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ISSN: 2365-9793

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ABSTRACT

The Use of Performance Appraisals and Employees' Presenteeism Behavior

Presenteeism behavior, i.e. working despite illness, is a common phenomenon wordwide and can have severe consequences for employees and firms alike. In this study, we investigate the relation between the use of company performance appraisals and employees' presenteeism behavior. We use linked-employer-employee data (the German Linked Personnel Panel) and apply pooled Poisson as well as linear fixed effects estimations. We show that the use of performance appraisals is associated with significant lower annual presenteeism days in the amount of one-half to one full day. In addition, the presence of a works council strengthens the negative relationship between performance appraisals and presenteeism. The results are driven by performance appraisals that are linked to performance-related pay, in particular. Our study contributes to the understanding of context specific behavioral consequences of HRM practices such as performance appraisals.

JEL Classification: M5, I12, J22, J53

Keywords: presenteeism, sickness, performance appraisals, performance pay, works councils, German Linked Personnel Panel

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1. Introduction

Presenteeism, the phenomenon that employees work when they are ill, as defined by Aronsson et al. (2000), occurs frequently in the workplace. According to the 2015 American Working Conditions Survey, 69% of Americans go to work while sick at least once per year (Maestas et al., 2021). In Europe, around 40% of the workforce practices presenteeism (Eurofound, 2017). In the short term, employers may benefit from employees working although being sick as they are initially more productive than employees who do not work at all when sick. However, in the long term, presenteeism can lead to poorer health, reduced productivity, higher rates of absenteeism, and lower job satisfaction of the respective worker (Dembe et al., 2005; Gustafsson & Marklund, 2011; Taloyan et al., 2012; Janssens et al., 2013; Lu et al., 2013; Miraglia & Johns, 2016; Collins et al., 2018). Furthermore, being at work despite having a viral disease can often lead to the infection of colleagues, who may subsequently be unable to work due to illness (Webster et al., 2019). The total productivity losses per year incurred due to presenteeism are estimated to be three to six times higher than those associated with sickness-related absenteeism (Goetzel et al., 2004; Iverson et al., 2010; Nagata et al., 2018).

Presenteeism behavior may be driven by individuals' traits and the overall incentive structure in firms. From a human resource management (HRM) perspective, it is important to gain an understanding of the determinants of presenteeism. Besides demographic factors such as age or gender (Allemann et al., 2019; Wynen et al., 2021), job characteristics such as job type or job security seem to play a role in an individual's decision to engage in presenteeism (Caverley et al., 2007; Bergström et al., 2009; Demerouti et al., 2009; Gosselin et al., 2013). However, HRM practices have hardly been studied in the literature as possible determinants of presenteeism. One exception is a recent study by Ollo-López & Nuñez (2023), which hints that performance-related pay and on-the-job training, among other things, reduce presenteeism. Performance appraisals, though, have not yet been explicitly examined in this context.

Performance appraisals are a crucial tool for HRM in many companies. Using appraisals, the employer can learn whether the performance and behavior of its employees are conducive to the company's success. In this way, the employees' strengths and weaknesses can be identified, which helps companies to make appropriate promotion decisions and design a more efficient personnel planning and development. Employees can also benefit from performance appraisals, as good ratings often influence promotions and salary increases (Capelli & Conyon, 2018). Research frequently addresses the effects of performance appraisals on employees. For example, many studies show that performance appraisals lead to higher job satisfaction, higher

job performance, lower turnover intention, and higher organizational commitment (including Roberts & Reed, 1996; Blau, 1999; Pettijohn et al., 2001; Kuvaas, 2006; Kampkötter, 2017; Capelli & Conyon, 2018). In this study, we examine how the use of performance appraisals is associated with employees' presenteeism behavior, thereby filling an existing research gap.

On the one hand, employees could use an increased attendance to stand out in a positive way and, as a result, push for better ratings in performance evaluations. Then a positive relationship between performance appraisals and presenteeism would be expected, whereby "positive" refers to an increased incidence of presenteeism. On the other hand, appraisals could be a pressure situation for those being evaluated. Often an employee responds to a stressful or unsatisfactory situation by voluntarily staying away from work, known as "withdrawal behaviour" (Dwyer & Ganster, 1991; Sagie, 1998), which should lead to less presenteeism. We empirically investigate the relationship between the use of performance appraisals and presenteeism on the basis of the German Linked Personnel Panel (LPP). We run pooled Poisson and linear fixed effects estimations along with several robustness checks to shed light on this relationhip. Furthermore, we address the possible moderating role of the works council in this context.

Chapter 2 lays out relevant theoretical considerations and our resulting hypotheses. Chapter 3 describes the data and empirical strategy and Chapter 4 shows the results of our analyses. The last two Chapters 5 and 6 discuss and summarize our results.

2. Theoretical Considerations and Hypotheses

2.1 Relationship between Performance Appraisals and Presenteeism

High performance HRM practices, such as comprehensive recruitment, training, and also performance evaluation, appear to increase organizational effectiveness by making employees work hard and by attracting and retaining high-performing individuals (U.S. Department of Labor, 1993; Huselid, 1995). Such high performance practices influence the behavior and attitude of an employee in particular (Takeuchi et al., 2009; Kehoe & Wright, 2013). However, whether and how exactly employees respond to the existence of performance appraisals in terms of presenteeism is not obvious and has not been explored so far.

Some theoretical considerations suggest a positive relationship between the usage of company performance appraisals and the presence of presenteeism among employees. According to

signaling theory, visible activities can serve as a signal for less visible activities (Spence, 1973). Not only employees, as it was originally the case in Spence's model, but also employers can send signals in the form of workplace characteristics to their own workers or potential job applicants (Backes-Gellner & Tuor, 2010), who then see it as symbolic of general firm characteristics (Rynes et al., 1991). The use of performance appraisals could signal that the employer has high performance expectations. Particularly when appraisals are linked to salary or career opportunities, this signals that a high performance is important and necessary to progress professionally. In extreme cases, individuals identified as poor performers may have to leave the company. Therefore, employees are likely to work harder and to practice more presenteeism in the presence of performance appraisals in order to maintain and advance their careers. According to the *attendance model* of Steers & Rhodes (1978), incentive or reward systems in the organization, such as company performance appraisal systems, specifically symbolize a form of pressure. The model assumes that the attendance of a person at work depends on the ability and on the motivation to show up at work. The latter, in turn, depends on the job satisfaction and the pressure to show up. The model states that incentive or reward systems represent forms of pressure, which then leads to a higher motivation to be present and to an actually higher attendance. In this context, Steers & Rhodes (1978) indicate that workers need to be sure that their presence is actually beneficial for them. Thus, consistent with the model, performance appraisals should increase the likelihood of choosing presenteeism instead of sickness absence as long as it is rewarding for employees.

Indeed, studies suggest that employees benefit from a better evaluation when they come to work sick. Wang et al. (2022) show that presenteeism leads to better ratings in performance appraisals, especially in jobs with high work demands. Supervisors view working while sick as an expression of organizational commitment, so they may reward individuals who engage in presenteeism by giving them better ratings (Miraglia & Johns, 2016; Wang et al., 2022). Lohaus & Habermann (2019) argue that the chances of career advancement increase with the practice of presenteeism because the respective employee is perceived as hard working. Thus, increased attendance at work seems to have a positive impact on performance ratings. In contrast, absences in the current year lead to significantly worse performance ratings as well as to fewer promotions and lower salary increases in the future (Judiesch & Lyness, 1999). In line with human capital theory (Becker, 1964), one reason for this could be that absent workers have a lower productivity than present workers due to a lack of on-the-job training and due to human capital depreciation. A worker who is more absent thus receives inevitably fewer rewards, such

as good evaluations (Becker, 1964). In addition, frequent absences due to illness make it difficult to establish or maintain good social relationships with supervisors respectively evaluators (Biron & Saksvik, 2009), which may, however, be helpful for a good performance evaluation. Overall, employees might anticipate that practicing presenteeism instead of calling in sick will lead to a better evaluation, provided that subjective assessment is possible. We assume that an employee wants to obtain a good performance rating because it is generally conducive to career advancement and makes a contract termination by the employer less likely. In the presence of performance appraisals, it is then likely that an employee is more prone to presenteeism rather than sickness absence during an illness in order to aim for a better rating.

On the other side, a negative relationship between the use of performance appraisals and presenteeism is possible. Performance appraisals are used to set goals or expectations for employees, which they are supposed to fulfill within a specified time frame. Appraisals thus give employees a better idea of the work tasks they are expected to complete, so they can spend less time on other, non-relevant activities. In fact, persons often perform only those work tasks that are included in their evaluation (Grubb, 2007). As a result, individuals may reduce their workscope and no longer need to work sick to complete various tasks. Especially with objective evaluation criteria, the employee's desire to impress supervisors or management by exercising extra "face time" through presenteeism could decrease (Feldman, 2002). If the appraisal is namely based on measurable work outcomes or task performance, for example, the hours worked are usually unimportant for the evaluation. An exception, however, would be a situation where absence or the achieved quantity of a work output is evaluated, provided that the quantity increases with increasing processing time. Another agument is that employees could basically avoid presenteeism in the presence of performance appraisals to prevent receiving bad ratings. They may not want to risk that poorer performance or work results due to productivity losses caused by presenteeism will be the basis for evaluation.

