect the estimates of the coefficient for union membership.

Another robustness check consists of ensuring that there is no differentiated attrition likelihood between the treated and the control groups in the main sample. Finding such a spread would indeed evidence a risk of endogeneity bias in the estimates. For instance, works councilors could have a stronger intrinsic motivation to reply to interviews, and the latter could be positively correlated with wage trajectories. Table A5.3 in appendix 5 displays the estimates of a probit regression where the dependent variable is the likelihood of disappearing in wave t+1 given presence in the sample in t[29]. No

[29] t is 1 for wave 2001, 2 for wave 2003, 3 for wave 2006, 4 for wave 2007, 5 for wave 2011

systematic association between works council or union memberships and attrition can be found in the samples of interest.

6 How to explain the results

6.1 Some adverse selection at stake?

What have we learnt from the preceding estimations? (i) As hypothesised in *H5*, works council membership and incomes are negatively associated in the private service sectors and positively associated in the manufacturing sector. (ii) The size of the penalty in the service sector is close to that applied in France for union delegates, which rejects hypothesis *H1.1*. (iii) The relation in Germany stems from an evolution of 'pure' incomes rather than in working hours. (iv) The results are not biased by some unequal attrition likelihood between the treatment and control groups, and they are robust to variations in samples. (v) In firms covered by a works council, the association between union membership and incomes seems negative in both the private service sector and the manufacturing sector – though less significantly in the latter.

Now, are the relations between union or works council memberships and incomes simple correlations or causal impacts? I build here on Breda (2014) and Bourdieu and Breda (2016). Consider first the risk of adverse selection. Its most typical case applies when the treatment and control groups display inherent differences in productivity. This is excluded here given the presence of individual fixed effects in the main models. Conversely, some reverse causality could be at play. It is possible that agents experiencing an evolution in their wage different from 'normal' trajectories are more likely to run for elections because of this specific trend[30].

Cases of a specific upward pre-trend in earnings that benefit representatives are not common in the literature. Conversely, cases of workers running for elections because of a pre-existing downward trend in their wage

[30] Note that the relation has to be causal – i.e. the drop or increase in wages must urge the person to run in the election. Otherwise, it is possible that workers aiming at upcoming elections begin to lose wages ex-ante (think of discrimination or of a drop in their productivity) without this being a case of reverse causality.

are more commonly described. First, consider an employee who has been shirking for a few years. At some point, her employer notices this behaviour and freezes her earnings at their current level. With time, the worker therefore suffers a downward trend in her wage relative to her colleagues while being at risk of losing her job. She therefore (successively) runs for works council elections to benefit from the job protection feature attached to the position. As required by the WCA (see box 4), her wage trajectory then keeps up with the pace of her colleagues' – though at a lower level due to the relative stagnation previously endured. A second example comes from Artus' typology (2013) of typical profiles likely to fight for collective action in the private service sectors. One of the three profiles she describes includes "employees who have, in the past, invested much personal energy and time to work in their occupational activity [...] and who have either not been 'thanked' for their engagement, or who can or will no longer meet the high level of loyalty and demands required" (ibid: 418)[31]. Here, the wages of candidates for works council elections are on a relative downward trend for reasons that do not necessarily relate to their productivity[32]. Unsatisfied with their situation, they run for election to fight for recognition of their own – as well as their colleagues' – past contributions on the job.

Differentiation in wage pre-trends between works councilors to be and their colleagues may therefore take place in both the manufacturing and the private service sectors. However, to explain the main results, the difference in pre-trends should go in opposite directions in the manufacturing and private service sectors. Intuitively, no obvious reason for this stands out; but, how can risks of reverse causality be rigorously treated? The first-best and most-used solutions are unsuited here: no source of exogenous variation explaining elections into or out of the works council is available (think of poll records). Graphical analyses would need longer sequences of observations of switchers' status after their election. What follows is therefore a second-best solution. It

[31] The second case includes precarious workers without much to lose, while the third one corresponds to employees who "do not rely exclusively upon rational cost-benefit calculations, but rather have a pronounced orientation towards the symbolic values of justice, respect, solidarity and dignity" (Artus, 2013: 418).

[32] Promotions could be randomly offered to employees with similar levels of productivity, lack of acquaintance with the employer may limit career evolutions independently of productivity levels, etc.

aims to test whether pre-trends in wages differ between respondents about to become works councilors and workers who will never be in office. Because of data limitations, this test is only performed in the manufacturing sector.

In this part, I restrain the main sample to never-elected workers (group 1) as well as to 'switchers' who were first observed out of office for at least 2 waves (group 2). For the latter, I only keep observations preceding their first time in office (e.g., until 2007 if the individual is first observed in office in 2011). I then assume that I observe all entrances or exits to the works councils. In other words, I assume that no individuals in group 1 or 2 changed status twice between the two waves with observed status. This allows me to fill holes between these waves with the waves that have no information on industrial relations in the panel[33]. In the end, the sample is a yearly unbalanced panel over 2001-2011 composed of unelected workers from two groups: 'councilors to be' and workers never observed elected in the GSOEP. I can then estimate whether the trend in wages between pre-election years for switchers differs from never elected workers. The model is an OLS with fixed individual and time effects led on the aforementioned sample. It is described in equation (1):

$$\ln(w_{i,t}) = \alpha * t + \beta * t * 1_{group2} + \Gamma . X_{i,t} + \alpha_i + c_t + \mu_{i,t} \; ; \; t \in [\![2001,2011]\!] \qquad (1)$$

Reverse causality therefore materialises if β is significantly non-null and is of the same sign as the baseline estimates. Note that union membership cannot be used in the model because no assumption can be made on status in 2002, 2004, 2005, 2008, 2009 and 2010.

Column (1) of table 7 shows that in the manufacturing sector, the career trajectories of representatives were evolving more slowly than those of their colleagues before they entered the council. The yearly pace of evolution in their earnings was 1.9p.p. lower than 'normal'.

[33] Concretely, if an individual was out of office in 2001, 2003 and 2006 and then observed in office in 2007, I drop the last observation and retrieve information on the dependent and control variables in 2002, 2004 and 2005. In these years, I assume that the respondent was out of office.

