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ABSTRACT

Do Stronger Employer Responsibilities Enhance Workplace Accommodation for Sick-Listed Workers? Evidence from a Dutch Reform*

This paper studies the impact of stronger employer responsibilities for facilitating work resumption of sick or disabled workers on employers' workplace accommodation efforts during sick leave. We exploit a reform in the Netherlands that altered experience rating – i.e., shifting the costs of sick leave and disability insurance to the firm – both for permanent and non-permanent employees. Using unique Dutch survey data on workplace accommodation of long-term sick-listed workers, we show that experience rating has no significant impact on accommodation efforts. Moreover, we provide evidence that the reform led to more firms opting for self-arranging both the sick leave benefits and the reintegration process of sick non-permanent workers, instead of using the public insurance scheme.

JEL Classification: H32, I13, J14, J24

Keywords: workplace accommodation, disability insurance, experience rating, employer incentives

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1 Introduction

Disability in the workforce negatively impacts employees' well-being and career prospects while imposing a substantial financial burden on public finances through sick leave and disability benefits. In 2019, individuals with disabilities in the OECD faced a 27-percentage-point employment gap compared to their non-disabled counterparts. Concurrently, public spending on sickness and disability benefits accounted for a significant 2% of GDP (OECD, 2022, 2023). Employers can play a pivotal role in improving labor market outcomes for disabled workers, ultimately reducing public spending. They can achieve this by offering workplace accommodations such as modifying job tasks, adjusting work hours, providing flexible scheduling, offering job coaching or training, or implementing physical adjustments (e.g., ramps, accessible restrooms). Research has shown that such accommodations can facilitate a return to work, delay disability insurance (DI) applications, and support sustained employment (Burkhauser et al., 1995, 1999; Campolieti, 2005; Everhardt and de Jong, 2011; Hill et al., 2016).

One prominent policy to encourage employers to provide accommodations is experience rating, which links the insurance premiums paid by employers to the sick leave and DI costs incurred by their employees. While numerous studies have examined the effects of experience rating on labor market outcomes (e.g., De Groot and Koning (2016); Koning et al. (2022); Prinz and Ravesteijn (2020); Kyrrä and Paukkeri (2018); Kyrrä and Tuomala (2023); Van Sonsbeek and Gradus (2013)), its direct influence on workplace accommodations—the mechanism it aims to activate—remains underexplored.

This paper investigates the impact of experience rating on workplace accommodations for long-term sick-listed workers. We leverage a 2013 Dutch reform, the Modernization Act for Sick Leave Benefits (BeZaVa), which introduced exogenous variation in experience rating. This reform extended experience rating to non-permanent employees and tied its level to firm size, creating a natural experiment for a difference-in-differences (DID) analysis. Unique survey data from the National Social Insurance Institute (NSII, known as UWV in Dutch) targeted to nine-month sick-listed workers, allows us to examine workplace accommodations and employers' decisions to opt out of public sick leave insurance.

We focus on two key outcomes: the likelihood of workplace accommodations and firms' decisions to self-manage sick leave benefits and reintegration processes for non-permanent employees. Opting out of public insurance shifts the responsibility for disability benefit payments and reintegration from the NSII to the firm. Firms that are well-equipped to provide accommodations may find this approach more cost-effective or efficient (Groenewoud et al., 2015).

Our study delivers three main findings. First, we find no significant effect of expe-

rience rating on the likelihood of workplace accommodations for long-term sick-listed employees, regardless of their employment type. This result is robust to a set of sensitivity checks. It is important to highlight, however, that our data comprises long-term sick-listed workers where employers might assess the positive impact of additional workplace accommodation measures as limited compared to newly sick-listed workers (who are not observed in our data). Second, experience rating significantly increases the likelihood of non-permanent employees being employed by firms that opt out of public sick leave insurance. This suggests that firms may prefer self-management when public premiums are tied to reintegration outcomes. Finally, we observe that non-permanent employees are less frequently accommodated than their permanent counterparts. For both groups, younger age, higher education, and employment at larger firms are positively correlated with workplace accommodations, while heart or vascular conditions are negatively associated.

This paper contributes to the literature in three key ways. First, it estimates the direct effect of experience rating on workplace accommodations and firms' sick leave insurance choices. Most studies have focused on labor market outcomes such as DI inflow and employment duration, neglecting the mediating effects of workplace accommodations. Our detailed data enable a nuanced examination of this mediation process, providing insights that could guide targeted policy solutions. Second, the effect of experience rating on firms' insurance choice has not been studied in the economics literature except for the study of [Groenewoud et al. \(2015\)](#). Understanding firms' insurance choices is crucial because it determines how the sick leave and reintegration process are managed and by whom, and could indicate whether firms are satisfied with the reintegration process handled by the NSII. Finally, we address a significant gap by including non-permanent employees—a vulnerable group often excluded from such analyses despite their weaker labor market attachment and lower likelihood of receiving accommodations ([Koning et al., 2022](#); [Van der Burg, 2011](#)).

Our findings are relevant beyond the Netherlands and Finland, where experience rating is already implemented. Insufficient workplace accommodations and rising sick leave and disability inflow are challenges faced by many countries, particularly in the context of aging populations and extended working lives. In the United States, for instance, research suggests that nearly half of workers who would benefit from accommodations do not receive them, and about 20% of individuals in the disability system have remaining work capacity that could be utilized with proper accommodations ([Maestas et al., 2014, 2019](#)). Additionally, the U.S. disability reciprocity rate has risen over the past four decades ([Burkhauser et al., 2016](#)). Proposals to introduce employer incentives for addressing these challenges have been made on multiple occasions ([Autor and Duggan, 2010](#); [Burkhauser and Daly, 2011](#); [Liebman and Smalligan, 2013](#)). Thus, our results are relevant for countries exploring employer incentives to address workforce disability challenges.

The remainder of this paper is structured as follows: Section 2 reviews the literature on experience rating, while Section 3 outlines the Dutch institutional context and research design. Section 4 presents the data, and Section 5 introduces the empirical strategy. Section 6 details the results, with robustness checks in Section 7. Finally, Section 8 concludes the paper.

2 Literature

Only few studies theoretically analyze the role of the employer in the disability insurance system. A key assumption in these models is the presence of employer moral hazard, which refers to a situation where firms have an incentive to underinvest in measures to retain the work capacity of their employees in the presence of a public disability insurance system. The aim of experience rating is to minimize the employer's moral hazard problem by placing costs on those firms whose employees enter the disability schemes. This provides incentives to increase employers' accommodation efforts, through for instance altering equipment or allowing for a different job task description, enabling sick or disabled workers to use their residual working capacity, reducing DI inflow and increasing employment. However, experience rating comes with negative side effects, such as selective hiring of (healthy) workers, or an increased likelihood of firm bankruptcy due to higher labor costs. [Prinz and Ravesteijn \(2020\)](#) and [Jansen \(2024\)](#) analyze the optimal size of experience rating and of other policy parameters of the disability insurance system balancing these trade-offs.

The empirical literature on the labor market outcomes of experience rating finds somewhat mixed results, and there are no studies assessing its direct effect on accommodation. Exploiting previous reforms of the Dutch disability system, [Koning \(2009\)](#), [Prinz and Ravesteijn \(2020\)](#) and [Van Sonsbeek and Gradus \(2013\)](#) find that extending experience rating decreases sick leave and DI inflow. However, [De Groot and Koning \(2016\)](#) find that the removal of experience rating for small firms only increased DI inflow, whereas the re-introduction of experience rating for small firms had no effect. Moreover, [Koning et al. \(2022\)](#), in a study on the 2013 reform that we also exploit, find no effect of experience rating on the DI risk of non-permanent employees. Mixed results are also present in Finnish studies. For instance, while [Hawkins and Simola \(2020\)](#), [Kyyr  and Tuomala \(2023\)](#) and [Korkeam ki and Kyyr  \(2012\)](#) find that experience rating decreases sick leave and DI inflow and receipt, [Kyyr  and Paukkeri \(2018\)](#) find no such effects.

A gap in this literature is whether the mixed effects come from variations in the extent of employer accommodation efforts, or from variations in the effectiveness of accommodation improving labor market outcomes. [Koning \(2009\)](#) proposed that Dutch firms were generally unaware of the potential consequences of experience rating, and that

accommodation efforts are only intensified after firms face an increase in their experience-rated premiums. Several studies analyzed the effects of workplace accommodation on employment outcomes (see [Jansen et al. \(2021\)](#) and [Nevala et al. \(2015\)](#) for literature reviews), which generally find that workplace accommodation is effective in reducing DI inflow and improving labor market outcomes. Our study addresses this gap by studying whether experience rating can improve accommodation efforts.

