I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 15956

Works Councils as Gatekeepers: Codetermination, Monitoring Practices, and Job Satisfaction

Christian Grund
Dirk Sliwka
Krystina Titz

FEBRUARY 2023

I Z A Institute
of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 15956

Works Councils as Gatekeepers: Codetermination, Monitoring Practices, and Job Satisfaction

Christian Grund
RWTH Aachen University and IZA

Dirk Sliwka
University of Cologne and IZA

Krystina Titz
RWTH Aachen University

FEBRUARY 2023

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Works Councils as Gatekeepers: Codetermination, Monitoring Practices, and Job Satisfaction

This paper analyzes the role of works councils as gatekeepers safeguarding employee's interests in the adoption of monitoring practices. We first introduce a formal model predicting that (i) the introduction of monitoring practices leads to a stronger increase (or weaker decrease) in job satisfaction when a works council is in place, (ii) that this effect should be larger the lower the prior level of employee participation and (iii) that works councils increase the likelihood of the implementation of monitoring practices at the level of individual employees. We provide evidence in line with these hypotheses using linked-employer-employee panel data from Germany. We indeed find that the adoption of formal performance appraisals and feedback interviews is associated with a significantly larger increase in job satisfaction when there is a works council. This pattern is driven by establishments without collective bargaining agreements. The evidence also suggests that works councils indeed facilitate the implementation of monitoring practices, as codetermined firms have a higher likelihood that a practice implemented on the firm level is actually applied by middle management.

JEL Classification: M5, J83, J28

Keywords: works councils, codetermination, performance appraisal, feedback interview, job satisfaction, linked employer-employee data

Corresponding author:
Christian Grund
Fakultät für Wirtschaftswissenschaften
Templergraben 64
Raum 403
52056 Aachen
Germany

E-mail: christian.grund@rwth-aachen.de

1 Introduction

Many industrialized countries, in particular in continental Europe, have adopted laws that give worker representatives specific codetermination rights. An important form are shop-floor or establishment level codetermination rights often implemented through elected bodies of worker representation such as works councils. These bodies often have quite substantial codetermination rights, in particular concerning the implementation of employee monitoring practices such as formal performance appraisals or feedback interviews. This paper studies this role of works councils as gatekeepers safeguarding the interests of workers in the adoption of such monitoring practices.

We first illustrate this function in a simple formal model where a firm decides on the implementation of a specific monitoring practice that affects both, firm performance and worker well-being. We show that conditionally on being adopted, a monitoring practice should naturally have a stronger effect on employee well-being when there is a works council. The mechanism is simple: when there is codetermination, works councils can filter out practices that have larger negative externalities on workers' well-being or favour the implementation of practices that may reduce profits but increase well-being. The model furthermore predicts that this effect is the larger the lower the prior level of employee participation as there are decreasing returns to participation.

We test implications of this gatekeeper approach to codetermination using matched employer-employee data from Germany. As it is notoriously difficult to use within-establishment variation in works council adoption[1], our approach is a different one. We consider within-person

[1] Works councils are typically established in particular in times of crisis as here employees have strong interests in establishing a body with substantial legal rights to safeguard their interests. Hence, within workplace variation

variation in the use of monitoring practices over time and study differences in the association between the use of such practices and employee job satisfaction between workers in establishments with and without works councils. The gatekeeper model predicts that the implementation of a monitoring practice should be associated with a stronger increase (or smaller decrease) in job satisfaction when there is a works council. In other words, as works councils shift the distribution of adopted practices towards practices that have lower negative or larger positive externalities on workers' well-being, we should observe a stronger increase in job satisfaction at the time of practice implementation when the establishment has a works council.

We study this question focusing on two core monitoring practices: formal performance evaluations and feedback interviews. We indeed find patterns consistent with the gatekeeper model for both of these practices: While there is no detectable association between practice implementation and job satisfaction in establishments without works councils, there is a sizeable positive association in firms where a works council is in place. Moreover, in line with the idea of decreasing returns to worker representation, this pattern is driven by establishments that are *not* covered by collective bargaining agreements.

The gatekeeper model has a further implication that is concerned with the actual implementation of practices by middle managers. In particular with respect to monitoring practices, a firm itself typically can only devise a blueprint for a practice, but the practice must be applied by middle managers throughout the organisation. That is, while the firm can propose a format for a performance appraisal or a feedback interview, it is the managers who have to make the appraisal or conduct the interview, and they may not necessarily do so as implementation will

---

in works council incidence will most likely be correlated with worker well-being beyond the direct impact of codetermination rights on the latter.

consume time and effort or generate resistance by subordinates. But if works councils through their gatekeeping role favour the adoption of practices (on the firm or establishment level) that are associated with higher levels of employee satisfaction, this should also lower the costs for middle managers of actually applying the practice. As shown in the simple formal framework, establishments with works councils should have a larger likelihood that a practice implemented on the firm level is actually applied by a middle manager. To test this hypothesis, we make use of a linked establishment survey, which includes survey items on whether the firm uses performance appraisals and feedback interviews and in a second step asks whether these practises are used for all employees (rather than subsets of the workforce). We then consider only those firms who state to apply the practice for all employees and use the employee level to measure the likelihood that the practice is indeed implemented by an employee's supervisor. We find that in particular for performance appraisals the likelihood of implementation of a practice that is supposed to be used for all employees is indeed substantially larger in firms with works councils.

The literature has put forward different theoretical arguments how and why codetermination should affect employee and firm outcomes. Most importantly, it has been claimed that works councils can provide "collective voice" (Hirshman 1970), facilitate credible communication between employers and employees (Freeman and Lazear 1995) and increase employees' bargaining power thus redistributing rents (Jensen and Meckling 1979; Fitzroy and Kraft 1987) or overcoming inefficiencies due to incomplete contracting or imbalances of power (Smith 1991; Hogan 2001; Frege and Godard, 2014).

While there is a rich empirical literature on the effects of workplace-codetermination on firm performance and wages (see Addison (2009), Mohrenweiser (2022) or Jäger, Noy and Schoefer (2022a) for recent surveys), fewer studies have investigated the association between shop-level

codetermination and job satisfaction and have shown mixed results detecting rather moderate positive associations driven by specific subgroups of employees (Jirjahn and Tsertsvadze 2006; Grund and Schmitt 2013; Bellmann, Hübler and Leber 2019; Harju, Jäger and Schoefer 2021). Concerning the role of monitoring practices, several empirical studies have found substantial positive associations between practices such as performance appraisals and feedback interviews and outcomes such as productivity, or absenteeism, and employee retention (Cappelli and Neumark 2001; Kuvaas 2006; Bloom and Van Reenen 2007; Peretz and Fried 2012; Frederiksen, Lange and Kriechel 2017; Cappelli and Conyon 2018). Fewer studies have explored the association between such monitoring practices and job satisfaction. Kampkötter (2017), for instance, finds a significantly positive relation between the use of formal performance appraisals and job satisfaction using data of the German Socio-Economic Panel (SOEP).[2] Studies focusing on performance related pay, for which arguably the use of performance appraisals is a precondition, also tend to find a positive link to job satisfaction (e.g. Heywood and Wei 2006; Green and Heywood 2008; Cornelissen, Heywood and Jirjahn 2011; Bryson, Clark and Freeman 2012; Pagan and Malo 2021).