Moreover, performance appraisals could lead to the feeling of having less control and less autonomy over work, as the tasks and perhaps even the way of working are dictated. Studies show that a lack of control and autonomy over work predicts withdrawal behavior (Lyons, 1971; Dwyer & Ganster, 1991; Bakker et al., 2003). In general, when persons perceive work circumstances such as performance appraisal systems as stressful or unsatisfactory, they are likely to engage in withdrawal behavior in order to escape the stressful situation (Hemingway & Smith, 1999; Taris et al., 2001; Williams et al., 2001; Deery et al., 2002; Podsakoff et al., 2007) or as a form of protest against the discontents (Adler & Golan, 1981; Blau, 1985; Hanisch

& Hulin, 1990; Sagie, 1998; Moynihan et al., 2000). Relatively recent statistics show that more than half of workers perceive performance appraisals as stressful, pointless, and needless (Adobe, 2017; MHR, 2017). Only 55% believe that performance appraisals have a positive impact on their company (Stevenson, 2013). In addition, only about a third view them as fair and accurate (Wigert & Mann, 2017) and believe that their company is highly or very highly effective at them (Stevenson, 2013). According to Gallup, only 20% of workers strongly agree that performance management motivates them to do outstanding work (McDonald, 2018). All in all, due to a possible loss of control over work and a potential negative perception, performance appraisals may lead to withdrawal and thus more voluntary absences of employees. Then, they are also more likely to be unwilling to work when sick.

Overall, there are both arguments for a positive as well as for a negative relation between the use of performance appraisals and presenteeism. It is an empirical question, which arguments dominate. Thus, we formulate two opposing hypotheses:

Hypothesis 1a: If an employee receives performance appraisals, the employee is more likely to exercise presenteeism.

Hypothesis 1b: If an employee receives performance appraisals, the employee is less likely to exercise presenteeism.

To the best of our knowledge, this relationship has not been explicitly examined so far. Somewhat related, Haque et al. (2019) find in a cross-sectional study of 200 Australian workers that stronger perceived HRM, which includes performance evaluation, compensation, talent management, and training, is associated with fewer intentions to quit, which in turn is associated with less presenteeism. Ollo-López & Nuñez (2023) show that performance-related pay is related to less presenteeism. The data they use comes from a European survey conducted in 2015. However, they do not examine the existence of performance appraisals, but that of performance-related pay, whereby they do not distinguish whether this relates to individual, team, or company performance. Presenteeism could be understood as a form of "overwork," with working overtime hours being another main form of it (Cooper & Lu, 2019).[1] Two recent articles show that performance-related pay, which is often accompanied by a performance appraisal, leads to more overtime (Artz & Heywood, 2022; DeVaro, 2022). Artz & Heywood

[1] According to another well-known definition of presenteeism by Simpson (1998), overtime work even belongs to presenteeism because, in Simpson's view, presenteeism means that the employee works more hours than scheduled, possibly even when sick.

(2022), for example, observe U.S. workers, use fixed effects panel estimations, and find that hours worked increase by 3 hours per week in the presence of performance-related pay. This could be a hint that performance appraisals may also have a positive effect on presenteeism, whereas the studies by Haque et al. (2019) and Ollo-López & Nuñez (2023) rather suggest a negative relation.

2.2 Moderating Role of the Works Council

In many countries there is some kind of formal employee co-determination on the firm level such as unions in anglosaxion countries or works councils in several continental European countries. In Germany, for example, the works council has far-reaching co-determination rights, also with regard to performance appraisals. Among other things, it has the right to review the company appraisal system with the associated appraisal criteria and the power to reject it on proper grounds (Section 94 of the German Works Constitution Act (WCA)). The co-determination rights of works councils are generally used to represent and enforce the interests of employees. If an employee representation like a works council exists in a firm, it therefore tries to ensure that possible performance appraisals are designed in such a way that they correspond as far as possible to the wishes of the workers. This could lead to employees being more accepting of performance appraisal systems, as they may perceive them as fairer. Then, employees are likely to no longer fear having to make inefficient high efforts, such as presenteeism, in order to receive a good evaluation. According to Jirjahn (2018), an employee representative body like a works council helps in reducing direct information asymmetries between management and workforce, which could lead to a clearer understanding among employees regarding management's performance expectations. As a result, employees know what tasks they are expected to perform and do not have to work extra hours in the form of presenteeism in order to complete all possible tasks. Furthermore, employee representative bodies can help to spread information about the legal rules regarding sickness absence. They can reassure individuals that reporting sick will not have any negative consequences for their performance evaluation. Also, they provide some protection for employees and could make it more difficult to dismiss them even in the case of poor performance detection (Sections 102, 103 WCA). Due to this protection and information role, employees are generally encouraged to stay home if they are sick. Indeed, it appears that sickness absence is higher in the presence of a works council (Pfeifer, 2014; Arnold et al., 2018). The preceding arguments suggest that the existence of an employee interest representation has a negative moderating role in the relationship between the use of performance appraisals and presenteeism.

On the other hand, an improved performance appraisal system with, for example, more attractive rewards due to the existence of an employee representation may lead to employees being more willing to work harder to achieve goals. The *intrinsic value approach* (Bowles & Gintis, 1993) generally states that employees are more motivated if they are given opportunities to participate in the company, which employee representations offer to a certain extent. This could result in a greater increase in presenteeism in response to performance appraisals in the presence of an employee representation.

Overall, the arguments in favor of a negative moderation role predominate, which is why we formulate the following hypothesis:

Hypothesis 2: The relationship between the use of performance appraisals and employees' presenteeism is negatively moderated by the existence of an employee representative body such as a works council.

3. Data, Variables, and Empirical Strategy

3.1 Data

We conduct our analyses on the basis of the German Linked Personnel Panel (LPP) provided by the Institute for Employment Research Germany (IAB).[2] Our analyses focus on the level of the individual employee. We use the last three years of the LPP, i.e., the 2016, 2018, and 2020 waves, since information on presenteeism is only available in these waves. From the IAB Establishment Panel we additionally retrieve the information whether a certain individual works in a firm with a works council in place.

We impose some restrictions on the dataset. We only consider full-time employees who have at least 35 contractual weekly working hours and who actually work at least 20 hours per week. Moreover, we only consider observations of persons who are between 21 and 65 years old and have a monthly gross salary of at least €1,000 in the respective survey wave. Although the LPP

[2] The LPP is a linked-employer-employee dataset that provides a simultaneous view of the employer and employee perspective (Ruf et al., 2022a). With the years 2012, 2014, 2016, 2018, and 2020, the LPP currently comprises five survey waves. In each wave, approximately 1,000 German private-sector companies with at least 50 employees and 7,000 associated employees are included (Ruf et al., 2022b). The same managers of the companies and the same employees were often surveyed repeatedly, which is why not only cross-sectional but also longitudinal studies are possible. Persons are not tracked if they move to another company, so the repeated information of an individual always stems from the same company (Ruf et al., 2022b). Furthermore, the LPP can be linked to the IAB Establishment Panel, as the latter forms the basis for sampling the LPP establishments (Ruf et al., 2022b). The IAB Establishment Panel is a representative annual employer survey of approximately 16,000 German establishments (Bellmann et al., 2022).

should not include civil servants, self-employed persons, family workers, or freelancers (Ruf et al., 2022b), individuals nevertheless indicate in rare cases that they belong to one of these categories. We therefore exclude these observations. In addition, it happens in rare cases that an employee indicates different years of birth in different survey years. We exclude those individuals because such inconsistencies with respect to age would cause problems in some panel estimations. Also, we exclude observations that have a missing value in any of the variables used for the subsequent main estimations. This initially leads to a sample size of 8,192 observations from 6,675 different employees. Few observations show very high presenteeism or sickness-related absence values, some even over 200 days. The corresponding persons can be regarded as being long-term sick or chronically ill. They are likely to bias the empirical results because they probably cannot actively decide for or against presenteeism or sickness absence. Therefore, we exclude observations if more than 30 presenteeism days or more than 30 sickness-related absence days per year are reported. We choose this threshold because in Germany, a worker above this limit is considered to be long-term sick.[3] The last restriction leads to a loss of a few hundred observations, resulting in the final observation number of 7,437. The unbalanced dataset contains 6,131 individuals working in 1,021 establishments. 82% of individuals are present in exactly one wave, 14.7% and 3.3% appear in two and three waves, respectively.

3.2 Variables

Dependent, Independent, and Moderator Variable

As part of the LPP employee survey, employees in each of the last three waves answer the question of how many days they went to work in the corresponding entire survey year, although they should have called in sick due to their health status. The reported absolute number represents the dependent variable *Presenteeism*. Additionally, we use *Presenteeism Rate* as dependent variable, which expresses in relative terms how often an individual exercises presenteeism.