Next to analyzing the effect of experience rating on workplace accommodation measures, we add to the literature by studying how experience rating affects other types of firm behavior. As far as we know, [Groenewoud et al. \(2015\)](#) is the only study that considers the effect of it on the choice of employers to opt out of public sick leave insurance. Based on a survey of employers, they find that 25% of employment agencies and 60% of other firms decided to opt out due to experience rating for non-permanent employees. These employers argued that their decision was based on the expectancy of opting out being cheaper due to better-expected reintegration results. However, this has not been confirmed by broader quantitative analyses such as ours. Regarding other firm outcomes, [De Groot and Koning \(2022\)](#) find that experience rating increases labor costs and the probability of firm bankruptcy. [Hawkins and Simola \(2020\)](#) provide evidence that experience rating reduces the hiring rate of individuals with a higher disability risk, pointing at selective hiring.

While experience rating is only implemented in the Netherlands and Finland, several studies examined the effects of other employer incentives in sick leave or DI on labor market and firm outcomes. For instance, exploiting a Swedish reform, [Hall et al. \(2023\)](#) investigate the effect of more generous firm insurance against sick leave costs on sickness absence and selective hiring. They find an increase in sickness absence and no effect on selective hiring. Using Austrian data, [Böheim and Leoni \(2020\)](#) find that abolishing compulsory firm insurance for sick leave costs for blue-collar workers significantly reduced sickness absence while, again, no effects on selective hiring were found.

Finally, our study fits in with the few studies that examine the determinants of workplace accommodation. [Hill et al. \(2016\)](#) and [Høgelund and Holm \(2014\)](#) show that worker characteristics such as age, race, education level, job tenure, and type of disability (mainly mental health issues) are indicative of whether the employer will provide accommodation. Therefore, it seems that workplace accommodation is not distributed equally among workers. Yet, no research has assessed whether these determinants are still present in a context with strong employer incentives such as the Netherlands.

3 Institutional context and potential effects of the reform

3.1 Sick-leave and disability insurance in the Netherlands

In the Netherlands, employees who become sick—whether due to work-related or non-work-related causes—are entitled to sick leave benefits equivalent to at least 70% of their gross wages for up to two years. After this period, they may apply for disability insurance (DI) benefits. Employers are prohibited from dismissing workers or reducing their wages during the sick leave period.¹

The system for providing sick leave benefits differs slightly for permanent and non-permanent employees. For *permanent employees*, employers are responsible for both reintegration efforts and paying sick leave benefits. Employers may privately insure these obligations, as no public sick leave insurance is available for permanent employees. Private insurance can be obtained from various insurance providers, which then assume responsibility for benefit payments. Alternatively, firms may choose to self-insure and manage the payments directly. For non-permanent employees, the system has additional distinctions. Non-permanent employees fall into two categories. The first group comprises agency workers whose contracts include an agency clause that terminates their employment if they fall sick. The second group consists of temporary workers whose contracts expire during the sick leave period. These groups are referred to as *agency workers* and *temporary workers*, respectively. Employers of non-permanent employees have the option of using public sick leave insurance provided by the NSII. In this case, the firm pays public sick leave premiums, and the NSII assumes responsibility for both benefit payments and the reintegration process. Alternatively, firms can opt out of public sick leave insurance, in which case they must directly manage benefit payments and reintegration efforts.

Public disability insurance (DI) is available to both permanent and non-permanent employees. After the two-year sick leave period, employees who remain sick-listed may apply for DI benefits. The NSII's insurance physicians assess applicants' levels of disability and categorize them as eligible for partial DI benefits, full DI benefits, or ineligible for DI benefits. For partial DI benefits, employers may opt out of the public system for permanent employees, but not for non-permanent employees, within the time frame of our analysis. Firms that opt out assume responsibility for paying partial DI benefits. For full DI benefits, which were unaffected by the reform, all firms are required to insure through the public system. Table 1 provides an overview of the insurance types available by employee category and firm size, before and after the reform.

The public sick leave and partial disability insurance (DI) premiums paid by firms

¹If an employee on a temporary contract reaches the end of their contract during the sick leave period, the National Social Insurance Institute (NSII) assumes responsibility for paying sick leave benefits.

Table 1: *Insurance types per type of employee and firm size, before and after the reform*

Firm Size / Type of contract	Small firm	Medium firm	Large firm
Permanent			
Before reform	Same rules for all firms: 1. No public sick leave insurance, employer pays sick leave benefits. Option to privately insure for sick leave benefits. 2. Public partial DI available, experience-rated premiums, option to opt out and privately insure. 3. Obligatory full DI, non-experience-rated premiums.		
After reform	<i>Changes to 2.: public partial DI premiums no longer experience-rated.</i>	<i>Changes to 2.: public partial DI premiums no longer fully experience-rated.</i>	<i>No changes.</i>
Non-perm.			
Before reform	Same rules for all firms: 1. Public sick leave insurance available (non-experience-rated premiums), option to opt out and privately insure. 2. Obligatory public partial DI (non-experience-rated premiums), not possible to opt out. 3. Obligatory full DI, non-experience-rated premiums.		
After reform	<i>No changes.</i>	<i>Changes to 1. and 2.: Public sick leave insurance and partial DI premiums partially experience-rated.</i>	<i>Changes to 1. and 2.: Public sick leave insurance and partial DI premiums fully experience-rated.</i>

are *experience-rated*. Since the 2013/2014 reform, the structure of these premiums has depended on firm size, categorized by their annual social insurance wage bill relative to the average annual social insurance wage in the Netherlands.² *Large firms*, with wage bills exceeding 100 times the average annual social insurance wage, pay fully individualized, experience-rated premiums. These are determined by the firm’s sick leave or partial DI risk. *Medium-sized firms*, with annual wage bills between 10 and 100 times the social insurance wage, pay a weighted average of the sector-wide premium and their experience-rated individual premium. *Small firms*, with wage bills less than 10 times the social insurance wage, pay only the sector-wide premium.

The individual premium is calculated by comparing the firm’s sick leave or DI risk to the average disability risk across all firms, using data from two years prior. This premium is subject to minimum and maximum caps and can reach up to 9% of total labor costs (Uitvoeringsinstituut Werknemersverzekeringen, 2020; De Groot and Koning, 2022).

The rationale behind experience rating is to encourage firms to internalize their sick leave and partial DI costs. This creates an incentive for firms to accommodate their employees, potentially facilitating earlier returns to work (Tweede Kamer der Staten-Generaal, 2012). Accommodation efforts may vary widely, from less costly measures like allowing additional breaks to more resource-intensive actions such as workplace adjustments, task modifications, or providing job coaching and training (Jansen et al.,

²The social insurance wage is the portion of wages subject to taxes and social insurance contributions.

2023).

Table 2: *Overview of the treatment and control group for the introduction and removal of experience rating*

	(Partial) introduction experience rating, sick leave, and partial DI premiums	(Partial) removal experience rating partial DI premiums
Treatment group	Non-permanent employees at <i>medium-sized</i> and <i>large</i> firms	Permanent employees at <i>small</i> and <i>medium-sized</i> firms
Control group	Non-permanent employees at <i>small</i> firms	Permanent employees at <i>large</i> firms

3.2 The reform and its expected effects on accommodation

Between 2013 and 2014, the Modernization Act of Sick Leave Benefits (BeZaVa) was introduced in the Netherlands. The primary aim of this reform was to align the financial incentives for employers regarding their permanent and non-permanent employees ([Tweede Kamer der Staten-Generaal, 2012](#)).

The reform had two key measures implemented in 2014. The *first measure* extended experience rating to two types of public premiums paid by firms for their non-permanent employees: public *sick leave* and *partial DI* premiums. Before the reform, these public premiums for non-permanent employees were sector-based. For permanent employees, public sick leave insurance did not exist, and their public partial DI premiums were already experience-rated. The *second measure* linked the level of experience rating to firm size. Previously, the experience-rated partial DI premiums for permanent employees were independent of firm size, with all firms paying fully individualized premiums.³

The reform creates treatment variation, allowing us to estimate causally the effects of introducing or removing experience rating. Table 2 outlines the treatment and control groups.

³The reform included a third measure, but it is not considered in this analysis as it exclusively affected non-permanent employees and does not influence our difference-in-differences (DID) estimates beyond the time trend. This measure, introduced in 2013, involved stricter monitoring during the sick leave period and the implementation of active labor market measures. These included tightened reintegration and job application requirements for non-permanent employees, as well as a one-year sick leave evaluation with stricter health criteria for continuing sick leave benefits ([Tweede Kamer der Staten-Generaal, 2012](#)).