The role of codetermination institutions in general and works councils in particular for the relation between monitoring practices and job satisfaction has to the best of our knowledge not been explored so far. Our results thus shed light on a specific channel through which codetermination institutions can affect employee well-being. As we argue, works councils – while potentially having weak direct effects on job satisfaction when they are established – may have

[2] Several authors have stressed heterogeneity in the link between the general use of monitoring practices and job satisfaction, in particular with respect to perceived fairness of the specific design and implementations (e.g. Nathan, Mohrman and Milliman 1991; Pettijohn, Pettijohn and d'Amico 2001; Lau, Wong and Eggleton 2008; Brown, Hyatt and Benson 2010; Cheng 2014).

substantial indirect effects through shifting the adoption of management practices. But as the effect of this gatekeeping role most likely needs time to unfold, it makes it harder to identify direct effects of works councils on job satisfaction and may help to understand the moderate association between works council adoption and job satisfaction typically found in the literature.

2 Theory

2.1 A Simple Model

Consider a firm F deciding on the introduction of a new employee monitoring practice $\tau_F \in \{0,1\}$. The practice may affect both, the firm's productivity and the workers' well-being. Let Π denote the firm's profits and U_i be the well-being of the workers $i = 1,..,n$ with prior levels Π_0 and U_{0i}. Posterior levels of profits and well-being are given by $\Pi_1 = \Pi_0 + \tau_F \pi$ and $U_{1i} = U_{0i} + \tau_F u_i$ such that u_i and π are the causal effects of the practice on well-being and profits respectively.

Assume that the worker specific effect $u_i = u + \varepsilon_i$ where $\varepsilon_i \sim N(0, \sigma_\varepsilon^2)$ and that u and π are drawn from a normal distribution

$$\binom{u}{\pi} \sim N\left(\binom{0}{0}, \begin{pmatrix} \sigma_u^2 & \rho_{u\pi}\sigma_u\sigma_\pi \\ \rho_{u\pi}\sigma_u\sigma_\pi & \sigma_\pi^2 \end{pmatrix}\right).$$

Workers' wages are exogenously determined so that the implementation of the practice is independent from wage setting.

The firm has either a works council or not, where $c \in \{0,1\}$ is a dummy variable indicating the presence of a works council. We assume that the firm will implement the practice if

$$\pi + (\kappa_0 + c\kappa_\Delta)u \geq 0$$

where κ_0 is the prior strength of employee representation and κ_Δ determines the additional effect of having a works council. Works councils thus increase the weight of employee well-being in the firm's considerations.

2.2 Works Councils, Monitoring Practices, and Worker Well-being

We now analyze the effect of the introduction of the practice on worker well-being as a function of the level of codetermination. Note that the average marginal effect of the introduction of the practice on job satisfaction is

$$\Delta U(c) = E[U_1|\tau_F = 1, c] - E[U_1|\tau_F = 0, c] = E[u|\pi + (\kappa_0 + c\kappa_\Delta)u \geq 0].$$

We can now show:

Proposition 1. The introduction of a new management practice is associated with a stronger increase in job satisfaction when the firm has a works council, that is $\Delta U(c) = E[U_1|\tau_F = 1, c] - E[U_1|\tau_F = 0, c]$ is higher when $c = 1$.

Proof: See Appendix.

Works councils thus act as gatekeepers, as they affect whether a certain practice with features (π, u) is adopted by the firm or not. As they give more weight on employee well-being u they, for instance, reduce the likelihood that practices are adopted which are profitable for the firm but detrimental to employee well-being. In turn, the model predicts that once a practice is adopted by a firm with a works council it will have a stronger impact on employee satisfaction than a related practice adopted in a firm without works council.

But the size of this effect will also depend on the baseline level of employee representation κ_0 as the following result shows.

Proposition 2. The gain in job satisfaction $\Delta U(1) - \Delta U(0)$ from implementing the practice in a firm with a works council is the higher, the lower the prior level of employee representation κ_0.

Proof: See Appendix.

The intuition is simple: When employee representation is very weak, giving employee well-being some weight has a strong effect on this well-being. But the stronger the prior levels of employee participation the weaker is the additional effect of giving employees more voice.

A direct testable implication of this result is that the moderating role of a works council in the association between monitoring practices and job satisfaction is weaker in firms covered by collective bargaining agreements.

2.3 Works Councils and the Implementation of Monitoring Practices

But the adoption of a management practice on the level of the firm may not necessarily mean that the practice is implemented by middle managers within the firm if they have a key role in applying the practice in their interaction with individual employees (as it is the case for feed-back interviews and performance appraisals).

To study the role of middle managers, assume that once a practice is rolled out at the firm level, supervisors within the firm must implement it and have some leeway whether to do this. Each supervisor j can decide whether to implement the practice choosing $\tau_j \in \{0,1\}$. Each supervisor has personal implementation costs $a_j \sim N(m_c, \sigma_c^2)$ and that a supervisor's benefits from implementation are the higher, the higher the expected benefits for her subordinates. This could be

either because the supervisor internalizes her subordinate's well-being to some extent due to social preferences or because she faces less resistance. Assume thus that the implementation of the practice changes supervisor j's utility by $\eta E[u|\pi + \kappa u \geq 0] - a_j$. Hence, the likelihood that a practice is implemented by supervisor j is

$$Pr\left(a_j < \eta E[u|\pi + \kappa u \geq 0]\right) = \Phi\left(\frac{\eta E[u|\pi + \kappa u \geq 0] - m_c}{\sigma_c^2}\right)$$

(where $\Phi(x)$ is the cdf of a standard normal distribution) which is strictly increasing in κ. We have thus shown:

Proposition 3. When the firm has a works council the likelihood is higher that a practice rolled out by a firm is actually applied by middle managers.

The model thus implies the following hypotheses:

H1: The introduction of a monitoring practice is associated with a stronger increase in job satisfaction when a firm has a works council.

H2: This effect is weaker in firms covered by a collective bargaining agreement.

