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Abstract

Workers who become work-incapacitated may either change employer or stay with their current employer in an accommodated job. This paper studies the effect of these two adaptation strategies on long-term sick-listed workers' employment durations. We use combined survey and register data consisting of 809 workers who were continuously sick-listed more than eight weeks. Using a joint proportional mixed hazard rate model, we simultaneously estimate the duration until returning to work (in an accommodated job with the current employer, in a non-accommodated job with the current employer, or in a job with a new employer) and the duration of the subsequent employment. To identify the effect of accommodations and job change, we use the timing-of-event approach, i.e. assuming that the sick-listed workers cannot anticipate the exact timing of job accommodations and change of employer. We find that workplace accommodations increase subsequent employment durations with the current employer. We also find that sick-listed workers returning to work with a new employer have significantly shorter employment durations than workers returning to work with the current employer in an accommodated job.

1. Introduction

Illness and work disability warrant great concern among decision makers and researchers because of the negative consequences. At the societal level, ill health reduces the labour supply (Berkowitz and Johnson, 1974) and impounds considerable resources to the financing of social security benefits. As a consequence, decision makers have devoted much energy to finding ways of increasing the labour market attachment of people with ill health.

While some workers acquiring a work-limiting health problem remain in their job without changing job conditions, many workers change job conditions through either workplace accommodations or a job change (Daly and Bound, 1996; Campolieti, 2009). This paper studies how these two responses influence the labour market attachment of long-term sick-listed workers after they resume work.

As health-related work absenteeism may arise because of a mismatch between the worker's capacities and job demands (Nagi, 1965; Verbrugge and Jette, 1994), policies affecting the supply-side or the demand-side may reduce work absenteeism. Supply-side policies include vocational rehabilitation programs with measures like education and job training that may increase the individuals' working capacity for meeting the job demands (e.g. Frölich, Heshmati and Lechner, 2004). Demand-side policies may alter employers' demand for workers with ill health by subsidizing employers or mandating them to hire or accommodate workers with health problems (e.g. Burkhauser et al., 1995). For example, many European countries have wage subsidy programs for people with disabilities, and the Americans with Disabilities Act in the United States mandates employers to provide reasonable accommodations for disabled workers.

Many economic studies have assessed factors that may reduce the labour supply of people with disabilities (for literature surveys, see Bound and Burkhauser, 1999; Currie and Madrian, 1999). In contrast, few studies have investigated conditions that influence whether workers remain in the workforce after the onset of a health condition (Burkhauser et al., 1995; Daly and Bound, 1996; Campolieti, 2005). These studies have focused on how reductions of job demands may improve the labour market attachment of disabled workers. Daly and Bound (1996) showed that job demands can be lowered through workplace accommodations or a job change. Thus after the onset of a disability the worker may either continue to work for the employer, which provides accommodations that reduce job demands, or change employer. Burkhauser et al. (1995) found that accommodations increase the employment duration of workers acquiring a disability, and Campolieti (2005) showed that certain accommodations increase the employment duration of disabled workers who successfully returned to work.

Building directly on these studies, this paper examines the effects that workplace accommodations and job change have on the employment duration of long-term sick-listed workers. We study whether workers remaining with their employer in an accommodated job after a sick leave have longer employment durations than workers who either remain with their employer in a non-accommodated job or change employer. We use survey and register data of 809 workers who were continuously sick-listed for more than eight weeks. We find that individuals remaining with their employer in an accommodated job have longer subsequent employment durations than either individuals who change employer or those individuals remaining with their employer in a non-accommodated job.

The reminder of the paper is organized as follows. The next section provides an overview of Danish disability policy. Section 3 discusses the economic literature on workplace accommodations, and Section 4 describes the data. Section 5 explains our econometric model and how we identify the treatment effect, and Section 6 presents our findings and the results of robustness checks to our empirical model. Section 7 concludes.

2. The Danish Disability Policy

While state and federal programs in the US and Canada provide income compensation for work injured people and permanently work incapacitated people, these countries do not have publicly financed programs for people who are temporary work incapacitated because of circumstances unrelated to work. In contrast, most European countries have publicly financed compensation programs for both temporary working incapacity (sickness benefit) and permanently working incapacity (disability benefit). Thus in Denmark public authorities are largely responsible for the financing of sickness, disability and work injury benefits and for the efforts of integrating working incapacity people into the labour market. Employers, however, have a very modest responsibility (Høgelund, 2003).

The public sickness benefit program provides sickness benefits to workers, the self-employed and unemployed people in the unemployment insurance system. The program gives full wage compensation up to a ceiling cap that equals the maximum unemployment benefit. Workers can receive the benefit for up to 52 weeks, but the benefit period may be extended under certain circumstances, e.g. if the worker has an ongoing workers' compensation or disability benefit claim. Employers finance their workers' sickness benefits for the first three weeks, and public authorities finance the remaining period.

The municipality is obligated to perform a follow-up assessment of all sickness benefit cases within eight weeks after the first day of work incapacity. Thereafter, the municipality must perform a follow-up assessment every fourth week in complicated cases and every eighth week in uncomplicated cases. The primary goal of the assessments is to restore the sick-listed worker's labour market attachment. The assessments must take place in cooperation with the sick-listed worker and other relevant agents, such as the employer and medical experts.

To promote sick-listed workers' return to work, the municipality can establish vocational rehabilitation, including education, wage-subsidized job training, and subsidies to workplace accommodations. If return to ordinary work is impossible because of permanently reduced working capacity, the municipality may refer the sick-listed worker to a '*flexjob*', a wage-subsidized job with job tasks accommodated to the worker's working capacity and usually with reduced working hours. Depending on the reduction of the *flexjob* worker's working capacity, the wage subsidy equals either one half or two-thirds of the minimum wage as stipulated in the relevant collective agreement. If a person with permanently reduced working capacity is incapable of working in a *flexjob*, the municipality may award a disability benefit, which is financed entirely by public authorities.

In addition to the employers' limited responsibility for the financing of work incapacity benefits, their legal responsibilities are limited in other areas as well: employers have no legal obligation to accommodate sick-listed workers, and they can fairly easily dismiss workers on sick leave. The lax protection against dismissal is illustrated by a comparative study of long-term sick-listed workers in the private sector, showing that 50 per cent of Danish workers were dismissed as opposed to only 11 per cent of Dutch workers (Høgelund, 2003).

In sum, the Danish policy is characterized by employers' voluntary involvement in the labour market integration of disabled people, meaning that the establishment of workplace accommodations rests on a voluntary agreement between the employer and the sick-listed worker. This conclusion is supported by studies finding that (1) the contact between the municipalities and the current employer is very limited, (2) municipalities economically support workplace accommodations in less than two per cent of the long-term sickness spells, and (3) municipalities almost never initiate workplace accommodations for long-term sick-listed workers (Høgelund and Modvig, 1998, Høgelund et al., 2003, 2008). With respect to employers' voluntary provision of workplace accommodations the Danish policy resembles the Canadian policy but differs from policies in countries

such as the US, Sweden and the Netherlands, where employers are mandated to accommodate disabled workers.

3. Related literature

Few economic studies have investigated conditions that influence whether workers remain in the workforce after the onset of a work limiting health problem (Butler et al., 1995; Burkhauser et al., 1995; Daly and Bound, 1996; Campolieti, 2005).[1] These studies focused on how reductions of the job demands may affect the labour market attachment after the onset of a disability.