In column (2) of table 7, I estimate the impact of works council membership, taking into consideration the downward pre-trend representatives experience before their election. Following Monras (2019), I estimate the following two equations:

$$\ln(w_{i,t}) = \alpha * t + \beta * t * 1_{group2} + \alpha_i + c_t + \mu_{i,t} \; ; \; t \in [\![2001,2011]\!] \quad (2)$$

$$\ln\widetilde{(w_{i,t})} = \gamma . RP_{i,t} + \Gamma . X_{i,t} + \alpha_i + c_t + \epsilon_{i,t} \; ; \; t \in [\![2001,2015]\!] \quad (3)$$

In (2), I regress the dependent variable on an average and a group-specific linear trends as well as on individual and time fixed effects. Here, the sample is the same as in equation (1). In a second step, I extend the sample to all observations from individuals found in groups 1 and 2. For these, I compute residuals $ln\widetilde{(w_{i,t})}$ from the difference between the outcome variable $ln(w_{i,t})$ and the prediction based on equation (2). The results are displayed in column (2) of table 7. Expectedly, the real effect of becoming a works councilor in the manufacturing sector – i.e., after treating for the downward pre-trend – is larger than the baseline result. The coefficient associated amounts to +7%. This means that, when in office, switchers' earnings were 7% higher than what they would be if they had followed their pre-election trend.

Note that whether this effect is a simple catching-up of earlier drops in wages is not central to our argument. Indeed, as mentioned in box 4, once elected, a works councilor should keep working on the same contract and benefit from a wage trajectory at least similar to that of comparable workers. No legal rule therefore constrains to inflate representatives' wages so that they keep up not only in pace but also in level with their colleagues. Were baseline results in the manufacturing sector mere catching-up to pre-election downward trends in wages, they would still be the result of an unconstrained choice on the employer's part.

[Table 7 about here]

Another source of adverse selection should be mentioned here. Once in office, works councilors could indeed lose/gain in productivity relative to their counterparts. Two different channels could be at work. First, representatives benefit from released time and therefore spend fewer hours on their usual

'productive' tasks. As a result, when confronted with options to promote workers, rational employers may, illegally, privilege unelected employees. Second, when elected, works councilors benefit from job protection and may then start shirking, thereby urging rational employers to reduce their relative earnings. No proper econometric test can be provided for these two paths. Yet, these channels assume employers' ability to measure councilors' productivity given their delegation time, which, for many, is not formally defined and evolves over time[34]. Furthermore, again, they seem inappropriate to account for the positive causal impact of works council membership on wages in the manufacturing sector[35]. As a result, even though they cannot be fully excluded, the risks of adverse selection seem limited in the present case.

6.2 Turning back to the context, a case of strategic discrimination

Claims that the relation between works council membership and wages is driven by specific behaviours by representatives before their election can now be rejected for the manufacturing sector. In the private service sectors, data limitations prevent me from applying the same method. One cannot exclude the possibility that councilors experience a downward trend in their earnings before election – similar to their counterparts in the manufacturing sector – which could explain all of the effects found in section 5. In other words, it cannot be rigorously proven that the negative relationship between works council membership and wages is causal in the private service sectors. With this limitation in mind, in this section, I do introduce elements suggesting that a least part of the baseline effect is also causal in the private service sectors. More specifically, I explain the baseline results in terms of strategic discrimination.

[34] Note that, would employers be unable to properly measure productivity, they may, rightly or not, still believe that representatives do shirk when elected. Accordingly, they would then limit promotions for works councilors. This mechanism would relate to statistical discrimination rather than to adverse selection.

[35] This limitation similarly applies to explanations in terms of statistical discrimination.

Let us recall that representatives are "supposed to negotiate with [their] employer as equals, but [are] under his authority as employee[s]"[36] (Breda, 2014). As previously mentioned, councilors play two bargaining games with their employer: they negotiate both for their own account (promotions, etc.) and for the whole workforce. Employers can therefore use their capacity to slow down or speed up representatives' careers via the first bargaining game to put pressure on them in the second one. Discussion can however be taken regarding employers' interest in the second game. As in Breda (2014), if negotiations cover distributional questions, employers have interest to limit councilors' claims. Conversely, according to the reasoning taken in section 1.2.1, if bargaining refers to issues likely to generate rents, employers' interest may then be to show commitment in wage rises and to have councilors lead the workforce towards cooperation to reach a win-win equilibrium. While both situations would be compatible with the aforementioned results, I show that the first one better fits the facts. In all cases, as mentioned in box 4, if acknowledged, such practice would be illegal. According to the WCA (section 119), "prejudicing or favouring a member or substitute member of the works council [...] by reason of his office [is] punishable by a term of imprisonment not exceeding one year or a fine, or both" (WCA, section 119).

Despite its non-legality, some elements suggest that some strategic discrimination may explain (at least part of) the impact of mandates on wages. I first recall the context to explain why some discrimination of opposite signs could be playing in the manufacturing sector and in the service sector. I then show that all works councilors are not affected to the same extent and that politically involved representatives in fact drive most of the effects in both sectors.

6.2.1 The literature in political science sheds some light on the results

The manufacturing sector. Historically, this sector has been at the core of the traditional model of industrial relations in Germany. As such, it

[36] This statement Breda applies to union delegates in France is also valid for works councilors in Germany.

has long been characterised by a strong density of employers' and employees' unions, resulting in broad coverage of collective bargaining agreements (CBAs). Because coverage and norms were the most generalised in this sector, employers' demands for flexibility in the CBAs have emerged most strongly there. In the aftermath of the reunification and at a time when Germany was called the 'sick man of Europe', the 'organised' decentralisation of industrial relations described in section 2.2.1 therefore first applied in the manufacturing sector in the 1990s to the benefit of firms in economic distress.

This first series of open-clauses resulted in a large wave of wage restraints. As a result, when branch-level associations agreed upon the further spread of derogations conditioned on less-stringent economic requirements in the early 2000s[37], employees strongly opposed their application in firms, considering them "as violations of the norms of distributional justice" (Haipeter, 2011b: 689). Works councils' support for firm-level dialogue over the enactment of derogations therefore gained strategic importance for employers.

Their role is clearly established in Haipeter's study of 12 firms, half from the metal-working industry, half from the chemical industry (ibid). He shows that in the early 2000s, works councils were constrained to sit at the negotiating table due to employers' threat of imminent job cuts (in particular through outsourcing). However, once the dialogue opened, they structured with their union "to develop common strategies and demands for the negotiations with management [and were] able to negotiate with their management on equal terms. They were recognized by management as competent and powerful negotiators. In many cases they even gained more respect from management. […] The works councils were not helpless victims of structural constraints; on the contrary, they actively tried to restructure the situation to their own advantage. […] By demonstrating a new capacity to act, in most of the cases they have been able to regain a great deal of the power lost through the structural constraints management was able to impose on them" (ibid, p. 687).

[37] E.g., the Pforzheim agreements signed in 2004 in the metal-working industry rendered derogations possible provided that "jobs would be safeguarded or created as a result and they would help to improve competitiveness and the ability to innovate, as well as investment conditions" (Haipeter, 2011a: 184).

