The effect of extending employer responsibility for sick-listed workers on work accommodation: Evidence from a Dutch reform

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Abstract

This paper studies the impact of stronger employer responsibilities for facilitating work resumption of sick or disabled workers on employers' work 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 work accommodation of long-term sick-listed workers, we show that experience rating has no significant impact on accommodation efforts. Moreover, we provide suggestive 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.

Keywords: Work Accommodation, Disability Insurance, Experience Rating, Employer Incentives *JEL*: H32, I13, J14, J24

1. Introduction

Disability within the workforce not only harms the wellbeing and labor market prospects of the employee affected, it also imposes a financial burden on governments through public spending on sick leave and disability benefits. Within the OECD, in 2019, the employment rate of disabled individuals was 27 percentage points lower than that of individuals without disability. The public spending rate on sickness and disability was substantial with 2% of GDP (OECD, 2022, 2023). Employers can play an important role in improving the labor market prospects and ultimately reducing the public spending costs of disabled workers by providing them with work accommodation, such as job modification or modifying the workplace. Work accommodation has been found to foster return-to-work, delay disability insurance (DI) application and facilitate sustained employment (Burkhauser et al., 1995, 1999; Campolieti, 2005; Everhardt and de Jong, 2011; Hill et al., 2016). One policy that aims to incentivize employers to provide more accommodation is experience rating. Experience rating makes the insurance premiums paid by the employer dependent on the sick leave and DI costs of the firm's employees. While many studies have estimated the effect of experience rating on labor market outcomes (e.g., De Groot and Koning (2016); Koning et al. (2022); Prinz and Ravesteijn (2020); Kyyrä and Paukkeri (2018); Kyyrä and Tuomala (2023); Van Sonsbeek and Gradus (2013)), none of them have considered the mechanism through which this ought to take place: experience rating incentivizing work accommodation.

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Funding from Netspar for the project 'Work in old age and when disabled: The role of employer responsibility' is gratefully acknowledged.

In this paper, we study the effect of experience rating on work accommodation of long-term sick-listed workers. We exploit the exogenous variation created by a Dutch reform in 2013. This reform extended experience rating to non-permanent employees, reduced it for permanent workers and tied the level of experience rating to firm size. We can study how this reform affects work accommodation because of uniquely available data from a survey on nine-month sick-listed workers that includes extensive details about work accommodation provided to permanent and non-permanent employees. We start by analyzing the socio-demographic factors and firm characteristics associated with work accommodation, where we also consider satisfaction with accommodation to obtain a measure of the quality of accommodation. Next, exploiting the treatment variation caused by the reform, we estimate the effect of experience rating on work accommodation through a difference-indifferences analysis. Furthermore, we provide suggestive evidence of whether our estimated effect of experience rating on accommodation could be driven by the selection of firms who self-arrange the disability benefit payments and reintegration process instead of letting the government be responsible.

We have three main findings. First, we find that non-permanent employees are much less often accommodated by their employers than permanent employees. For permanent and nonpermanent employees, a lower age, a high education level, and being employed at a large firm are positively related to work accommodation, whereas heart or vascular diseases are negatively associated with accommodation. Second, we find a nonsignificant - positive - effect of experience rating on the chance of long-term sick-listed employees being accommodated, regardless of whether they are permanently employed. This finding is robust to other model and sample specifications. Third, for non-permanent employees, we find that the positive, although non-significant, estimate is driven by respondents at firms that opted out of the public sick leave insurance system after the reform. If we remove these respondents from our analysis, the estimate becomes very close to zero. Since we show that after the reform, the number of firms that opted out significantly increased (especially those most affected by the reform), we expect that experience rating increased the likelihood of firms opting out.

Our contribution to the literature is two-fold: we estimate the *direct effect* of experience rating on work accommodation, and we consider both non-permanent and permanent employees. Most research focuses on the effects of experience rating on labor market outcomes such as sick leave inflow, DI inflow and employment duration. No other study has considered the mediating direct effect: the effect of experience rating on work accommodation. Our data that feature detailed information about work accommodation allow for this. Knowledge of the mediation process can lead to more targeted policy solutions. As some previous studies have shown that experience rating does not affect labor market outcomes (e.g., Koning et al. (2022); Kyyrä and Paukkeri (2018), knowing what happened to work accommodation can guide policymakers in their decision to direct their effects either towards strengthening the effect of experience rating on work accommodation or towards improving the effectiveness of accommodation itself.

Our second contribution is that we include non-permanent employees, which is a particularly vulnerable group as they are less attached to the labor market and therefore have a lower chance of being accommodated (Koning et al., 2022; Van der Burg, 2011). Most research on the effects of experience rating has not included these employees. Studies that include nonpermanent employees when studying the effects of experience rating do not study their work accommodation levels (e.g., Koning et al. (2022) and Prinz and Ravesteijn (2020)).

The relevance of the results from this study extends beyond the countries in which experience rating is currently implemented, i.e., the Netherlands and Finland. A need for more accommodation and a reduction of sick leave and disability inflow is not a challenge unique to these countries, especially in the context of population aging and prolonged working lives. In the US, for example, recent research suggests that about half of the workers who would benefit from accommodation do not receive it and that about 20 percent of people in the disability system have remaining working capacity, which may have been used if they had been appropriately accommodated (Maestas et al., 2014, 2019). Moreover, the disability recipiency rate in the US has been rising over the past forty years (Burkhauser et al., 2016). Hence, the results from this study are also relevant for countries that consider implementing employer incentives to deal with these challenges, as already proposed on various occasions (e.g., Autor and Duggan (2010); Burkhauser and Daly (2011); Liebman and Smalligan (2013)).

The remainder of this paper is organized as follows. Section 2 presents an overview of the literature on experience rating and work accommodation. Section 3.1 describes the reform and the Dutch sick leave and DI system. Section 4 describes the data and sample restrictions. Section 5 introduces the empirical strategy. Section 6 reports the results. Finally, section 7 concludes the paper.

2. Literature

Only a few studies in the field of sick leave and DI examined the effects of experience rating on labor market outcomes, finding somewhat mixed results. These studies consider the Netherlands and Finland, which are the only countries where experience rating is implemented. Using 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. De Groot and Koning (2016) find that the removal of experience rating for small firms 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. Hence, no definite answer has been given on whether experience rating has always been effective in the Netherlands.