For non-permanent employees, we compare those at large and medium-sized firms (treatment group) to those at small firms (control group). This comparison enables us to identify the effect of introducing (partial) experience rating on workplace accommodation for long-term sick-listed non-permanent workers. We hypothesize that experience rating compels firms to internalize the costs of both current sick leave and potential future partial DI enrollment, thereby reducing moral hazard—i.e., the underprovision of workplace accommodation. Consequently, we expect higher rates of workplace accommodation among long-term sick-listed workers in the treatment group. Because experience rating for non-permanent employees applies to both sick leave and DI premiums, the measured effect during sick leave stems from two sources. Employers may seek to accommodate sick-listed workers both to reduce the duration of sick leave and to prevent the transition into DI, which would incur additional costs.

For permanent employees, the reform partially removed experience rating. We compare small and medium-sized firms (treatment group) to large firms (control group) to identify the effect of this removal on workplace accommodation for long-term sick-listed permanent workers. We hypothesize a reduction in accommodation rates within the treatment group due to the removal of experience rating. For permanent employees, experience rating is applied only to partial DI premiums. Thus, the effect we observe during sick leave reflects employers' responses to the anticipated financial consequences of higher experience-rated partial DI premiums if the worker transitions into DI.

3.3 The reform's expected effects on employer's sick leave insurance choice

In addition to its impact on workplace accommodation, experience rating may influence employers' decisions regarding public sick leave insurance—specifically, whether to retain public insurance or opt out. When firms opt out, they forgo paying the public experience-rated premium and instead cover sick leave benefits directly. Firms that opt out can obtain private insurance for these benefits and assume responsibility for the reintegration of their workers.

Our analysis focuses solely on employers' decisions to opt out of public sick leave insurance for non-permanent employees, as data on opting out of public partial DI for permanent employees is unavailable. Furthermore, public sick leave insurance does not exist for permanent employees, and during the study period, it was not possible for employers to opt out of public partial DI insurance for non-permanent employees. Accordingly, our hypotheses address only the opting-out behavior of employers concerning non-permanent employees.

Experience rating may alter the incentives for firms to opt out of public insurance. When

a firm remains publicly insured, experience rating creates a misalignment between the parties involved. The National Social Insurance Institute (NSII) oversees the reintegration process, while the firm pays experience-rated premiums that are directly affected by the quality of that reintegration process (Groenewoud et al., 2015). This disconnect means that the NSII's effectiveness in facilitating employee return-to-work outcomes significantly influences the firm's premiums.

By opting out of the public insurance system, firms can eliminate the impact of the NSII's reintegration performance on their premiums and take control of both benefit payments and reintegration efforts.

This incentive to opt out is likely stronger for low-risk firms—those with relatively high reintegration effectiveness. For these firms, internal reintegration processes may be more efficient and cost-effective than those managed by the NSII. If the firm can achieve better reintegration outcomes than the NSII, opting out may result in lower overall costs compared to paying experience-rated premiums that are elevated due to less effective NSII reintegration efforts. A study by Groenewoud et al. (2015) found that 65% of the 418 employers of non-permanent employees who opted out of public sick leave insurance immediately after the reform cited better-expected reintegration results as a primary reason for their decision.

Based on these considerations, we hypothesize that the introduction of experience rating for non-permanent employees will encourage more firms to opt out of public sick leave insurance. Firms may do so to reduce costs or to exert greater control over reintegration outcomes. Consequently, we expect an increase in the number of non-permanent employees at medium-sized and large firms whose employers have opted out of public sick leave insurance.

4 Data and summary statistics

4.1 Data

We use data from a repeated cross-sectional survey, the Pathway to DI (*Weg naar de WIA* in Dutch) survey, executed by the research agencies APE and Astri in collaboration with the NSII (APE and Astri, 2007, 2014; Van Deursen, C., 2018). The Pathway to DI survey has three waves that took place in 2008, 2012 (before the reform) and 2015 (after the reform). The waves also have a follow-up survey that was recorded 18 months after the start of the sick leave period. Importantly, the *full population* of nine-month sick-listed individuals was invited by the NSII to participate in the survey, for about one month for each wave. The survey could be filled in on paper or online. The survey included permanent employees, non-permanent employees, and unemployed individuals. The net response rate among the

three waves was about 35% (APE and AStri, 2007, 2014; Van Deursen, C., 2018). The data contain detailed information about health, personal characteristics, labor market outcomes, and workplace accommodation provided by the employer.

The data may suffer from some selection issues. The survey takes place nine months after the start of the sick leave period. This means that the worker is still in the sick leave period, and a possible DI application could not have been started. However, there could already have been nine months of accommodation efforts by the employer. Since accommodation efforts could have already taken place before the survey was held, our sample might suffer from an over-representation of firms who are less willing to accommodate. Suppose workers who are properly accommodated are more likely not to enter sick leave or leave it early. In that case, the workers within our sample have a higher probability of being employed at a firm that is less willing to accommodate. However, this dynamic selection is likely to affect the treatment and control groups equally and, therefore, should not bias our results. Moreover, given that the survey was voluntary, it may be that only workers who feel strongly about their employers' accommodation efforts responded to this question, yet only 3.1 percent of the original sample is taken out of the sample because they do not respond to this question.

4.2 Sample selection

In our initial sample, we include only the three main waves of responses and do not include the follow-up responses. It could be that individuals who have been accommodated in the first nine months have a lower chance of still being sick or needing accommodation after 18 months due to the previous accommodation efforts, which could lead to lower accommodation rates in the follow-up survey, although these individuals have been accommodated properly. Moreover, we only consider employed respondents aged 18 to 67, as the sick leave and DI system as described above only applies to them. This amounts to an initial sample of 15,080 long-term sick-listed, employed respondents who are aged 18 to 67.

Table 3 describes the sample selection and also lists the sample sizes after each sample restriction and the sample sizes of the subsamples. More details of the sample selection and cleaning process can be found in Appendix A. The final sample consists of 12,523 respondents, which is 83.0% of the initial sample.

4.3 Variables

The main dependent variables are employer accommodation and satisfaction with employer accommodation. Employer accommodation is a binary variable that takes the value of one if the respondent fills in that one of the accommodation options of the survey has been

Table 3: *Sample restrictions and sample size*

Sample	Nr. of respondents	% of initial sample
Initial sample of the population of interest in the three waves of the survey (employed individuals aged between 18 and 67)	15,080	100%
Sample restrictions		
1. Excluding respondents with missing key covariates.	13,679	90.7%
2. Excluding respondents who are in the ‘other’ firm sector category.	13,673	90.7%
3. Excluding respondents who filled in the permanent survey as non-permanent employee.	13,312	88.3%
4. Excluding respondents who answered that they became sick more than one month off from the inclusion period.	13,040	86.5%
5. Excluding respondents who did not answer the employer accommodation questions.	12,575	83.4%
6. Removing conflicting or missing values of firm size.	12,523	83.0%
Subsamples per employment type		
Non-permanent employee.	3,011	24.0%
Permanent employee.	9,512	76.0%

Notes: This table reports the sample restrictions and the accompanying sample sizes. It also reports the sample sizes of the two subsamples of non-permanent and permanent employees.

provided by the employer during the sick leave period so far and zero if the respondent indicates that the employer did nothing. The question asked to respondents is “*What has your employer/employment agency done to get you either back to work or to retain you at work since you reported sick?*”. The grouped options are different/fewer tasks or hours at work, work on a therapeutic basis (the Dutch term of gradual return-to-work where workers do not necessarily have to do anything productive, but get back into the rhythm of working again), workplace/equipment adjustment, other, and nothing. We do not look at the types of accommodation as separate outcome variables, as often, a package of accommodation measures is chosen together.

In our descriptive analysis, we also include satisfaction with employer accommodation to capture the quality or intensity of the provided accommodation. Satisfaction with employer accommodation is a binary variable that takes the value of one when the respondent answers ‘yes’ to the question of whether the respondent thinks that the employer did enough to get the employee back to work or to stay at work, and zero when ‘no’ is answered. This question is asked to all respondents, regardless of whether they were

accommodated or not. Yet, in our analyses, we only consider this variable for respondents who indicate to have been accommodated. Moreover, we only consider this variable in our descriptive analysis and not the DID analysis as the introduction of the reform is more likely to impact the extensive margin (to accommodate or not), rather than the quality of accommodation.

Our independent variables consist of the type of non-permanent contract, demographic variables, disability types, firm characteristics, and year-fixed effects. The type of non-permanent employees refers to agency workers and temporary workers.