In the end, despite employees' opposition, works councils and unions proved to be cooperative partners for employers willing to use their recent rights to derogate from CBAs. Concretely, in Haipeter's sample of firms, works councils implemented two strategies. The first one consisted of gathering employees to insist on the risk that some of them would lose their jobs and therefore on the need to stand unified against job losses. The second strategy was to organise short-term strikes to "channe[l] the critical attitude towards derogations into broad support for the works councils in their negotiations with management" (ibid, p. 689). Note that when this second strategy was applied, works councilors ended up restraining employees from intensifying their struggles once sufficient levels of support were achieved (ibid)[38].

From these elements, therefore, emerges the fact that in the manufacturing sector, both employers and works councils gained by negotiating over derogations that employees first rejected. It seems quite clear that the theoretical reasoning stated in section 1.2.1 does not apply here: it does not seem that works councilors were the guarantor of employers' commitments to reach a win-win equilibrium. Conversely, the positive impact of works council membership on wages in the sector should therefore be interpreted as incentives, or rewards, for works councilors' investment in negotiations.

The private service sector. Providing general elements of context in the private service sector[39] in the vein of what precedes proves more difficult given the variety of industries employing the respondents in this sample. 33% of them work in trade, 21% in transport, 10% in services to industries and 36% in personal services. However, all these sectors have in common a weak tradition of collective bargaining: coverage of both CBAs and works councils in the service sector is historically much lower than in the manufacturing sector. More recently, actors have also been leaving collective organisations (external erosion, see section 2.2.2) more quickly in the service sectors than in the manufacturing sector (see table 2). In the former, decisions are more often seen as pertaining to managers and firm-holders. As a result, works councils

[38] It should be stated that works councils generally obtained concessions from the management and did not give employers free rein to freely recourse to derogatory agreements.

[39] As previously mentioned, banking and insurance are not taken into consideration here.

are more often considered to exceed the normal prerogatives of employees. Thus, managers from the non-manufacturing sector more often classify works agreements as increasing the rigidity in the firm (Nienhueser, 2009). Expectedly, works council busting is more often found in these sectors. Behrens and Dribbusch (2018) have surveyed local full-time union officials on their perceived estimation of employers' actions against the establishment or the proper working of works councils. Union officials detect such behaviours more often in the service sectors than in the manufacturing one[40].

Case studies on the relations between works councilors and management are fewer in the private service sector than in the manufacturing sector. But, among these, Artus' research stands out. She focuses on low-wage private services and highlights the strong opposition of managers against, first, the formation of works councils and, once set up, the most vehement councilors. In these sectors, "wage costs and flexible work-time are key dimensions of [the] competitive strategies" and are altered by councilors' demands (Artus, 2013: 415). Moreover, in some of the cases studied, she notices the prevalence of a strong corporate identify. In these firms, "the absolute identification with the company […] is an explicit aim of personnel policy" (ibid, p. 416). Employees "try[ing] to establish the legitimacy of other interests" than those of the company community are therefore castigated (ibid).

In the end, in the precarious service sectors, "co-determination arrangements remain a permanent deviation from the norm in a cultural universe that is oriented towards unilateral management decisions. Even when a works council exists, a climate that is hostile to co-determination still dominates". Accordingly, the negative impact of works council membership on wages should therefore be interpreted as a proof of works council-busting, probably driven by the precarious services that constitute a large chunk of the sample.

[40] The difference is not statistically significant but samples are small.

6.2.2 The heterogeneous premium across works councilors reinforces an explanation in terms of strategic discrimination

The (dis-)advantage works councilors experience in terms of wages therefore seems (at least) partly driven by voluntary policies of strategic discrimination implemented by managers in the manufacturing and the service sectors. In the final discussion below, I present some elements to strengthen this interpretation by showing that wage policies in fact target the most politically active representatives. This analysis constitutes a test of hypothesis *H4*[41].

To do so, I re-estimate the baseline regression, but this time, the dummy for works council membership is successively interacted with two types of political involvement: political steadfastness and union membership. The former is measured by a dummy variable taking the value 1 if the respondent leans towards one party in the long run[42]. Note that approximately half of the respondents fall into each category of the dummy variable and that the correlation with union membership is very low (0.015). The results are displayed in tables 8 and 9.

Estimates show that the sector-specific (dis-)advantage in terms of monthly wages is fully concentrated on politically steadfast representatives. Their remuneration is clearly distinct from that of the other representatives, and this stems from differences in monthly wages rather than working hours (though slightly less significantly so in the manufacturing sector).

Similarly, in the manufacturing sector, unionized works councilors receive the whole premium observed in the baseline results. In the private service sectors, the penalty in terms of monthly wages is also experienced by unionized representatives. However, in this sector, becoming a works councilor has a negative (resp. positive) impact on working time when unionized (resp. non-unionised) so that, overall, unionisation does not affect the penalty representatives endure in terms of hourly gross wage.

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[41] *H4*: *The premium associated with shop-floor mandates is negatively correlated with representatives' vehemence.*

[42] The question I use in the GSOEP is: "many people in Germany lean towards one party in the long term, even if they occasionally vote for another party. Do you lean towards a particular party?".

[Tables 8 and 9 about here]

These results are intuitive given the elements of context previously given. First, in the manufacturing sector, in the context of negotiations over the application of derogations to CBAs, works councils played the role of "junior partners in the labour coalition with the unions" (Haipeter, 2011b: 687); representatives thus relied to a large extent on the support of their union. Works councilors indeed needed some expertise on the topics at stake and considered derogations as part of the collective bargaining sphere that should be managed by unions.

In parallel, IG Metall and IG BCE – the metal-working and the chemical trade unions – showed rising interests in coordination at the firm level. In a context of declining union density, they both ruled for increased participation rights of union members on the shop floor and privileged cooperation with works councils to gain concessions from employers to frontal opposition on negotiations rights (ibid). As a result, it is expected that unionized works councilors had a particular strategic importance within the works councils for employers as go-betweens with the union. Targeting wage premia on these representatives can therefore seem rational.

Regarding the private service sectors, here again, a fit-all explanation is difficult to give. The literature on the issue is thin, and the following lines of explanation should only be taken as suggestive elements. According to Artus (2013), managerial intrusion into the composition of works councils is common in the low-wage service sector. It can manifest through pro-management lists or corruption. In both cases, "dependable members of lower and middle management are [...] instructed to make themselves available as worker representatives" (ibid: 419). Works councils therefore end up in a mix between pro-management members and more vehement delegates. The latter – previously described in section 6.1 – take "more strongly diverging positions of interest representation" and often label their struggle as 'war' (ibid, p. 420). Table A5.3 shows that they end up receiving most of the negative effect of membership on wages. Note that one could expect the others to receive a positive premium for their mandate, which is not observed in the data. Like

Bourdieu and Breda (2016), I do not have the means to explain why firms do not 'buy' the most cooperative councilors in the private service sectors.