Within the Finnish context, no consensus exists either. Exploiting changes within the Finnish experience-rated disability system, Kyyrä and Tuomala (2023) and Hawkins and Simola (2020) find that experience rating decreases sick leave and DI inflow and receipt. In the same line, Korkeamäki and Kyyrä (2012) find that experience rating lowers sick leave inflow and reduces transitions from sick leave to disability retirement. However, the study by Kyyrä and Paukkeri (2018) found no effect on sick leave and DI inflow.

Another strand of the literature examined the potential adverse consequences of experience rating on firm outcomes. De Groot and Koning (2022) find that experience rating increases labor costs and the probability of firm bankruptcy. Moreover, 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.

Several studies analyzed the effects of work accommodation on employment outcomes (see Jansen et al. (2021) and Nevala et al. (2015) for literature reviews). Only few studies examine its determinants finding that work accommodation is not provided equally among workers. 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 due to mental health problems) are indicative of whether the employer will provide accommodation.

3. The reform and identification strategy

3.1. Sick leave and DI system

In the Netherlands, when an employee becomes sick, either work or non-work-related, they enter a two-year sick leave period after which they may apply for DI benefits. During this period, they receive sick leave benefits with a minimum of 70% of the gross wage. Employers are responsible for re-integrating and paying the sick leave benefits for *permanent employees*, which they may also privately insure. For *non-permanent employees*, public sick leave insurance is available. If the employer takes on public insurance provided by the Employee Insurance Agency (UWV), the firm pays public sick leave premiums. In that case, the Employee Insurance Agency pays sick leave benefits and is also responsible for the reintegration process.

Employers may choose opt out of the public insurance. For non-permanent employees, firms can also opt out of public sick leave insurance. Firms then forgo the public experience-rated premium and have to pay the sick leave benefits themselves for which they can privately insure. In addition, they become responsible for reintegration and can self-arrange the accommodation of their workers. As we will show later, this option was more often chosen by firms with the introduction of experience rating.

Unlike sick leave benefits, public DI is available for both permanent and non-permanent employees. After the two-year sick leave period, workers who are still sick-listed can apply for DI benefits. The applicant may receive partial DI benefits, full DI benefits, or no DI based on a disability percentage that is determined by the Employee Insurance Agency. For permanent employees only, it was possible to opt out of public *partial DI* in our period of analysis. For *full DI*, which was unaffected by the reform, all firms must publicly insure themselves.

3.2. BeZaVa reform and treatment groups

From 2013 to 2014, the Modernization Sick Leave Benefits Act (BeZaVa) was implemented in the Netherlands. The main goal of the BeZaVa was to align the financial incentives of employers for their permanent and non-permanent employees. The first measure, implemented in 2014, extended experience rating to two types of public premiums paid by firms for their non-permanent employees: public sick leave and partial DI premiums. For non-permanent employees, these public premiums had been based on the firm sector before the reform. For permanent employees, no public sick leave insurance exists, while their public partial DI premiums were already experience-rated before the reform. The second measure of the BeZaVa, also implemented in 2014, was to link the level of experience rating to firm size, while the experiencerated partial DI premiums of permanent employees had been independent of firm size before. The firm-size dependence of

the level of experience rating works as follows: Large firms who pay more than 100 times the social insurance wage¹, pay a fully individualized, experience-rated premium dependent on the sick leave or partial DI risk of the firm. Medium-sized firms (who pay between 10 and 100 times the social insurance wage) pay a weighted average between the sector premium and the experience-rated individualized premium. Small firms (who pay the social insurance wage fewer than 10 times) pay only the sector premium. The individualized premium, i.e., the experience-rated premium, is based on either the sick leave or partial DI risk of the firm and is capped by a minimum and a maximum premium rate (Uitvoeringsinstituut Werknemersverzekeringen, 2020). Finally, the third measure of the BeZaVa introduced stricter monitoring measures during the sick leave period and implemented active labor market measures. These measures were for non-permanent employees only and were implemented in 2013 (Tweede Kamer der Staten-Generaal, 2012). The monitoring measures consist of tightened reintegration and job application obligations for non-permanent employees during the sick leave period and the introduction of a one-year sick leave evaluation, which tightened the health requirement to be able to continue receiving sick leave benefits.

The treatment variation caused by the BeZaVa allows us to disentangle the effect of the introduction of experience rating from the effect of the stricter monitoring and active labor market measures on work accommodation. Table 1 shows the treatment and control groups for the three treatments of the BeZaVa. The first treatment, the introduction of experience rating in sick leave and partial DI premiums, affected all nonpermanent employees. The level of experience rating varies by firm size, while all non-permanent employees were exposed to stricter monitoring and active labor market measures. Therefore, by comparing non-permanent employees at large firms (treatment group) to non-permanent employees at small firms (control group), we can separately identify the effect of the introduction of experience rating on work accommodation of sick-listed workers.

For non-permanent employees, we hypothesize that experience rating essentially forces firms to internalize the costs of both current sick leave and potential future partial DI enrolment, causing a reduction in firm moral hazard, i.e., firms not providing enough work accommodation. In effect, we expect a higher work accommodation rate among long-term sick-listed workers in the treatment group (at large firms). Since for nonpermanent employees, experience rating is implemented in two types of premiums (i.e., sick leave and DI), the effect that we measure during sick leave comes from two sources. During sick leave, employers may not only respond to the threat from higher experience-rated sick leave premiums but also to the anticipated threat from higher experience-rated partial DI premiums if current work accommodation is insufficient to prevent the sick-listed worker from flowing into DI.

Table 1 also reports the treatment groups for the removal of experience rating for permanent employees. For permanent em-

¹The social insurance wage is the wage over which taxes and other social insurances are paid.

Table 1: Overview of the treatment and control group for the different treatments of the reform

	Introduction experience rating sick leave and partial DI premiums	Removal experience rating partial DI premiums	Stricter monitoring and active labor market measures
Treatment group	Non-permanent employees at <i>large</i> firms	Permanent employees at <i>small</i> firms	All non-permanent employees
Control group	Non-permanent employees at <i>small</i> firms	Permanent employees at <i>large</i> firms	All permanent employees

Notes: This table lists the treatment and control group for the three treatments of the reform. Medium firms are excluded in this table as we do not include them in our main analyses.

ployees, no monitoring or active labor market measures were instituted. Yet, permanent employees at small firms were no longer exposed to experience-rated partial DI premiums, while permanent employees at large firms still were. Hence, by comparing permanent employees at small firms (treatment group) to permanent employees at large firms (control group), we can separately identify the effect of the removal of experience rating on the work accommodation of sick-listed workers.