Daly and Bound (1996) demonstrated that job demands can be lowered through workplace accommodations and job changes. They found that workers who changed employer significantly more often reported a reduction in job demands than workers who remained with their employer. At the same time the fraction of workers with workplace accommodations was significantly higher among workers who remained with their employer than among workers who changed employer. These findings suggest that workers acquiring a work-limiting health condition can reduce their job demands either by changing employer or by remaining with their employer in an accommodated job.[2]

Burkhauser et al. (1995) studied 348 Americans acquiring a work-limiting health condition while they were employed. They found that accommodations increased the employment duration after the onset of the health condition by a factor of almost three. While an average worker who was accommodated had a employment duration of 7.5 years, a non-accommodated worker had a duration of 2.6 years.

Butler et al. (1995) studied 1,850 injured workers with permanent partial impairments in Ontario, Canada. Workers returning to work with modified equipment, light workloads or reduced working hours had significantly more stable labour market attachment than workers who did not have their working conditions accommodated.

Campolieti (2005) studied 5,645 permanently disabled Canadian workers who returned to work after a work injury-related absence period. Using a simple measure of whether the injured workers were accommodated, he found that accommodations did not affect the employment duration. However, this average effect masked the fact that some accommodations increased the employment duration, whereas other accommodations reduced the employment duration: flexible work schedules, modified work, and “other” types of accommodations significantly increased the employment duration, while reduced hours, special training, and light duties reduced the employment duration. The size of the accommodation estimates is much smaller than those found by Burkhauser et al. (1995). Campolieti (2005) concludes that this difference suggests that workplace accommodations may be more effective in preventing departures from employment for workers who have not previously left the workforce for health reasons than for workers who are reentering after an occupational injury (ibid.: 497).

This paper adds to this literature in several ways. First, whereas these studies estimated the effect of workplace accommodations among people with permanently reduced working capacity, we assess their effect on people who received a temporary working incapacity benefit, i.e. sickness benefit.

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[1] Many epidemiologists have studied how workplace-based interventions affect the labor market attachment of disabled workers (e.g. Loisel et al., 1997; Bernacki et al., 2000; Veerbek et al., 2002; Arnetz et al., 2003). A comprehensive systematic literature review covering studies from 1990 to 2003 found ‘strong evidence’ that workplace accommodation reduces work disability duration (Franche et al., 2005:623).

[2] Daly and Bound (1996) also found that some workers who were accommodated by their employer changed employer at a later time. This finding suggests that remaining with the employer in an accommodated job and changing employer are not mutually exclusive alternatives.

Second, the previous studies assessed the effect of workplace accommodations by comparing disabled workers who were accommodated by their employer with disabled workers who were not. By contrast, we study not only whether workplace accommodations prolong employment spells at the current employer but also whether long-term sick-listed workers who change employer have longer employment spells. The important finding of Daly and Bound (1996) – that disabled workers who changed employer more often report a reduction in job demands than workers who remain with their employer – indicates that long-term sick-listed workers changing employer may have longer subsequent employment durations than long-term sick-listed workers who remain with their employer. Yet workers starting to work for a new employer do not know whether they match the new job, an uncertainty that may reduce the employment duration.

Our data and new econometric achievements enable us to adjust for possible selection effects in a more comprehensive way than previous studies. As both observed and unobserved conditions may affect whether a disabled worker is accommodated, selection effects may bias the estimated effect of workplace accommodations on the employment duration. Using duration models, researchers may adjust for possible selection bias in several ways. One approach is to estimate a distribution of unobserved heterogeneity (e.g. van den Berg, 2001). Using this method Burkhauser et al. (1995) and Campolieti (2005) estimated a single spell duration model with individual specific random effects. However, when researchers only have information from one spell as it is the case in Burkhauser et al. (1995) and Campolieti (2005), distinguishing unobserved heterogeneity from duration dependence is impossible. Thus a decreasing hazard rate out of employment over time may reflect either that the hazard rate is indeed decreasing or that some people have unobserved characteristics that make them exit employment quickly. Therefore, the identification of unobserved heterogeneity in single-spell duration models hinges on a misspecification of the functional form of the baseline hazard rate or the functional form of the unobserved heterogeneity (van den Berg, 2001). We use information of two durations (the duration until returning to work and the subsequent employment duration), thereby improving the identification of possible unobserved heterogeneity.

Taking potential selection effects into account by modelling the process that determine the allocation of workplace accommodations is also possible. Burkhauser et al. (1995) attempted to identify unobserved selection effects with the instrumental variables approach, but their attempt failed, probably because they were lacking good instrumental variables. Our data contain information about the process determining the allocation of workplace accommodations, allowing us to identify possible unobserved selection bias. We use the timing-of-event approach to adjust for possible unobserved selection effects (Abbring and van den Berg, 2003). Assuming that the sick-listed workers cannot precisely anticipate when they return to work in an accommodated job or for a new employer, the model identifies an unbiased estimate of the effect of workplace accommodations and of changing employer on the subsequent employment duration. We discuss this model and the underlying identifying assumptions in more details in section 5.1.

4. Data and descriptive statistics

This paper uses data from a stratified representative sample of workers who were continuously sick-listed for more than eight weeks. The sample comprises 1,393 persons who ended their sick leave between January 1 and July 31, 2006.[3] The data was collected primarily to describe the municipalities' follow-up activities and their effects on the labour market attachment of the long-term sick-

[3] Using such a sampling window may lead to under-sampling of very long sick leave cases, because it is less likely that long-lasting cases end during the seven-month window than cases with a short duration end during this period. This potential bias is apparently limited. Using the same sampling scheme, when Høgelund et al. (2003) compared the distribution of the sick leave duration in the sample with the distribution in the population of all Danish sick leave cases ending during a one-year period, they found that the two distributions were similar.

listed (Høgelund, et al., 2008). The study used sick leave cases longer than eight weeks because most case management activities happen after the eighth week of sick leave and because the lion's share of sick leave spells end before the eight week. Thus the sampling procedure ensures a sufficient number of long-lasting sick leave cases where case management activities and employer-established workplace accommodations are present in the data. However, without sick leave cases shorter than nine weeks, our estimates of the effect of workplace accommodations on the subsequent employment duration may not be valid for sick-listed workers with short sick leave durations.

Using a national register of closed sickness benefit cases, we drew the sample in 39 municipalities that resample the 271 Danish municipalities for size and geographical location. We contacted the sick-listed workers during March–May 2007, on average 19 months after their first day of sick leave (and on average 10 months after payment of sickness benefit ended). We obtained telephone interviews with 987 persons, giving a response rate of 71. We exclude 101 persons who were not wage earners at the beginning of the sick leave, 71 persons with missing information on the dependent variables, and 6 persons with missing information on the covariates. The remaining 809 persons constitute our analytical sample.

We matched the survey data to register information from Statistic Denmark's 'Integrated Database for Labour Market Research' and 'the Database of Health Care Services'. These databases contain information about socio-demographic characteristics, previous labour market attachment, and the number of visits to both general practitioners and specialists before the sick leave.

Our empirical model comprises two durations. The first duration lasts from the first day of sick leave until returning to work for (1) the current employer with workplace accommodations, (2) the current employer without workplace accommodations, and (3) a new employer. We define 'work' as ordinary work or *flexjob* employment (cf. section 2). We treat sick-listed workers entering the disability benefit program as right-censored cases at the moment they are awarded disability benefit.[4] For sick-listed workers resuming work, the second duration lasts from the date of returning to work until the employment ends.