The rather negative impact of mandates on the monthly wage of unionized workers is more surprising. In the service sector, unions "often play a rather ambivalent role. […] For the trade union organisations concerned, the question here is whether it is worthwhile to engage with all-powerful companies, as long as the general works council chairperson […] [is] a Ver.di member[43] and (at least) bothers to enforce the low-wage sectoral collective agreement. These union organisations would, in turn, have to be a bit 'crazy' to invest work and time in the organisation and defence of the precariously employed, whose membership dues are tiny and who in three months will change jobs again anyway. […] The 'all-too-critical' activists are often advised to take the settlements offered and not to start yet more 'crazy' conflicts that cannot be maintained over the longer term". According to these lines, in the private service sectors, we could therefore expect unionization to deflate councilors' vehemence; which is not found in the data.

In the end, these elements do not fully validate hypothesis *H4*. Politically active representatives experience most of the discrimination caused by mandates. However, the sign of this discrimination is not one-way and depends on the sector. The prerogatives ascribed to representatives and the cultural expectations regarding their actions apply differently between the manufacturing and the service sectors. They give employers incentives to react differently when facing politically active works councilors. In the private service sectors, negative discrimination is a way to undermine opposition and to avoid sharing decision power. In the manufacturing sector, positive discrimination is a way to 'buy' councilors' cooperation in order to escape the constraints of the traditional German model of industrial relations.

[43] Ver.di is the largest union for workers in the service sector.

Conclusion

In this paper, I estimated the impact of works council membership on labour incomes in Germany. Three main elements of motivation drove the analyses. First, for years now, Western European countries have experienced a strong trend towards decentralisation of collective bargaining. This means that negotiations on questions of strategic importance for both employers and employees are increasingly led at the firm level, thereby increasing the role of works councilors.

Second, this evolution is of particular relevance for Germany, where the traditional model of industrial relations relies on large coverage of branch-level bargaining, ensuring a cooperative atmosphere at the firm level. On the shop floor, works councilors endowed with the largest entitlements in the West could therefore peacefully negotiate with their employers to increase the size of the entreprise's pie. The latter is then shared between labour and employers according to the rules decided ex-ante at the branch level. Strongly and steadily, foreign and domestic actors have praised this model. However, as documented in the paper, Germany has not avoided the upheaval occurring in Western industrial relations since the 1980s, and it is unclear to what extent the cooperative feature of its traditional model still applies today. Zooming in on how works councilors fare in Germany is therefore a way to shed light on the quality of shop-floor negotiations in the country.

The final motivating factor is the lack of economic literature on the matter. We know much about how collective organisations (works councils, trade unions) impact covered firms and their average worker. However, we know very little about how the very actors leading the negotiations themselves fare. A sole stream of research has addressed this issue in the case of union delegates in France (Breda, 2014; Bourdieu and Breda, 2016). This paper therefore builds on that literature, using this time panel data. To my knowledge, this is the first paper to focus on a non-unionised form of representation.

The data come from the German Socio-Economic Panel, a yearly panel representative of the German population. It provides information on industrial relations – and, in particular, on works council membership – in 2001, 2003, 2006, 2007, 2011 and 2015. The main model I estimate is therefore an OLS

with individual and time fixed effects on individuals working in firms with a works council. For each respondent, I restrict the sample to the longest of her working spells within a firm, so that estimations are free of firm intrinsic characteristics that are constant over time.

For individuals observed both in and out of office (switchers), estimations show a differentiated impact of works council membership on the hourly gross wage according to the sector. In the manufacturing sector, 'switchers' earn approximately 4.5% more during their mandate than when out of office. Conversely, a penalty of 4% is found in the private service sector – from which I excluded banking and insurance, which display very particular patterns of industrial relations. These results are robust to several tests, including variations in the sample or differentiation between entrance and exit from the works council. No difference in attrition likelihood can be evidenced between works councilors and their colleagues in the samples of interest. A side result addresses the impact of union membership on wages: it is negative in both sectors.

In the manufacturing sector, I then show that, before their elections, representatives experience a downward trend in their earnings relative to their colleagues. Taking this trend into consideration inflates the final premium to 7% in this sector. Data limitations prevent me from leading similar estimations in the private service sectors. I nevertheless present elements showing that, in these sectors as well, the association between works council membership and wages should be understood as a deliberate firm policy targeting elected representatives. Here, I build on Breda (2014), who formalised why rational employers can have an interest in strategically discriminating works councilors during their mandate.

I explain why this framework is likely to apply to the German case and better fits our results than a win-win scenario in which shop-floor cooperation would generate rents well distributed between labour and employers. In particular, I show that politically active representatives experience most of the discrimination caused by mandates – either positively or negatively. The prerogatives ascribed to representatives and the cultural expectation regarding their actions apply differently in the manufacturing and the service sectors, giving employers incentives to react differently when facing politically active works councilors. Using Artus' work, I show why, in the private service

sectors, negative discrimination is a way to undermine opposition and to avoid the sharing of decision power. Relying on Haipter's research, I then explain that in the manufacturing sector, positive discrimination is a way to 'buy' councilors' cooperation in order to escape the constraints of the traditional German model of industrial relations.

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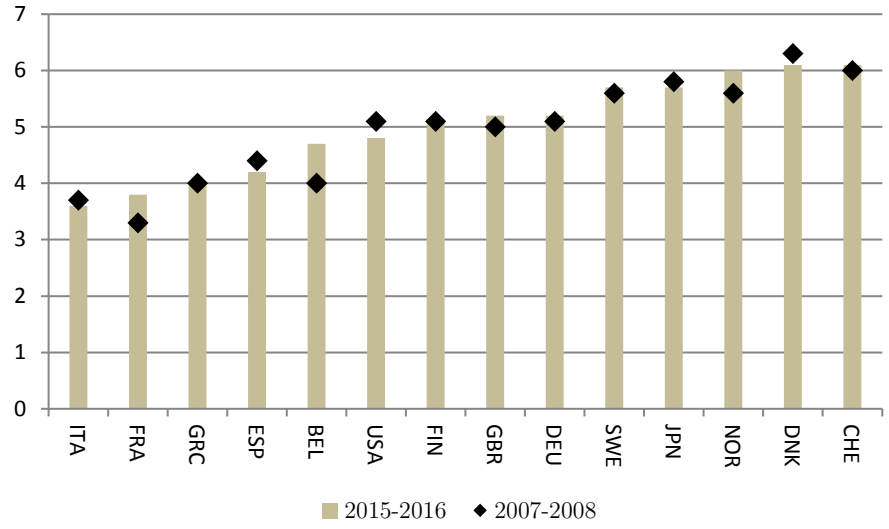
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Main tables and figures