Presenteeism Rate is the number of days working in spite of sickness divided by the number of total sickness days of an employee in the corresponding survey year in %. The total sickness days are the number of days working in spite of sickness plus the sickness-related absence days. The latter are self-reported by the employees, whereby it is not possible to differentiate whether

[3] A company in Germany does not have to accept more than 30 days of sick leave from an employee and can principally terminate the person's employment due to excessively long illness (BAG 25.04.2018 - 2 AZR 6/18). Also, a German company only has to continue paying salary for a maximum of 30 working days in the event of ongoing sick leave. We obtain the same results, when we carry out our analyses with the threshold of 50 days.

these are actually only absences due to illness or whether they also include motivational absences. We assume that these are actual absences due to illness. If a person has no total sick days, then the variable value of *Presenteeism Rate* is 0. All numbers refer to working days only.

It could be that HRM practices influence the total sick days of an employee and hence indirectly presenteeism, which is why it is not sufficient to analyze *Presenteeism* alone to answer the research question. In fact, many studies come to the conclusion that performance appraisals cause more stress and exhaustion (Brown & Benson, 2003; Conway et al., 2015; Shvartsman & Beckmann, 2015), which worsens health and could increase sickness absence of the workers (Béjean & Sultan-Taïeb, 2005; Elstad & Vabø, 2008). In addition to this, the *job demand control model* of Karasek (1979) states that a highly demanding job, which leaves the employee little control over work, leads to a high level of stress and is detrimental to health. Dwyer & Ganster (1991), for example, confirm this by showing that job demands are associated with higher sick days only in the case of low perceived control. When a performance appraisal that gives the feeling of low control exists, the employee thus may have more total sick days. On the other hand, several studies show not only positive but also negative relations between performance appraisals and sickness absence, which in some of them is explained by job satisfaction as mediator (Hsieh et al., 1994; Kehoe & Wright, 2013; Boon et al., 2014; Grunau, 2018; Ogbonnaya & Valizade, 2018).

Performance Appraisal (PA) is our main independent variable and is reported by individuals as a binary variable in the LPP employee survey. Since the second LPP wave, employees are asked whether their own performance is regularly evaluated by a supervisor in a fixed procedure. If this is the case, *PA* takes the value 1 for the respective employee in the corresponding survey year. If the question is negated, *PA* takes the value 0.

The binary variable *Works Council*, which we investigate as possible moderator, indicates the existence of a works council at the workplace of the interviewed employee in the corresponding survey year (1 = *yes*, 0 = *no*). In Germany, a works council can be founded on the initiative of the workers in a private company with at least 5 staff members (Sections 1, 130 WCA). The establishment of a works council is hence generally possible for the firms in our data set.

Control Variables

Many studies show that individual characteristics such as age, gender, and educational attainment exert a significant influence on presenteeism (Allemann et al., 2019; Wynen et al.,

2021). Also, job characteristics such as managerial role or increased job responsibilities and tasks (Demerouti et al., 2009; Gosselin et al., 2013), commitment (Miraglia & Johns, 2016), or job security (Aronsson & Gustafsson, 2005; Caverley et al., 2007; Bergström et al., 2009; Allemann et al., 2019) influence presenteeism. Likewise, occupational differences seem to play a role (Aronsson et al., 2000). Therefore, we include such factors as control variables in our analyses. A description of them is given in Table A1. All of the control variables are available in the waves 3 to 5 of the LPP. Many of them are expected to influence *PA* and thus should be included in the estimating equation in either case. For example, individual characteristics such as education level or firm characteristics such as company size are related to the use of performance appraisals (Brown & Heywood, 2005; Grund & Sliwka, 2009; Jirjahn & Poutsma, 2013).

We recode the data describing the Big 5 traits and commitment. First-time respondent employees answer questions about their Big 5 personality traits on a 5-point Likert scale, with the questions based on a 16-item version of the Big 5 Inventory short scale from the German Socio-Economic Panel (Gerlitz & Schupp, 2005; Lang et al., 2011). Confirmatory factor analyses reveal that the questions on each Big 5 dimension actually represent a single factor and are approximately equally weighted in our data set. For descriptive statistics we use the average score of the questions in a Big 5 category as related variable. In the estimations, we use a double standardized value to facilitate interpretation. This means that we first standardize each item of a category. We then sum up the standardized values in each category and standardize this new sum again. To measure commitment, employees rate six statements on a 5-point Likert scale, which are based on Meyer et al. (1993). For descriptive statistics we use the average score of them as the *Commitment* variable, in the estimations we again use the double standardized value. A confirmatory factor analysis shows that the factor loadings are approximately equal.

Descriptive Statistics

Table 1 shows the means, standard deviations, minimum and maximum values of the variables used in the main analyses. Harman's one-factor test states that the total variance extracted by one factor with respect to all variables and also with respect to the variables stemming from the LPP employee survey is under 10%. This indicates that there are no severe problems with common method bias in our data set. Table 1 shows that the average age of a respondent is 46.8 years. Female employees account for 18% of the total. Almost all respondents are German and

Table 1: Descriptive Statistics

	Whole sample (n = 7,437)				PA (n = 3,922)	No PA (n = 3,515)	Presenteeism > 0 (n = 4,603)	No presenteeism (n = 2,834)
Variable	**Mean/Share**	**SD**	**Min**	**Max**	**Mean/Share**	**Mean/Share**	**Mean/Share**	**Mean/Share**
Individual characteristics								
Presenteeism	5.19	6.73	0	30	4.61	5.83	8.38	0
Presenteeism rate	37.55	36.92	0	100	36.24	39.02	60.67	0
Sickness absence	6.26	7.44	0	30	5.76	6.82	7.35	4.50
Performance appraisal	0.53		0	1	1	0	0.51	0.56
Age	46.75	10.63	21	65	46.26	47.29	46.22	47.61
Female	0.18		0	1	0.17	0.20	0.20	0.16
Foreigner	0.02		0	1	0.03	0.02	0.02	0.03
Partner	0.84		0	1	0.85	0.83	0.84	0.84
Big 5 personality traits								
Openness	3.63	0.62	1	5	3.65	3.61	3.63	3.62
Conscientiousness	4.31	0.50	2	5	4.30	4.32	4.30	4.32
Extraversion	3.56	0.77	1	5	3.61	3.51	3.57	3.55
Agreeableness	4.01	0.58	1.67	5	4.01	4	3.98	4.04
Neuroticism	2.64	0.76	1	5	2.61	2.67	2.72	2.50
Vocational education								
None	0.01		0	1	0.01	0.01	0.01	0.01
Apprenticeship	0.44		0	1	0.37	0.52	0.46	0.41
Technical school	0.22		0	1	0.23	0.21	0.23	0.20
University	0.33		0	1	0.39	0.25	0.30	0.37
Other	0.01		0	1	0.01	0.01	0.01	0.01
Job characteristics								
Employment situation								
Blue-collar	0.23		0	1	0.19	0.29	0.24	0.22
White-collar	0.46		0	1	0.51	0.41	0.45	0.49
Manager	0.30		0	1	0.30	0.30	0.31	0.29
Fixed-term	0.02		0	1	0.02	0.03	0.03	0.02

	Whole sample (n = 7,437)				PA (n = 3,922)	No PA (n = 3,515)	Presenteeism > 0 (n = 4,603)	No presenteeism (n = 2,834)
Variable	**Mean/Share**	**SD**	**Min**	**Max**	**Mean/Share**	**Mean/Share**	**Mean/Share**	**Mean/Share**
Physical work	0.18		0	1	0.15	0.22	0.21	0.15
Home office	0.38		0	1	0.46	0.28	0.34	0.43
Job security	0.32		0	1	0.32	0.33	0.36	0.26
Dependent work	0.70		0	1	0.71	0.69	0.70	0.70
Commitment	3.69	0.89	1	5	3.81	3.55	3.64	3.77
Firm characteristics								
Collective agreement	0.77		0	1	0.83	0.69	0.77	0.77
Works council	0.85 (n = 6,667)		0	1	0.90 (n = 3,367)	0.79 (n = 3,300)	0.84 (n = 4,129)	0.85 (n = 2,538)
Industry								
Manufacturing	0.29		0	1	0.26	0.31	0.29	0.27
Metal, electrical, automotive	0.48		0	1	0.52	0.43	0.47	0.49
Commerce, traffic, communication	0.09		0	1	0.08	0.09	0.09	0.09
Financial services	0.09		0	1	0.10	0.08	0.08	0.10
ICT	0.06		0	1	0.04	0.08	0.06	0.05
Firm size (# employees)								
50-99	0.11		0	1	0.07	0.16	0.11	0.12
100-249	0.20		0	1	0.15	0.25	0.20	0.19
250-499	0.19		0	1	0.17	0.20	0.20	0.17
500+	0.50		0	1	0.61	0.39	0.49	0.52
East Germany	0.23		0	1	0.19	0.28	0.24	0.21

Notes: Sum of shares for categorical variables does not always add up to 1 due to rounding errors. PA = Performance appraisal.

in 84% of the cases respondents are in a relationship. Apprenticeship is the most common highest training qualification, followed by a university degree and a technical school degree. Almost half of the respondents are white-collar workers, around a quarter blue-collar workers and 30% managers. Only a few people have a fixed-term employment contract. Employees report working from home at least occasionally in 38% of the cases. A large proportion claims that other work depends on their own work. In addition, about one in five respondents considers the work to be physically demanding and one in three expresses fears of losing the job. The data set contains mainly larger, western German, and collectively bargained companies from the metal, electrical, and automotive industries or from the manufacturing sector (see Table 1).