H3: The likelihood that a monitoring practice rolled out on the firm level is implemented by middle managers is larger when there is a works council.

3 Empirical Analysis

3.1 Codetermination and the Adoption of Monitoring Practices in Germany

Workplace-level codetermination rights are particularly pronounced in the German model of industrial relations (Schnabel 2020; Jäger, Noy and Schoefer 2022b). By the Works Constitution Act ("Betriebsverfassungsgesetz") workers in Germany have the right to set up and elect works councils when at least five employees support their adoption.

Works councils have substantial codetermination rights in particular with respect to the implementation of employee monitoring practices. When a firm, for instance, wants to change or implement practices or devices to monitor the behavior or performance of the employees it needs the consent of the works council (§87 (1) of the Works Constitution Act).[3] In case of a disagreement the implementation is decided by conciliation committee chaired by a neutral arbiter. Hence works councils hold substantial power on the implementation and arrangement of monitoring practices such as formal performance appraisals or feedback interviews.

3.2 Data

The analysis is based on the Linked Personnel Panel (LPP), which is a longitudinally linked employer-employee data set of establishments and several of their employees in Germany (Bellmann et al. 2015; Kampkötter et al. 2016). The survey is conducted on behalf of the German

[3] For an English translation of the law, compare section 87 in https://www.gesetze-im-internet.de/englisch_betrvg/englisch_betrvg.html. Manthei and Sliwka (2019) for instance document the case of a retail bank in Germany that conducted a field experiment in order to convince its works council to agree that supervisors had access to objective performance measures in the performance appraisal process.

Federal Ministry of Labor and the Institute of Employment Research (IAB) of the Federal Employent Agency. Establishment information stems from a survey among managing directors and HR managers. On the establishment level, the LPP is representative of German establishments with 50 and more employees outside of the public sector. The LPP includes information on job, firm, and personnel characteristics as well as employee attitudes towards the organization. Moreover, the LPP can be linked to the IAB establishment panel, which includes additional establishment information and the information of the existence of works councils. We use the second, third and fourth wave (2014, 2016 and 2018) of the LPP for our analysis, since information on individual performance appraisals is not available in the first wave.

We restrict our sample to employees who are between 18 and 65 years old and receive a monthly gross wage between €450 and €100,000. Moreover, in the main analysis we consider only establishments where works council status is stable over the survey waves. The reason is that variation in works council status is typically associated with the respective firms' economic situation (e.g. Kraft and Lang 2008; Jirjahn 2009) and, in turn most likely connected with variations in employees' well-being.[4] That is, we consider only employees who work in firms with or without works councils between 2014 and 2018 and drop those employees working in firms with a change in the works councils' status. The unbalanced panel we use includes 9,857 observations on 7,769 individuals in 1,053 firms.

[4] As explained already in footnote 1, works councils are, for instance, often initiated in times of economic distress in a firm. We also replicated our analysis including establishments which changed works council status and the results are robust to including such firms.

3.3 Variables

Our dependent variable *Job satisfaction* is measured by the item "How satisfied are you currently with your job" on a 11-point Likert scale from 0 (=totally unhappy) to 10 (=totally happy). Employees' average job satisfaction is 7.4. Table 1 shows the descriptive statistics of the relevant variables of our sample.

The existence of a *Works council* is measured on the firm level as a binary variable indicating whether the firm states that it has a works council (1=yes).[5] About 85% of the employees in the sample work in firms with works councils. In order to test the implications of our model we consider two monitoring practices: first, we use the binary variable *Performance appraisal* (PA) indicating whether an employee states that his or her own performance is regularly assessed by a supervisor as part of a predefined procedure (1=yes). About 50% of the employees are subject to a performance appraisal. Second, the binary variable *Feedback interview* (1=yes) indicates whether the employee state to have an individual appraisal interview with his or her superior last year. About 57% of the employees had a feedback interview with their supervisor. Additionally, we consider PA and interview information measured on the firm level in an own subsection below. The variable *Plant PA* is a dummy variable (1=yes) indicating whether the firm states that it uses performance evaluations (74% state that they do). More precisely, the HR director or managing director is asked, whether a review of the performance of the employees is carried out by the respective supervisor in their establishment at least once a year. The dummy variable *Plant feedback interview* (1=yes) indicates whether the firm conducts structured feedback interviews at least once a year (81% state that they do).

[5] This variable is measured through the IAB establishment panel to which the LPP is linked.

Furthermore, we control for socio-demographic as well as individual job-related variables and further firm characteristics which have been identified as relevant for employees' job satisfaction in previous studies (e.g. Kampkötter 2017) and vary about time. Socio demographic variables are *age* (in years, mean=47.36), *in relationship* (1=yes; share=0.85) and *children under 14* in household (1=yes; share=0.25). Job-related variables include information on *full-time* (1=yes; share=0.87)*, temporary contract* (1=yes; share=0.03)*, employment status* (3 categories: blue-collar worker (share=0.35), white-collar worker (share=0.44) and manager (share=0.21))*, monthly gross wage* (mean=€4,125), incidence of *overtime* hours (1=yes; share=0.67) and *concerns about job security* (3 categories). Furthermore, we control for *firm size* (4 dummies).

Table 1: Descriptive statistics

	Whole sample (n=9,857)			
Variables	Mean/Share	SD	Min	Max
Job satisfaction	7.3950	1.7735	0	10
Performance appraisal (PA)	0.5044		0	1
Feedback interview	0.5682		0	1
Works council	0.8542		0	1
Plant PA	0.7428		0	1
Plant feedback interview	0.8144		0	1
Age	47.360	10.264	18	65
In relationship	0.8484		0	1
Children < 14	0.2466		0	1
Full-time	0.8698		0	1
Temporary contract	0.0318		0	1
Employment status			1	3
Blue-collar worker	0.3472			
White-collar worker	0.4392			
Manager	0.2137			
Monthly gross wage (in €)	4,125.7	3868.5	450	100000
Overtime	0.6745		0	1
Concerns about job security (3 = very concerned)	1.3865	0.5862	1	3
Firm size			1	4
50-99 employees	0.1013			
100-249 employees	0.2293			
250-499 employees	0.2186			
500 and > employees	0.4507			
Region of Germany			1	4
North	0.1920			
East	0.2414			
South	0.2962			
West	0.2704			
Industry			1	5
Manufacturing	0.2929			
Metal, electrical industry	0.4312			
Commerce, traffic	0.0956			
(Financial) services	0.1090			
IT, communication	0.0714			