We include the following demographic variables: binary gender (it was only possible to choose between male and female in the survey), education level (low, medium, and high), migration background, which is a binary variable, and age classes at the time of the survey (between 18 and 35, 36 and 55, 55 and 60 and 60 to 67). The education levels are based upon the following classification. Having attained primary education, preparatory secondary vocational education, or lower secondary vocational education (in Dutch: basisonderwijs, lbo, vmbo) is classified as low education. Secondary vocational education, senior general secondary education and pre-university education (in Dutch: mbo, havo, vwo) are listed as medium education. University and University of Applied Science (in Dutch: wo and hbo) levels are classified as high.

We also include the type of disability or health problem that was present at the start of the sick leave. The types are grouped into musculoskeletal issues, psychological issues, heart or vascular issues, and other. Respondents could indicate multiple health problems at the same time.

Finally, we include the following firm characteristics. The first one is firm size, which can be small (0-10 employees), medium (10-100 employees) or large (more than 100 employees). This is based on two questions. First, employees were asked to indicate how many employees were employed at their branch at the time they became sick (less than 10, 11-25, 26-50, 51-100, 101-250 and more than 250). Next, employees were asked whether the branch was part of a larger firm or not. Only in the first wave, employees also receive the question on how many employees are at the total firm. Hence, for observations in the second and third wave, we assume that the total firm is large (more than 100 employees) when an employee works at a branch that is part of a larger firm. This assumption is supported by the fact that we do have complete information on the size of the larger firm in the first wave, as in that wave, employees are also asked about the firm size of the larger firm. In 89% of the cases, when a worker indicates that the firm branch is part of a larger firm, the size of the total firm is large and in 9.75% it is medium-sized - only in 0.45% of the cases, it is small.⁴ Finally, note that the reported firm size may diverge slightly from

⁴We also test to see whether our results rely on this assumption by instead doing multiple imputation on size of the total firm, conditional on the firm branch being part of a larger firm. This is done in Appendix A

the actual firm size classification used to determine the level of experience rating, as that is based on the total wage bill rather than the number of employees. Yet, whenever it would not correspond, the change in treatment level should be minimal: the medium firm receives a treatment that is a weighted average between the sector premium and the individualized premium, so it is not a hard cut from treatment to no-treatment or the other way around.

Moreover, we include a variable representing the firms' sector. Firm sectors relate to last employment and are grouped into industry, transport, trade, services, and the public sector. This variable is based on NSII records. We also include whether a non-permanent employee's employer had opted out of public sick leave insurance, which is also based on NSII records. Yet, this is only recorded in the 2015 wave. Hence, we code the observations of being employed at a firm that opted out as zero for non-permanent employees before 2015, whereas the observations of permanent employees are coded as missing in all waves as this does not apply to them. Only 3% of all firms in the Netherlands opted out of public sick leave insurance in 2012 ([Dumhs and Van Deursen, 2017](#)).

4.4 Descriptive statistics

Table 4 presents the summary statistics of non-permanent workers ($N=3,011$) in column 1, permanent workers ($N=9,512$) in column 2, and our total final sample ($N=12,523$) in column 3. The data show that employer accommodation is provided much more frequently to permanent employees (79% of permanent employees) than to non-permanent employees (only 29%), which was one of the motivations behind the reform ([Tweede Kamer der Staten-Generaal, 2012](#)). Moreover, whenever non-permanent employees are accommodated, they are less often satisfied with the provided accommodation (58%) than permanent employees (81%). This could indicate both a lower frequency and lower intensity of workplace accommodation efforts provided to non-permanent employees.

We see the following patterns regarding the demographic status and disability types of respondents. Women are slightly over-represented in the full sample (56%) and most respondents are middle-aged, in the age class 36 to 55 (57%). Permanent employees are more frequently in the 55+ age classes (31% combined) than non-permanent employees (16%). Besides, permanent employees are more likely to be highly educated (32%) than non-permanent employees (17%). The most common disabilities relate to the musculoskeletal system (41% in the full sample) and are even more common for non-permanent employees (51%) than for permanent employees (38%).

and does not change our results.

Table 4: *Summary statistics by type of employment contract*

	Non-permanent workers	Permanent workers	Total
Sample size	3,011 (24.0%)	9,512 (76.0%)	12,523 (100.0%)
workplace accommodation			
workplace accommodation	0.303 (0.459)	0.793 (0.405)	0.675 (0.468)
Satisfaction with accommodation, conditional on being accommodated	0.576 (0.494)	0.808 (0.394)	0.785 (0.411)
Type of non-permanent contract			
Agency worker	0.214 (0.410)	-	-
Demographic variables			
Female	0.536 (0.499)	0.564 (0.496)	0.557 (0.497)
Migration background	0.227 (0.419)	0.122 (0.328)	0.148 (0.355)
Age class			
18-35	907 (30.1%)	1,056 (11.1%)	1,963 (15.7%)
36-55	1,612 (53.5%)	5,524 (58.1%)	7,136 (57.0%)
56-60	356 (11.8%)	1,990 (20.9%)	2,346 (18.7%)
61-67	136 (4.5%)	942 (9.9%)	1,078 (8.6%)
Education level			
Low education	1,306 (43.4%)	3,406 (35.8%)	4,712 (37.6%)
Medium education	1,179 (39.2%)	3,086 (32.4%)	4,265 (34.1%)
High education	526 (17.5%)	3,020 (31.7%)	3,546 (28.3%)
Disability type			
Musculoskeletal disability	0.507 (0.500)	0.376 (0.485)	0.408 (0.491)
Psychological disability	0.427 (0.495)	0.352 (0.478)	0.370 (0.483)
Heart/vascular disability	0.097 (0.296)	0.127 (0.333)	0.120 (0.325)
Other type of disability	0.307 (0.461)	0.375 (0.484)	0.359 (0.480)
Firm characteristics			
Opted out of public sick leave insurance	0.275 (0.447)	-	-
Firm size			
Small firm	332 (14.8%)	646 (6.8%)	978 (8.3%)
Medium firm	482 (21.6%)	1,551 (16.3%)	2,033 (17.3%)
Large firm	1,422 (63.6%)	7,315 (76.9%)	8,737 (74.4%)
Firm sector			
Industry	395 (13.1%)	1,528 (16.1%)	1,923 (15.4%)
Transport	238 (7.9%)	526 (5.5%)	764 (6.1%)
Trade	412 (13.7%)	1,116 (11.7%)	1,528 (12.2%)
Services	1,371 (45.5%)	1,810 (19.0%)	3,181 (25.4%)
Public	595 (19.8%)	4,532 (47.6%)	5,127 (40.9%)

Notes: This table presents summary statistics of our final sample of non-permanent workers (column 1), permanent workers (column 2) and total sample (column 3). The mean and standard deviation (in brackets) are displayed for continuous variables, while the group frequencies and percentages (in brackets) are displayed for categorical variables. Data on opting out of public sick leave insurance is only provided for non-permanent employees in wave 3 (2015), not in wave 1 and 2 (2008 and 2012). Also note that the disability types are not mutually exclusive, so the sum of the individual percentages does not add up to 100%.

The firm characteristics are distributed in the following manner. In 2015, when opting out of public sick leave insurance was recorded for non-permanent employees, 28% of the respondents were employed at a firm that opted out. Moreover, we see that permanent employees are more frequently employed at a large firm (77%) than non-permanent employees (64%). Finally, it stands out that non-permanent employees are much more often employed in the services sector (46%) than permanent employees (19%) and that permanent employees are more often employed in the public sector (48%) than non-permanent employees (20%).

5 Empirical framework

Our empirical analysis consists of three parts. First, we provide correlational, non-causal evidence on the determinants of workplace accommodation of long-term sick-listed non-permanent and permanent employees through ordinary least squares regression. Next, we estimate the causal effects of the (partial) introduction and removal of experience rating on workplace accommodation and the chance of being employed at an employer who opted out of public sick leave insurance.

5.1 Determinants of accommodation

To determine which types of workers are more likely to be accommodated and whether they are satisfied with it, we regress workplace accommodation and satisfaction with accommodation on our set of potential determinants. For the satisfaction regression, we only included respondents who indicated that they had been accommodated. We separate non-permanent and permanent employees since their sick leave trajectories can be quite different, and therefore, we can expect different determinants.

5.2 Difference-in-differences analysis workplace accommodation

To estimate the effect of experience rating in public sick leave and partial DI premiums on workplace accommodation, we employ a DID strategy. We restrict ourselves to one dependent variable, workplace accommodation, to focus on the extensive margin of accommodation.