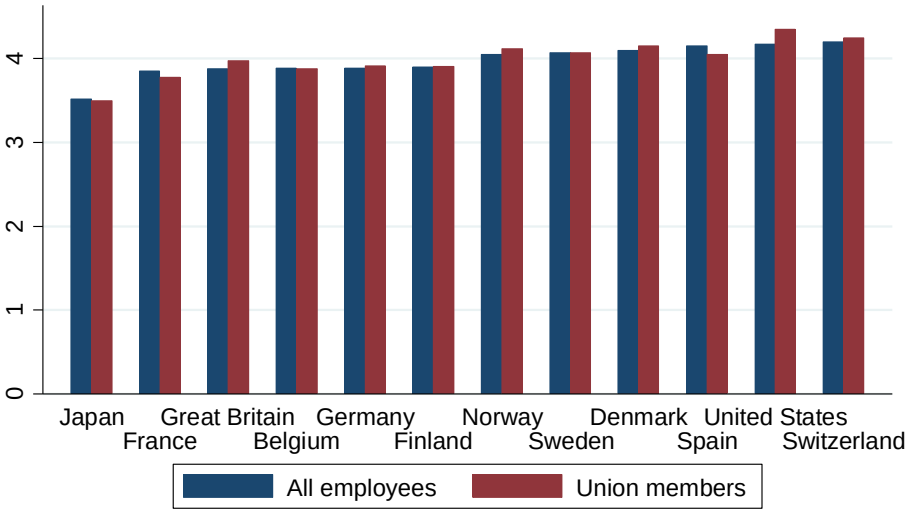
Figure 1 - Cooperation in labour-employer relations between 2007 and 2016 according to employers



Source: World Economic Forum - The Global Competitiveness Index Historical Dataset

Note: Employers' self-declared estimation based on the following question: "In your country, how do you characterize labor-employer relations?" [1 = generally confrontational; 7 = generally cooperative]

Figure 2 - Quality of relations between management and workers according to workers in 2015



Source: International Social Survey Programme

Note: Self-declared estimation based on the question: 'In general, how would you describe relations at your workplace between management and employees?' [1= very bad; 5=very good]

Table 1 – Share of German employees working in firms…

	… bound to an opt-out clause	…using an opt-out clause (when bound to one)
2005	39,7%	52,9%
2011	52,7%	77,0%

Source: Addison et al (2017:46)

Table 2 – Share of German employees working in firms…

	… covered by a works council			… covered by CBAs		
	All economy	Private service sectors	Manufacturing sector	All economy	Private service sectors	Manufacturing sector
1996	57.2%	50.1%		81.3%	75.0%	
2000			65.4%			70.9%
2011			65.9%			61.3%
2015	47.3%	38.8%		59.3%	52.6%	

Source: Oberfichtner and Schnabel (2017) and Addison et al (2017); both sources use data from the IAB establishment panel. CBAs account for both sectoral and firm-level agreements.

Table 3 – Availability of the main variables of interest in the German Socio-Economic Panel according to the wave

	2001	2003	2006	2007	2011	2015	2016
Coverage status of the firm	✓		✓		✓		✓
Works council membership	✓	✓	✓	✓	✓	✓	
Union membership	✓	✓		✓	✓	✓	

Source: German Socio-Economic Panel

Table 4 – Incidence of WoCo and union memberships in the final sample

		Member of a Trade Union		
		No	Yes	Total
Member of the Works Council	No	5992	2531	8523
		64.8%	27.4%	92.1%
	Yes	245	485	730
		2.6%	5.2%	7.9%
	Total	6237	3016	9253
		67.4%	32.6%	100.0%

Source: German Socio-Economic Panel, own calculations

Table 5 – Effect of works council and union memberships on the log hourly gross wage according to the sector (Baseline model)

	(1)	(2)	(3)	(4)	(5)	(6)
	All sectors	Manufacturing sector	Construction sector	Private service sectors --- (incl. banking and insurance)	Private service sectors ---- (no banking or insurance)	Public Sector ---- (no civil servant)
Member of the Works Council	0.003	0.045***	-0.020	-0.022	-0.040**	-0.011
	(0.009)	(0.017)	(0.028)	(0.017)	(0.018)	(0.016)
Member of a Trade Union	-0.013*	-0.010	0.001	-0.061***	-0.065***	0.003
	(0.008)	(0.014)	(0.022)	(0.018)	(0.019)	(0.014)
Individual Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,253	2,442	1,241	2,036	1,557	2,731
Adjusted R^2	0.853	0.835	0.826	0.899	0.901	0.828
Individuals	2761	768	396	673	529	834

Model: OLS with individual and time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: German Socio-Economic Panel, own calculations

Table 6 – What drives the baseline results? Estimations on alternative dependent variables: log monthly gross wage and number of actual working hours

	Dependent variable: log of the monthly gross wage		Dependent variable: number of actual working hours	
	(1) Manufacturing sector	(2) Private service sectors	(3) Manufacturing sector	(4) Private service sectors
Member of the Works Council	0.044***	-0.032*	-0.124	0.392
	(0.017)	(0.018)	(0.387)	(0.482)
Member of a Trade Union	-0.013	-0.060***	-0.107	0.121
	(0.013)	(0.018)	(0.310)	(0.497)
Individual Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Observations	2,442	1,557	2,442	1,557
Adjusted R^2	0.877	0.926	0.661	0.696
Individuals	768	529	768	529

Model: OLS with individual and time fixed effects.
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Source : German Socio-Economic Panel, own calculations

Table 7 – Taking into account the difference in pre-trends between the treatment and control groups in the manufacturing sector

	(1)* Manufacturing sector	(2)* Manufacturing sector
Dependent variable	Ln(hourly gross wage)	Residuals from equation (2)
Pre-trend in the hourly gross wage	0.022***	
	(0.002)	
Pre-trend * Group 2+	-0.019***	
	(0.007)	
Member of the Works Council		0.070***
		(0.023)
Member of a Trade Union		-0.004
		(0.008)
Individual Fixed Effect	Yes	Yes
Time Fixed Effect	Yes	Yes
Group 1+	✓	✓
Group 2+	✓	✓
Observations	3,645	3,829
Adjusted R^2	0.852	0.858
Individuals	621	621

Models: OLS with individual and time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

+ Group 1 includes respondents never observed in office. Group 2 includes respondents first observed at least twice out of office before being elected.