3.4 Results

3.4.1 Monitoring Practices, Works Councils and Job Satisfaction

In order to analyse the relation between job satisfaction, both monitoring practices and works councils, we estimate individual fixed effects models of the form:

$$Job\ satisfaction_{it} = \beta_0 + \beta_1 \cdot Practice_{it} + \beta_2 \cdot Practice_{it} \times Works\ council_{it} + \gamma \cdot Controls_{it} + a_i + \lambda_t + \varepsilon_{it}$$

where *Job satisfaction* is the job satisfaction of employee *i* in wave *t*. We rescale our dependent variable job satisfaction to a z-standardized variable in order to interpret our results in percentages of a standard deviation. To account for within-firm interdependencies, we cluster standard errors at the level of the firm. Note that works council status is relatively stable over time and as a change in works council status is typically associated with specific events we have restricted the data set to firms where the works council status does not change in the time frame. The regression results are shown in Table 2. Columns (1) and (3) investigate the general association between changes in performance appraisal use and changes in job satisfaction. Columns (2) and (4) include an interaction term *Performance appraisal* × *Works Council* thus testing the first key hypothesis implied by the formal model. Column (3) and (4) additionally include time-varying control variables such as socio-demographic variables, individual job-related information, and firm characteristics.

Table 2: Performance appraisal and works councils

	Full sample				Works council	No Works council
	(1)	(2)	(3)	(4)	(5)	(6)
Performance appraisal (PA)	0.0954** (0.0406)	-0.0525 (0.0635)	0.0867** (0.0390)	-0.0645 (0.0702)	0.1146*** (0.0438)	-0.0553 (0.0717)
PA × Works council		0.1718** (0.0783)		0.1758** (0.0830)		
Controls	no	no	yes	yes	yes	yes
Employee fixed effects	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.0027	0.0037	0.0603	0.0613	0.0667	0.1007
# Observations	9,857	9,857	9,857	9,857	8,420	1,437

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns about job security*, *Overtime* (1=yes), *Firm size* and *Year.*

As columns (1) and (3) show, across the sample of all firms irrespective of the works council status we find that performance appraisals are significantly positively related to job satisfaction of employees. The adoption of performance appraisals is associated with an increase in job satisfaction of about 9 % of a standard deviation. We thus replicate a result by Kampkötter (2017) who studied data from the German Socio-Economic Panel and also found a positive association.

As columns (2) and (4), however, show works council incidence indeed significantly strengthens the relationship between performance appraisals and job satisfaction (by about 18 percent of a standard deviation) which confirms our hypothesis 1. Separate estimations of employees working in firms with works councils (column 5) and without (column 6) indeed show that this

association only holds for establishments with a works council.[6] In establishments without a works council there is no evidence for an association between the use of performance appraisals and job satisfaction and the respective point estimate is rather close to zero.[7]

We replicate the analysis with *Feedback interviews* as a further monitoring practice. The respective regression results are reported in Table 3. We again find a similar pattern: Works councils significantly strengthen the positive association between changes in the use of feedback interviews and changes in job satisfaction. While there is a positive association in establishments with works councils, there is no such relationship in those without.

As firms using performance appraisals are also more likely to have feedback interviews, it appears important to study whether the interaction effects are also robust when we include works councils interaction with both practices in the same regression. As the results reported in Table 4 show, we again find that changes in the use of each of the two practices controlling for the use of the respective other practice is associated with higher job satisfaction in firms with works councils (column (2)) but no such association exists in firms without works councils (column (3)).[8]

---

[6] At first glance, our findings may appear contrary to the literature regarding the paradox of unions and job satisfaction which discusses the sorting effect as one explanation that unionized workers have a lower job satisfaction despite higher pay and benefits (see Artz and Heywood 2021). The sorting effect means that workers in union jobs are more likely dissatisfied since they expect better working conditions compared to workers in nonunion jobs. However, for our results the sorting effect plays no role as we consider within-person variation by including employee fixed effects.

[7] Note that the formal model indeed predicts that there is no such association when the effects of the practice on profits π and worker well-being u are uncorrelated, i.e. when $\rho_{u\pi} = 0$ and the prior strength of employee representation $\kappa_0 = 0$ as then $E[u|\pi \geq 0] = 0$.

[8] We also check for possible complementarities between both practices. However, as the results reported in table A1 in the appendix show we find no evidence for a complementarity.

Table 3: Feedback interview and works councils

	Full sample				Works council	No Works council
	(1)	(2)	(3)	(4)	(5)	(6)
Feedback interview	0.0762	-0.1591	0.0829*	-0.1609	0.1241**	-0.1578
	(0.0484)	(0.1290)	(0.0462)	(0.1310)	(0.0493)	(0.1415)
Feedback interview × Works council		0.2724**		0.2823**		
		(0.1389)		(0.1408)		
Controls	no	no	yes	yes	yes	yes
Employee fixed effects	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.0013	0.0032	0.0614	0.0636	0.0664	0.1053
# Observations	9,857	9,857	9,857	9,857	8,420	1,437

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns about job security*, *Overtime* (1=yes), *Firm size* and *Year.*

Table 4: Performance appraisal, feedback interview and works councils

	(1) Whole sample	(2) Firms with works councils	(3) Firms without works councils	(4) Whole sample
Performance appraisal	0.0810**	0.1067**	-0.0407	-0.0490
	(0.0386)	(0.0488)	(0.0735)	(0.0720)
Feedback interview	0.0751	0.1146**	-0.1526	-0.1549
	(0.0458)	(0.0488)	(0.1428)	(0.1329)
PA × Works council				0.1527*
				(0.0844)
Feedback interview × Works council				0.2672*
				(0.1425)
Employee fixed effects	yes	yes	yes	yes
Controls	yes	yes	yes	yes
Adjusted R^2	0.0633	0.0698	0.1058	0.0664
# Observations	9,857	8,420	1,437	9,857

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns of job security, Overtime* (1=yes), *Firm size* and *Year.*

In a next step we investigate two potential confounds. First, employees working in firms with works councils may be less concerned with their job security due to stronger employment protection. In turn, for employees receiving poor performance evaluations this may lead to a weaker loss in job satisfaction when there is codetermination – which could yield an alternative explanation for the above findings. Second, as it is conceivable that performance appraisals are more effective in larger firms (for instance when appraisals or feedback interviews are implemented in a more professional manner) and as larger firms are more likely to have works councils, firm size may be another potential alternative driver of the interaction effect. As robustness checks we, therefore, additionally interact both practices with employees' *Concerns about job security* as well as with *Firm size* categories. The respective regression results are reported in Tables A2 and A3 in the Appendix. For *Performance appraisals* we find that the inclusion of the additional interaction terms even strengthen the magnitude of the hypothesized interaction effect. For *Feedback interviews* the magnitude of the interaction effect is essentially unchanged when adding interaction terms with job security concerns, but is weakened (and, while still being sizeable becomes statistically insignificant) when adding firm size interactions. Hence, for feedback interviews a part of the interaction effect appears indeed to be driven by firm size effects but this is not the case for performance appraisals

3.4.2 Decreasing Returns to Codetermination?

In a next step we test hypothesis 2, which states that the positive interaction between monitoring practices and codetermination is weaker in firms exposed to other forms of employee representation. To this end, we split our sample into firms either covered by collective bargaining agreements or not and re-estimate our primary model.[9] The results are reported in Table 5, the upper panel of which reports results for *Performance appraisals* and the lower panel for *Feedback interviews*. Column (1) shows the estimates for firms covered by collective agreements and column (2) for those which are not covered.