For permanent employees, we hypothesize a decrease in the work accommodation rate of long-term sick-listed workers in the treatment group (small firms) because of the removal of experience rating. For permanent employees, experience rating is only implemented in partial DI premiums, so the effect that we measure during sick leave is only the response to the anticipated threat from higher experience-rated partial DI premiums if the worker flows into DI.

We do not formulate hypotheses on the effects of the BeZaVa on the accommodation provided to workers at medium-sized firms. The reason is that the level of experience rating in their premiums is not constant like for small and large firms but instead depends on firm size. Since the exact firm size is not given in our data, we cannot distinguish between the treatment levels. Hence, we do not include workers at medium-sized firms in our analyses. As a robustness check, we check whether the exclusion of medium-sized firms affects our results.

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 Employee Insurance Agency ([dataset] APE and Astri, 2007; [dataset] APE and AStri, 2014; [dataset] Van Deursen, C., 2018). The Pathway to DI survey has three waves that took place in 2008 and 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. For each wave, for about one month, the full population of nine-month sicklisted individuals was invited by the Employee Insurance Agency to participate in the survey, which could be filled in on paper or online. The survey included permanent employees, nonpermanent employees, and unemployed individuals. The net response rate among the three waves was about 35% ([dataset] APE and Astri, 2007; [dataset] APE and AStri, 2014; [dataset] Van Deursen, C., 2018). The data contain detailed information about health, personal characteristics, labor market outcomes, and work accommodation provided by the employer.

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.

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 2 describes the sample selection and also lists the sample sizes after each sample restriction and the sample sizes of the subsamples used in specific analyses. More details of the sample selection and cleaning process can be found in Appendix B. The final sample consists of 12,524 respondents, which is 83.1% of the initial sample. Table 3 shows that there

Table 2: 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	15,080	100%
aged between 18 and 67)		
Sample restrictions		
1. Excluding respondents with missing key covariates.	13,679	90.7%
2. Excluding respondents who are in the 'other'	13 673	00.7%
firm sector category.	15,075	90.770
3. Excluding respondents who filled in the permanent	12 212	99 20%
survey as non-permanent employee.	15,512	00.370
4. Excluding respondents who answered that they became		
sick more than one month off from the inclusion	13,040	86.5%
period.		
6. Excluding respondents who did not answer the	12 524	83 10%
employer accommodation question.	12,324	05.170
Subsamples per employment type	Nr. of respondents	% of final sample
Non-permanent employee.	2,968	23.7%
Permanent employee.	9,556	76.3%
Subsamples dif-in-dif analysis	Nr. of respondents	% of final sample
Analysis introduction experience rating	1,145	9.1%
(non-permanent workers, no medium-sized firms).		
Analysis abolishment experience rating	5,161	41.2%
(permanent workers, no medium-sized firms).		

Notes: This table reports the sample restrictions and the accompanying sample sizes. It also reports the sample sizes per group of the final sample: non-permanent employees versus permanent employees, and the subsamples for the difference-in-differences analysis that exclude respondents employed at medium-sized firms.

are no sizeable differences in the characteristics of the initial and final samples.

We employ different subsamples for the different analyses, as reported in table 2. We restrict the analysis to the samples of either non-permanent or permanent employees when analyzing the determinants of work accommodation. For the differencein-differences analysis, we restrict the analysis to either nonpermanent employees or permanent employees, excluding respondents at medium-sized firms. As explained before, their treatment level for medium-sized firms is not constant and cannot be determined since we lack exact data on firm size.

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 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, workplace/equipment adjustment, other, and nothing.

We also include satisfaction with employer accommodation to capture the quality or intensity of the provided accommodation. Satisfaction with employer accommodation is also 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.

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 the distinction made in the data between two groups of non-permanent employees: agency workers with an agency clause in their contract that ends their employment when they become sick and employees with a temporary contract that ends during the sick leave period. These two groups will be referred to as *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). Firm sectors relate to last employment and are grouped into industry, transport, trade, services, and the public sector. This variable is based on Employee Insurance Agency records. We also include whether a non-permanent employee's employer had opted out of public sick leave insurance, which is also based on Employee Insurance Agency 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 nonpermanent 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 3 presents the summary statistics of both our initial sample (N = 15,080) (column 1) and of our final sample of N = 12,524 long-term sick-listed employees that we use in the analyses (column 2). We also stratify the summary statistics of our final sample by non-permanent employees and permanent employees (columns 3 and 4). The data show that employer accommodation is provided much more frequently to permanent employees (79% of permanent employees) than to nonpermanent employees (only 29%), which was one of the motivations behind the BeZaVa (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 work 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 belong to the highly educated group (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%).

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 (38%) than non-permanent employees (28%). 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

To determine which types of workers are more likely to be accommodated and whether they are satisfied with it, we regress work accommodation and satisfaction with accommodation on our set of potential determinants. For the regression on satisfaction, we only include respondents who indicated having 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.

To estimate the effect of experience rating in public sick leave and partial DI premiums on work accommodation, we employ a difference-in-differences strategy. We restrict to one dependent variable, work accommodation, and do not include satisfaction as it did not follow a parallel trend in the pre-treatment years (see figure C.3). Upon visual inspection, we do not see an effect on satisfaction after the reform.

We employ two separate models for non-permanent employees and permanent employees. For the introduction of experience rating in sick leave and partial DI premiums, we compare non-permanent employees at large 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 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:

$$Accom_{i,t} = \beta_0 + \beta_1 \cdot After_t + \beta_2 \cdot Large firm_{i,t}$$
(1)
+ $\beta_3 \cdot After_t \cdot Large firm_{i,t} + X'_{i,t}\delta + \theta \cdot Agency + \varepsilon_{i,t}$

$$Accom_{i,t} = \beta_0 + \beta_1 \cdot After_t + \beta_2 \cdot Small firm_{i,t}$$
(2)
+ $\beta_3 \cdot After_t \cdot Small firm_{i,t} + X'_{i,t}\delta + \tau \cdot Wave 2_t + \varepsilon_{i,t}$

with equation 1 relating to non-permanent employees and equation 2 to permanent employees. The coefficient of interest in both models is the difference-in-differences coefficient, β_3 , which measures the 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 firm* is a dummy that equals one if the respondent reports to have been employed at a large firm and zero if the respondent is employed at a small firm, and the other way around for *Small firm*. X is the vector of controls,