* In column (1), all observations from group 1 falling between 2001 and 2011 are used. For group 2, observations preceding first time in office are used. In column (2), all observations from groups 1 and 2 falling between 2001 and 2015 are used

Source : German Socio-Economic Panel, own calculations

Table 8 – Effect of the interaction between works council membership and political steadfastness on the log hourly gross wage, the log monthly gross wage and the actual number of working hours

	Dependent variable: log hourly gross wage		Dependent variable: log monthly gross wage		Dependent variable: number of actual working hours	
	(1) Manufacturing sector	(2) Private service sectors	(3) Manufacturing sector	(4) Private service sectors	(5) Manufacturing sector	(6) Private service sectors
Supports a Political Party	0.001	0.008	0.005	0.010	0.141	0.084
	(0.010)	(0.011)	(0.010)	(0.011)	(0.226)	(0.298)
Member of the Works Council	0.015	0.003	0.021	0.013	0.219	0.474
	(0.024)	(0.024)	(0.023)	(0.023)	(0.528)	(0.632)
Member of a Trade Union	-0.010	-0.065***	-0.013	-0.061***	-0.101	0.118
	(0.014)	(0.019)	(0.013)	(0.018)	(0.310)	(0.496)
WoCo Member * Supports a Pol. Party	0.055*	-0.076***	0.042	-0.080***	-0.644	-0.189
	(0.030)	(0.028)	(0.029)	(0.027)	(0.673)	(0.733)
Individual Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,436	1,556	2,436	1,556	2,436	1,556
Adjusted R^2	0.836	0.902	0.878	0.926	0.661	0.697
Individuals	768	529	768	529	768	529

Model: OLS with individual and time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: German Socio-Economic Panel, own calculations

Table 9 – Effect of the interaction between works council and union memberships on the log hourly gross wage, the log monthly gross wage and the actual number of working hours

	Dependent variable: log hourly gross wage		Dependent variable: log monthly gross wage		Dependent variable: number of actual working hours	
	(1)	(2)	(3)	(4)	(5)	(6)
	Manufacturing sector	Private service sectors	Manufacturing sector	Private service sectors	Manufacturing sector	Private service sectors
Member of the Works Council	-0.012	-0.031	-0.017	-0.007	-0.207	1.089*
	(0.030)	(0.024)	(0.029)	(0.023)	(0.668)	(0.632)
Member of a Trade Union	-0.015	-0.061***	-0.018	-0.050***	-0.115	0.413
	(0.014)	(0.020)	(0.013)	(0.019)	(0.314)	(0.525)
WoCo Member * Union Member	0.084**	-0.019	0.089***	-0.056*	0.121	-1.586*
	(0.036)	(0.036)	(0.034)	(0.034)	(0.794)	(0.930)
Individual Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,442	1,557	2,442	1,557	2,442	1,557
Adjusted R^2	0.835	0.901	0.878	0.926	0.661	0.697
Individuals	768	529	768	529	768	529

Model: OLS with individual and time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: German Socio-Economic Panel, own calculations

Appendix – additional tables and figures

Appendix 1: Descriptive statistics

Table A1.1: Distribution of the dependent variables

		Number of observations	Mean	Standard deviation	Minimum	Maximum
Works councilors	Hourly gross wage	730	17.2	5.9	6.8	43.5
	Monthly gross wage		3106	1126	1176	8638
	Actual working hours		42.0	4.7	30.0	60.0
Non-elected workers	Hourly gross wage	8523	18.2	6.7	6.2	54.3
	Monthly gross wage		3339	1403	1140	11660
	Actual working hours		42.4	5.1	30.0	60.0

Source: German Socio-Economic Panel, own calculations

Table A1.2: Average values of different variables according to the sample, firm coverage and within covered firm according to the WoCo membership status (see note).

	Workers in the SOEP	Workers in non-covered firms	WoCo members in covered firms	WoCo members in covered firms who switch status	Non-elected workers in covered firms	Difference (3) – (5)
	(1)	(2)	(3)	(4)	(5)	(6)
Hourly gross wage	14.99	13.89	17.25	17.31	18.22	-0.97***
Monthly gross wage	2,525.25	2,648.51	3,106.12	3,142.30	3,339.43	-233.31***
Actual working hours	37.78	44.28	41.95	42.28	42.35	-0.40**
Sex m=1 fem=2	1.48	1.33	1.28	1.27	1.32	-0.04**
Age of Individual	42.28	42.68	45.54	44.56	44.59	0.95***
Region W=1 E=2	1.22	1.31	1.24	1.22	1.23	0.02
Senioriy	10.43	11.06	16.93	16.59	16.16	0.77**
Education						
General Elementary	0.08	0.05	0.07	0.06	0.06	0.00
Middle vocational	0.51	0.58	0.56	0.55	0.49	0.07***
Vocational + Abitur	0.08	0.08	0.07	0.07	0.08	-0.01
Higher Vocational	0.08	0.09	0.07	0.10	0.10	-0.03**
Higher Education	0.22	0.18	0.22	0.21	0.26	-0.04**
Inadequate or no answer	0.03	0.01	0.01	0.01	0.01	-0.00
Isco88 (1 digit)						
Legislators senior officials and managers	0.05	0.08	0.06	0.04	0.06	-0.00
Professionals	0.14	0.11	0.17	0.16	0.18	-0.01
Tech. and associate professionals	0.24	0.22	0.27	0.29	0.27	0.00
Clerks	0.13	0.10	0.14	0.12	0.13	0.00
Service workers and shop and market sales workers	0.10	0.09	0.03	0.03	0.03	-0.00
Craft and related workers	0.14	0.25	0.19	0.21	0.15	0.04***
Plant and machine operators and assemblers	0.09	0.09	0.08	0.10	0.12	-0.04***
Elementary occupations	0.08	0.05	0.05	0.04	0.05	0.00
Unknown	0.03	0.02	0.02	0.01	0.01	0.00
Sector (1 digit)						
Energy	0.01	0.00	0.02	0.01	0.03	-0.00
Mining	0.00	0.00	0.01	0.01	0.00	0.00*
Manufacturing	0.20	0.26	0.28	0.29	0.28	-0.00
Construction	0.14	0.20	0.13	0.14	0.16	-0.02*
Trade	0.15	0.22	0.10	0.09	0.06	0.04***
Transport	0.06	0.05	0.07	0.07	0.07	0.00
Bank Insurance	0.05	0.01	0.06	0.05	0.09	-0.03**
Other Services	0.36	0.25	0.33	0.33	0.31	0.01
Public sector	0.22	0.06	0.30	0.29	0.31	-0.01
Firm size						
[5 ;20[	0.18	0.37	0.02	0.03	0.02	0.01*
[20 ; 100[	0.21	0.37	0.16	0.15	0.10	0.07***
[100 ;200[	0.10	0.10	0.12	0.14	0.11	0.01
[200 ;2000[	0.23	0.10	0.37	0.33	0.37	0.00
$\geq$ 2000	0.24	0.05	0.31	0.34	0.40	-0.09***
Unknown	0.04	0.02	0.01	0.01	0.01	-0.00
Number of observations	48,562	3,870	730	473	8,523	