Indeed, collective agreement coverage matters in line with hypothesis 2: While works council incidence strengthens the association between both monitoring practices and job satisfaction in firms not covered by collective bargaining agreements (column (2)), this is no longer the case in firms covered by such agreements (column (1)). [10]

[9] The number of observations is slightly lower due to some missing values of the variable collective agreement. About 0.77 of the employees work in firms with collective agreement coverage.

[10] In order to explore the role of unions by oneself, we complement our analysis by estimating our primary model again using collective agreements instead of works councils (table A4 in the appendix). We, indeed, find only a significantly positive relation of individual PA and job satisfaction for employees working in firms with collective agreements. The corresponding coefficient for employees in firms without collective agreements is even negative, but not significant. The interaction effect of individual PA and collective agreement for employees' job satisfaction shows a positive but not significant result (model 3).

Table 5: Performance appraisals (upper panel)/Feedback interviews (lower panel) and works councils: separated by firms with and without collective agreements

	(1) Firms with collective agreement	(2) Firms without collective agreement
Performance appraisal	0.2092*	-0.1747*
	(0.1103)	(0.0915)
PA × Works council	-0.0944	0.2307*
	(0.1210)	(0.1345)
Employee fixed effects	yes	yes
Controls	yes	yes
Adjusted R^2	0.0695	0.0932
Feedback interview	0.2274	-0.2666*
	(0.2060)	(0.1456)
Feedback interview × Works council	-0.1071	0.3843*
	(0.2142)	(0.2040)
Employee fixed effects	yes	yes
Controls	yes	yes
Adjusted R^2	0.0687	0.0980
# Observations	7,569	2,266

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns of job security, Overtime* (1=yes), *Firm size* and *Year.*

These results thus suggest that unions and works councils are indeed substitutes in being gate-keepers to safeguard employees' interests in the implementation of monitoring practices. In practical terms unions can fulfil this function informally by giving employees bargaining power. But in the German system of industrial relations they also can have a more formal role in the design of monitoring practices. Collective bargaining agreements may in fact include clauses in that restrict employers in how to design their performance assessment practices. Several so called framework collective agreements ("Rahmentarifverträge") negotiated between employer federations and unions specify default rules for performance assessments. The framework agreement for the metal and electronics industry in Baden-Württemberg, for instance,

explicitly specifies in §17.2.3 that "If the parties on the level of the establishment do not agree on their own appraisal system, the appraisal shall be carried out on the basis of the system recommended in the collective agreement". [11] This "default" system is then described in detail in an Appendix to the framework agreement.

Interestingly, the previous literature on the interplay between collective bargaining coverage and works councils has sometimes stressed that both institutions can be complements in affecting productivity.[12] Our results shows that they may well be substitutes when it comes to safeguarding employees' interests.

3.4.3 The transfer function of works councils

In order to test whether works councils are associated with a higher likelihood that a practice implemented on the firm level is applied by a middle manager (hypothesis 3) we make use of the establishment level survey on the use of *Performance Appraisals* and *Feedback interviews*. The establishment survey first asks responding firms whether they use the specific practice, and in a second step whether the practice is applied for all or only a subset of the employees. A share of 41% of the employees work in firms that state to have performance appraisals for all employees and 51% of the employees work in firms with feedback interviews for all.

We proceed in two steps. First we estimate binary probit models of the following form:

---

[11] See, e.g. https://www.bw.igm.de/tarife/tarifvertrag.html?id=696. Page 44 defines the specific appraisal form that supervisors then have to use.

[12] Pfeifer (2011), for instance, finds in firms with works councils and collective bargaining agreements lower quit rates compared to firms with works councils but without collective bargaining agreements. Hübler and Jirjahn (2003) find that works council firms with collective bargaining coverage are associated with higher productivity than works council firms without collective bargaining coverage and argue that this the case as distributional conflicts are removed from the establishment level.

$$Individual\ practice_{i,t} = \beta_0 + \beta_1 \cdot Works\ council_{i,t} + \beta_1 \cdot Plant\ practice_{i,t} + \gamma \cdot Controls_{i,t} + \varepsilon_{i,t}$$

for each of the two monitoring practices, where $Individual\ practice_{i,t}$ are the respective dummy variables indicating whether an employee stated to receive the practice and $Plant\ practice_{i,t}$ measures whether the firm has stated to use the respective practice in the establishment survey.

Table 6 shows the respective regression results in columns (1) and (2). First, we find that conditional of the claim to use the practice on the level of the establishment, each of the two practices is significantly more often implemented on the employee level when the establishment has a works council.

However, it may well be the case that firms intentionally use the practices only for a subset of the employees and works councils affect this intention rather than the actual implementation decision by middle managers. To provide a more precise test of hypothesis 3 which states that the likelihood that middle managers adopt a practice that the firm intends to implement, we in a second step therefore restrict our sample to employees working in firms who state to have implemented the particular practice *for all employees.* Here, the fact that an employee is not subject to the practice shows a clear non-compliance by the respective manager with the intentions of the firm.

Table 6: HR practices and works councils (binary probit model, marginal effects)

	(1) Whole Sample	(2) Whole Sample	(3) Only PA for all	(4) Only interview for all
	Performance Appraisal (Individual level)	Feedback Interview (Individual level)	Performance Appraisal (Individual level)	Feedback Interview (Individual level)
Works council	0.1079*** (0.0221)	0.0671*** (0.0227)	0.1582*** (0.0331)	0.0579* (0.0323)
Performance appraisal (Plant level)	0.2389*** (0.0208)		-	
Feedback interview (Plant level)		0.2829*** (0.0179)		-
Controls	yes	yes	yes	yes
Pseudo R^2	0.0708	0.1264	0.0671	0.1042
# Observations	9,857	9,857	4,069	5,067

Notes: Clustered-robust standard errors at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls include information on *Female* (1=yes), *Age*, *In relationship* (1=yes), *Children < 14* (1=yes), *Years of education*, *Full-time* (1=yes), *Temporary contract* (1=yes), *Occupational status*, *Concerns about job security*, *Firm size*, *Region of Germany*, *Industry*.