Table 3:	Summary	statistics	by	group
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	Initial sample	Final sample	Non-permanent	Permanent
			employees	employees
	Mean perc.	Mean perc.	Mean perc.	Mean perc.
Work accommodation				
Work accommodation (binary)	65.7%	67.3%	29.0%	79.2%
Satisfaction with accommodation (binary),	77.9%	78.7%	58.0%	80.8%
conditional on work accommodation = 1				
Employment contract				
Non-permanent	27.9%	23.7%	100.0%	0.0%
Agency (if non-permanent $= 1$)	20.8%	21.5%	21.5%	
Temporary (if non-permanent $= 1$)	79.2%	78.5%	78.5%	
Permanent	72.1%	76.3%	0.0%	100.0%
Worker characteristics				
Female	55.6%	55.6%	53.2%	56.4%
Migration background	16.2%	14.8%	22.8%	12.3%
Age				
18-35	16.6%	15.5%	30.0%	11.1%
36-55	56.3%	57.1%	53.6%	58.1%
56-60	18.5%	18.8%	11.9%	21.0%
61-67	8.6%	8.6%	4.5%	9.9%
Education level				
Low	39.1%	37.8%	43.8%	36.0%
Medium	33.8%	34.0%	39.1%	32.4%
High	27.1%	28.2%	17.1%	31.7%
Disability type				
Disability (multiple types possible)				
Musculoskeletal	42.1%	40.8%	51.0%	37.7%
Psychological	36.7%	36.9%	42.7%	35.2%
Heart/vascular	12.0%	12.0%	9.7%	12.7%
Other	36.6%	36.0%	30.8%	37.6%
Firm characteristics				
Opted out of public sick leave insurance	27.4%	27.8%	27.8%	
(if non-permanent = 1)				
rum size	19 407	17.901	24.00	16 201
Siliali Madium	18.4%	17.8%	24.9%	10.2%
Mediulii	40.4%	40.5%	47.0%	40.0%
Earge Eirm sector	55.5%	55.9%	21.3%	57.8%
r in in Sector	15.00	15 101	12.00	16 10
Transport	6.1%	13.470 6.10	1 <i>3.270</i> 8 0%	5 50%
11allSpOrt Trada	12.2%	12.1%	13.5%	5.5 % 11 7%
Services	27.0%	25.4%	45.7%	19.1%
Public	39.5%	41.0%	19.6%	47.6%
1 uone	51.510	71.070	17.070	77.070

Notes: This table presents the distribution of characteristics for our initial sample of 15,080 long-term sick-listed respondents (column 1) and for our final sample of 12,524 respondents that we use in the analyses (column 2). Moreover, columns 3 and 4 restrict our final sample to either non-permanent employees or permanent employees. 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%.

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 difference-in-differences model on the prereform 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 versus small firms.

6. Results

6.1. Determinants of accommodation

Table 4 reports the results of our analysis on the determinants of the rate of and satisfaction with accommodation. The first two columns present the OLS estimates on the effect on the chance of being accommodated (column 1) and the satisfaction with accommodation, conditional on being accommodated (column 2) for non-permanent employees. The last two columns report the same results but for the sample of permanent employees. Table 4 reveals that even though we already found in the descriptive statistics that the accommodation rate is much lower for non-permanent employees than for permanent employees, the determinants of accommodation are mostly similar across the two groups. Non-permanent employees with an agency contract are less likely to be accommodated than those with a temporary contract. Gender has no significant impact, except for satisfaction with the accommodation of permanent employees, i.e., women are more satisfied than men whenever they are accommodated. Migration background does not have a significant relation with accommodation for both types of employees, yet satisfaction with accommodation seems somewhat lower for this group. There does seem to be an age pattern: younger workers are more likely to be accommodated than older workers. This could imply that employers expect a lower return to their accommodation of workers closer to retirement and, therefore, accommodate them less. The pattern is reversed for the satisfaction of permanent employees: older, permanent workers are less satisfied with the provided accommodation. Both permanent and non-permanent workers seem to suffer from an education bias: individuals with a lower education level are less likely to be accommodated and less likely to be satisfied with it. This is in line with Hill et al. (2016) who find that education positively affects employer accommodation. Not only do socio-demographic factors matter, but disability characteristics are also associated with accommodation and show the same pattern for both permanent and non-permanent contracts. Heart and vascular diseases of both permanent and non-permanent employees are the least likely to be accommodated and to be satisfied with it. This might be because such inflictions are harder to accommodate. Workers with psychological issues are generally less satisfied with the accommodation provided. Finally, certain firm characteristics also matter. Even though the firm sector has no impact, small firms are less likely to accommodate, and non-permanent workers at firms who opted out of public sick leave are more likely to be accommodated.

We conclude that the likelihood to be accommodated is lower for older and less educated workers and certain disability types and those results are similar for permanent and non-permanent employees. The results – although not causal – show heterogeneity in the likelihood to receive accommodation and might indicate that some groups of workers receive a more favorable treatment for accommodation than others.

6.2. Effect of experience rating

6.2.1. Main difference-in-differences estimates

Now, we turn to the effect of experience rating on work accommodation. Columns 1 and 2 of table 5 report the results of the introduction of experience rating for non-permanent employees (equation 1). As there are no substantial differences in the coefficients with and without controls, we focus on the model including the controls. The point estimate of the effect of introducing experience rating is 5.30 percentage points, which would imply a 28% increase in the accommodation rate of nonpermanent employees at large firms after the reform (31.27%) compared to their expected accommodation rate in 2015 had they not been treated (24.43%). Yet, this effect is not statistically significant. The standard errors in our study are large due to our limited sample size, which means that our estimate is rather imprecise. Hence, we do not find a statistically significant effect, but we cannot rule out a large economic effect size due to limited statistical power.

Table 5, columns 3 and 4, report the results of our analysis on the removal of experience-rated partial DI premiums for permanent employees at small firms (equation 2). The inclusion of control variables in the model of column 4 does not substantially change the estimated coefficients of column 3. Hence, we focus on column 4. This shows an estimated decrease of 4.08 percentage points in the likelihood of being accommodated when the employer no longer has to pay experience-rated partial DI premiums. Again, the point estimate implies a relatively large economic effect, albeit slightly smaller (in absolute terms) than the effect of introducing experience rating to nonpermanent employees. This could be because the estimated effect here is only the employer's response to the reduced future threat of increased experience-rated partial DI premiums should the worker move into DI. The previous effect also included the response to the immediate threat of increased sick leave premiums next to the increased future threat of increased sick leave premiums. However, the estimate is not statistically different from zero and the statistical power is again low.