Workplace accommodations are an integrated part of *flexjob* employment. Therefore, that we do not distinguish between people returning to ordinary work and *flexjob* employment may bias the estimated effect of workplace accommodations on the employment duration. As *flexjob* employers receive a wage subsidy, they may have an economic incentive to retain *flexjob* workers despite their health problems and relatively low productivity. In contrast, sick-listed workers returning to work under ordinary conditions may face a high dismissal risk if their health problems, despite workplace accommodations, significantly reduce their productivity. Consequently, we might find that disabled individuals in accommodated jobs have longer employment durations than individuals in non-accommodated jobs, not because their jobs are accommodated but because of the wage subsidy. We return to this issue in section 6, where we estimate a model with a dummy variable for *flexjob* employment in the equation of the employment duration.[5]

We measure workplace accommodations in four questions. The respondents were asked if (and if so, when) their current employer established (1) reduced working hours, (2) a new job on ordinary conditions, (3) a new job on special and less demanding conditions, and (4) adaptations in terms of special equipment or office remodelling. To assess the effect of workplace accommodations, we estimate two models. The first model includes a dummy variable that measures whether the sick-listed worker returned to accommodated work, i.e. respondents answered yes to at

[4] As receipt of a disability benefit is an absorbing exit state preventing people from returning to work at a later point, we should estimate a random effects competing risk model with disability benefit as a fourth exit state. Unfortunately, we were unable to identify the random effect distribution for this model.

[5] Ideally, we would like to estimate a model with *flexjob* as a separate exit state. However, with only fifty-six sick-listed workers in our sample returning to work in a *flexjob*, we cannot identify the random effects distribution.

least one of the four questions. The second model comprises dummy variable for each of the four types of accommodations.[6]

Five hundred eighty-nine sick-listed workers (73 per cent) returned to work. Table 1 shows that 26 per cent returned to work for the current employer with workplace accommodations, 28 per cent returned to the current employer without workplace accommodations, and 19 percentages points returned to a new employer. In other words, 54 per cent of the sick-listed workers returned to the current employer with or without workplace accommodations, and 46 per cent of the sick-listed workers adapted to the onset of their disability by either changing employer or leaving the labour force.

Table 1
Descriptive statistics for dependent variables.

Variable	*Mean*	*Std. dev.*
Not returning to work	0.272	0.445
Returning to work with current employer in accommodated job	0.263	0.441
Returning to work with current employer without accommodations	0.279	0.449
Returning to work with new employer	0.185	0.389
Duration until returning to work with current employer in accommodated job[a)]	5.446	3.635
Duration until returning to work with current employer without accommodations [b)]	5.270	3.709
Duration until returning to work with new employer[c)]	9.967	6.442
Employment duration [d)]	4.955	4.463
Reduced working hours, current employer[e)]	0.363	0.481
New job, current employer[f)]	0.167	0.373
Light duties, current employer[g)]	0.150	0.358
Adaptations, current employer[g)]	0.132	0.338

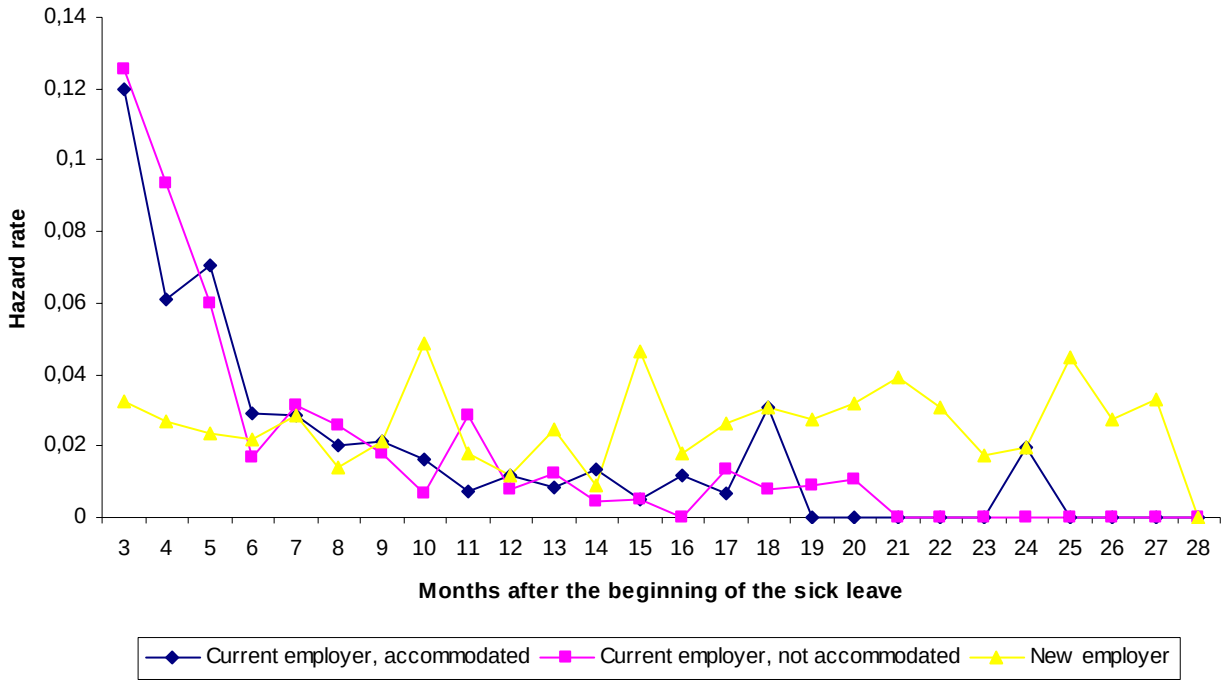
a): n = 213, b): n = 226, c): n = 150, d): n=110, e): n = 435, f): n =432 , g): n =433 , h): n = 433.

The most commonly workplace accommodation is reduced working hours (table 1). Among those who returned to work with their current employer 36 percentages had their hours reduced. The sick-listed workers less often received workplace accommodations in terms of a new job (17 per cent), a light duty job (15 per cent), or adaptations as special equipment or rebuilding of the office (13 per cent).

Figures 1 and 2, respectively, show the unadjusted hazard rates of returning to work and of ending the return-to-work employment. The probability of returning to the current employer is very high at the beginning of the sick leave spell. Thus the hazard rate of returning to both accommodated and non-accommodated work with the current employer is high during three to six months after the first day of work incapacity. From the sixth month, the hazard rate to the current employer decreases gradually until the 12th month, and hereafter it remains on a fairly constant level. The pattern of returning to work for a new employer differs from the pattern of returning to work for the pre-sick leave employer. The hazard rate to a new employer is almost constant throughout the observation period, and compared to the hazard rate to the current employer, the hazard rate to a new employer is low during the first months and high after one year. The different return-to-work patterns may mean that the sick-listed workers first try to return to work for the current employer, and only if doing so proves impossible they try finding a new employer.