Columns (3) and (4) of Table 6 show the respective results. We indeed find that works councils are associated with a higher likelihood that monitoring practices intended to be implemented on the firm level are in fact applied by middle managers which confirms our hypothesis 3. In the restricted sample of model 3 this likelihood is by 16 percentage points higher when a works council is in place compared to employees in firms without works councils.[13] In firms without works councils only 41% of the employees receive a performance appraisal although a PA system is implemented for the whole workforce. Given this baseline likelihood, codetermination is thus associated with an 39% increase in compliance. We observe a qualitatively similar albeit

[13] This result concerning works councils and performance appraisal use has already been found in Grund, Sliwka and Titz (2020). Whereas this earlier work argued that this pattern may be due to a stronger formalization of practices enforced by works council, we here provide a different explanation based on the idea that works councils lead to the adoption of practices that are associated with higher employee well-being and thus lead to a higher willingness to apply these practices.

weaker pattern for feedback interviews (column (4)). Hence, when works councils are in place there is indeed a stronger consistency between the intentions to set up monitoring practices on the firm level and the likelihood that these practice are actually implemented on the level of individual employees.

4 Conclusion

We studied the role of works councils for the association between the use of monitoring practices and employee well-being. We have shown in a formal model that works councils should naturally act as gatekeepers safeguarding workers' interests in the implementation of management practices. As the model suggests, the use of a monitoring practice should be associated with a higher increase (or lower decrease) in job satisfaction when a works council is in place. The reason is that works councils use their bargaining power to favour the adoption of practices that impose weaker negative or stronger positive externalities on employees' well-being.

In order to test the propositions of our model, we use linked employer-employee panel data to study two key monitoring practices: individual performance appraisals and feedback interviews. Indeed, we found that works councils are associated with a substantially stronger positive relation between the adoption of each of these practices and job satisfaction. Moreover, in line with the formal model, we found evidence for decreasing returns to employee participation in this respect as this effect is essentially driven by firms not covered by collective bargaining agreements.

Furthermore, the gatekeeper model implies that works councils may also have a *transfer function* regarding the actual use of practices for individual employees. When works councils push towards the implementation of more employee friendly practices, managers should naturally

have a stronger willingness to apply these practices. And indeed, we found that in firms intending to implement a practice for all employees, the likelihood that it is actually used in the individual supervisor-employee relationship is substantially higher when works councils are in place.

Our results also may help to shed light on the question why previous studies have found quite mixed and typically moderate effects of works councils on job satisfaction (Jirjahn and Tsertsvadze 2006; Grund and Schmitt 2013; Bellmann, Hübler and Leber 2019; Harju, Jäger and Schoefer 2021): Only when a firm wants to adopt a new practice, a works council can use its bargaining power to achieve a more employee friendly implementation which then can affect well-being. In turn, when works councils are established they will most likely not immediately raise job satisfaction as the gatekeeper role needs time to unfold.[14]

In other words, it appears unlikely that there is a sharp increase in job satisfaction around the point in time when a works council is set up. Instead, we should see a more continuous shift in the design of the implemented practices and policies gradually leading to higher employee well-being.

[14] Accordingly, Jirjahn et al. (2011) find that right after the implementation the influence of works councils on management policies is rather limited, but their involvement increase over time, which also comes along with decreasing employee quit rates with works councils' age.

References

Addison, John T. 2009. The economics of codetermination: lessons from the German experience. Springer, Palgrave Macmillan

Bellmann, Lutz, Bender, Stefan, Bossler, Mario, Broszeit, Sandra, Dickmann, Christian, Gensicke, Miriam, Gilberg, Reiner, Grunau, Philipp, Kampkötter, Patrick, Laske, Katharina, and Jens Mohrenweiser. 2015. LPP - Linked Personnel Panel: Quality of Work and Economic Success: Longitudinal Study in German Establishments (data collection on the first wave). *FDZ method reports 5.*

Bellmann, Lutz, Hübler, Olaf, and Ute Leber. 2019. Works council and training effects on satisfaction. *Applied Economics Letters* 26(14): 1177-1181.

Bloom, Nick, and John Van Reenen. 2007. Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics* 122(4): 1351-1408.

Brown, Michelle, Hyatt, Douglas, and Benson, John. 2010. Consequences of the performance appraisal experience. *Personnel Review* 39: 375–396.

Bryson, Alex, Clark, Andrew E., and Richard B. Freeman. 2012. Does How You Are Paid Affect the Way You Feel? *National Institute of Economic and Social Research* 3286.

Cappelli, Peter, and Martin J. Conyon. 2018. What Do Performance Appraisals Do? *Industrial and Labor Relations Review* 71: 88-116.

Cappelli, Peter, and David Neumark. 2001. Do "High-Performance" Work Practices Improve Establishment-Level Outcomes? *Industrial and Labor Relations Review* 54: 737-775.

Cheng, Shih-Yu. (2014): The mediating role of organizational justice on the relationship between administrative performance appraisal practices and organizational commitment. *The International Journal of Human Resource Management* 25: 1131–1148.

Cornelissen, Thomas, Heywood, John S., and Uwe Jirjahn. 2011. Performance pay, risk attitudes and job satisfaction. *Labour Economics* 18: 229-239.

Fitzroy, F. R. and K. Kraft. 1987. Efficiency and Internal Organization: Works Councils in West German Firms. *Economica* 54: 493-504.

Frederiksen, Anders, Lange, Fabian, and Ben Kriechel. 2017. Subjective performance evaluations and employee careers. *Journal of Economic Behavior and Organization* 134: 408-429.

Freeman, Richard B., and Edward Lazear. 1995. An Economic Analysis of Works Councils. In Rogers, J., Streeck, W. (Ed.), *Works councils – Consultation, representation, and cooperation in industrial relations*. University of Chicago Press. Chicago 27–52.

Frege, Carola and Godard, John, 2014. Varieties of capitalism and job quality: The attainment of civic principles at work in the United States and Germany. *American Sociological Review*, 79(5), pp.942-965.

Green, Colin, and John S. Heywood. 2008. Does performance pay increase job satisfaction? *Economica* 75: 710–728.

Grund, Christian, and Andreas Schmitt. 2013. Works councils, wages and job satisfaction. *Applied Economics* 45(3): 299-310.