The mean presenteeism days in the data set are 5.2, with a standard deviation of 6.7 (see Table 1). The 95% confidence interval of the mean value of presenteeism ranges from 5 to 5.3 days. Some individuals report no presenteeism (38% of observations), which is why presenteeism days average 8.4 if only observations with positive days are taken into account (see Table 1). Statistics from other German surveys also show that only around 35% of employees never go to work sick within a year (German Trade Union Confederation, 2016, 2019). 73% of the panel persons who initially report no presenteeism also report no presenteeism in the next wave. Likewise, 69% of the panel persons with positive presenteeism days report a presenteeism occurrence in the next wave. A large proportion of the observations, namely 87%, shows a maximum of 10 days of presenteeism.

Table 1 shows that about half of the employees in the data set report receiving performance appraisals. When only considering observations of individuals who receive appraisals, the average presenteeism days decrease to 4.6, the average presenteeism rate decreases to 36.2%. When only observations with no performance appraisals are considered, these values increase to 5.8 days and 39%. Additionally, the subsample with no presenteeism contains slightly more observations in percentage terms with existing performance appraisals than the subsample with positive presenteeism values (see Table 1). Overall, positive presenteeism days occur in 59% of the cases when performance appraisals are in place, compared to 65% when appraisals are absent. When only observations with positive presenteeism days are taken into account, the annual presenteeism days differ slightly depending on the *PA* status (on average 7.8 days for existing performance appraisals and 9 days for absent appraisals), but the presenteeism rates barely vary (61 and 60%). The point-biserial correlation between *PA* and *Presenteeism* is -0.0907 (p = 0.0001). The Pearson correlation between *PA* and the binary variable indicating

whether there are positive presenteeism days is -0.0552 (p = 0.0000). These are first signs of a possible negative relation between performance appraisals and presenteeism.

3.3 Empirical Strategy

To answer the research question, we apply pooled Poisson models. Here, we assume that the dependent variable is Poisson distributed with a mean of $E(y_{it}|x_{it}) = \exp(x'_{it}ß)$. $i = 1, \dots, N$ represents the individuals and $t = 2016, 2018, 2020$ the survey years. $y_{it}\ \epsilon\ N_0$ describes the dependent variable, i.e., the presenteeism days or the presenteeism rate of employee i in survey year t. x is a vector that includes the independent variable *PA* and the control variables. The vector of coefficients ß is estimated using the maximum likelihood method. We use cluster-robust standard errors in the estimation models to account for overdisperion and serial correlation. We cluster the standard errors at the firm level to account for firm differences.

Corresponding Poisson fixed effects estimations prove not to be appropriate, because the associated estimator only uses data from panel subjects where the dependent variable is not 0 at least once. This would result in a loss of 5,578 observations and subsequently in a too small within variation for some variables. Instead, we additionally apply individual linear fixed effects panel models of the following form: $y_{it} = ßx'_{it} + a_i + \varepsilon_{it}$. The estimates of the coefficients β are now based on the ordinary least squares method. a_i represents the unobserved, individual-specific, and time-constant heterogeneity. ε_{it} describes the error term for all unobserved variables that differ across time and individuals. We use clustered robust standard errors at the firm level to account for serial correlation, heteroscedasticity, and firm differences. There is a sufficiently high rate of change in performance appraisal status for panel subjects (27% and 37% of subjects occurring in 2 and 3 waves, respectively, report a change).

In addition, we repeat the pooled Poisson and linear fixed effects estimations with the dependent variable *Sickness Absence*, which indicates an employee's annual sick leave days. We use the same regressors here as for *Presenteeism* and *Presenteeism Rate*, since the literature repeatedly shows that many of the factors influencing presenteeism also influence sickness absence and vice versa. For instance, demographic factors such as age, gender, or education level (De Paola, 2010; Boot et al., 2017), job characteristics such as job responsibilities or job level (Dwyer & Ganster, 1991; Allebeck & Mastekaasa, 2004), and firm characteristics (Allebeck & Mastekaasa, 2004) also exert an influence on workers' sick leave.

In the moderation analysis, we interact *PA* in the main models with *Works Council*. To avoid biases in this analysis, we only consider individuals here for whom the works council status

does not change over time. This is because works councils are often introduced when employees were previously worried about their jobs. After the introduction, employees are usually less worried (Kraft & Lang, 2008; Grund & Schmitt, 2011). Hence, before the introduction of a works council, the presenteeism level in the company might generally be high, as employees could fear losing their jobs if they are absent, while the level might be lower after the introduction. Also, a works council is often introduced after certain company events such as a change in ownership (Mohrenweiser et al., 2011) or in response to a poor earnings situation (Addison et al., 1997; Kraft & Lang, 2008; Jirjahn, 2009). These factors could similarly indicate different cultures of presenteeism in firms that change their works council status.

4. Results

4.1 Performance Appraisals and Presenteeism

Table 2 shows the results of our main estimates. The complete table can be found in A2. We start with estimates on presenteeism in model 1 and 2. The pooled Poisson model indicates that employees' annual presenteeism days are highly significant and about 10% or half a day lower on average if performance appraisals are present, holding all else constant. Hence, about half of the raw difference of presenteeism days between individuals whose performance is and is not

Table 2: Main Results

	Presenteeism		**Sickness absence**		**Presenteeism rate**
	(1) Pooled Poisson	**(2) Linear fixed effects**	**(3) Pooled Poisson**	**(4) Linear fixed effects**	**(5) Linear fixed effects**
Performance appraisal	-0.0965*** (0.0309)	-0.9583*** (0.3439)	-0.0452 (0.0277)	-0.0965 (0.4397)	-4.6253** (1.9860)
Marginal effect of performance appraisal	*-0.4996*** (0.1603)*		*-0.2830 (0.1727)*		
Individual characteristics	yes	yes	yes	yes	yes
Job characteristics	yes	yes	yes	yes	yes
Firm characteristics	yes	yes	yes	yes	yes
Year-dummies	yes	no	yes	no	no
McFadden Pseudo R^2	0.0998		0.0725		
R^2 within		0.0481		0.0318	0.0673
# Observations	7,437	7,437	7,437	7,437	7,437

Notes: Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Individual characteristics: age, female, foreigner, partner, Big 5 traits, vocational education. Job characteristics: employment situation, fixed-term, physical work, home office, job security, dependent work, commitment. Firm characteristics: collective agreement, industry, firm size, East Germany. Presenteeism rate = Presenteeism days / (Presenteeism days + Sickness absence days).

**significant at 5%, ***significant at 1%.

assessed, is explained by our controls. In the linear fixed effects model, presenteeism is estimated to be almost a full day, or by the equivalent of 18%, lower, when performance appraisals exist.[4] Linear pooled ordinary least squares estimates yield very similar results to the Poisson estimates (available from the authors upon request). The fact that the fixed effects estimates indicate a stronger negative relation between the existence of performance appraisals and presenteeism may be due to unobserved time-invariant factors such as employee motivation.

As explained above, the incidence of illness is a pre-condition for the relevance of presenteeism behavior. We therefore complement our analysis by using sickness absence days and the presenteeism rate as dependent variables. The results, firstly, show that the use of performance appraisals is not related to sickness absence (see model 3 and 4). Model 5 shows that the use of performance appraisals is not only significantly related to days of presenteeism, but also to the presenteeism rate. The ratio between presenteeism and total sick days is estimated to be significantly lower by 4.6 percentage points on average, ceteris paribus, if performance appraisals exist. Since individuals in the data set choose to go to work sick for an average of 38% of total sick days, this represents a reduction of about 12%. Overall, we conclude that there is indeed a negative, significant relation between the use of performance appraisals and presenteeism, which supports hypothesis 1b.

Table A2 further shows that individuals with job worries and higher neuroticism and conscientiousness scores perform significantly more presenteeism. Persons with university degree, higher commitment, and higher empathy respectively agreeableness scores as well as younger ones tend to practice significantly less presenteeism. According to the Poisson estimates, women have significantly higher days of presenteeism, but similarly higher days of absence. That younger persons, women, and those with job worries engage in more presenteeism is a frequently shown result in the literature, but the same is true for persons with higher education and commitment, where we find a reverse relation (including Caverley et al., 2007; Miraglia & Johns, 2016; Allemann et al., 2019; Wynen et al., 2021; Ollo-López & Nuñez, 2023).