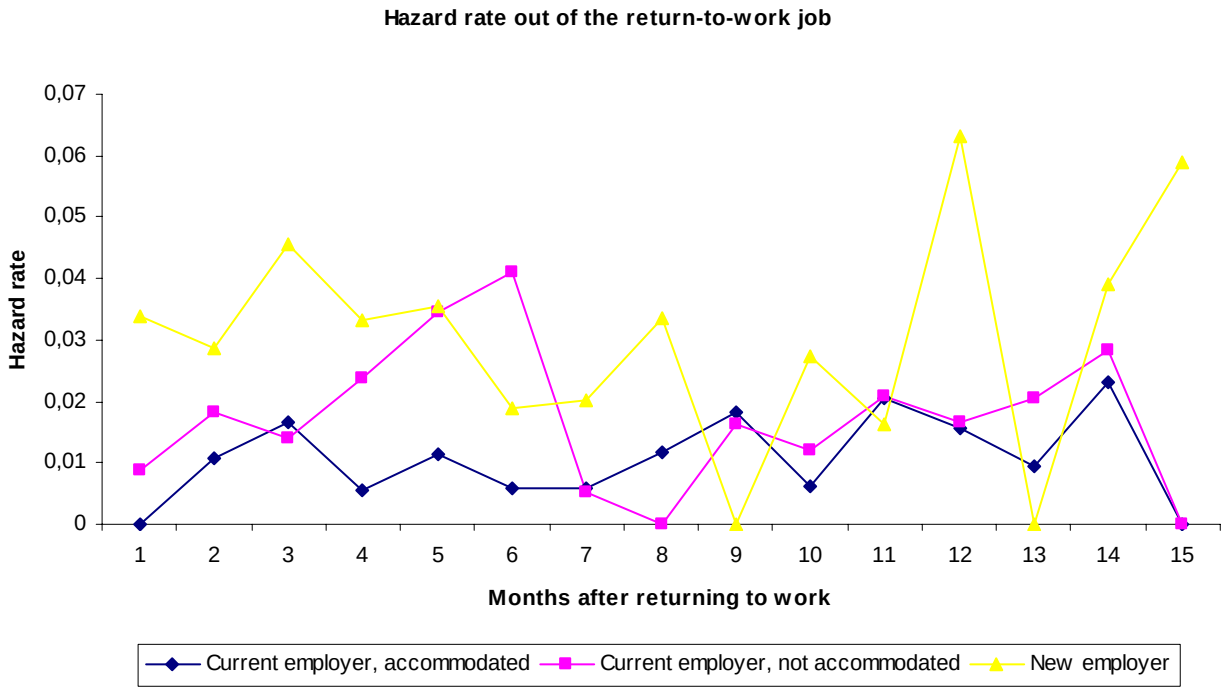
[6] Thirty persons did not answer all four accommodation questions. We include these persons in the analysis of the overall effect of workplace accommodations but exclude them from the analysis of the effect of each of the four accommodations.

Figure 1



Hazard rate to work in an accommodated job for the current employer, to work in a non-accommodated job for the current employer, and to work for a new employer.

Figure 2



Hazard rate out of the return-to-work job for sick-listed workers returning to work for the current employer in accommodated jobs, in non-accommodated jobs, and for sick-listed workers returning to work for a new employer.

Figure 2 indicates that workplace accommodations may prolong employment durations. Thus during the first six months after returning to work for the current employer, individuals in accommodated jobs have a lower hazard rate out of employment than individuals in non-accommodated jobs. Furthermore, Figure 2 indicates that sick-listed workers who change working conditions because they change employer have shorter employment durations than sick-listed workers who change working conditions at the current employer.

4.1 Explanatory variables

We include two health measures and eight socio-demographic covariates in the analysis. One health measure is a dummy variable that equals 1 if the worker was sick-listed because of mental health problems, and 0 in all other cases. Another variable measures the number of visits to general practitioners the year preceding the current sick leave.[7]

The socio-demographic covariates comprise sex, age, cohabitation status, educational attainment, seniority in current job, number of workers in the current company, and a dummy variable that equals 1 if the current company is publicly owned and 0 in all other cases. We measure age in a continuous variable and in a dummy variable indicating whether the sick-listed worker was above 57 years at the beginning of the sick leave. We include the dummy variable to capture that sick-listed workers close to the 60-year age limit for early retirement scheme may have a very low probability of returning to work.

We also include a measure of previous employment experience (years employed since 1964) in the equation of the employment duration. We assume that previous employment experience is a measure of general labour market skills and, therefore, that the variable significantly increases the employment duration of the sick-listed workers returning to work with a new employer. In contrast, we assume that company specific skills, measured by the seniority variable, only affects the employment duration of sick-listed workers returning to work with their current employer. We also have information on general work experience. However, as this variable is highly correlated with age and firm-specific seniority, empirically it turns out not to add any further information on return to work durations and is left out of the final analysis for statistical efficiency reasons. Similarly, to improve the estimation efficiency of the equation of the employment duration, we exclude other highly insignificant from this equation, i.e. with a p-value over 0.500.

The variables are as follows: type of health problem, seniority, and number of workers are survey variables, and the other variables are based on register data. Table 2 displays descriptive statistics of the explanatory variables.

[7] We included a similar measure, the number of visits to issues the year before and the current sick leave, in preliminary versions of our model. As the variable did not significantly contribute to the estimation of the outcome variables, we excluded the variable from the estimations.

Table 2 Descriptive statistics for explanatory variables.

	Accommodated, current employer		Not accommodated, current employer		New employer		Not returning to work	
Variable	*Means*	*Std. dev*	*Means*	*Std. dev*	*Means*	*Std. dev*	*Means*	*Std. dev*
Female (yes=1)	0.653	0.477	0.650	0.478	0.673	0.471	0.614	0.488
Age	34.911	17.985	34.580	18.997	38.313**	11.679	34.968	18.449
Living with spouse (yes=1)	0.798**	0.402	0.827***	0.379	0.680	0.468	0.705	0.457
Primary education [a)] (yes=1)	0.221***	0.416	0.265***	0.443	0.320**	0.468	0.436	0.497
Secondary education[a)] (yes=1)	0.432	0.497	0.420	0.495	0.400	0.492	0.405	0.492
Postsecondary education[a)] (yes=1)	0.347***	0.477	0.314***	0.465	0.280***	0.451	0.159	0.367
Visits to general practitioner in the year before the sick leave	8.230	7.486	8.177	7.411	9.487	7.672	9.227	8.209
Mental illness (yes=1)	0.244	0.431	0.257	0.438	0.473***	0.501	0.291	0.455
Previous employment experience since 1964 (years employed)	20.140**	9.115	21.482***	9.935	14.204***	9.138	17.955	10.414
Seniority in months[b)]	153.159*	116.704	157.878**	141.091	72.686***	89.626	129.312	137.173
Company size (number of workers)[c)]	167.905	619.375	172.847	679.592	62.079**	122.665	142.580	375.653
Public sector company (yes=1)	0.559*	0.498	0.562*	0.497	69.293	88.837	0.477	0.501

Note: Calculations based on 213 (accommodated job), 226 (non accommodated job), 150 (new employer), and 220 individuals (not returning to work). Asterisks mark significant deviation from "Not returning to work" at a 1% level (***), 5% level (**), and 10% level.

a): Primary education covers the compulsory school period, i.e., nine years of basic school, and other preparatory schooling such as high school. Secondary education includes all terminal educations (preparing the students for entry directly into working life) except university degrees. Postsecondary education includes all types of university degrees.

b): Excluding 32 observations with missing values.

c): Excluding 56 observations with missing values.

5. The Econometric Model

Workers returning to work with their current employer in an accommodated job may differ from workers resuming work with their current employer in a job without accommodations. Similarly, workers returning to work with a new employer may differ from workers returning to work with their current employer. If these differences are unobserved and have a bearing on the subsequent employment duration, we cannot immediately identify the causal effect of workplace accommodations and change of employer on the employment duration. To correct for possible selection effects, we estimate a distribution of unobserved heterogeneity and employ the timing-of-event approach (Abbring and van den Berg, 2003). We describe the timing-of-event approach in section 5.1.

We use a discrete mixed proportional hazard rate model (van den Berg, 2001) to simultaneously estimate two events. One equation models the sick-listed workers' hazard of returning to work either with the current employer in an accommodated job, with the current employer in a non-accommodated job, or with a new employer. This equation corresponds to a series of multinomial logit model across time periods of duration, with three exit states for each time period. For those returning to work, another equation models the hazard of ending this particular employment spell. This equation corresponds to a binary logit model across time periods of new employment. The unobserved heterogeneity is captured by a discrete distribution with a finite number of mass points. This is a common approach in multivariate duration models (see e.g. Van den Berg et al. 2002). This procedure allows the random effects of the two durations to be dependent without imposing assumptions about the structure of the dependence.