Grund, Christian, Sliwka, Dirk, and Krystina Titz. 2020. Works councils and performance appraisals. *Journal of Participation and Employee Ownership* 3(1): 29-50.

Harju, Jarkko, Jäger, Simon, and Benjamin Schoefer. 2021. Voice at work. NBER Working Paper No. w28522. Cambridge, MA: National Bureau of Economic Research.

Heywood, John S., and Uwe Jirjahn. 2014. Variable pay, industrial relations, and foreign ownership: evidence from Germany. *British Journal of Industrial Relations* 52(3): 521–552.

Heywood, John S., and Xiangdong Wei. 2006. Performance pay and job satisfaction. *Journal of Industrial Relations* 48: 523–540.

Hogan, Chad, 2001. Enforcement of implicit employment contracts through unionization. *Journal of Labor Economics*, 19(1), pp.171-195.

Hübler, Olaf, and Uwe Jirjahn. (2003). Works councils and collective bargaining in Germany: the impact on productivity and wages. *Scottish Journal of Political Economy* 50(4): 471–491

Jäger, Simon, Noy, Shakked, and Benjamin Schoefer, 2022a. What does codetermination do?. *ILR Review*, 75(4), pp.857-890.

Jäger, Simon, Noy, Shakked, and Benjamin Schoefer. 2022b. The German Model of Industrial Relations: Balancing Flexibility and Collective Action. NBER Working Paper No. w30377. Cambridge, MA: National Bureau of Economic Research.

Jensen, Michael C. and William, H. Meckling. 1979. Rights and Production Functions: An Application to Labor-managed Firms and Codetermiantion. *Journal of Business* 52: 469-506.

Jirjahn, Uwe. 2009. The Introduction of Works Councils in German Establishments - Rent Seeking or Rent Protection? *British Journal of Industrial Relations* 47(3):521-545

Jirjahn, Uwe, Mohrenweiser, Jens, and Uschi Backer Gellner 2011. Works councils and Learning: On the Dynamic Dimensions of Codetermination. Kyklos 64(3):427-447.

Jirjahn, Uwe, and Georgi Tsertsvadze. 2006. Betriebsräte und Arbeitszufriedenheit/Works Councils and Job Satisfaction. *Jahrbücher für Nationalökonomie und Statistik* 226(5): 537-561.

Kampkötter, Patrick, Mohrenweiser, Jens, Sliwka, Dirk, Steffes, Susanne, and Stefanie Wolter. 2016. Measuring the Use of Human Resources Practices and Employee Attitudes: The Linked Personnel Panel. *Evidence-based HRM* 4(2): 94-115.

Kampkötter, Patrick. 2017. Performance Appraisals and Job Satisfaction. *The International Journal of Human Resource Management* 28: 750-774.

Kraft, Kornelius and Julia Lang. 2008. The Causes and Consequences of Adopting a Works Council. *Jahrbücher für Nationalökonomie und Statistik* 228(5-6): 512-532.

Kuvaas, Bard. 2006. Performance appraisal satisfaction and employee outcomes: mediating and moderating roles of work motivation. *The International Journal of Human Resource Management* 17(3): 504-522.

Lau, Chong M, Wong, Kuan M., and Ian R.C. Eggleton. 2008. Fairness of performance evaluation procedures and job satisfaction: The role of outcome-based and non-outcome-based effects. *Accounting & Business Research* 38: 121–135.

Manthei, Kathrin and Sliwka, Dirk., 2019. Multitasking and subjective performance evaluations: Theory and evidence from a field experiment in a bank. *Management Science*, 65(12), pp. 5861-5883.

Mohrenweiser, Jens. 2022. Works Councils. In Zimmermann, K.F. (Ed.), *Handbook of Labor, Human Resources and Population Economics*. Springer, Cham.

Nathan, Barry R., Mohrman, Allan M., and John Milliman. 1991. Interpersonal Relations as a Context For the Effects of Appraisal Interviews on Performance and Satisfaction: A Longitudinal Study. *Academy of Management Journal* 34: 352-369.

Pagan, Ricardo, and Miguel Ángel Malo. 2021. Performance appraisal and job satisfaction for workers without and with disabilities by gender. *Social Indicators Research* 153(3): 1011-1039.

Pettijohn, Charles E., Pettijohn, Linda S., and Michael d'Amico. 2001. Characteristics of performance appraisals and their impact on sales force satisfaction. *Human Resource Development Quarterly* 12: 127–146.

Peretz, Hilla, and Yitzhak Fried. 2012. National cultures, performance appraisal practices, and organizational absenteeism and turnover: A study across 21 countries. *Journal of Applied Psychology* 97: 448-459.

Pfeifer, Christian. 2011. Works councils, union bargaining and quits in German firms. *Economic and Industrial Democracy* 32(2): 243–260

Schnabel, Claus. 2020. Betriebliche Mitbestimmung in Deutschland: Verbreitung, Auswirkungen und Implikationen. *Perspektiven der Wirtschaftspolitik* 21(4): 361-378.

Smith, Stephen C., 1991. On the economic rationale for codetermination law. *Journal of Economic Behavior & Organization*, 16(3), pp.261-281.

Appendix

Proofs

Proof of Proposition 1:

To facilitate notation let $\kappa = \kappa_0 + c\kappa_\Delta$. To determine $E[u|\pi + \kappa u \geq 0]$ we use the result (see for instance, p. 528) that for two jointly normal random variables. X and Z

$$E[X|Z \geq 0] = m_X + \frac{\sigma_{XZ}}{\sigma_Z}\frac{\phi\left(\frac{m_Z}{\sigma_Z}\right)}{\Phi\left(\frac{m_Z}{\sigma_Z}\right)}.$$

As

$$\begin{aligned} E[\pi + \kappa u] &= 0 \\ Cov[u, \pi + \kappa u] &= \sigma_{u\pi} + \kappa\sigma_u^2 \text{ and} \\ V[\pi + \kappa u] &= \sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\sigma_{u\pi} \end{aligned}$$

we have that

$$\begin{aligned} E[u|\pi + \kappa u \geq 0] &= \frac{Cov[u, \pi + \kappa u]}{\sqrt{V[\pi + \kappa u]}}\frac{\phi(0)}{\Phi(0)} \\ &= \sqrt{\frac{2}{\pi}}\frac{\rho_{u\pi}\sigma_u\sigma_\pi + \kappa\sigma_u^2}{\sqrt{\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi}} \end{aligned}$$