Our results should not lead us to conclude that experience rating is generally not effective in increasing accommodation efforts by employers. We focus on sick-listed workers who have been sick for at least nine months already. It could be that employers do not expect any fruitful reduction in sick leave duration or DI inflow from accommodation for this group and that they therefore are not incentivized to accommodate more. For other types of workers, for instance, workers on the verge of becoming sick-listed or newly sick-listed workers, experience rating might be an effective instrument. This would be in line with the studies that find a negative effect of experience rating on sick leave or DI inflow (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), signaling that experience rating effectively increased accommodation efforts. Yet, other studies (for instance, Koning et al. (2022) and De Groot and Koning (2016) in their analysis on the re-introduction of experience rating) have found no significant impact of experience rating on DI inflow, for

	Sample			
	Non-perm.	Non-perm.	Perm.	Perm.
	Dependent va	ariable		
	accom	satisfaction	accom	satisfaction
Employment contract				
(base = temporary)				
Agency contract	-0 1245***	0.1050*		
Agency contract	(0.0225)	(0.0574)		
Worker abaractoristics	(0.0223)	(0.0574)		
Fomala	0.0016	0.0408	0.0141	0.0277***
Tennale	(0.0180)	(0.0387)	(0.0000)	(0.0000)
Mignotion healtonound	(0.0180)	(0.0387)	(0.0090)	(0.0099)
Migration background	0.0010	-0.0777^{*}	-0.0134	-0.0200°
A = a a a a (b = a a - 26.55)	(0.0198)	(0.0430)	(0.0129)	(0.0144)
Age class (base = $50-55$)	0.0142	0.0592	0.020(***	0.0150
18-55	0.0143	0.0582	0.0396***	-0.0150
54.40	(0.0196)	(0.0390)	(0.0124)	(0.0151)
56-60	-0.0219	-0.0388	-0.0153	0.0123
<pre>// /=</pre>	(0.0256)	(0.0580)	(0.0108)	(0.0115)
61-67	-0.0488	-0.1268	-0.0734***	0.0449***
	(0.0388)	(0.1049)	(0.0160)	(0.0160)
Education level				
Low	-0.0128	0.0524	-0.0522***	0.0056
	(0.0184)	(0.0414)	(0.0105)	(0.0110)
High	0.0720***	0.0985**	0.0151	-0.0146
	(0.0253)	(0.0469)	(0.0100)	(0.0114)
Disability type				
Musculoskeletal	-0.0150	-0.0807*	0.0008	-0.0540***
	(0.0189)	(0.0412)	(0.0107)	(0.0118)
Psychological	-0.0275	-0.1394***	-0.0082	-0.1065***
	(0.0185)	(0.0410)	(0.0105)	(0.0120)
Heart/vascular	-0.0666**	-0.1569**	-0.0313**	0.0281**
	(0.0271)	(0.0737)	(0.0141)	(0.0132)
Other	-0.0068	-0.0503	-0.0593***	0.0098
	(0.0197)	(0.0420)	(0.0103)	(0.0114)
Firm characteristics				
Opted out of public	0.1197***	-0.0706		
sick leave insurance	(0.0341)	(0.0663)		
<i>Firm sector (base = industry)</i>	· · · ·			
Transport	-0.0532	0.0300	-0.0267	-0.0433*
I	(0.0368)	(0.0806)	(0.0209)	(0.0226)
Trade	0.0071	-0.0335	-0.0218	-0.0336*
	(0.0337)	(0.0681)	(0.0166)	(0.0174)
Services	-0.0269	-0.0022	-0.0313**	-0.0092
Services	(0.0286)	(0.0623)	(0.0145)	(0.0150)
Public	0.0485	-0.0173	0.0059	-0.0288**
1 done	(0.0328)	(0.0660)	(0.0125)	(0.0133)
Firm size (base - medium)	(0.0520)	(0.0000)	(0.0125)	(0.0155)
Small			-0.0446***	-0.0080
Sman			(0.0127)	(0.0136)
Larga			(0.0127)	0.0130)
Large			(0.0020)	(0.0008)
Wave dummies			(0.0009)	(0.0090)
Wave 2 (2012)	0 1220***	0 2729***	0.0005	0 1002***
wave 2 (2012)	$-0.1220^{-0.1}$	-0.2730^{+++}	(0.0095	-0.1003
$W_{0,VO} = 2(2015)$	(0.0210)	(0.0421)	(0.0102)	(0.0110)
wave 5 (2015)	-0.1213***	-0.23/0***	0.0090	-0.0942***
Constant	(0.0243)	(0.0492)	(0.0101)	(0.0109)
Constant	0.4219***	0.8208***	0.83/0***	0.9264***
	(0.0371)	(0.0759)	(0.0172)	(0.0180)
Observations	2000	770	0.556	7 166
Observations	2.908	//8	9.000	7.400

Table 4: Determinants of the rate of and the satisfaction with work accommodation

Notes: This table reports the regression coefficients of a pooled OLS on being accommodated by the employer in the sample of non-permanent employees (column 1) and in the sample of permanent employees (column 3). Columns 2 and 4 report the OLS results on binary satisfaction with accommodation, conditional on being accommodated in the sample of non-permanent employees (column 2) and permanent employees (column 4). We do not use firm size as a regressor for non-permanent employees as this was not recorded in wave 1, and would therefore unnecessarily reduce the sample size. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

 Table 5: Main difference-in-differences results of the introduction and removal of experience rating

	Dependent v	ariable		
	accom	accom	accom	accom
	Sample			
	Non-perm.	Non-perm.	Perm.	Perm.
After	0.0217	0.0258	0.0078	0.0114
	(0.0360)	(0.0363)	(0.0136)	(0.0156)
Large firm	0.0083	0.0228		
	(0.0337)	(0.0350)		
After*Large firm	0.0684	0.0530		
·	(0.0510)	(0.0514)		
Small firm			-0.0592***	-0.0503***
			(0.0157)	(0.0161)
After*Small firm			-0.0284	-0.0336
			(0.0275)	(0.0276)
Constant	0.2143***	0.2911***	0.8080***	0.8775***
	(0.0240)	(0.0541)	(0.0081)	(0.0223)
0 + 1	NT	37	NT	V
Controls	NO	res	INO	Yes
2008 included	No	No	Yes	Yes
Observations	1 145	1 145	5 161	5 161

Notes: The first two columns report the difference-in-differences 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 difference-in-differences result on the effect of the removal of experience rating (equation 2), using the sample of per*manent* 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 4, 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 4, 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.

which we now provide a potential explanation: experience rating may not always be effective in incentivizing employers to better support *all* types of employees.