We model two durations. One duration until returning to work, denoted t_1, and subsequently one duration of re-employment, denoted t_2.

The equation of the hazard of returning to work, t_1, is given by:

$$P(D_1(t_1)=d_1(t_1))=\frac{\sum_{j=1}^{j=3}\exp\left(\delta_{1jt_1}+\beta_{1j}x_{1j}+\varepsilon_{1j}\right)^{1(d_1(t_1)=j)}}{1+\sum_{j=1}^{j=3}\exp\left(\delta_{1jt_1}+\beta_{1j}x_{1j}+\varepsilon_{1j}\right)} \qquad (1)$$

where t_1 is the time after the first day of the sick leave measured in months and where:

$$d_1(t_1)=\begin{cases}1 & \text{if returning to accommodated work with the current employer in period } t_1\\ 2 & \text{if returning to non-accommodated work with the current employer in period } t_1\\ 3 & \text{if returning to work with a new employer in period } t_1\\ 0 & \text{otherwise}\end{cases}$$

And where $1(.)$ is a Boolean operator equaling one when the term inside the brackets is true and zero otherwise.

In addition, x_{1j} is a vector of variables affecting the hazard rate of returning to accommodated work *(j =1)*, non-accommodated work *(j=2)* and to a new employer *(j=3)*, and $\beta_{1j}; j=1,2,3$ is a corresponding row vector of regression coefficients. The parameter $\delta_{1jt_1}; j=1,2,3$ are time-specific intercept terms measuring duration dependence in the hazard rate to work, and ε_{1j} are destination specific unobserved random effects. We assume that the unobserved heterogeneity is independent of observed variables and time invariant.

The equation of the hazard of ending the employment after returning to work is given by:

$$P(D_2(t_2)=d_2^{t_2})=\frac{\exp\left(\delta_{2t_2}+\gamma_1 1\left(d_1(t_2=0)=1\right)+\gamma_2\left(d_1(t_2=0)=3\right)+\beta_2 x_2+\varepsilon_2\right)^{d_2(t_2)}}{1+\exp\left(\delta_{2t_2}+\gamma_1 1\left(d_1(t_2=0)=1\right)+\gamma_2\left(d_1(t_2=0)=3\right)+\beta_2 x_2+\varepsilon_2\right)} \tag{2}$$

where:

$$d_2\left(t_2\right)=\begin{cases}1 & \text{if ending the employment in period } t_2\\ 0 & \text{otherwise.}\end{cases}$$

and x_2 are observed variables with β_2 as the two corresponding row vectors of regression coefficients. The coefficient γ_1 measures the effect of having returned to work with the current employer in an accommodated job on the hazard rate out of employment. Similarly, γ_2 captures the effect of having returned to work with a new employer. The parameter δ_{2t_2} is a time-specific intercept term measuring duration dependence in the hazard rate out of the employment, and the coefficient ε_2 measures the unobserved effects in the hazard rate.

Following Heckman and Singer (1984) for the univariate case and van den Berg et al. (2002) for the multivariate extension, we assume that $\varepsilon_{11},\varepsilon_{12},\varepsilon_{13},\varepsilon_2$ takes on a finite number of values (mass points), the first being (0,0,0,0) and subsequently $\left(\bar{\varepsilon}_{111},\bar{\varepsilon}_{121},\bar{\varepsilon}_{131},\bar{\varepsilon}_{12}\right),\left(\bar{\varepsilon}_{112},\bar{\varepsilon}_{122},\bar{\varepsilon}_{132},\bar{\varepsilon}_{22}\right),\ldots.$ The mass points are distributed with probability $p_{0,0,0,0}$ $p_{\bar{\varepsilon}_{111},\bar{\varepsilon}_{121},\bar{\varepsilon}_{131},\bar{\varepsilon}_{12}}$, $p_{\bar{\varepsilon}_{112},\bar{\varepsilon}_{122},\bar{\varepsilon}_{132},\bar{\varepsilon}_{22}}$,…., with $\Sigma_j p_{\bar{e}_{11j},\bar{e}_{12j},\bar{e}_{13j},\bar{e}_{2j}}=1$. Both mass points and probabilities are estimated as parameters in the likelihood function. Assuming a finite number of mass points, see Frühwirt-Schnatter (2006), standard likelihood regularity conditions holds.

Denoting the multivariate discrete duration until returning to regular working hours or censoring as T_{1i} and the subsequent duration of employment, T_{2i} we calculate the individual contribution to the log-likelihood function as:

$$\ln L_i=\ln\left[\sum_{j=1}^{j=J} p_{\bar{e}_{j1},\bar{e}_{j2}}\prod_{t_1=1}^{T_{1i}} P\left(D_1(t)=d_1\mid\bar{e}_{j1}\right)^{1-d_2^{t_1}}\times\prod_{t_1=1}^{T_{2i}} P\left(D_2(t)=d_2\mid\bar{e}_{j2}\right)\right] \tag{3}$$

This likelihood is optimized with respect to the regression parameters in the two logit models for the time until returning to work and the time until ending the employment after returning to work, and with respect to the parameters of the discrete mixture distribution of unobserved random effects. By allowing the random effects to be correlated, the model jointly determines the selection to returning to work (with the current employer in an accommodated job and with a new employer) and the selection out of employment after returning to work. Doing so allows us to take into account potential selection effects because we condition upon them in the model, meaning that the estimates of workplace accommodations and new employer have a causal interpretation.

5.1 Identification

Researchers often use the instrumental variables method to identify an unbiased treatment effect. However, this method is difficult to use in this analysis, because the variables that have an impact on whether the sick-listed workers receive workplace accommodations or change employer also appear to have an impact on the subsequent employment duration.

Instead of the instrumental variables method, we use the timing-of-event approach. Abbring and van den Berg (2003) show that if individuals cannot anticipate the exact timing of the treatment, the joint mixed proportional hazard rate model of both the duration until the treatment and the event of interest yields an unbiased estimate of the treatment effect. In such a model the information about variation in the timing of both the treatment and the realization of the outcome is sufficient to measure the treatment effect without bias.

In our setting, the no-anticipation assumption means that the workers, at the moment they become work incapacitated, are unable to foresee exactly when they will return to work either with their current employer in an accommodated job or to work with a new employer. First, it seems unlikely that sick-listed workers who eventually will be sick-listed for more than eight weeks should be able to forecast their health status with such precision that they a priori know when they resume work. Second, the workers by themselves cannot establish workplace accommodations. Thus, even if the sick-listed workers could foresee when they were able to return to work, they need the employer's cooperation to be able to establish workplace accommodations. Similarly, sick-listed workers will not return to work with a new employer until they have received a job offer, something that does not normally happen at the very beginning of a sick leave. Figure 1 shows that the hazard rate to work with a new employer supports this argument. The figure thus shows that many transitions to work with a new employer happen several months after the first day of work incapacity, making it unlikely that the sick-listed worker should know exactly when this employment will begin.

6. Findings

Table 3 shows the estimates of the simultaneously estimated hazard rate model of returning to work and of ending the employment after returning to work. In the model, we include a dummy variable measuring whether the workers returning to work for the current employer received an accommodation. A positive coefficient implies a positive effect on the hazard rate and a negative effect on the duration. Column 2, 3 and 4 contain the estimates of the hazard rate model of returning to work either with the current employer in an accommodated job, the current emloyer in a non-accommodated job, or a new employer. Column 5 depicts the estimates of the hazard rate model of ending the employment, after the sick-listed workers have resumed work.