Now note that

$$\frac{\partial E[u|\pi + \kappa u \geq 0]}{\partial \kappa}$$

$$= \sqrt{\frac{2}{\pi}}\frac{\sigma_u^2\sqrt{\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi} - (\rho_{u\pi}\sigma_u\sigma_\pi + \kappa\sigma_u^2)\frac{2\kappa\sigma_u^2 + 2\rho_{u\pi}\sigma_u\sigma_\pi}{2\sqrt{\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi}}}{\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi}$$

$$= \sqrt{\frac{2}{\pi}} \frac{\sigma_u^2(\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi) - (\rho_{u\pi}\sigma_u\sigma_\pi + \kappa\sigma_u^2)(\kappa\sigma_u^2 + \rho_{u\pi}\sigma_u\sigma_\pi)}{(\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi)\sqrt{\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi}}$$

$$= \sqrt{\frac{2}{\pi}} \frac{\sigma_\pi^2\sigma_u^2(1-\rho_{u\pi}^2)}{(\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi)^{\frac{3}{2}}} > 0.$$

and thus

$$\Delta U(c) = E[u|\pi + (\kappa_0 + \kappa_\Delta)u \geq 0] - E[u|\pi + \kappa_0 u \geq 0] > 0.$$

which completes the proof.

Proof of Proposition 2:

Note that

$$\frac{\partial E[u|\pi + \kappa u \geq 0]}{\partial \kappa} = \sqrt{\frac{2}{\pi}} \frac{\sigma_\pi^2\sigma_u^2(1-\rho_{u\pi}^2)}{(\sigma_\pi^2 + \kappa^2\sigma_u^2 + 2\kappa\rho_{u\pi}\sigma_u\sigma_\pi)^{\frac{3}{2}}}$$

implies that

$$\frac{\partial^2 E[u|\pi + \kappa u \geq 0]}{\partial \kappa^2} < 0.$$

As $E[u|\pi + \kappa u \geq 0]$ is thus concave in κ we must have that

$$\Delta U(c) = E[u|\pi + (\kappa_0 + \kappa_\Delta)u \geq 0] - E[u|\pi + \kappa_0 u \geq 0]$$

is decreasing in κ_0.

Further Tables

Table A1: Performance appraisal and feedback interview and works councils

	(1) Whole sample
Performance appraisal	-0.0624
	(0.1017)
Feedback interview	-0.1657
	(0.1629)
PA × Feedback interview	0.0298
	(0.1523)
PA × Works council	0.1373
	(0.1213)
Feedback interview × Works council	0.2584
	(0.1753)
PA × Feedback interview × Works council	0.0146
	(0.1731)
Employee fixed effects	yes
Controls	yes
Adjusted R^2	0.0666
# Observations	9,857

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns of job security, Overtime* (1=yes), *Firm size* and *Year*.

Table A2: Performance appraisal and works councils:
The role of firm size and job security concerns

	(1)	(2)	(3)
Performance appraisal	-0.0493	0.0039	0.0096
	(0.0733)	(0.1200)	(0.1209)
PA × Works council	0.1562*	0.2459**	0.2123*
	(0.0835)	(0.1162)	(0.1131)
Firm size			
(Reference: 50-99 employees)			
100-249 employees		0.0930	0.0934
		(0.1705)	(0.1699)
250-499 employees		0.2139	0.2014
		(0.2141)	(0.2129)
500 and more employees		0.1447	0.1111
		(0.2217)	(0.2220)
Concerns about job security			
(Reference: not concerned at all)			
somewhat concerned	-0.1579***		-0.1577**
	(0.0615)		(0.0616)
very concerned	-0.9598***		-0.9539***
	(0.1436)		(0.1432)
PA × 100-249 employees		-0.0930	-0.0822
		(0.1679)	(0.1637)
PA × 250-499 employees		-0.1799	-0.1483
		(0.1728)	(0.1681)
PA × 500 and more employees		-0.1552	-0.1266
		(0.1729)	(0.1673)
PA × somewhat concerned	-0.1156		-0.1147
	(0.0712)		(0.0708)
PA × very concerned	0.5936***		0.5861***
	(0.1789)		(0.1773)
Employee fixed effects	yes	yes	yes
Controls	yes	yes	yes
Adjusted R^2	0.0728	0.0639	0.0733
# Observations	9,857	9,857	9,857

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Overtime* (1=yes), *Firm size* and *Year.*

Table A3: Feedback interviews and works councils:
The role of firm size and job security concerns

	(1)	(2)	(3)
Feedback interview	-0.1305	-0.3389	-0.3136
	(0.1348)	(0.2064)	(0.2082)
Feedback interview × Works council	0.2706*	0.1379	0.1347
	(0.1404)	(0.1667)	(0.1652)
Firm size			
(Reference: 50-99 employees)			
100-249 employees		0.0245	0.0147
		(0.1665)	(0.1651)
250-499 employees		0.0667	0.0653
		(0.2232)	(0.2225)
500 and more employees		-0.0450	-0.0461
		(0.2331)	(0.2333)
Concerns about job security			
(Reference: not concerned at all)			
somewhat concerned	-0.1583***		-0.1583**
	(0.0601)		(0.0605)
very concerned	-0.6968***		-0.6966***
	(0.1435)		(0.1434)
Feedback interview × 100-249 employees		0.2717	0.2696
		(0.2393)	(0.2393)
Feedback interview × 250-499 employees		0.3013	0.2929
		(0.2374)	(0.2382)
Feedback interview × 500 and more employees		0.4030*	0.4008*
		(0.2317)	(0.2329)
Feedback interview × somewhat concerned	-0.0988		-0.0981
	(0.0764)		(0.0777)
Feedback interview × very concerned	0.1395		0.1395
	(0.2132)		(0.2094)
Employee fixed effects	yes	yes	yes
Controls	yes	yes	yes
Adjusted R^2	0.0613	0.0625	0.0638
# Observations	9,857	9,857	9,857

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Overtime* (1=yes), *Firm size* and *Year.*

Table A4: Performance appraisal and collective agreements

	(1) Firms with collective agreement	(2) Firms with-out collective agreement	(3) Whole sample
Performance appraisal	0.1204***	-0.0491	-0.0002
	(0.0460)	(0.0710)	(0.0689)
Collective agreement			0.0116
			(0.0992)
PA × Collective agreement			0.1086
			(0.0810)
Employee fixed effects	yes	yes	yes
Controls	yes	yes	yes
Adjusted R^2	0.0694	0.0899	0.0632
# Observations	7,569	2,266	9,835

Notes: Robust standard errors clustered at the firm level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%. Controls are *Age*, *Children* (1=yes), *In relationship* (1=yes), *Full-time* (1=yes), *Temporary contract* (1=yes), *Monthly gross wage*, *Employment status*, *Concerns of job security, Overtime* (1=yes), *Firm size* and *Year.*