We employ two separate models for non-permanent employees and permanent employees. To assess the impact of the (partial) introduction of experience rating, we compare non-permanent employees at large and medium-sized firms (treatment group) to non-permanent employees at small firms (control group). For the removal of experience rating in partial DI premiums, we compare permanent employees at small and medium-sized

firms (treatment group) to permanent employees at large firms (control group). We assess the following linear probability models for our estimations of the effect of experience rating:

$$\begin{aligned} Accom_{i,t} = & \beta_0 + \beta_1 \cdot After_t + \beta_2 \cdot Large/medium-sized_{i,t} \\ & + \beta_3 \cdot After_t \cdot Large/medium-sized_{i,t} + \mathbf{X}'_{i,t} \delta + \theta \cdot Agency + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} Accom_{i,t} = & \beta_0 + \beta_1 \cdot After_t + \beta_2 \cdot Small/medium-sized_{i,t} \\ & + \beta_3 \cdot After_t \cdot Small/medium-sized_{i,t} + \mathbf{X}'_{i,t} \delta + \tau \cdot Wave\ 2_t + \varepsilon_{i,t} \end{aligned} \quad (2)$$

with equation 1 relating to non-permanent employees and equation 2 to permanent employees. The coefficient of interest in both models is the treatment coefficient, β_3 , which measures the causal effect of either the introduction or removal of experience rating. In these models, *Accom* is employer accommodation, *After* is a dummy that takes on the value of one if the observation took place after the reform (wave 3, 2015) and zero otherwise, *Large/medium-sized* is a dummy that equals one if the respondent reports to have been employed at a large or medium-sized firm and zero if the respondent is employed at a small firm, and the other way around for *Small/medium-sized*. \mathbf{X} is the vector of controls, consisting of our socio-demographic variables (gender, migration background, age, and education level), disability type, and firm characteristics (firm size, firm sector). Next to these controls, the first equation includes *Agency*, a dummy that equals one if the non-permanent employee is an agency worker and zero if the employee is a temporary worker. For equation 2 only, we include the dummy for wave 2 (2012) as we have two pre-treatment waves.

The parallel trend assumption can only be tested for permanent employees, not for non-permanent employees. The reason is that firm size is only recorded in two pre-reform waves (2008 and 2012) for permanent employees but only once for non-permanent employees (in 2012). For permanent employees, we can both graphically and analytically assess the parallel trend assumption. We will analytically assess the assumption by estimating the DID model on the pre-reform data. Even though we cannot test the parallel trend for non-permanent employees, we argue that it should also hold for them, as we believe that during these years, there were no major external factors or policy changes that affected non-permanent employees differently or that should have affected the relative difference between non-permanent employees at large or medium-sized versus small firms.

5.3 Difference-in-differences analysis opting out of public sick leave insurance

Next to potentially influencing accommodation, experience rating could also have had unintended effects on other outcomes. We expect that the introduction of experience rating has caused more firms to opt out of public sick leave insurance to circumvent the influence of the NSII's behavior on their now experience-rated premiums. We test this by running a DID analysis on the likelihood of being employed at a firm that opted out, using non-permanent employees at large and medium-sized firms as treatment group and at small firms as control group. We estimate the following model:

$$\begin{aligned} \text{Opted out}_{i,t} = & \beta_0 + \beta_1 \cdot \text{After}_t + \beta_2 \cdot \text{Large/medium-sized}_{i,t} \\ & + \beta_3 \cdot \text{After}_t \cdot \text{Large/medium-sized}_{i,t} + \mathbf{X}'_{i,t} \delta + \theta \cdot \text{Agency} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

in which all the terms have the same meaning as equations 1 and 2. In this analysis, as we have no data on opting out before the reform, we assume that the number of firms that opted out before the reform equals zero. This assumption is not unrealistic as only 3% of all firms in the Netherlands had opted out in 2012 (Dumhs and Van Deursen, 2017). Unfortunately, the lack of data on opting out before the reform also implies that we cannot assess the parallel trend assumption.

6 Results

6.1 Determinants of accommodation rates and satisfaction

Table 5 presents the results of our analysis on the factors influencing the likelihood of accommodation and satisfaction with accommodation. Columns 1 and 2 display OLS estimates for non-permanent employees, focusing on the probability of receiving accommodation (column 1) and satisfaction with accommodation conditional on being accommodated (column 2). Columns 3 and 4 report analogous results for permanent employees.

Table 5: *Determinants of the rate of workplace accommodation and the satisfaction with it*

	Sample			
	Non-perm.	Non-perm.	Perm.	Perm.
	Dependent variable			
	accom	satisfaction	accom	satisfaction
Employment contract (base = temporary)				
Agency contract	-0.1173*** (0.0229)	0.1245** (0.0557)		
Worker characteristics				
Female	0.0127 (0.0182)	0.0405 (0.0377)	0.0092 (0.0090)	0.0263*** (0.0099)
Migration background	0.0015 (0.0199)	-0.0650 (0.0418)	-0.0180 (0.0130)	-0.0249* (0.0145)
<i>Age class (base = 36-55)</i>				
18-35	0.0165 (0.0197)	0.0740* (0.0378)	0.0372*** (0.0124)	-0.0171 (0.0151)
56-60	-0.0225 (0.0259)	-0.0317 (0.0575)	-0.0168 (0.0108)	0.0121 (0.0116)
61-67	-0.0477 (0.0398)	-0.0858 (0.1002)	-0.0752*** (0.0160)	0.0440*** (0.0160)
<i>Education level (base = medium)</i>				
Low	-0.0153 (0.0186)	0.0576 (0.0406)	-0.0504*** (0.0105)	0.0021 (0.0111)
High	0.0794*** (0.0254)	0.0960** (0.0451)	0.0173* (0.0100)	-0.0145 (0.0114)
Disability type				
Musculoskeletal	-0.0176 (0.0192)	-0.0597 (0.0400)	0.0018 (0.0107)	-0.0544*** (0.0118)
Psychological	-0.0236 (0.0188)	-0.1217*** (0.0398)	-0.0068 (0.0105)	-0.1064*** (0.0120)
Heart/vascular	-0.0562** (0.0281)	-0.1490** (0.0702)	-0.0281** (0.0141)	0.0290** (0.0132)
Other	-0.0079 (0.0199)	-0.0344 (0.0410)	-0.0576*** (0.0103)	0.0102 (0.0114)
Firm characteristics				
Opted out of public sick leave insurance	0.1081*** (0.0341)	-0.0796 (0.0644)		
<i>Firm sector (base = industry)</i>				
Transport	-0.0585 (0.0369)	0.0190 (0.0788)	-0.0293 (0.0210)	-0.0397* (0.0227)
Trade	0.0128 (0.0338)	-0.0358 (0.0661)	-0.0261 (0.0166)	-0.0338* (0.0173)
Services	-0.0307 (0.0288)	-0.0025 (0.0610)	-0.0348** (0.0146)	-0.0077 (0.0150)
Public	0.0437 (0.0329)	-0.0084 (0.0644)	0.0015 (0.0126)	-0.0262* (0.0134)
<i>Firm size (base = medium)</i>				
Small			-0.0357* (0.0207)	0.0000 (0.0203)
Large			0.0358*** (0.0118)	-0.0166 (0.0121)
Wave dummies (base = wave 1)				
Wave 2 (2012)	-0.0928*** (0.0211)	-0.2750*** (0.0406)	0.0049 (0.0102)	-0.0986*** (0.0111)
Wave 3 (2015)	-0.0986*** (0.0244)	-0.2594*** (0.0478)	0.0066 (0.0101)	-0.0928*** (0.0109)
Constant	0.4093*** (0.0377)	0.7936*** (0.0729)	0.8176*** (0.0188)	0.9422*** (0.0194)
Observations	3,011	821	9,512	7,443

Notes: This table presents OLS estimates for the likelihood of employer accommodation and, conditional on accommodation, binary employee satisfaction. Firm size is excluded as a regressor for non-permanent employees due to its absence in wave 1, to avoid reducing the sample size. Heteroskedasticity-robust standard errors are in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The findings reveal notable differences in accommodation rates between non-permanent and permanent employees, with non-permanent employees being accommodated less frequently. However, the determinants of accommodation are broadly similar for both groups. For non-permanent employees, those with agency contracts are less likely to receive accommodation than those with temporary contracts. Gender has no significant effect on accommodation likelihood for either group, but among permanent employees, women report greater satisfaction with accommodation than men when it is provided. Migration background does not significantly impact the likelihood of accommodation for either group, although satisfaction appears somewhat lower among employees with a migration background.

An age-related pattern emerges, with younger workers more likely to receive accommodation than older workers. This may suggest that employers perceive a lower return on accommodating workers closer to retirement. Conversely, older permanent employees report lower satisfaction with accommodation. Educational attainment also plays a significant role: individuals with lower levels of education are less likely to be accommodated and are less satisfied when accommodation is provided. These results align with [Hill et al. \(2016\)](#), who found that higher education positively influences employer accommodation.