Table 3 Hazard rate model of returning to work and of ending employment after returning to work

	Returning to work with:			
Variable	*Current employer, accommodated*	*Current employer, not accommodated*	*New employer*	*Employment duration*
Female (yes=1)	0.061 (0.203)	0.061 (0.194)	0.358 (0.287)	---[b]
Age	-0.019 (0.012)	-0.008 (0.011)	-0.033 (0.014)**	-0.029 (0.016)*
Older than 57 years (yes=1)	-0.990 (0.596)*	-0.308 (0.580)	-3.192 (0.843)***	-0.599 (0.813)
Living with spouse (yes=1)	0.375 (0.209)*	0.582 (0.215)***	-0.061 (0.266)	---[b]
Secondary education (yes=1)	0.680 (0.227)***	0.431 (0.206)**	0.752 (0.286)***	---[b]
Postsecondary education (yes=1)	1.158 (0.277)***	0.782 (0.252)***	1.232 (0.369)***	---[b]
Visits to GP before sick leave	-0.020 (0.013)	-0.023 (0.012)*	-0.019 (0.020)	---[b]
Mental illness (yes=1)	-0.496 (0.205)**	-0.399 (0.199)**	0.672 (0.264)**	---[b]
Employment experience	---	---	---	0.013 (0.018)
Seniority in months	0.002 (0.001)**	0.002 (0.001)**	-0.004 (0.002)**	-0.002 (0.001)**
Company size [a]	0 .011 (0.017)	0.013 (0.016)	-0.246 (0.120)**	---[b]
Public sector company (yes=1)	0.200 (0.200)	0.255 (0.198)	-0.475 (0.292)	-0.288 (0.202)
New Employer	---	---	---	0.656 (0.408)
Seniority*New Employer	---	---	---	0.005 (0.002)**
Employment experience*New Employer	---	---	---	-0.056 (0.027)*
Accommodation (yes=1)	---	---	---	-0.513 (0.255)**
Baseline, period 2[c]	-0.431 (0.189)**	-0.172 (0.197)	0.278 (0.257)	-0.114 (0.200)
Baseline, period 3[c]	-1.067 (0.278)***	-0.886 (0.218)***	1.215 (0.345)***	---
Baseline, period 4[c]	-1.396 (0.472)***	-1.396 (0.387)***	2.478 (0.579)***	---
Constant	-3.676 (0.784)***	-4.135 (0.758)***	-5.163 (0.738)***	-2.602 (0.709)***
Random effects	2.135 (0.750)***	2.225 (0.663)***	3.811 (0.587)***	-0.121 (0.479)
Fraction with random effect	0.593	0.593	0.593	0.593

Note: N = 809. The hazard rate models are estimated simultaneously. See Table 2 for more information about the variables. S.E. between brackets. Significance levels: *** 1%, ** 5%, * 10%. All equations include two dummy variables (not shown) that equal 1 when information about seniority (32 persons) and company size (56 persons) is missing.
a): Multiplied with 100.
b): The variable was excluded from the model because it was highly insignificant.
c): Baseline hazard periods, accommodated work: period 1: 3 months, period 2: 4-5 months, period 3: 6-8 months, period 4: >9 months. Baseline hazard periods, non-accommodated work: period 1: 3 months, period 2: 4 months, period 3: 5-7 months, period 4: >8 months. Baseline hazard periods, new employer: period 1: 3-5 months, period 2: 6-9 months, period 3: 10-14 months, period 4: >15 months. Baseline hazard periods, employment duration: period 1: 1-7 months, period 2: >8 months.

6.1 The selection to work

The findings suggest a strong selection of sick-listed workers into work. The selection is influenced by both observed and unobserved variables. First, overall, workers under the age of 57, those with a secondary education, and (particularly) those with a postsecondary education, have a high hazard rate to all three types of work.

Second, age and education appear to be more important for returning to work both with the current employer in an accommodated job and with a new employer than for returning to work with the current employer in a job without accommodations. For example, the coefficient of postsecondary education is approximately 1.2 in the equations of returning to work with the current employer in an accommodated job and with a new employer, whereas the coefficient is around 0.8 in the equation of returning to work with the current employer without accommodations.

Third, some variables have a different effect on the hazard to work for a new employer and on the hazard to work with the current employer. Thus seniority increases the hazard to work with the current employer but reduces the hazard to work with a new employer. This finding supports company-specific human capital (long seniority) being valuable to the current employer increasing the chance that a sick-listed worker stays with the current employer. In contrast, company specific human capital may not have the same value to a new employer. Therefore, the sick-listed worker's reservation wage may exceed the wage offer from a new employer, reducing the sick-listed worker's chance of returning to work with a new employer. While mental health problems have a significant and positive effect on the hazard rate to work with a new employer, it has a negative impact on the hazard rate to work with the current employer. Compared to a sick-listed worker without mental health problems, a worker with mental health problems has a 33 per cent lower probability of returning to the current employer during each month of the observation period and a 96 per cent higher ability of returning to a new employer. This marked difference could mean that the causes of the mental health problems are often related to the current employer, e.g. a poor working environment or a personal conflict. In such cases, returning to a new employer may be more feasible than returning to the current employer.

Fourth, the model's unobserved heterogeneity components suggest that unobserved characteristics affect the hazard of returning to work. Fifty-nine per cent of the sick-listed workers have unobserved characteristics that significantly increase the probability of returning to work with both the current employer (with or without accommodations) and with a new employer. These effects are strong and highly significant; e.g. the coefficient of returning to work with a new employer is 3.811 with a p-value of 0.000. However, the unobserved characteristics that affect the selection into work do not affect the subsequent employment duration, i.e., the coefficient of the random effects of the employment duration is only slightly negative (-0.121) and completely insignificant (p-value on 0.801). Consequently, the estimations of the employment duration would have yielded almost the same results had we used a single-spell hazard rate model without random effects instead of a simultaneously estimated hazard rate model with random effects.

6.2 The employment duration

Table 3 also shows that sick-listed workers returning to work with their current employer in an accommodated job have a significantly lower hazard rate out of employment than workers returning to work with their current employer in a job without accommodations. Thus the coefficient of workplace accommodations is negative (-0.513) and significant on a 5 per cent level (p-value of 0.045), meaning that the workers in an accommodated job have a 40 per cent lower probability each month of ending their employment than workers without accommodations. This finding is consistent with previous findings.

Furthermore, those returning to work with their current employer in an accommodated job on average also have significantly lower exit rates than those returning to work with a new employer. Indeed, workers returning to their current employer *without* accommodations also tend to have a lower exit rate than those returning to a new employer; i.e., the coefficient of the variable of new employer (0.656) is almost significant on a 10 per cent level. Put differently, the sick-listed workers returning to work with a new employer terminate their employment much more quickly than those returning to work with their current employer. This finding supports the hypothesis that the job match between workers with a new employer is of poorer quality than the match between workers remaining with their current employer.

Table 4 shows the coefficients of a model with a dummy variable for each of the four types of workplace accommodations the workers may receive, i.e. reduced working hours, a new job, light duties, and adaptations in terms of equipment or office remodelling.