Source : German Socio-Economic Panel own calculations

Note: Column (1) includes all workers in firms with at least 5 workers in the non-agricultural sector excluding civil servants, voluntary workers and militaries. In the other columns, selection goes further: the sample is restrained to the longest spell observed within a firm of full-time workers employed on open-ended contracts and aged between 20 and 64. Column (2) shows statistics for the workers in firms non-covered by a works council to the contrary of columns (3), (4) and (5). Column (3) and column (5) are based on a split of the main sample of estimation. They respectively account for works councilors and non-elected workers. In between, column (4) gives information on the years of mandate of respondents observed both in and out of office in the main sample.

Appendix 2: Number of full and partial releases of works councilors according to firm size

Table A2.1: Number of works councilors according to the firm size

Number of employees	Number of works councilors	Number of works councilors fully released
5–20	1	0
21–50	3	0
51–150	5	0
151–200	7	0
201-300	7	1
301-500	9	1
501–600	9	2
601–900	11	2
901-1000	11	3
1001–1500	15	3
1501-2000	15	4
2001–2500	19	5
2500-3000	21	5
3001–3500	23	6
3500-4000	25	6
4001–4500	27	7
4501-5000	29	7
5001–6000	31	8
6001–7000	33	9
7001–8000	35	10
8001-9000	35	11
9001-10000		12
>9000	+2 per bracket of supplementary 3000 workers	
>12000		+1 per bracket of supplementary 2000 workers

Source : 2001 Works Council Act

Appendix 3: OLS with no individual fixed effect

Table A3.1: Effect of works council and union memberships on the log hourly gross wage according to the sector (baseline model without individual fixed effects)

	(1)	(2)	(3)	(4)	(5)	(6)
	All sectors	Manufacturing sector	Construction sector	Private service sectors --- (incl. banking and insurance)	Private service sectors ---- (no banking or insurance)	Public Sector ---- (no civil servant)
Member of the Works Council	-0.021*	0.033	-0.029	-0.074**	-0.066**	0.006
	(0.013)	(0.022)	(0.035)	(0.029)	(0.031)	(0.021)
Member of a Trade Union	-0.006	-0.006	-0.003	-0.031	-0.034	-0.006
	(0.009)	(0.016)	(0.022)	(0.023)	(0.024)	(0.015)
Individual Fixed Effect	No	No	No	No	No	No
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,253	2,442	1,241	2,036	1,557	2,731
Adjusted R^2	0.488	0.463	0.576	0.491	0.472	0.481
Individuals	2761	768	396	673	529	834

Model: OLS with time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source : German Socio-Economic Panel, own calculations

Appendix 4: Details and further analysis of the baseline regressions

Table A4.1 - Differentiation of the baseline effects between entrance and exit from the works council. Dependent variable: log hourly gross wage

	(1) Manufacturing sector	(2) Manufacturing sector	(3) Private service sectors	(4) Private service sectors
Member of the Works Council	0.040*	0.083**	-0.038	-0.067*
	(0.022)	(0.035)	(0.024)	(0.036)
Member of a Trade Union	-0.014	-0.023	-0.066***	-0.064***
	(0.014)	(0.015)	(0.021)	(0.023)
Individual Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Group 1 (enter WoCo)$^{+}$	✓		✓	
Group 2 (leave Woco)$^{+}$		✓		✓
Group 3 (enter & leave WoCo)$^{+}$				
Group 4 (always in WoCo)$^{+}$				
Group 5 (never in WoCo)$^{+}$	✓	✓	✓	✓
Observations	2,252	2,144	1,417	1,347
Adjusted R^2	0.842	0.843	0.908	0.900
Individuals	720	686	487	464

Model: OLS with individual and time fixed effects.

Standard errors in parentheses are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1
Source : German Socio-Economic Panel, own calculations

$^{+}$ I separate agents who are observed at least once as a works councilor into four groups. Among the 'switchers', group 1 includes respondents whose only change in status is to become a works councilor, group 2 includes respondents whose only change in status is to leave the works council, group 3 includes respondents who are observed both voted in and out of the organisation. Group 4 includes respondents always observed in office. Respondents never observed in office are part of the group 5