Disability characteristics further influence accommodation and satisfaction outcomes, with similar patterns for both contract types. Workers with heart and vascular conditions are least likely to receive accommodation and are least satisfied when accommodations are made. This may be due to the inherent difficulty of accommodating such conditions. Employees with psychological issues also report lower satisfaction with accommodations.

Firm characteristics and timing additionally play a role. While the sector of the firm has no significant effect, smaller firms are less likely to accommodate their employees. Non-permanent workers employed by firms that opted out of public sick leave insurance are more likely to receive accommodation. Interestingly, reported accommodation rates were higher in 2008 compared to 2012 or 2015, despite the financial crisis in 2008, which might have been expected to negatively impact accommodation practices.

In conclusion, the likelihood of receiving accommodation is lower for older, less-educated workers and those with specific disability types, with these patterns observed across both permanent and non-permanent employees. Although the results are not causal, they highlight significant heterogeneity in accommodation practices, suggesting that some groups of workers may benefit from more favorable treatment in receiving accommodations than others.

6.2 Effect of experience rating on workplace accommodation

We now turn to the effect of experience rating on workplace accommodation. Columns 1 and 2 of Table 6 present the results for the introduction of experience rating for non-permanent employees (equation 1). Since the inclusion of controls does not significantly alter the coefficients, we focus on the model with controls. The estimated effect of introducing experience rating is 6.24 percentage points, a notable figure given the average accommodation rate for non-permanent employees is around 30%. However, this effect is not statistically significant. The imprecision arises from the large standard errors associated with our limited sample size. While we do not find a statistically significant effect, we cannot exclude the possibility of a large economic effect due to the limited statistical power of our analysis.

Columns 3 and 4 of Table 6 report the results of removing experience-rated partial DI premiums for permanent employees at small firms (equation 2). Again, the inclusion of controls (column 4) does not materially affect the coefficients reported in column 3, so we focus on the controlled model. This analysis estimates a 2.32 percentage point *increase* in the likelihood of accommodation when employers are no longer required to pay experience-rated partial DI premiums. However, this effect is also statistically insignificant, though the standard errors are somewhat smaller due to the larger sample size.

Overall, we do not find significant evidence that either the introduction or removal of experience rating has a meaningful impact on workplace accommodation for long-term sick-listed workers. However, these findings should not be interpreted as evidence that experience rating is inherently ineffective at encouraging employers to increase accommodation efforts. Our study focuses on workers who have already been sick for at least nine months, a group for which employers might not perceive accommodation as likely to yield reductions in sick leave duration or DI inflows. For other categories of workers—such as those at risk of becoming sick-listed or those newly sick-listed—experience rating might be more effective. This aligns with previous research that has identified a negative relationship between experience rating and sick leave or DI inflows (De Groot and Koning, 2016; Hawkins and Simola, 2020; Korkeamäki and Kyyrä, 2012; Kyyrä and Paukkeri, 2018; Prinz and Ravesteijn, 2020; Van Sonsbeek and Gradus, 2013), suggesting that experience rating can indeed enhance accommodation efforts. However, other studies, such as Koning et al. (2022) and De Groot and Koning (2016) (in their analysis of the reintroduction of experience rating), have found no significant impact of experience rating on DI inflows. Our findings offer a potential explanation for these mixed results: experience rating may not effectively incentivize employers to accommodate all types of employees.

Table 6: Main DID results of the introduction and removal of experience rating

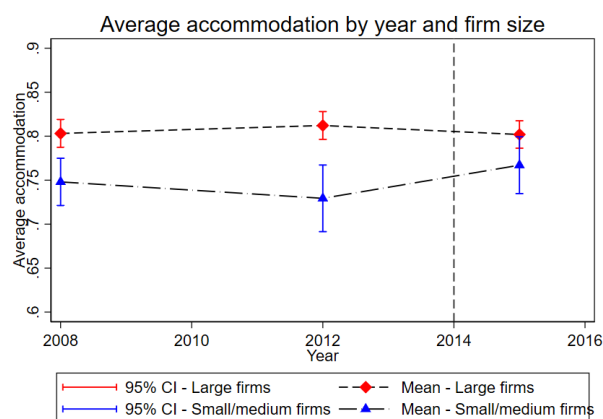
	Dependent variable			
	accom	accom	accom	accom
	Sample			
	Non-perm.	Non-perm.	Perm.	Perm.
After	-0.0333 (0.0486)	-0.0257 (0.0486)	-0.0056 (0.0098)	0.0006 (0.0112)
Large/medium-sized	-0.0155 (0.0362)	-0.0155 (0.0359)		
After * Large/medium-sized	0.0837 (0.0530)	0.0624 (0.0528)		
Small/medium-sized			-0.0660*** (0.0125)	-0.0536*** (0.0128)
After * Small/medium-sized			0.0311 (0.0222)	0.0232 (0.0222)
Constant	0.2833*** (0.0336)	0.3594*** (0.0478)	0.8075*** (0.0057)	0.8559*** (0.0169)
Controls	No	Yes	No	Yes
2008 included	No	No	Yes	Yes
Observations	2,236	2,236	9,512	9,512

Notes: The first two columns report the DID results on the effect of the *introduction* of experience rating (equation 1), using the sample of long-term sick-listed *non-permanent* employees at small and large firms in wave 2 and 3. The last two columns report the DID result on the effect of the *removal* of experience rating (equation 2), using the sample of *permanent* employees at small and large firms in wave 1, 2 and 3. The dependent variable is self-reported binary employer accommodation. We cannot include the first wave (2008) in columns 1 and 2 as firm size was not recorded for non-permanent employees in this wave, which is needed to determine the treatment status. For columns 1 and 2, the controls are the same as column 1 of table 5, except for the exclusion of opting out as a control in all columns and the exclusion of separate wave dummies (except for After, the wave dummy for 2015). For columns 3 and 4, the controls are the same as column 3 of table 5, excluding firm size as a separate control as this is already in the treatment indicator, and wave 3 is included as After, while wave 2 is included as separate wave dummy. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

One potential reason for ineffective accommodation could be firms' lack of awareness regarding the financial implications of experience rating on their premiums, compounded by the complexity of the system. [Koning \(2009\)](#) highlights that Dutch firms are often unaware of how experience rating affects their premiums. That study found substantial reductions in DI inflows only after premium increases, suggesting that firms may only improve their accommodation efforts once they become fully aware of the consequences of experience rating.

Parallel trend accommodation To inspect the parallel trend assumption of our DID analysis, we plot the pre-treatment trends and perform a placebo test on our sample of permanent employees at large and small firms. Figure 1 shows the average accommodation levels of the treated and untreated permanent workers from 2008 to 2015. The average accommodation rates do not seem to diverge much, and the treated workers (at small and medium-sized firms) even seem to experience an upward trend in their accommodation level. Table 7 reports the estimates of the placebo test. The estimate of the placebo treatment indicator (Wave 2*Small or medium firm) is statistically insignificant. Hence, the parallel trend assumption seems satisfied for permanent employees. As argued before, we cannot test the parallel trend assumption for non-permanent employees, but we have no reason to believe that it should be different from them as we are not aware of any major policies or other third factors that would have affected the relative difference between non-permanent workers at large versus small and medium-sized firms.

Figure 1: *workplace accommodation rate trends of permanent employees*



Notes: This figure displays the average accommodation rate and its 95% confidence interval of permanent employees at large versus small and medium-sized firms in the three waves (2008, 2012 and 2015).

Table 7: *Placebo test DID model permanent employees*

	Dependent variable	
	accom	accom
	Sample	
	Perm.	Perm.
Wave 2 (2012)	0.0090 (0.0114)	0.0101 (0.0114)
Small/medium-sized	-0.0551*** (0.0159)	-0.0433*** (0.0161)
Wave 2 * Small/medium-sized	-0.0277 (0.0262)	-0.0273 (0.0259)
Wave 3 (2015)	-0.0012 (0.0113)	0.0036 (0.0115)
Wave 3 * Small/medium-sized	0.0202 (0.0242)	0.0129 (0.0243)
Constant	0.8031*** (0.0080)	0.8533*** (0.0170)
Controls	No	Yes
2008 included	Yes	Yes
Observations	9,512	9,512

Notes: This table reports the DID results of equation 2 for permanent employees, but includes the placebo-treatment coefficient Wave 2*Small firm. The controls in column 2 are the same as column 3 of table 5, excluding firm size as a separate control as this is already in the treatment indicator, and wave 3 is included as After, while wave 2 is included as separate wave dummy. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

6.3 Effect of experience rating on public sick leave insurance choice

Table 8, column 1, reports the estimated treatment effect of introducing experience rating on the likelihood of having an employer who opted out of public sick leave insurance. The estimated effect is 28 percentage points, statistically significant at the 1% level. This is a substantial effect, particularly considering that only 3% of firms had opted out in 2012 [Dumhs and Van Deursen \(2017\)](#).