Table 4 Hazard rate model of returning to work with four types of workplace accommodations and of ending employment after returning to work

	Returning to work with:			
Variable	*Current employer, accommodated*	*Current employer, not accommodated*	*New employer*	*Employment duration*
Female (yes=1)	0.020 (0.217)	0.013 (0.206)	0.275 (0.311)	---[b)]
Age	-0.025 (0.013)*	-0.013 (0.013)	-0.035 (0.014)**	-0.028 (0.017)*
Older than 57 years (yes=1)	-1.277 (0.665)*	-0.547 (0.652)	-3.441 (0.906)***	-0.449 (0.846)
Living with spouse (yes=1)	0.465 (0.237)**	0.670 (0.241)***	0.113 (0.294)	---[b)]
Secondary education (yes=1)	0.691 (0.248)***	0.360 (0.223)	0.549 (0.297)*	---[b)]
Postsecondary education (yes=1)	1.253 (0.338)***	0.859 (0.302)***	1.156 (0.361)***	---[b)]
Visits to GP before sick leave	-0.018 (0.014)	-0.012 (0.013)	-0.002 (0.021)	---[b)]
Mental illness (yes=1)	-0.462 (0.218)**	-0.395 (0.212)*	0.712 (0.285)**	---[b)]
Employment experience	---	---	---	0.007 (0.018)
Seniority in months	0.002 (0.001)**	0.002 (0.001)**	-0.004 (0.002)**	-0.002 (0.001)*
Company size [a)]	0 .012 (0.017)	0.012 (0.017)	-0.234 (0.103)**	---[b)]
Public sector company (yes=1)	0.149 (0.211)	0.283 (0.208)	-0.467 (0.288)	-0.252 (0.209)
New Employer	---	---	---	0.795 (0.426)*
Seniority*New Employer	---	---	---	0.006 (0.003)**
Employment experience*New Employer	---	---	---	-0.048 (0.029)*
Reduced working hours (yes=1)	---	---	---	-0.500 (0.310)
New job (yes=1)	---	---	---	0.050 (0.424)
Light duties (yes=1)	---	---	---	-0.129 (0.458)
Other adaptations (yes=1)	---	---	---	-0.388 (0.481)
Baseline, period 2[c)]	-0.458 (0.205)**	-0.199 (0.208)	0.320 (0.279)	-0.046 (0.204)
Baseline, period 3[c)]	-1.028 (0.326)***	-0.868 (0.251)***	1.069 (0.404)***	---
Baseline, period 4[c)]	-1.460 (0.565)***	-1.357 (0.455)***	1.983 (0.665)***	---
Constant	-3.569 (0.897)***	-4.020 (0.820)***	-4.596 (0.802)***	-2.818 (0.755)***
Random effects	2.247 (0.890)**	2.288 (0.764)***	3.224 (0.668)***	0.064 (0.510)
Fraction with random effect	0.571	0.571	0.571	0.571

Note: N = 779 The hazard rate models are estimated simultaneously. See Table 2 for more information about the variables. S.E. between brackets. Significance levels: *** 1%, ** 5%, * 10%. All equations include two dummy variables (not shown) that equal 1 when information about seniority (32 persons) and company size (56 persons) is missing.
a): Multiplied with 100.
b): The variable was excluded from the model because it was highly insignificant.
c): Baseline hazard periods, accommodated work: period 1: 3 months, period 2: 4-5 months, period 3: 6-8 months, period 4: >9 months. Baseline hazard periods, non-accommodated work: period 1: 3 months, period 2: 4 months, period 3: 5-7 months, period 4: >8 months. Baseline hazard periods, new employer: period 1: 3-5 months, period 2: 6-9 months, period 3: 10-14 months, period 4: >15 months. Baseline hazard periods, employment duration: period 1: 1-7 months, period 2: >8 months.

Among the four types of workplace accommodations, a reduction in the working hours has the most significant effect on the employment duration. Each month individuals with reduced working hours have a 39 per cent lower hazard rate of ending their employment than individuals with normal hours. However, this variable is insignificant on a 10 per cent level (p-value of 0.107). The other types of accommodations (a new job, light duties, and special equipment or office remodelling) are insignificant, with p-values between 0.905 (new job) and 0.420 (special equipment or rebuilding).

Table 3 shows that age, seniority, and previous employment experience affect the employment duration. Age at the beginning of the sick leave is associated with a decrease in the hazard out of employment. While this finding is in line with the finding of Campolieti (2005), who also studied people with ill health after they returned to work, it is inconsistent with those of Burkhauser et al. (1995), who studied the job duration of workers becoming disabled while they were employed. We find that although long seniority increases the employment duration, it does so only for sick-listed workers returning to work with their current employer. This finding, which suggests that company specific human capital is important only for the employment duration for those workers who remain with their current employer, is consistent with the findings of Burkhauser et al. (1995).[8] We also find that previous employment experience increases the employment duration of sick-listed workers returning to work with a new employer. However, we find no similar effect for sick-listed workers returning to work with their current employer, a finding consistent with Burkhauser et al. (1995).

Finally, we do not find any effect of gender and cohabitation status. This is not consistent with previous studies.

6.3 The importance of wage subsidies

We have defined "work" as ordinary work or wage subsidized work in a *flexjob*. As workplace accommodations are an integrated part of *flexjob* employment, the observed effect of workplace accommodation may stem not only from accommodations but also from wage subsidies, which may induce employers to retain low productive workers with ill health. To assess the effect of wage subsidies, we estimate the model in Table 3 with a dummy variable for *flexjob* employment (see table A1 in the appendix).

The analysis shows that the observed effect of workplace accommodations in Table 3 may be a combined effect of workplace accommodations and wage subsidies. While the coefficient of workplace accommodations decreases from -0.513 to -0.361, the coefficient of the *flexjob* variable is also negative, -0.217, indicating that wage subsidies increase employment durations. However, neither of the two variables are significant at a 10 per cent level (the workplace accommodations variable has a p-value of 0.165 and the *flexjob* variable has a p-value of 0.547).

6.4 A robustness check of the correction for selection effects

We use the timing-of-event approach to identify the effect of workplace accommodations on the employment duration. With this approach, we assume that the sick-listed workers, at the beginning of the sick leave, cannot anticipate the exact moment that they will begin to work with either their current employer in an accommodated job or a new employer. While accepting this assumption appears reasonable, directly testing its validity is impossible.

In general, sick-listed individuals with long return-to-work durations have a relatively limited return-to-work potential, for example, because they have limited human capital or suffer

[8] Campolieti (2005) did not measure the effect of seniority.

from relatively serious health problems. If we do not fully take account of such differences, we should expect that the observed duration until returning to work has a significant impact on the employment duration after returning to work. Therefore, we re-estimate the model in Table 3, with the duration until returning to work included as an explanatory variable in the equation of the employment duration (see table A2 in the appendix). The observed duration until returning to work is insignificant with a p-value of 0.755, thus supporting the assumption of no significant unobserved selection in the equation of the employment duration.

7. Conclusion

Previous research shows that workers who acquire a work disability may either change employer or stay with their current employer in an accommodated job. Previous research also shows that workplace accommodations increase the employment duration of disabled workers. This paper builds on these findings but focuses on how job changes affect the employment duration of long-term sick-listed workers.

We use combined survey and register data about of 809 workers who were continuously sick-listed more than eight weeks. We simultaneously estimate two durations. The first duration concerns the time until returning to work in either an accommodated job with the current employer, a non-accommodated job with the current employer, or a job with a new employer. The second duration comprises the duration of the employment after returning to work. With a joint proportional mixed hazard rate model, we use the timing-of-event approach to identify the effect of accommodations and job change on the duration of the employment after returning to work. That is, we assume that sick-listed workers, at the moment they become work incapacitated, cannot anticipate the exact timing of job accommodations and change of employer.

Consistent with previous studies, we find that workplace accommodations increase the subsequent employment duration. However, some of the sick-listed workers in our study return to work in a wage-subsidized job. As wage subsidies may induce employers to retain workers with ill health, these subsidies could influence the estimated effect of accommodations. Our findings suggest that the effect of workplace accommodations partly stems from the wage subsidies.

We also find that sick-listed workers returning to work with a new employer have shorter employment durations than those returning to work with the current employer in an accommodated job.