Table A4.2: Details of the baseline regression for the main samples of interest

	All sectors		Manufacturing sector		Private service sectors ---- (no banking or insurance)	
	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Member of the Works Council	0.003	(0.009)	0.045***	(0.017)	-0.040**	(0.018)
Member of a Trade Union	-0.013*	(0.008)	-0.010	(0.014)	-0.065***	(0.019)
Age Category (ref: 20-35 y.o.)						
36-43 y.o.	0.028***	(0.008)	0.059***	(0.017)	0.015	(0.018)
44-50 y.o.	0.034***	(0.012)	0.061**	(0.024)	0.035	(0.026)
51-64 y.o.	0.020	(0.015)	0.057*	(0.032)	0.009	(0.034)
Seniority (ref: [0; 6.2[ )						
[6.2;11.9[	0.046***	(0.007)	0.060***	(0.014)	0.022	(0.014)
[11.9;20[	0.060***	(0.010)	0.066***	(0.020)	0.028	(0.022)
>= 20	0.053***	(0.014)	0.064**	(0.029)	0.005	(0.034)
Isco88 (ref: Legislators senior officials and managers)						
Professionals	-0.004	(0.011)	-0.002	(0.024)	0.020	(0.022)
Technicians and associate professionals	-0.014	(0.011)	0.018	(0.023)	-0.015	(0.021)
Clerks	-0.025**	(0.012)	-0.002	(0.029)	-0.036	(0.024)
Service workers and shop and market sales workers	0.001	(0.020)	0.121	(0.158)	-0.002	(0.029)
Craft and related workers	-0.015	(0.014)	0.011	(0.026)	0.006	(0.040)
Plant and machine operators and assemblers	-0.023	(0.015)	0.010	(0.026)	-0.033	(0.049)
Elementary occupations	-0.007	(0.017)	0.037	(0.031)	-0.028	(0.036)
Unknown	-0.069**	(0.032)	-0.117*	(0.063)	-0.011	(0.063)
Sector (ref: c1=energy, c5=trade)						
Mining	-0.055	(0.056)				
Manufacturing	-0.011	(0.029)				
Construction	-0.018	(0.029)				
Trade	0.000	(0.031)				
Transport	-0.033	(0.033)			-0.110***	(0.039)
Bank Insurance	0.023	(0.037)				
Other Services	0.001	(0.028)			-0.084**	(0.038)
Unknown	-0.029	(0.118)				
Firm size (ref: [5 ;20[ )						
[20 ; 100[	0.014	(0.019)	0.013	(0.070)	-0.063	(0.053)
[100 ;200[	0.028	(0.020)	0.075	(0.070)	-0.082	(0.054)
[200 ;2000[	0.014	(0.019)	0.049	(0.069)	-0.072	(0.053)
>= 20	0.011	(0.020)	0.068	(0.070)	-0.097*	(0.053)
Unknown	0.049	(0.034)	0.162*	(0.088)	-0.149*	(0.084)
No working hour agreement	0.014	(0.014)	0.034	(0.027)	0.018	(0.032)
Survey year (ref: 2001)						
2003	0.088***	(0.005)	0.075***	(0.010)	0.102***	(0.012)
2006	0.130***	(0.006)	0.101***	(0.013)	0.161***	(0.015)
2007	0.133***	(0.007)	0.111***	(0.015)	0.164***	(0.017)
2011	0.227***	(0.009)	0.200***	(0.020)	0.261***	(0.022)
2015	0.352***	(0.012)	0.323***	(0.025)	0.409***	(0.030)
Month of interview (ref: Jan)						
February	-0.009	(0.007)	-0.009	(0.014)	-0.033**	(0.017)
March	-0.011	(0.008)	-0.012	(0.015)	-0.029*	(0.018)
April	-0.004	(0.008)	-0.002	(0.017)	-0.009	(0.019)
May	-0.011	(0.009)	-0.012	(0.018)	-0.018	(0.021)
June	-0.008	(0.010)	-0.009	(0.020)	-0.027	(0.024)
July	-0.008	(0.012)	-0.019	(0.026)	-0.027	(0.027)
August	-0.008	(0.014)	-0.006	(0.028)	0.018	(0.033)
September	0.006	(0.017)	0.023	(0.036)	-0.036	(0.035)
October	0.018	(0.033)	0.082	(0.069)	-0.029	(0.092)
Individual Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,253		2,442		1,557	
Adjusted R^2	0.853		0.835		0.901	
Individuals	2761		768		529	

Model: OLS with individual and time fixed effects; Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Source : German Socio-Economic Panel, own calculations

Appendix 5: Robustness checks

Table A5.1: Share of German employees working in firms with more than 250 employees covered by …

	… sectoral collective agreements	… firm-level collective agreements	… a works council
2000	76.6%	12.8%	92.4%
2001	75.2%	14.6%	92.0%
2002	77.8%	12.1%	93.7%
2003	74.7%	13.9%	92.2%
2004	76.8%	12.4%	92.7%
2005	76.3%	12.6%	91.5%
2006	73.3%	14.0%	89.2%
2007	73.6%	12.1%	89.3%
2008	70.0%	13.3%	88.9%
2009	67.1%	15.6%	89.5%
2010	69.9%	14.2%	88.9%
2011	70.1%	13.0%	89.0%

Source: Addison et al (2017).

Table A5.2: Alternative sample - workers in firms with more than 200 employees. Dependent variable - log hourly gross wage

	(1)	(2)	(3)	(4)	(5)	(6)
	All sectors	Manufacturing sector	Construction sector	Private service sectors --- (incl. banking and insurance)	Private service sectors ---- (no banking or insurance)	Public Sector ---- (no civil servant)
Member of the Works Council	-0.003	0.035**	0.007	-0.045**	-0.062**	-0.020
	(0.010)	(0.018)	(0.031)	(0.022)	(0.024)	(0.018)
Member of a Trade Union	-0.012	-0.024*	-0.012	-0.013	-0.022	-0.001
	(0.008)	(0.014)	(0.023)	(0.019)	(0.021)	(0.016)
Individual Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,874	2,624	1,386	2,484	1,889	2,480
Adjusted R^2	0.859	0.843	0.841	0.896	0.895	0.821
Individuals	3121	852	458	867	675	807

Model: OLS with individual and time fixed effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source : German Socio-Economic Panel, own calculations

Table A5.3: Test of a differentiated attrition between the treatment and the control. Dependent variable - probability to be unobserved in the next wave

	(1)	(2)	(3)	(4)
	All sectors	Manufacturing sector	Private service sectors	Public Sector (no civil servant)
Member of the Works Council	-0.126*	-0.041	0.230	-0.235*
	(0.070)	(0.138)	(0.153)	(0.132)
Member of a Trade Union	0.055	0.097	-0.025	0.090
	(0.043)	(0.079)	(0.117)	(0.078)
Individual Fixed Effect	No	No	No	No
Time Fixed Effect	Yes	Yes	Yes	Yes
Observations	8,275	2,209	1,374	2,422
Individuals	2762	768	530	835

Model: OLS with time fixed effects.

Standard errors in parentheses are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1

Source : German Socio-Economic Panel, own calculations

Appendix 6: Number of individuals identifying the main effects

Table A6.1: Number of individuals identifying the main effect (i.e. switching status) according to the regression model and the sample

	All sectors	Manufacturing Sector	Private Service Sectors (excl. banking and insurance)	Public Sector
Baseline regression	300	86	65	81
Robustness Check - Large firms	262	86	48	70
Robustness Checks - Enter WoCo		60	44	
Robustness Checks - Exit WoCo		26	21	

Source: German Socio-Economic Panel, own calculations

Table A6.2: Number of individuals identifying the main effect in the baseline regression according to their union and political status when first observed

	Manufacturing Sector	Private Service Sectors (excl. banking and insurance)
Total number of individuals identifying the main effect in the baseline regression …	86	65
… of which, N were unionized when first observed	59	23
… of which, N supported a political party when first observed	52	35

Source: German Socio-Economic Panel, own calculations

Table A6.3: Number of individuals in the group of respondents about to be elected in column (1) of table 7

Manufacturing Sector
29

Source: German Socio-Economic Panel, own calculations