One potential concern is that the survey data are collected at the employee level, whereas the decision to opt out is made at the firm level and applies to all employees. However, if the focus is on the number of employees working for an employer that opted out, rather than the number of firms opting out, the analysis remains appropriate. This is further supported by the fact that the survey targeted the full population of nine-month sick-listed workers. Moreover, data from the NSII indicate that 31% of the total wage sum in 2015 was associated with employers who had opted out, compared to only 7% in 2013. These aggregate figures align with our estimate, reinforcing the validity of the results.

Table 8: *DID results on opting out of public sick leave insurance*

	Dependent variable	
	opted out	opted out
	Sample	
	Non-perm.	Non-perm.
After	0.0724*** (0.0210)	0.0790*** (0.0206)
Large/medium-sized	0.0000 (0.0000)	-0.0109* (0.0061)
After * Large/medium-sized	0.2398*** (0.0265)	0.2352*** (0.0258)
Constant	-0.0000 (0.0000)	-0.0081 (0.0213)
Controls	No	Yes
2008 included	No	No
Observations	2,236	2,236

Notes: The table reports the estimated coefficients of equation 3, i.e., the DID analysis of the introduction of experience rating on being at an employer who opted out of public sick leave insurance. The control group consists of non-permanent employees at small firms and treatment of non-permanent employees at large and medium-sized firms. The controls are the same as column 1 of table 5, except for the exclusion of opting out as a control and the exclusion of separate wave dummies (except for After, the wave dummy for 2015). We assume that no firms had opted out before the reform (2012). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The findings suggest that experience rating creates a strong incentive for employers to opt out of public insurance. This could also reflect dissatisfaction with the reintegration efforts provided by the NSII or a belief among firms that they can manage reintegration more effectively or efficiently on their own.

While we do not inherently classify the increase in firms opting out as either positive or negative, it could have significant implications for the public insurance system. If low-risk firms predominantly opt out, high-risk firms are left in the public sick leave system, potentially increasing financial strain on the public system. Conversely, if firms that opt out provide better reintegration and accommodation than those that remain, this could lead to improved workplace environments for employees.

7 Robustness checks

We check the robustness of our DID results in a variety of ways. A first concern might be that in our analyses, we pool the two types of non-permanent workers together: agency workers and workers with an ending temporary contract. It could be that this decision drives our results as these two types might have a different relation to their employer. This would mean that pooling them into one specification is not appropriate. To deal with this concern, we split the main DID analysis on non-permanent employees by type of contract. We do this for both dependent variables (accommodation and opted out). In Appendix table 10, we report all robustness checks on the DID analysis on workplace accommodation while Appendix table 11 reports those on opting out of public sick leave insurance. In Appendix table 10, the first column reports the DID estimate on accommodation using the subsample of workers with an ending contract and the second column reports those of workers with an agency contract. This does not affect our results – our DID estimate remains insignificant. In Appendix table 11, we do the same but now with opting out of public sick leave insurance as dependent variable. Column 1 reports the DID results on the sample of workers with an ending temporary contract and column 2 on the sample of agency workers. The DID coefficient remains statistically significant at the 1% level. The effect size remains relatively stable, as it is 21.75 percentage points for temporary workers and 25.6 percentage points for agency workers, compared to the pooled DID estimate of 23.52 percentage points. Hence, we do not see a substantial difference between temporary and agency workers.

Another potential distortion could arise from people who move to a different employer or become self-employed during the sick leave period, as this can cause confusion about the firm accommodation question and changes the employer's incentives. In Appendix table 10, column 3 (non-permanent workers) and column 4 (permanent workers) report the DID estimate on accommodation without these employees. The DID coefficient remain

statistically insignificant. In Appendix table 11, column 3, we also take these employees out of the sample for the analysis on opting out of public sick leave insurance. Our DID estimate virtually remains the same.

During the nine months of sick leave, it could have been that some employees received a different employment contract type. This might distort the accuracy of our results since this changes the employer incentives. Specifically, this concerns permanent employees who stayed at their initial employer during the nine months but received a non-permanent contract, and non-permanent employees who changed to a permanent contract. The first group is not recorded in our data, but the second group is. To safeguard against this distortion, we exclude these individuals from our analysis. We do this for our DID on accommodation for non-permanent employees in Appendix table 10, column 5 and for opting out in Appendix table 11 column 4. This exercise does not have any sizable effect on our previously found results.

Finally, to verify that our results are not driven by our model specification in terms of treatment group selection, we also try other specifications that follow those of [Koning et al. \(2022\)](#) and [Prinz and Ravesteijn \(2020\)](#). [Koning et al. \(2022\)](#) estimate the effect of experience rating on DI inflow comparing non-permanent employees at small firms to large firms. When we use that treatment group definition, i.e., excluding the medium firms and comparing large and small firms, for our DID analyses on accommodation and opting out, we again do not find a significant effect of introducing experience rating on accommodation (see Appendix table 10, column 6, and Appendix table 11, column 5). For accommodation, we find a larger point estimate (9.25 percentage points) that is significant but only at the 10% level. For opting out, we also find an even larger point estimate of 30.2 percentage points. This seems to show that the effect is even larger for firms who are exposed to full rather than partial experience rating.

[Koning et al. \(2022\)](#) also examine the effect of the total reform (so the alignment of financial incentives and the monitoring measures) by comparing all non-permanent employees to all permanent employees in a DID analysis. Column 7, Appendix table 10 shows that the point estimate of the effect of the total reform on the accommodation rate of non-permanent workers compared to permanent workers is even slightly negative, but remains insignificant.⁵

[Prinz and Ravesteijn \(2020\)](#) compare agency workers at large firms to all permanent workers to estimate the effect of experience rating on DI inflow, also exploiting the BeZaVa reform. In column 8, Appendix table 10 the estimates of a DID analysis imitating their treatment and control groups are reported.⁶ We find a significant (at the 1% level) and very

⁵We cannot run this robustness check for opting out as it involves permanent employees, who do not have public sick leave insurance.

⁶Again, we cannot run this robustness check for opting out as it involves permanent employees.

sizeable positive effect: a 15.14 percentage points increase in the average accommodation rates of agency workers at large firms, compared to permanent workers. However, this result warrants cautious interpretation. First, the sample of agency workers at large firms is very small, especially compared to the control group. Second, the control group is not a clean control as the incentives for employers of permanent employees were also altered during this period—experience rating was partially eliminated for small and medium-sized firms.

To summarize, our results remain robust against a variety of robustness checks. On one occasion, our results are not the same. Replicating the model specifications of [Prinz and Ravesteijn \(2020\)](#) does change our results, but we argue that this specification is not suited to our research question.

8 Conclusion

The employment rate of disabled individuals in OECD countries remains significantly lower than that of individuals without disabilities, while public expenditure on sickness and disability accounts for a substantial portion of GDP ([OECD, 2022, 2023](#)). Employers play a crucial role in addressing these challenges by creating disability-inclusive workplaces to enhance the labor market outcomes of disabled workers. This paper examines the impact of extending a government-mandated employer incentive—experience rating—to non-permanent employees on workplace accommodation efforts for long-term sick-listed employees.

Our analysis reveals no statistically significant effect of shifting the costs of sick leave and partial DI toward or away from firms through experience rating on employer accommodation for nine-month sick-listed workers, regardless of whether they hold permanent or non-permanent contracts. However, we find a significant increase in the number of employers of non-permanent employees (specifically, those at large and medium-sized firms) opting out of public sick leave insurance after the reform. Additionally, our results highlight notable patterns in the determinants of accommodation. While non-permanent employees are less frequently accommodated, the factors influencing accommodation for both non-permanent and permanent employees are largely similar.

These findings carry important implications for countries grappling with firm moral hazard—namely, the reluctance of firms to support sick-listed and partially disabled workers. Our results suggest that experience rating does not achieve the desired effect of increasing accommodation rates for long-term sick-listed workers. This raises questions about whether employer responsibility should extend to such workers, particularly given that the severity of their disabilities may limit the effectiveness of accommodation efforts. Further research is needed to determine whether experience rating improves preventive

accommodation efforts or reintegration measures for short-term sick-listed workers. Additionally, the limited effectiveness of experience rating may stem from a lack of awareness among firms, highlighting the potential benefit of initiatives aimed at increasing employer understanding of the system.