To check whether our results are robust, we conduct several robustness tests. First, the question arises whether the estimated negative relation between performance appraisals and presenteeism is actually due to the mere existence of performance appraisals or whether

[4] For the linear fixed effects models, we do not use year dummies because they are too highly correlated with *Age*.

possible monetary consequences of the outcome of appraisals in terms of performance-related pay play a role. In the LPP employee survey, individuals state whether they receive any performance-related bonuses or extra payments in addition to their basic salary. The resulting binary variable *Performance Pay (PP)* indicates the presence of performance-related pay (1 = *yes*, 0 = *no*). We add *PP* and the interaction term between *PA* and *PP* to our models (see Table A3). Neither *PA* nor *PP* nor the combination show a significant relationship with sickness absence (see model 3 and 4). We find that the existence of performance appraisals only has a significant negative relation with presenteeism days and rate when they are linked to performance pay (see marginal effects in model 1, 2, and 5). When appraisals without performance pay are considered, these negative relations are weaker and not significant at the 10% level. However, a significant difference in the estimated effect on presenteeism between appraisals linked and not linked to performance pay only exists in Poisson model 1, where the interaction term is significant at the 10% level. According to this, if there are appraisals that are linked to performance pay, presenteeism days are significantly lower on average by around 11% or 0.6 days ceteris paribus compared to the situation without performance pay.[5] Overall, we conclude that the significant negative relation between the use of performance appraisals and presenteeism is driven by associated performance-based rewards. Moreover, we check whether our results change dependent on the existence of employee respectively feedback interviews or of a forced distribution system regarding performance ratings, with the latter information referring to the general application in the firm. Our results remain unchanged (available from the authors upon request).

Furthermore, we take into account that the last survey wave is in the corona year 2020. The corona pandemic resulted in a large number of fatalities in Germany between 2020 and 2022 (World Health Organization, 2023). Many citizens were afraid of being infected with the coronavirus or infecting others (Infratest dimap, 2021). For some time, it was forbidden to go to work in Germany with a proven corona disease and there was advice to stay at home with cold symptoms (Federal Ministry of Health of Germany, 2023). Indeed, Table A4 shows that the average presenteeism days and rates in our data set for 2020 are lower than in the previous

[5] It is worth noting that there are cases in which no performance appraisals but nevertheless performance pay exist (1,871 observations), although the former is normally a necessary condition for the latter. Performance pay without performance appraisals can be explained by the fact that the question regarding performance pay also includes profit-sharing bonuses or gratuities such as anniversary bonuses, which do not depend on the employee's performance. If both appraisals and performance pay are present, it is therefore not clear whether the appraisals are actually linked to payments based on the employee's own performance. We assume that the relevant 2,900 observations contain sufficient appraisals actually linked to performance pay.

two survey years.[6] We run our Poisson estimations without observations from 2020 as well as separately for 2020 to account for possible corona effects and find similar results (see Table A5). However, in the isolated analysis of 2020, the *PA* coefficient is significantly negative in both the presenteeism and sickness absence model to a similar relative extent, meaning that the presenteeism rate actually hardly changes. But this does not affect the overall result of a negative relation between the use of performance appraisals and presenteeism days and rate, which occurs when considering all three years.

Finally, people who never get sick due to, for example, a good immune system could influence our results. They have 0 days of presenteeism and a presenteeism rate of 0%, regardless of whether they receive performance appraisals. It is possible that such individuals are not closely monitored by performance appraisals because they always attend work in good health and are assumed to perform their tasks productively. The results could be biased upwards if they are included in our estimations, meaning that the *PA* coefficient would be more negative without these persons. We run the estimations only with those observations that have a positive number of total sick days and obtain the same results (available from the authors upon request).

4.2 The Role of Works Councils

In the moderation analysis, the number of observations is reduced due to missing works council data and due to the exclusion of panel persons who are affected by the abolition or establishment of a works council. We focus on Poisson estimations because too few observations are available for a fixed effects estimator to appear useful. When *Works Council* alone is added as another control variable, it is not a significant predictor of presenteeism or sickness absence. Table 3 shows the results when the interaction term between *Works Council* and *PA* is also included. The use of performance appraisals is not related to presenteeism days when a works council is not present, but it is significantly negatively related when a works council exists. When a works council is present at existing performance appraisals, an employee's annual presenteeism days are on average 13.5% ($e^{-0.1446} - 1$) or 0.8 days lower compared to the situation without a works council, which is significant at the 10% level (see model 1 in Table 3). Regarding sickness absence days, the interaction term is close to 0 and does not show a significant relation

[6] Exceptional in 2020 is also the high home office share (see Table A4). In order to maintain a social distance, many employees were expected to work from home during the corona pandemic (Federal Ministry for Econimic Affairs and Climate Action of Germany, 2021). A survey of a German health insurance in 2022 finds that nearly half of the respondents think it is more common in the home office to work sick (Techniker Krankenkasse, 2022) because it is probably easier to implement. It is questionable whether employees in the home office actually state that they work sick. In the German survey version of the LPP, employees should namely indicate whether they physically go to work despite being ill. Due to this ambiguity, we do not focus on home office in detail.

Table 3: Moderation Analysis

	(1) Presenteeism	(2) Sickness absence	(3) Presenteeism, PP = 0	(4) Sickness absence, PP = 0	(5) Presenteeism, PP = 1	(6) Sickness absence, PP = 1
Performance appraisal	0.0401 (0.0783)	-0.0520 (0.0801)	-0.0412 (0.1201)	-0.0067 (0.1128)	0.1372 (0.1040)	-0.1335 (0.1086)
Works council	-0.0094 (0.0615)	0.0573 (0.0587)	-0.1330 (0.0827)	0.1810** (0.0770)	0.1399 (0.0951)	-0.0887 (0.0821)
Performance appraisal x Works council	-0.1446* (0.0851)	-0.0004 (0.0850)	0.0174 (0.1314)	-0.0946 (0.1230)	-0.2959*** (0.1108)	0.1116 (0.1160)
Marginal effect of performance appraisal if works council = 0	*0.2535* *(0.4982)*	*-0.3359* *(0.5149)*	*-0.2803* *(0.8093)*	*-0.0425* *(0.7133)*	*0.8031* *(0.6168)*	*-0.8776* *(0.7046)*
Marginal effect of performance appraisal if works council = 1	*-0.5322**** *(0.1781)*	*-0.3286** *(0.1946)*	*-0.1268* *(0.3004)*	*-0.6707** *(0.3520)*	*-0.7935**** *(0.2221)*	*-0.1326* *(0.2341)*
Controls	yes	yes	yes	yes	yes	yes
Year-dummies	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.1018	0.0717	0.0956	0.0658	0.1099	0.0802
# Observations	6,615	6,615	2,506	2,506	4,109	4,109
# Persons/firms	5,428/957	5,428/957	2,196/732	2,196/732	3,467/708	3,467/708

Notes: Pooled Poisson estimations. Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany. PP = Performance-related pay.

*significant at 10%, **significant at 5%, ***significant at 1%.

(see model 2). The works council therefore appears to play a negative moderating role in the relation between the use of performance appraisals and presenteeism. Model 5 and 6 show the results when only appraisals linked to performance pay are taken into account. Here, the results remain similar, with the significant interaction term in model 5 being even more negative. Model 3 and 4 only consider appraisals that are not linked to performance pay. Here, we find no significant interaction terms. Overall, we conclude that the existence of an employee representation plays a negative moderating role with regard to the relationship between the use of performance appraisals and presenteeism, which supports hypothesis 2. However, the moderating role seems to be mainly relevant for appraisals that are linked to performance pay.[7]

4.3 Endogeneity Issues

There could be unobserved factors possibly exerting an influence on both performance appraisal use and presenteeism. For example, seniority (Brown & Heywood, 2005; Wynen et al., 2021) and the number of different work tasks (Brown & Heywood, 2005; Miraglia & Johns, 2016; Allemann et al., 2019) can influence both variables. Also, organizational culture regarding, for example, strict absence policies or flexible working time affects presenteeism (Miraglia & Johns, 2016) and, at the same time, likely the use of appraisals. Besides, reversed causality may be present, as high levels of presenteeism may lead supervisors to apply appraisals to determine whether the employee is nonetheless working productively. We consider several possible instrumental variables to uncover endogeneity problems, but lack a convincing instrument. However, fixed effects estimates somewhat counteract the problem of omitted variable bias and, just like the Poisson estimates, show a significant negative relation between the use of performance appraisals and presenteeism.