In general, a potential reason behind ineffective accommodation could be that firms are not aware of the potential consequences of experience rating on their premiums, also because the system is complex. Koning (2009) finds that Dutch firms are generally unaware of the impact of experience rating, and, based on his result that DI inflow decreases substantially only after increases in experience-rated premiums, argues that firms only improve their accommodation efforts after they have become aware of the consequences.

6.2.2. Parallel trend

To inspect the parallel trend assumption of our differencein-differences analysis, we plot the pre-treatment trends and perform a placebo test on our sample of permanent employees at large and small firms. In figure 1, the average accommodation rates of permanent employees at small and large firms seem to follow the same trend between 2008 and 2012, whereas they diverge after the reform: the accommodation rate at treated Figure 1: Work accommodation rate trends of permanent employees



Notes: This figure displays the average accommodation rate of permanent employees at large versus small firms in the three waves. ER stands for experience rating.

firms increases whereas it decreases at the control firms. Table 6 reports the estimates of the placebo test. The estimate of the placebo treatment indicator (Wave 2012*Large 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 and small firms.

6.2.3. Robustness checks

We check the robustness of our difference-in-differences results in a variety of ways. First of all, in our main analysis, we significantly reduce our sample size by excluding employees employed at medium-sized firms. To verify that our results are not driven by this decision, we include them in our first robustness check. In table A.8 employees at medium-sized firms are included as a separate treatment group in a multi-valued difference-in-differences analysis. This analysis is the same as our main difference-in-differences analyses, except for the inclusion of this separate treatment group. The first two columns represent non-permanent employees, while the last two columns include permanent employees. For both non-permanent and permanent employees, the treatment estimates remain quite stable. The point estimates of the effect of introducing or removing *partial* experience rating as a separate treatment are much smaller than that of full experience rating, which intuitively also makes sense as the incentive is weaker. Overall, the inclusion of medium firms does not change our results, but we do have some indication that only a partial removal or introduction of experience rating has less effect than a full one. However, this must be interpreted with caution: when we check for the parallel trend assumption for permanent employees at medium-sized firms, it does not seem to be valid, as shown in figure A.2.

A second concern might be that the two types of non-permanent

Table 6: Placebo test difference-in-differences model permanent employees

	Dependent va	ariable	
-	accom	accom	
	Sample		
-	Perm.	Perm.	
Wave 2 (2012)	0.0034	0.0083	
Mare 2 (2012)	(0.0163)	(0.0162)	
Wave 3 (2015)	0.0094	0.0139	
	(0.0157)	(0.0161)	
Small firm	-0.0548***	-0.0431**	
	(0.0206)	(0.0208)	
Wave 2*Small firm	-0.0104	-0.0171	
	(0.0320)	(0.0316)	
Wave 3*Small firm	-0.0329	-0.0408	
	(0.0306)	(0.0305)	
Constant	0.8064***	0.8751***	
	(0.0113)	(0.0227)	
Controls	No	Yes	
2008 included	Yes	Yes	
Observations	5,161	5,161	

Notes: This table reports the difference-in-differences 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 4, 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.

workers in our sample, agency workers and workers with a temporary contract, 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 difference-in-differences analysis on non-permanent employees by type of contract. In table A.9, the first two columns report the difference-in-differences estimates of the subsample of workers with an ending contract whereas the last two columns report those of workers with an agency contract. If anything, it seems that our pooled estimate on the effect of the introduction of experience rating on the accommodation rate of nonpermanent employees is mostly driven by agency workers, as this sample has a much larger and even significant point estimate of 25.39 percentage points. This coefficient should be interpreted with caution as the sample size drops substantively to 224 observations. Still, this finding suggests that employment agencies might be more aware of the financial consequences of experience rating than other firms because of the nature of their firm.

Another potential distortion could arise due to people who move to a different employer or who become self-employed during the sick leave period, as this can cause confusion about the firm accommodation question and changes the incentives of the employer. In table A.10 we report the main analyses when these employees are taken out of the sample. This exercise reduces the point estimates of the treatment effect to 3.59 and -2.65 percentage points for the introduction and removal of experience rating, respectively, which remains statistically insignificant while a relatively large economic effect still cannot be ruled out.

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 in table A.11. This exercise does not affect 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 model specifications that closely resemble those of Koning et al. (2022) and Prinz and Ravesteijn (2020). Koning et al. (2022) estimate the effect of experience rating on DI inflow using the same treatment and control groups on non-permanent workers and the same reform as we do. However, they 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 non-permanent employees in a difference-in-differences analysis. Table A.12 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, which differs from our previously found, insignificant but positive estimate. Two notes must be made here, however, on why this analysis is not entirely suited to our research question. Firstly, our analysis focuses on accommodation efforts of the firm as an outcome variable while stricter monitoring rules are more geared towards the employees with only indirect effects on accommodation. Secondly, the results from Table A.12 are biased due to the lack of having a fully clean control group. There have been changes to the incentives of the employers of non-permanent employees too, as experience rating was (partially) eliminated for small and medium-sized firms.

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. In table A.13 the estimates of a difference-in-differences analysis imitating their treatment and control groups are reported. We find a significant (at the 1% level) and very sizeable positive effect: 22.09 percentage points increase in the average accommodation rates of agency workers at large firms, compared to permanent workers. This coincides with our robustness check that splits the sample of non-permanent employees into agency workers and temporary workers with an ending contract. There, we also find a significant and positive effect of experience rating on agency workers. Yet, again, we think that this result should be interpreted with caution. Firstly, the sample of agency workers at large firms is very small (especially compared to the control group), and secondly, the control group is not a clean control since changes were made there, too.