Moreover, our findings indicate that firms opting out of public sick leave insurance are more likely to provide accommodations, reflecting possible dissatisfaction with the public reintegration process. This suggests that a system in which firms bear financial responsibility through experience rating while reintegration is managed by public entities may not be optimal. Transferring both financial responsibility and reintegration efforts to firms could merit consideration.

Finally, policymakers should carefully consider our findings on the determinants of accommodation, which suggest disparities in the likelihood of employees receiving accommodations. Ensuring equitable access to accommodation should remain a priority in designing policies to address these issues.

Appendix A Sample selection and cleaning

Table 9: Main DID results using multiple imputation on firm size

	Dependent variable		
	accom	accom	opted out
	Sample		
	Non-perm.	Perm.	Non-perm.
After	-0.0085 (0.0421)	0.0051 (0.0115)	0.1390*** (0.0242)
Large/medium-sized	0.0255 (0.0308)		-0.0094* (0.0056)
After * Large/medium-sized	0.0470 (.03004)		0.1798*** (0.0300)
Small/medium-sized		-0.0526*** (0.0124)	
After * Small/medium-sized		0.0163 (0.0212)	
Constant	0.3271*** (0.0447)	0.8550*** (0.0169)	-0.0134 (0.0220)
Controls	Yes	Yes	Yes
2008 included	No	Yes	No
Observations	2,236	9,518	2,236

Notes: This table reports the main DID analyses using multiple logit imputation on firm size. The first column estimates the effect of the introduction of experience rating on accommodation of non-permanent employees, column 2 the effect of the removal of experience rating on accommodation of permanent employees, while column 3 considers the effect of experience rating on opting out of public sick leave insurance for non-permanent workers. The number of imputed datasets is ten for all three analyses. Imputation-corrected and heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Our first sample restriction limits the sample to those respondents who filled in the key covariates. These consist of, firstly, the specific groups: non-permanent employees (distinguishing two subcategories, agency workers and temporary workers) and permanent employees. Moreover, gender, education level, age, type of disability, and migration background must be filled in. Firm size must also be reported. Yet, firm size was not asked about in the non-permanent survey of wave 1. Therefore, we allow these respondents to have a missing firm size variable.

The second restriction excludes respondents whose firm sector is categorized as ‘other’, as these are only six observations.

The third sample restriction is to exclude those respondents who reported to be an agency worker or temporary worker but filled in the permanent worker survey. Fifth, we exclude the respondents who entered that their first date of reported sickness was more than one month away from the inclusion period (for wave 2, October 2011 and November 2011, and for wave 3, October 2014 up to and including January 2015.⁷)

Next, we restrict the sample to those who have answered the question which informs our key dependent (binary) variable of whether accommodation was provided by the employer.

Finally, we clean and impute values for firm size. For observations in the second and third wave, the size of the total firm is missing. Therefore, there we assume that the total firm is large (more than 100 employees) when an employee works at a branch that is part of a larger firm. Moreover, when it was not indicated whether the branch was part of a large firm, but all other questions in that part of the survey were filled in, we code this as a ‘no’ for being part of a larger firm. When this question is missing but size of the total firm is filled in, we code this as a ‘yes’ on whether the branch is part of a larger firm. Then, still, 14 values for whether the branch is part of a large firm are still missing are still missing on. These are deleted. Moreover, 12 observations are conflicting and therefore dropped: they claim not to be part of a larger firm but total firm size is filled in. Finally, we drop 6 conflicting observations where total firm size is smaller than the branch size, and 20 observations from wave 1 where total firm size was asked for but not answered when a respondent indicated that they were part of a larger firm.

We test whether our results depend on the choice to assume that everyone who indicated that the branch was part of a larger firm was employed at a large firm. We do so by multiple imputation on a logit estimation on both *Small * Medium-sized* or *Large * Medium-sized* using our controls and complete information on total firm size from wave 1, permanent employees. For this estimation, we do not drop the conflicting observations where total firm size is smaller than the branch size but rather as this makes the branch size a perfect predictor for total firm size when we split the two groups into small versus medium or

⁷This data was not available for wave 2.

large. We take ten imputed datasets. Table 9 reports the DID estimates on accommodation for non-permanent employees (column 1), permanent employees (column 2), and for opting out for non-permanent employees (column 3). This does not substantially differ from our main results without multiple imputation. The effect of experience rating on accommodation remains significant while the effect on opting out reduces from 23.5% to 18.0%, but remains significant at the 1% level.

Appendix B Robustness checks tables

Table 10: *Robustness checks accommodation*

	Dependent variable							
	accom	accom	accom	accom	accom	accom	accom	accom
	Robustness check							
	temporary workers	agency workers	no change in contract	no change in contract	no switch to perm. contract	no medium-sized firm	replicating KMP	replicating PR
After	-0.0268 (0.0526)	-0.0058 (0.1311)	-0.0099 (0.0511)	-0.0044 (0.0113)	-0.0278 (0.0488)	-0.0242 (0.0484)	0.0036 (0.0088)	0.0045 (0.0089)
Large/medium-sized	0.0068 (0.0398)	-0.1296 (0.0842)	0.0126 (0.0377)		-0.0172 (0.0359)			
After * Large/medium	0.0468 (0.0576)	0.1301 (0.1386)	0.0375 (0.0557)		0.0655 (0.0530)			
Small/medium-sized				-0.0484*** (0.0130)				
After*Small/medium				0.0263 (0.0224)				
Large						-0.0418 (0.0368)		
After * Large						0.0925* (0.0541)		
Non-perm.							-0.4759*** (0.0121)	
After * Non-perm.							-0.0038 (0.0197)	
TreatmentPR								-0.6485*** (0.0266)
After * TreatmentPR								0.1514*** (0.0529)
Constant	0.3518*** (0.0518)	0.3401 (0.2309)	0.3401*** (0.0505)	0.8561*** (0.0170)	0.3530*** (0.0479)	0.3651*** (0.0512)	0.8311*** (0.0145)	0.8400*** (0.0157)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2008 included	No	No	No	Yes	No	No	No	No
Observations	1,820	416	1,948	9,234	2,220	1,754	12,523	9,781

Notes: The table reports our main DID analyses on accommodation using different samples and/or different treatment group definitions. The first two columns report the DID analyses on non-permanent employees, split by either temporary workers (column 1) or agency workers (column 2). The next two columns report the DID analyses excluding people who move to a different employer or become self-employed during the sick leave period, for non-permanent employees (column 3) and permanent employees (column 4). Column 5 reports the DID analysis of non-permanent employees, excluding people who switched to a permanent contract. In column 6, we report the DID following the treatment group definition of [Koning et al. \(2022\)](#), i.e., comparing large and small firms. In column 6, we again follow [Koning et al. \(2022\)](#) but now by estimating the full effect of the reform (including monitoring) by comparing permanent to non-permanent workers. In the last column, we follow the treatment group definition of [Prinz and Ravesteijn \(2020\)](#): comparing agency workers to permanent employees. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11: *Robustness checks opting out*

	Dependent variable				
	opted out	opted out	opted out	opted out	opted out
	Robustness check				
	temporary worker	agency worker	no switch in contract	no switch to perm. contract	no medium-sized firm
After	0.0287* (0.0152)	0.3513*** (0.1020)	0.0808*** (0.0226)	0.0804*** (0.0210)	0.0797*** (0.0206)
Large/medium-sized	-0.0080* (0.0044)	0.0060 (0.0187)	-0.0099 (0.0063)	-0.0108* (0.0061)	
After * Large/medium-sized	0.2175*** (0.0223)	0.2560** (0.1118)	0.2378*** (0.0282)	0.2322*** (0.0260)	
Large					-0.0148** (0.0073)
After * Large					0.3020*** (0.0276)
Constant	0.0094 (0.0214)	-0.0649 (0.1870)	-0.0088 (0.0229)	-0.0064 (0.0215)	0.0112 (0.0257)
Controls	Yes	Yes	Yes	Yes	Yes
2008 included	No	No	No	No	No
Observations	1,820	416	1,948	2,220	1,754

Notes: The table reports our main DID analyses on opting out using different samples and/or different treatment group definitions. The first two columns report the DID analyses on non-permanent employees, split by either temporary workers (column 1) or agency workers (column 2). Column 3 reports the DID analyses excluding people who move to a different employer or become self-employed during the sick leave period, for non-permanent employees only. Column 4 reports the DID analysis of non-permanent employees, excluding people who switched to a permanent contract. In column 5, we report the DID following the treatment group definition of [Koning et al. \(2022\)](#), i.e., comparing non-permanent employees at large and small firms.

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