In the moderation analysis, *Works Council* is potentially endogenous. Although we exclude individuals who report changes in works council existence of their firm, a change shortly before or after survey participation is still possible. Therefore, we further apply an endogenous switching model (Maddala, 1983) and choose a similar procedure as Jirjahn et al. (2024). First, we run separate Poisson estimations for individuals with and without works councils and see that performance appraisals are associated with significantly less presenteeism for individuals with works councils (see Table A6.1). We then perform a probit estimation with the dependent

[7] We also examine other moderators. For example, we interact *PA* with the average sickness absence days per staff member in the firm of the surveyed employee. Here we find in the Poisson models that the relation between *PA* and presenteeism becomes significantly more negative with an increase in average absence days ($ß$ = -0.0140, σ = 0.0061, p = 0.023 for presenteeism, $ß$ = -0.0030, σ = 0.0062, p = 0.633 for sickness absence, n = 6,016). Significant interactions with for example gender or manager status do not exist. Results are available from the authors upon request.

variable *Works Council*. Here, we use the share of firms in the IAB Establishment Panel having a works council as a regressor, which we calculate dependent on the five industries, four firm size classes, and three years of the LPP. This share serves as an instrumental variable. The probit model shows that it has a significant positive correlation with the actual existence of a works council at the respondent's workplace (see Table A6.2). We compute the inverse Mills ratio and use it as an additional control variable in the Poisson main models, again running separate estimations for persons with and without a works council. The results are similar to the original ones (see Table A6.3). The Mills ratio is moreover nowhere significant. Overall, these are indications that there seems to be a significant moderation effect of the works council even when considering endogeneity.

5. Discussion

5.1 General Discussion

Overall, we find evidence for a negative relationship between the use of company performance appraisals and the incidence of employees' presenteeism behavior. Performance appraisals could lead to employees feeling less of an urge to make a positive impression through high levels of work effort and attendance. Especially when the assessment criteria are objective and specific, presenteeism is usually an unnecessary impression strategy and may even hinder the achievement of goals, as productivity suffers directly and indirectly from presenteeism. Furthermore, if persons perceive the appraisal process as inadequate, they could exercise withdrawal behavior, meaning they have less motivation to be present at work. Accordingly, employees would probably not engage in presenteeism.

It is important to keep in mind that employees do not implicitly have the opportunity to actively choose for or against presenteeism and sickness absence. Perhaps a person actually wants to show more presence when performance appraisals exist, but induced stress or less perceived control in light of the *job demand control model* (Karasek, 1979) might cause more serious illnesses with the person then unable to show up at work. In this case, however, total sick days would presumably also be expected to increase, which is not the case in the present data. Also, it is worth noting that the negative relation between the existence of performance appraisals and presenteeism does not necessarily mean that workers exert less effort in response to appraisals.

We show that our results are robust in different situations and contexts. However, the negative relationship between the use of performance appraisals and presenteeism appears to be driven

by performance-oriented appraisals that are linked to performance pay. For such appraisals, presenteeism is probably not necessary, as work results rather than working hours or work effort are valued. Futhermore, we demonstrate a negative moderation role of the works council, which is particularly evident in appraisals linked to performance pay. As a legal representative of workers' interests, the works council presumably ensures that appraisal systems, especially those with relevance to salary, are adapted to employees' preferences. Employees are therefore more satisfied with these systems and perceive them as fair, which is why they feel less pressured to work sick. In addition, the information and protection role of the works council with regard to sickness absence and dismissal can be helpful in preventing presenteeism.

Moreover, our results show that the total sick days of an employee are less in the presence of appraisals, which may be due to several reasons. It could be that "voluntary" sick leave days, where the employee is not actually sick, are reduced in the presence of performance appraisals. We are not able to distinguish between voluntary and involuntary absence in the LPP. However, since an employee proportionately appears to choose more absence and less presenteeism in the presence of appraisals, the above argument probably does not hold. It could be that performance appraisals contribute to better health by reducing stress among workers. Employees know what goals they should strive for and what is expected of them when they receive appraisals. This allows them to no longer have to spend time on other "unnecessary" tasks, which could result in less stress. In addition, employees may choose a lower level of effort once knowing that they will achieve the most important goals. A lower stress level and work intensity should lead to better health, which should reduce total sick days.

5.1 Limitations

Our study is subject to some limitations. First, the LPP questions on the variables *Presenteeism, Sickness Absence,* and *PA* are asked in a certain way. For the dependent variables *Presenteeism* and *Sickness Absence,* the respective question is retrospective. It is questionable whether respondents can still remember the correct number of presenteeism or sickness absence days. Lohaus & Habermann (2019) show that respondents usually overreport presenteeism. In addition, the perception of when someone is considered sick and when someone engages in presenteeism probably varies greatly from person to person, which complicates the interpretation of results. However, the fixed effects models partly take those aspects into account. The question about performance appraisals refers to more formal appraisals that are regularly carried out by a supervisor in a defined procedure. Less formal types of assessment or appraisal systems in which other stakeholders rather than supervisors evaluate, are therefore

not taken into account and could lead to different results. At this point, it is also questionable what is meant by "regular" performance appraisals. The moderation variable *Works Council* only indicates the existence of a works council, so information on works council activities or attitudes is not available. For example, as Pfeifer (2011) demonstrates, works council effects can vary depending on whether the works council is cooperative, willing to negotiate, or uncooperative with management. Cooperative works councils seem to generate fewer benefits for employees, such as lower wages, than uncooperative ones (Pfeifer, 2011).

In general, information on the performance appraisal process in the LPP is limited. We do not know to what extent input factors such as certain employee behaviors are part of the performance appraisal alongside output factors. If appraisals are more result-related, presenteeism tends not to play a role for the worker, whereas it might be important in behavioral assessments. When looking at appraisals which do not influence salary and are perhaps more behavior-related, we indeed find no significant reduction in presenteeism. As already addressed, the specific design of the assessment criteria certainly also plays a role. For example, more difficult to achieve goals lead to more stress for the employee than easier to achieve goals (Brown & Benson, 2005). Appraisals that take absence into accout, for example, are more likely to lead to more presenteeism (Aronsson et al., 2000).

Furthermore, individuals perceive and respond to HRM practices differently depending on experiences, values, and expectations (Den Hartog et al., 2004; Nishii & Wright, 2008), which is not captured in the LPP. In particular, perception appears to have a stronger influence on an employee's behavior and attitude than actual HRM practices (Guest, 1999). There is no information available in the LPP regarding previous or current appraisals of the interviewed employee. With a poor performance appraisal experience, employees are more dissatisfied, less commited toward the employer, and possess intentions to quit (Brown et al., 2010). Negative feedback or appraisal experiences could have different effects on presenteeism than positive ones. According to Brown & Benson (2005), better ratings in the past lead to the employee experiencing more stress from performance appraisals. According to Brett & Atwater (2001), evaluations that are worse than expected lead to negative reactions. All of this certainly affects the presence and absence of the employee.

In addition, the perceived fairness of the performance appraisal process and of the decision-making can influence employee attendance (Elovainio et al., 2005; Gupta & Kumar, 2013). For instance, high distributive and informational justice seem to have positive effects on employee

engagement (Gupta & Kumar, 2013), which could result in more presenteeism. Distributive justice means that an individual evaluates the fairness based on the own input-output ratio compared to that of other individuals. Informational justice means that the employee receives information regarding procedure, implementation, and distribution of results. Persons respond differently and in many ways more positively to a due process appraisal system. This is characterized by "adequate notice, fair hearing, and judgment based on evidence" (Folger et al., 1992, p. 129). With such a system, perceived fairness and attitudes toward performance appraisals improve, and employee intentions to quit are reduced (Taylor et al., 1995).

Furthermore, perceived supervisor behavior is relevant. When trust in the supervisor is high, HRM practices generally have stronger effects on employee attitudes (Innocenti et al., 2011). It leads to less stress in response to performance appraisals in the employee (Brown & Benson, 2005) and is important for being satisfied with the appraisal system (Mani, 2002). It often happens that the rater lacks objectivity in the evaluation (Grubb, 2007). Examples include leniency and centrality bias (Capelli & Conyon, 2018), recency bias (Ebbinghaus, 1885), or halo effect (Thorndike, 1920). Depending on whether one's own result is then perceived as unfair, different presenteeism effects may result. Ollo-López & Nuñez (2023) find that recognition by supervisors and trust in management are related to less presenteeism wheras direct supervision shows no significant relation.

Finally, the context should be taken into account when interpreting our results. We only consider Germany, where the legal regulations and maybe also the work culture differs from that in other countries. In Germany, in the case of sick leave, the employer continues to pay remuneration for the period of disability, for a maximum of six weeks. After that, health insurers continue to pay about 70% of gross wages for a maximum of 72 weeks (Section 3 of the German Continued Remuneration Act). Additionally, German workers only need a medical certificate after the third day of sickness absence (Section 5 of the German Continued Remuneration Act). Overall, the incentives for presenteeism could therefore be low. In most other European Union member states, workers are likewise entitled to sick pay or sickness benefits if they are absent due to illness, although the maximum duration of payment as well as the percentage value differ (Spasova et al., 2016). In the U.S., for example, there is no legal entitlement to paid sick leave and it is applied locally in only 16 states (National Conference of State Legislatures, 2022; U.S. Department of Labor, n.d.). Also, an American employer can demand a doctor's note directly on the first day of absence. Therefore, in a non-European context, other relations might arise.