These findings clearly have some limitations. First, none of our health variables have a significant impact on the employment duration. The study would have benefited from health measures measured at the moment the sick-listed workers returned to work. Second, the survey data consist of sick-listed workers who ended their sickness benefit during a seven-month period, and the sick-listed workers were interviewed 7-8 months after the seven-month period. This sampling frame limits the length of the employment spells we observe after the sick-listed workers return to work, and, consequently, also limits the number of people who end their employment during the observation period. We observe only 110 people ending their employment, restricting the scope of our analyses. Therefore, studies with better data would better be able to identify the effect of different types of workplace accommodations and distinguish between the effect of accommodations and wage subsidies.

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Appendix

Table A1 Hazard rate model of returning to work and of ending employment after returning to work, including a wage subsidy variable (*flexjob*) in the equation of the employment duration.

	Returning to work with:			
Variable	*Current employer, accommodated*	*Current employer, not accommodated*	*New employer*	*Employment duration*
Female (yes=1)	0.064 (0.204)	0.061 (0.193)	0.357 (0.287)	---[b]
Age	-0.019 (0.012)*	-0.008 (0.011)	-0.033 (0.014)**	-0.028 (0.017)*
Older than 57 years (yes=1)	-0.999 (0.597)*	-0.305 (0.579)	-3.194 (0.842)***	-0.572 (0.819)
Living with spouse (yes=1)	0.375 (0.209)*	0.579 (0.215)***	-0.062 (0.266)	---[b]
Secondary education (yes=1)	0.685 (0.227)***	0.430 (0.206)**	0.754 (0.286)***	---[b]
Postsecondary education (yes=1)	1.166 (0.279)***	0.783 (0.251)***	1.237 (0.368)***	---[b]
Visits to GP before sick leave	-0.020 (0.013)	-0.023 (0.012)*	-0.019 (0.020)	---[b]
Mental illness (yes=1)	-0.498 (0.206)**	-0.397 (0.198)**	0.673 (0.263)**	---[b]
Employment experience	---	---	---	0.013 (0.018)
Seniority in months	0.002 (0.001)**	0.002 (0.001)**	-0.004 (0.002)**	-0.002 (0.001)**
Company size [a]	0 .011 (0.017)	0.013 (0.016)	-0.246 (0.119)**	---[b]
Public sector company (yes=1)	0.199 (0.201)	0.253 (0.197)	-0.476 (0.291)	-0.287 (0.203)
New Employer	---	---	---	0.750 (0.412)*
Seniority*New Employer	---	---	---	0.005 (0.002)**
Employment experience*New Employer	---	---	---	-0.045 (0.027)*
Accommodation (yes=1)	---	---	---	-0.361 (0.260)
Flexjob (yes=1)				-0.217 (0.360)
Baseline, period 2[c]	-0.428 (0.189)**	-0.173 (0.197)	0.279 (0.257)	-0.117 (0.200)
Baseline, period 3[c]	-1.059 (0.277)***	-0.889 (0.219)***	1.216 (0.345)***	---
Baseline, period 4[c]	-1.375 (0.468)***	-1.409 (0.394)***	2.476 (0.579)***	---
Constant	-3.708 (0.781)***	-4.105 (0.767)***	-5.157 (0.739)***	-2.667 (0.709)***
Random effects	2.176 (0.746)***	2.193 (0.675)***	3.809 (0.587)***	-0.142 (0.486)
Fraction with random effect	0.593	0.593	0.593	0.593

Note: N = 809. The hazard rate models are estimated simultaneously. See Table 2 for more information about the variables. S.E. between brackets. Significance levels: *** 1%, ** 5%, * 10%. All equations include two dummy variables (not shown) that equal 1 when information about seniority (32 persons) and company size (56 persons) is missing.
a): Multiplied with 100.
b): The variable was excluded from the model because it was highly insignificant.
c): Baseline hazard periods, accommodated work: period 1: 3 months, period 2: 4-5 months, period 3: 6-8 months, period 4: >9 months. Baseline hazard periods, non-accommodated work: period 1: 3 months, period 2: 4 months, period 3: 5-7 months, period 4: >8 months. Baseline hazard periods, new employer: period 1: 3-5 months, period 2: 6-9 months, period 3: 10-14 months, period 4: >15 months. Baseline hazard periods, employment duration: period 1: 1-7 months, period 2: >8 months.

Table A2 Hazard rate model of returning to work and of ending employment after returning to work, with the duration until returning to work included in the equation of ending employment.

	Returning to work with:			
Variable	*Current employer, accommodated*	*Current employer, not accommodated*	*New employer*	*Employment duration*
Female (yes=1)	0.057 (0.203)	0.059 (0.194)	0.373 (0.290)	---[b]
Age	-0.019 (0.012)	-0.007 (0.011)	-0.033 (0.014)**	-0.031 (0.018)*
Older than 57 years (yes=1)	-0.991 (0.594)*	-0.314 (0.583)	-3.212 (0.862)***	-0.737 (0.924)
Living with spouse (yes=1)	0.387 (0.211)*	0.595 (0.219)***	-0.032 (0.289)	---[b]
Secondary education (yes=1)	0.677 (0.226)***	0.431 (0.207)**	0.735 (0.299)**	---[b]
Postsecondary education (yes=1)	1.136 (0.284)***	0.763 (0.258)***	1.184 (0.399)***	---[b]
Visits to GP before sick leave	-0.019 (0.014)	-0.021 (0.014)	-0.014 (0.030)	---[b]
Mental illness (yes=1)	-0.477 (0.220)**	-0.379 (0.215)*	0.714 (0.324)**	---[b]
Employment experience	---	---	---	0.015 (0.018)
Seniority in months	0.002 (0.001)**	0.001 (0.001)*	-0.004 (0.002)**	-0.002 (0.001)**
Company size [a]	0 .012 (0.017)	0.014 (0.017)	-0.226 (0.135)*	---[b]
Public sector company (yes=1)	0.205 (0.200)	0.260 (0.198)	-0.469 (0.228)	-0.278 (0.204)
New Employer	---	---	---	0.583 (0.458)
Seniority*New Employer	---	---	---	0.005 (0.002)**
Employment experience*New Employer	---	---	---	-0.045 (0.027)
Accommodation (yes=1)	---	---	---	-0.507 (0.259)*
Duration until returning to work	---	---	---	0.019 (0.060)
Baseline, period 2[c]	-0.435 (0.189)**	-0.174 (0.197)	0.273 (0.257)	-0.112 (0.200)
Baseline, period 3[c]	-1.077 (0.279)***	-0.890 (0.218)***	1.199 (0.340)***	---
Baseline, period 4[c]	-1.416 (0.476)***	-1.398 (0.394)***	2.455 (0.554)***	---
Constant	-3.671 (0.792)***	-4.162 (0.796)***	-5.197 (0.755)***	-2.963 (1.435)**
Random effects	2.106 (0.764)***	2.232 (0.694)***	3.793 (0.559)***	-0.282 (1.454)
Fraction with random effect	0.595	0.595	0.595	0.595

Note: N = 809. The hazard rate models are estimated simultaneously. See Table 2 for more information about the variables. S.E. between brackets. Significance levels: *** 1%, ** 5%, * 10%. All equations include two dummy variables (not shown) that equal 1 when information about seniority (32 persons) and company size (56 persons) is missing.

a): Multiplied with 100.

b): The variable was excluded from the model because it was highly insignificant.

c): Baseline hazard periods, accommodated work: period 1: 3 months, period 2: 4-5 months, period 3: 6-8 months, period 4: >9 months. Baseline hazard periods, non-accommodated work: period 1: 3 months, period 2: 4 months, period 3: 5-7 months, period 4: >8 months. Baseline hazard periods, new employer: period 1: 3-5 months, period 2: 6-9 months, period 3: 10-14 months, period 4: >15 months. Baseline hazard periods, employment duration: period 1: 1-7 months, period 2: >8 months.