To summarize, our results remain robust against a variety of robustness checks. On two occasions, our results are not the same. If we split our sample of non-permanent employees by type of contract, we find evidence that our pooled estimate on the effect of experience rating might be driven mostly by agency workers rather than temporary workers. This finding hints that firms that might be more aware of the impact of experience rating may have a stronger response to experience rating. Moreover, replicating the model specifications of existing literature (Koning et al., 2022; Prinz and Ravesteijn, 2020) does change our results, but we argue that these specifications are not suited to our research question.

6.2.4. Opting out of public sick leave insurance

Our previous analysis estimated no statistically significant effect of experience rating on non-permanent employees' accommodation rate. Yet, experience rating could also have had unintended effects on other outcomes. One, that could indirectly affect accommodation, is the choice of firms to opt out of public sick leave insurance available. As we know, employers of non-permanent employees only may opt-out and arrange the sick leave benefits and reintegration internally². This could increase accommodation efforts as the firm gains more influence over the reintegration process and it provides an even more direct incentive to properly accommodate sick employees, as the firm pays the full benefits directly. Could it be that our positive point estimate (although insignificant) has been mediated by an increased frequency of firms opting out because of the introduction of experience rating? In this subsection, we explain why the choice of opting out might be affected by experience rating and we explore whether this was a mediating factor.

Conceptually, experience rating provides an incentive for firms to opt out of public sick leave insurance for non-permanent employees due to a misalignment between the party responsible for the reintegration process (the Employee Insurance Agency) and the party whose premiums depend on the quality of the reintegration process (the firm) (Groenewoud et al., 2015). If a firm is publicly insured for sick leave, the firm pays experience-rated premiums. Yet, the Employee Insurance Agency is responsible for the reintegration process and most likely has the most influence (besides the employee) on whether the employee can return to work and therefore on the experience-rated premiums. Firms can circumvent the influence of the Employee Insurance Agency's behavior on their premiums opting out of the public system and arranging the benefits and reintegration internally. This factor might be especially important for low-risk firms, i.e., firms relatively good at accommodating. For lowrisk firms, internally arranged accommodation efforts may be more effective than those of the Employee Insurance Agency. Groenewoud et al. (2015) showed that in their sample of 418 employers of non-permanent employees 65% of the firms who opted out of the public sick leave insurance right after the BeZaVa was introduced mentioned that the reason to opt out was betterexpected reintegration results. Hence, we expect that the introduction of experience rating has caused more firms to opt out of public sick leave insurance.

Table 7: Difference-in-differences results on opting out after the reform and difference-in-differences results on accommodation excluding firms that opt out

	Dependent v	ariable		
	opted out	opted out	accom	accom
	Sample			
	Non-perm.	Non-perm.	Non-perm.	Non-perm.
After	0.1520***	0.1654***	0.0121	0.0107
	(0.0227)	(0.0231)	(0.0375)	(0.0376)
Large firm	0.0000	-0.0183*	0.0083	0.0226
	(.)	(0.0098)	(0.0337)	(0.0352)
After*Large firm	0.2707***	0.2783***	0.0391	0.0106
-	(0.0369)	(0.0363)	(0.0562)	(0.0573)
Constant	-0.0000	0.0173	0.2143***	0.3223***
	(.)	(0.0323)	(0.0240)	(0.0565)
Controls	No	Yes	No	Yes
2008 included	No	No	No	No
Observations	1,145	1,145	984	984

Notes: Columns 1 and 2 report the difference-in-differences analysis, with being employed at a firm that opted out as dependent variable. The control group consists of non-permanent employees at small firms and treatment of non-permanent employees at large firms. Columns 3 and 4 exclude the non-permanent employees who are employed at a firm that opted out of public sick leave insurance in 2015 from the analysis of equation 1, i.e., the difference-in-differences analysis on the introduction of experience rating for non-permanent employees. The dependent variable is self-reported binary employer accommodation. The controls are the same as column 1 of table 4, 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). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

To inspect whether our result is mediated by opting out, we proceed in two steps. Firstly, we perform a difference-indifferences analysis on the effect of experience rating on the likelihood of being employed at a firm that opted out, with nonpermanent employees at large firms as treatment group and at small firms as control group. 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). Still, we cannot claim full causality as it could be that the distribution of firms that opted out in 2012 in our sample differed from the Dutch firm population. We also cannot assess the parallel trend assumption. Table 7, column 1 shows the estimated, statistically significant, treatment effect of the introduction of experience rating of 28 percentage points. Hence, it appears likely that experience rating increased the number of firms that opt out of public sick leave insurance.

Secondly, we analyze whether our estimate of the effect of experience rating on the likelihood of accommodation depends on observations from employers who opted out after the reform. We redo the main analysis from equation 1 but we exclude these observations from the sample after the reform, as we only have data on opting out after the reform. The previous point estimate of 5.30 percentage points almost completely vanishes to 1.06 percentage points and remains insignificant. This indicates that our previous point estimate is driven by firms who opt out of public sick leave insurance. Therefore, we deem it plausible

²For partial DI, employers may also opt out for permanent employees. Yet, we do not have data on opting out of public partial DI, so we do not study any potential effects on opting out of partial DI.

that the positive sign of our main result is driven by an increased frequency of opting out of public insurance, which is associated with higher accommodation rates, caused by the introduction of experience rating.

Experience rating yielding more firms to opt out is also associated with higher accommodation efforts (although our analysis does not prove a causal relation as it could also be a selection effect of low-risk firms being more likely to opt out). However, it could lead to mostly high-risk firms remaining in the public sick leave insurance system when mostly low-risk firms opt out, increasing the financial pressure on the public market.

7. Conclusion

The employment rate of disabled individuals within OECD countries is still substantially lower than that of individuals without disability, while public spending on sickness and disability amounts to a substantial part of GDP (OECD, 2022, 2023). Employers can alleviate these concerns by fostering a disability-inclusive workplace to improve the labor market prospects of disabled workers. Our paper studies the effect of extending a government-mandated employer incentive (experience rating) to non-permanent employees on the work accommodation efforts provided by the employer to long-term sick-listed employees.