6. Conclusion

Applying pooled Poisson and linear fixed effects estimations, we demonstrate that the use of formal performance appraisals is negatively related to employees' presenteeism behavior. Our estimates hint for between one-half and one full day (or 10 to 20%) less presenteeism per year if performance appraisals are present. Furthermore, the existence of a works council strengthens the negative relationship between performance appraisals and presenteeism. The results appear to be driven in particular by appraisals that are linked to performance-related pay.

We consider our work as a first important step toward a deeper understanding of the relation between performance appraisals and presenteeism. We hint for some limitations of our study above. Future research could more specifically investigate individual components of performance appraisals with respect to the attendance behavior of employees. Also, employees are probably not only influenced by one HRM practice but by a combination of different practices. In the future, further practices, such as further training or compensation transparency, could therefore be investigated in connection with presenteeism.

Finally, the broader question arises whether the goal should be to reduce or to increase presenteeism from both the firm's and the employee's perspective. For the employee, presenteeism entails negative health consequences, lower job satisfaction, and productivity losses, with the latter in particular also being disadvantageous for the employer. On the other hand, presenteeism provides the employee with recognition and potentially better performance evaluations and career opportunities. An employee who works sick avoids an accumulation of work and a transmission of the work tasks to colleagues who may already be working at full capacity (Caverley et al., 2007). On the positive side for the employer, presenteeism could serve rush orders and peak demand and circumvent potential hiring problems. Johns (2010) even claims that there are no negative effects of presenteeism in the long run and that the negative known consequences are exaggerated due to inconsistent definitions of presenteeism as well as methodological weaknesses in corresponding articles.

Employers do not always have the ability to detect or prohibit employee presenteeism in practice. However, our results provide evidence that presenteeism is lower when formal performance appraisals are used and, conversely, higher when they are not used. Employee representations could ensure that presenteeism is further reduced in the presence of performance appraisals. In general, absence and presenteeism could be prevented by good occupational health management and by a trustful corporate culture with a fair approach to absence.

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[the document attached to the website contains further information]

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Appendices

Table A1:

Control variable	Definition
Individual characteristics	
Age	Age in years
Female	0 = Male, 1 = Female
Foreigner	0 = German citizen, 1 = No official German citizen
Partner	0 = In no relationship, 1 = In a relationship
Big 5 personality traits	Expression of five essential character traits (on a 5-point scale each): 1 = Does not apply at all, 5 = Fully applies
Openness	Openness to new experiences, open-mindedness
Conscientiousness	Perfectionism, self-discipline, determination
Extraversion	Sociability, extraversion, surgency
Agreeableness	Thoughtfulness, cooperativeness, empathy
Neuroticism	Emotional lability and vulnerability
Vocational education	Highest level of training qualification (categorical)
None	No official training qualification
Apprenticeship	Apprenticeship, vocational training
Technical school	Technical school, master school
University	University (of applied science)
Other	Other training qualification
Job characteristics	
Employment situation	Occupational position in the company (categorical)
Blue-collar	Blue-collar worker
White-collar	White-collar worker
Manager	Employee with managerial/supervisor function
Fixed-term	0 = Permanent employment contract, 1 = Fixed-term contract
Physical work	0 = No real physical work effort, 1 = Physical work effort
Home office	0 = No work from home, 1 = Work from home (also occasionally)
Job security	0 = No job loss concerns, 1 = Job loss concerns
Dependent work	0 = Other jobs do not depend on own job, 1 = Other jobs depend on own job
Commitment	Organizational commitment (5-point-scale): 1 = Does not apply at all, 5 = Fully applies
Firm characteristics	
Collective agreement	0 = No industrial/company collective agreement, 1 = Industrial/company collective agreement
Industry	Industrial sector (categorical)
Manufacturing	Manufacturing
Metal, electrical, automotive	Metal, electrical, automotive industry
Commerce, traffic, communication	Commerce, traffic, communication
Financial services	Financial services, company-related services
ICT	Information and communication technology, other services
Firm size	Employees subject to social insurance contributions (categorical)
50-99	50-99 employees
100-249	100-249 employees
250-499	250-499 employees
500+	500 and more employees
East Germany	0 = Main site in West Germany, 1 = Main site in East Germany

Table A2:

	Presenteeism		Sickness absence		Presenteeism rate
	(1) Pooled Poisson	(2) Linear fixed effects	(3) Pooled Poisson	(4) Linear fixed effects	(5) Linear fixed effects
Performance appraisal	-0.0965***	-0.9583***	-0.0452	-0.0965	-4.6253**
	(0.0309)	(0.3439)	(0.0277)	(0.4397)	(1.9860)
Marginal effect of performance appraisal	*-0.4996****		*-0.2830*		
	(0.1602)		*(0.1727)*		
Age	0.0012	-0.3192***	0.0046***	0.0613	-3.3330***
	(0.0017)	(0.0730)	(0.0015)	(0.1038)	(0.6431)
Female	0.1001**	-1.6789	0.1429***	-12.4612***	76.0869***
	(0.0409)	(1.0846)	(0.0349)	(1.5008)	(7.6757)
Foreigner	0.1205		-0.1102		
	(0.0919)		(0.0971)		
Partner	0.0672	-1.3171**	0.1065***	-1.5637**	3.8500
	(0.0415)	(0.6649)	(0.0367)	(0.7271)	(4.9815)
Big 5: Openness	0.0376**		0.0064		
	(0.0161)		(0.0163)		
Big 5: Conscientiousness	0.0805***		-0.0117		
	(0.0171)		(0.0150)		
Big 5: Extraversion	0.0867***		0.0795***		
	(0.0167)		(0.0141)		
Big 5: Agreeableness	-0.0590***		0.0112		
	(0.0163)		(0.0144)		
Big 5: Neuroticism	0.1483***		0.0946***		
	(0.0159)		(0.0139)		
Vocational education (Reference: Apprenticeship)					
None	0.0759		-0.1541		
	(0.1494)		(0.1373)		
Technical school	-0.0239		-0.0587		
	(0.0409)		(0.0416)		
University	-0.2947***		-0.1740***		
	(0.0440)		(0.0393)		
Other	-0.2738		0.3875**		
	(0.2416)		(0.1521)		
Employment situation (Reference: Blue-collar)					
White-collar	-0.0885*	-0.0268	-0.1740***	0.7002	-3.4884
	(0.0474)	(0.8151)	(0.0368)	(0.7981)	(4.6368)
Manager	0.0637	-0.5353	-0.2813***	0.5872	-2.1541
	(0.0498)	(0.8894)	(0.0430)	(0.8398)	(4.1706)
Fixed-term	0.1163	0.0634	0.0347	-1.6743	5.6354
	(0.0734)	(0.9835)	(0.0859)	(1.4720)	(7.1287)
Physical work	0.2531***	-0.3353	0.2260***	0.8069	-1.4698
	(0.0409)	(0.5752)	(0.0376)	(0.6979)	(3.3382)
Home office	-0.0665*	-0.4361	-0.1893***	-1.2682**	-1.7329
	(0.0382)	(0.4001)	(0.0414)	(0.5011)	(2.9630)
Job security	0.1704***	0.4539	0.0075	-0.9822**	8.0292***
	(0.0299)	(0.4002)	(0.0304)	(0.4447)	(2.3125)
Dependent work	0.0262	-0.3070	-0.0178	-0.6682*	-2.4897
	(0.0334)	(0.2862)	(0.0282)	(0.3688)	(2.0693)
Commitment	-0.1282***	-0.3968	-0.1020***	0.0206	-2.1080
	(0.0180)	(0.2628)	(0.0160)	(0.2997)	(1.3564)
Collective agreement	-0.0126	-0.0936	0.0702*	4.5794**	-6.6965
	(0.0432)	(2.0567)	(0.0375)	(1.9520)	(9.0674)

	Presenteeism		Sickness absence		Presenteeism rate
	(1) Pooled Poisson	(2) Linear fixed effects	(3) Pooled Poisson	(4) Linear fixed effects	(5) Linear fixed effects
Industry (Reference: Manufacturing)					
Metal, electrical, automotive	-0.0243	1.5250***	-0.0184	-0.4241	56.7508***
	(0.0396)	(0.2689)	(0.0380)	(0.3752)	(2.4008)
Commerce, traffic, communication	0.1215**	-5.8429**	0.0129	-18.3900***	42.2499***
	(0.0563)	(2.4296)	(0.0557)	(3.0648)	(11.5154)
Financial services	0.0494		0.0666		
	(0.0660)		(0.0633)		
ICT	0.0074		0.0794		
	(0.0650)		(0.0599)		
Firm size (Reference: 50-99 employees)					
100-249	0.1329**	3.2333	0.0919*	4.9311**	-11.0289*
	(0.0601)	(2.0803)	(0.0524)	(2.0799)	(6.0303)
250-499	0.1992***	5.2942**	0.1056*	5.4110**	4.2113
	(0.0633)	(2.4207)	(0.0571)	(2.6802)	(9.8136)
500+	0.0968	6.0912**	0.0933*	8.2109***	1.1689
	(0.0672)	(2.4080)	(0.0557)	(2.9431)	(10.4262)
East Germany	0.1261***	9.8153***	0.1105***	-2.9692	51.3865***
	(0.0383)	(1.3328)	(0.0361)	(1.8391)	(8.2402)
2018	-0.0615**		-0.0323		
	(0.0308)		(0.0323)		
2020	-0.3912***		-0.1963***		
	(0.0401)		(0.0410)		
McFadden Pseudo R^2	0.0998		0.0725		
R^2 within		0.0481		0.0318	0.0673
# Observations	7,437	7,437	7,437	7,437	7,437

Notes: Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect.
Presenteeism rate = Presenteeism days / (Presenteeism days + Sickness absence days).