We find that shifting the costs of sick leave and partial DI towards or away from the firm through experience rating has no statistically significant effect on employer accommodation of nine-month sick-listed employers for both non-permanent and permanent contracts. We cannot, however, rule out substantial economic effect sizes on accommodation due to our imprecise estimation. For non-permanent employees, the positive sign appears to be largely driven by respondents whose employer opted out of public sick leave insurance after the reform. In addition, we find that of the firms that were affected by the reform (large firms), significantly more opted out of public sick leave insurance after the reform. Hence, we expect that the estimated treatment effect on work accommodation is mediated by firms opting out of public insurance due to the introduction of experience rating. Finally, we find some striking results considering the determinants of accommodation. Non-permanent employees are much less frequently accommodated by their employers, but the factors associated with the accommodation of nonpermanent and permanent employees are mostly similar.

Our findings have several implications for countries that deal with firm moral hazard, i.e., the disincentive to provide help to sick-listed workers within their sick leave or DI system. The results do not point to the desired effect of experience rating on the accommodation rate of long-term sick-listed workers. It is thus questionable whether the employer responsibility should extend to long-term sick-listed workers where the severeness of disability might alter the effectiveness of accommodation. Further research is needed to assess whether experience rating did increase preventive accommodation efforts or reintegration measures for short-term sick-listed workers.

In addition, the ineffectiveness of experience rating might also be due to a lack of awareness, so that measures to improve the awareness of firms could also be considered. Moreover, our findings show that those firms that opted out are likely to be more prone to accommodate, suggesting some discontent with the public reintegration process. It might be worth considering replacing a system where firms are financially responsibility via experience rating whereas reintegration is organized by the public hands. Handing both over to the firms seems warranted. Finally, we advise that policymakers take our results on the determinants of accommodation seriously, as they seem to indicate that not every employee has the same chance of being accommodated.

Appendix A. Tables robustness checks

Table A.8: Robustness che	eck: including	medium-sized fir	m
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	5 1		
	Dependent v	ariable	
	accom	accom	
	Sample		
	Non-perm.	Perm.	
Δ fter	0.0229	0.0157	
Alter	(0.022)	(0.0137)	
Medium firm	0.0643**	-0.0150	
	(0.0299)	(0.0109)	
After*Medium firm	0.0099	-0.0005	
	(0.0459)	(0.0187)	
Large firm	0.0212		
e	(0.0340)		
After*Large firm	0.0452		
-	(0.0509)		
Small firm		-0.0481***	
		(0.0158)	
After*Small firm		-0.0352	
		(0.0275)	
Constant	0.2988***	0.8501***	
	(0.0425)	(0.0173)	
Controls	Yes	Yes	
2008 included	No	Yes	
Observations	2,186	9,556	

Notes: This robustness check adds a second treatment for medium-sized firms in equation 1 (column 1) and in equation 2 (column 2). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

Figure A.2: Work accommodation rate trends of permanent employees including medium-sized firms



Notes: This figure displays the average accommodation rate of permanent employees, including respondents at medium-sized firms. ER stands for experience rating.

Table A.10: Robustness check: removing employees who got a new employer or became self-employed

	Dependent variable		
	accom accom		
	Sample	uccom	
	Non-perm.	Perm.	
After	0.0245	0.0043	
	(0.0384)	(0.0156)	
Large firm	0.0360		
-	(0.0367)		
After*Large firm	0.0359		
C	(0.0544)		
Small firm		-0.0475***	
		(0.0163)	
After*Small firm		-0.0265	
		(0.0277)	
Constant	0.2924***	0.8724***	
	(0.0573)	(0.0224)	
Controls	Yes	Yes	
2008 included	No	Yes	
Observations	998	5,016	

Table A.9: Robustness check: subsamples of non-permanent employees

	Dependent variable		
	accom	accom	
	Sample		
	Temporary	Agency	
After	0.0281	0.0191	
	(0.0394)	(0.1000)	
Large firm	0.0614	-0.0646	
	(0.0419)	(0.0656)	
After*Large firm	-0.0012	0.2539**	
	(0.0583)	(0.1248)	
Constant	0.2661***	0.2900	
	(0.0583)	(0.3060)	
Controls	Yes	Yes	
2008 included	No	No	
Observations	921	224	

Notes: This table reports the results from equation 1 conducted on the two subsamples of non-permanent employees: temporary workers (column 1) and agency workers (column 2). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1. *Notes:* This robustness check reports the results from equation 1 (column 1) and 2 (column 2) but excludes workers who indicate that they got a new employer or became self-employed during sick leave. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A.11: Robustness check: removing non-permanent workers who	received
a permanent contract during the sick leave period	

	Dependent variable	
	accom	
	Sample	
	Non-perm.	
After	0.0269	
	(0.0364)	
Large firm	0.0261	
	(0.0349)	
After*Large firm	0.0512	
-	(0.0516)	
Constant	0.2802***	
	(0.0540)	
Controls	Yes	
2008 included	No	
Observations	1,139	

Notes: This table reports the results from equation 1 but excludes nonpermanent employees who received a permanent contract during sick leave. Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1. Table A.12: Robustness check: Replicating Koning et al. (2022): comparing non-permanent employees to permanent employees

	Dependent variable	
	accom	
	Sample	
	Non-perm and perm	
After	0.0045	
	(0.0088)	
Non-perm.	-0.4865***	
	(0.0121)	
After*Non-perm.	-0.0068	
	(0.0197)	
Constant	0.8325***	
	(0.0145)	
Controls	Yes	
2008 included	No	
Observations	12,524	

Notes: This table reports the results of a difference-in-differences analysis that uses the same treatment (non-permanent employees) and control group (permanent employees) as Koning et al. (2022). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A.13: Robustness check: Replicating Prinz and Ravesteijn (2020): comparing agency workers at large firms to permanent employees

	Dependent variable
	accom
	Sample
After	0.0052
	(0.0089)
Agency at large firm	-0.6729***
	(0.0318)
After*Agency at large firm	0.2209***
	(0.0727)
Constant	0.8420***
	(0.0158)
Controls	Yes
2008 included	No
Observations	9,702

Notes: This table reports the results of a difference-in-differences analysis that uses the same treatment (agency workers at large firms) and control group (all permanent employees) as Prinz and Ravesteijn (2020). Heteroskedasticity-robust standard errors are reported in parentheses. Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

Appendix B. Sample selection and cleaning

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 2015³).

Finally, 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.

Appendix C. Time trend of satisfaction with accommodation

Figure C.3: Satisfaction with accommodation trends of permanent employees



Notes: This figure displays the average rate of satisfaction with the provided accommodation of permanent employees at large and small firms, excluding respondents who were not accommodated. ER stands for experience rating. The figure shows a non-parallel trend before the reform.

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