*significant at 10%, **significant at 5%, ***significant at 1%.

Table A3:

	Presenteeism		Sickness absence		Presenteeism rate
	(1) Pooled Poisson	**(2) Linear fixed effects**	**(3) Pooled Poisson**	**(4) Linear fixed effects**	**(5) Linear fixed effects**
Performance appraisal	-0.0235 (0.0504)	-0.7064 (0.4720)	-0.0494 (0.0479)	-0.1588 (0.6791)	-2.4913 (3.1124)
Performance pay	0.0501 (0.0442)	0.4188 (0.5072)	0.0301 (0.0367)	-0.0610 (0.6216)	1.6478 (3.4740)
Performance appraisal x Performance pay	-0.1146* (0.0623)	-0.3998 (0.5264)	0.0004 (0.0582)	0.0966 (0.7472)	-3.2872 (3.8642)
Marginal effect of performance appraisal if performance pay = 0	*-0.1314* *(0.2804)*	*-0.7064* *(0.4720)*	*-0.3246* *(0.3123)*	*-0.1588* *(0.6791)*	*-2.4913* *(3.1124)*
Marginal effect of performance appraisal if performance pay = 1	*-0.6907**** *(0.1945)*	*-1.1062**** *(0.4012)*	*-0.2981* *(0.2047)*	*-0.0622* *(0.4933)*	*-5.7786*** *(2.5283)*
Controls	yes	yes	yes	yes	yes
Year-dummies	yes	no	yes	no	no
McFadden Pseudo R^2	0.1002		0.0726		
R^2 within		0.0488		0.0318	0.0677
# Observations	7,437	7,437	7,437	7,437	7,437

Notes: Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany.
Presenteeism rate = Presenteeism days / (Presenteeism days + Sickness absence days).

*significant at 10%, **significant at 5%, ***significant at 1%.

Table A4:

Variable	2016 (n = 2,714)	2018 (n = 2,385)	2020 (n = 2,338)
Individual characteristics			
Presenteeism	6.26 (7.14)	5.26 (6.49)	3.87 (6.23)
Prensenteeism rate	42.23 (36.05)	40.01 (36.30)	29.62 (37.27)
Sickness absence	7.09 (7.74)	6.33 (7.34)	5.24 (7.07)
Performance appraisal	0.50	0.56	0.53
Age	47.63 (10.36)	46.51 (10.50)	45.96 (11.01)
Female	0.19	0.17	0.20
Foreigner	0.02	0.02	0.03
Partner	0.84	0.84	0.85
Big 5 personality traits			
Openness	3.65 (0.61)	3.62 (0.63)	3.62 (0.63)
Conscientiousness	4.34 (0.47)	4.29 (0.51)	4.30 (0.51)
Extraversion	3.65 (0.73)	3.52 (0.79)	3.50 (0.79)
Agreeableness	4.04 (0.56)	3.98 (0.59)	3.99 (0.58)
Neuroticism	2.64 (0.75)	2.61 (0.76)	2.66 (0.77)
Vocational education			
None	0.01	0.01	0.01
Apprenticeship	0.51	0.39	0.41
Technical school	0.22	0.22	0.21
University	0.26	0.38	0.35
Other	0.01	0.01	0.01
Job characteristics			
Employment situation			
Blue-collar	0.26	0.24	0.19
White-collar	0.39	0.48	0.53
Manager	0.35	0.27	0.28
Fixed-term	0.03	0.02	0.02
Physical work	0.22	0.16	0.16
Home office	0.23	0.38	0.54
Job security	0.31	0.34	0.32
Dependent work	0.71	0.68	0.70
Commitment	3.74 (0.87)	3.66 (0.89)	3.65 (0.90)
Firm characteristics			
Collective agreement	0.75	0.83	0.72
Works council	0.82 (n = 2,592)	0.90 (n = 1,915)	0.83 (n = 2,160)
Industry			
Manufacturing	0.35	0.23	0.27
Metal, electrical, automotive	0.41	0.60	0.43
Commerce, traffic, communication	0.08	0.06	0.12
Financial services	0.10	0.07	0.10
ICT	0.06	0.04	0.08
Firm size (# employees)			
50-99	0.13	0.07	0.13
100-249	0.25	0.13	0.21
250-499	0.20	0.15	0.20
500+	0.42	0.64	0.46
East Germany	0.29	0.17	0.22
# Persons/firms	2,714/619	2,385/437	2,338/451

Notes: Mean/share displayed. Standard deviation in parentheses. Sum of shares for categorical variables does not always add up to 1 due to rounding errors.

Table A5:

	Without 2020		Only 2020	
	(1) Presenteeism	**(2) Sickness absence**	**(3) Presenteeism**	**(4) Sickness absence**
Performance appraisal	-0.0869**	-0.0160	-0.1400**	-0.1417**
	(0.0356)	(0.0318)	(0.0662)	(0.0600)
Marginal effect of performance appraisal	*-0.5034***	*-0.1077*	*-0.5418***	*-0.7399***
	(0.2067)	*(0.2136)*	*(0.2560)*	*(0.3077)*
Controls	yes	yes	yes	yes
Year-dummies	yes	yes	no	no
McFadden Pseudo R^2	0.0818	0.0660	0.1051	0.0808
# Observations	5,099	5,099	2,338	2,338
# Persons/firms	4,384/754	4,384/754	2,338/451	2,338/451

Notes: Pooled Poisson estimations. Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany. **significant at 5%.

Table A6.1:

Exogenous Switching

	Without works council		With works council	
	(1) Presenteeism	**(2) Sickness absence**	**(3) Presenteeism**	**(4) Sickness absence**
Performance appraisal	0.0328 (0.0798)	-0.0164 (0.0835)	-0.0961*** (0.0352)	-0.0584* (0.0313)
Marginal effect of performance appraisal	*0.2056* *(0.5000)*	*-0.1071* *(0.5440)*	*-0.4895**** *(0.1795)*	*-0.3671** *(0.1950)*
Controls	yes	yes	yes	yes
Year-dummies	yes	yes	yes	yes
McFadden Pseudo R^2	0.0831	0.0691	0.1076	0.0772
# Observations	1,025	1,025	5,642	5,642
# Persons/firms	885/342	885/342	4,589/632	4,589/632

Notes: Pooled Poisson estimations with *Presenteeism* as dependent variable. Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany.

*significant at 10%, ***significant at 1%.

Table A6.2:

Probit Model

	Works council
Works council share	0.0204** (0.0079)
Performance appraisal	0.2877*** (0.0792)
Controls	yes
Year-dummies	yes
McFadden Pseudo R^2	0.3865
# Observations	6,667
# Persons/firms	5,453/959

Notes: *Works Council* as dependent variable. Clustered robust standard errors at firm level in parentheses. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany.

**significant at 5%, ***significant at 1%.

Table A6.3:

Endogenous Switching

	Without works council		With works council	
	(1) Presenteeism	**(2) Sickness absence**	**(3) Presenteeism**	**(4) Sickness absence**
Performance appraisal	0.0777 (0.1075)	-0.0725 (0.1035)	-0.0972*** (0.0352)	-0.0511 (0.0330)
Marginal effect of performance appraisal	*0.4881* *(0.6721)*	*-0.4723* *(0.6762)*	*-0.4948**** *(0.1801)*	*-0.3206* *(0.2058)*
Inverse Mills ratio	0.2707 (0.3727)	-0.3449 (0.3419)	-0.0205 (0.1953)	0.1534 (0.1751)
Controls	yes	yes	yes	yes
Year-dummies	yes	yes	yes	yes
McFadden Pseudo R^2	0.0835	0.0696	0.1076	0.0773
# Observations	1,025	1,025	5,642	5,642
# Persons/firms	885/342	885/342	4,589/632	4,589/632

Notes: Pooled Poisson estimations with *Presenteeism* as dependent variable. Clustered robust standard errors at firm level in parentheses. Marginal effect = average marginal effect. Controls: age, female, foreigner, partner, Big 5 traits, vocational education, employment situation, fixed-term, physical work, home office, job security, dependent work, commitment, collective agreement, industry, firm size, East Germany. ***significant at 1%.