Layoffs, Recalls and Unemployment Duration: Evidence from Sweden

Anton Nivorozhkin[*]

Department of Economics, Göteborg University

Trade Union Institute for Economic Research

Abstract

Temporary layoffs represent an important source of worker-firm attachment. We investigate the determinants of the duration of temporary layoffs using a matched employee-employer dataset from Sweden. The impacts of covariates and the shapes of hazard functions vary depending on the destination of transition: recall or new job. We reject the hypothesis that firms tend to recall workers who exhaust benefits. However, we are not able to rule out the possibility that firms behave strategically through prioritizing rehiring the individuals with relatively short periods of unemployment compensation entitlement.

Keywords: Unemployment, unemployment duration, temporary layoffs.

JEL classification: J64, J68.

** Department of Economics, Göteborg University, Box 640, SE 405 30, Göteborg, Sweden;
 e-mail: econaniv@economics.gu.se.

Layoffs, Recalls and Unemployment Duration: Evidence from Sweden

Abstract

Temporary layoffs represent an important source of worker-firm attachment. We investigate the determinants of the duration of temporary layoffs using a matched employee-employer dataset from Sweden. The impacts of covariates and the shapes of hazard functions vary depending on the destination of transition: recall or new job. We reject the hypothesis that firms tend to recall workers who exhaust benefits. However, we are not able to rule out the possibility that firms behave strategically through prioritizing rehiring the individuals with relatively short periods of unemployment compensation entitlement.

1. Introduction

Temporary layoffs, defined as the unemployment periods ending in reemployment with the previous employer, are common in North America and Europe. The empirical evidence indicates that they are an important source of worker-firm attachment.[1] Recent studies examine the frequency of temporary layoffs (also known as recalls or rehires) and the effect of temporary layoffs on the duration of unemployment spells.

The process of workers recall also received considerable attention in the theoretical literature. Two main theories utilized to explain the observed phenomenon are the job-search theory and the implicit contract theory. Within the job-search theory, the presence of recall prospects would decrease the incidence of finding a new job by workers (e.g. Pissarides, 1982; Katz, 1986). Unlike in the implicit contract literature firms' decision to recall workers is affected by the workers' job-search behavior. Unemployment insurance influences the duration of unemployment spell and distorts the incentives to search for a new job.

Recent empirical evidence (Mavromaras and Orme, 2004) appears to be consistent with theoretical predictions of implicit contracts theory (e.g. Feldsetin, 1976; Haltiwanger, 1984). The likelihood of the event of recall is not sensitive to exhaustion of unemployment insurance and is determined by the employers' incentives[2]. Firms tend to rehire a previously dismissed worker because of the worker's firm-specific skills and the screening costs associated with hiring an outsider. Unemployment benefits should not affect the duration of temporary unemployment spell, which primarily would be determined by the firm's decision to recall workers and not by the individuals job-search behavior.

To summarize, a major difference between the implicit-contract and the job-search theory is with respect to the impact of unemployment insurance on the duration of temporary unemployment spell. While job-search theory predicts that the duration of

---

[1] Feldstein (1978), Robertson (1989), Katz and Meyer (1990), Jensen and Westergåd-Nielsen (1990), Fisher and Pichelmann (1991), Mavromaras and Rudolph (1998), Roed and Nordberg (2003), Alba-Ramirez and Munoz-Bullon (2004).
[2] Roed and Nordberg (2003) also concludes that duration of recall unemployment spells is highly sensitive to the incentives of firms.

unemployment spell is highly sensitive to unemployment compensation, implicit-contract theory does not predict such a relationship.

Recent evidence for Sweden (Jansson, 2002) indicates that temporary layoffs are fairly common in Sweden. The author finds that about 45% of all transitions from unemployment in his sample are to the previous employers, which translates into a 10% stock measure of unemployed who are waiting to be rehired.

In this paper we provide additional insights into the issue of temporary layoffs by simultaneously accounting for the characteristics of firms and workers. Unlike Jansson (2002), who used the survey data to identify recall incidences, we rely on the information from the Business Registry and the Unemployment Registry. We also extend Janssons' result on the determinants of the probability of recall and the duration of the unemployment spell by considering the role of the firms' characteristics. Using linked employee-employer panel dataset we are able to approximate workers' tenure, which is expected to have a significant impact on the probability of recall and the duration of unemployment spell.

Section 2 presents an overview of the institutional setup of the Swedish labor market. Section 3 describes the data. Section 4 presents descriptive statistics and results for the determinants of probability recall. Section 5 models the determinants of the risk of transition from unemployment to competing destinations: new job or recall. Section 6 concludes the paper.

2. Institutional setup

The legal origin of Sweden and other Nordic countries falls out of classification into common and French civil law traditions and constitute a separate Scandinavian legal group. This group is characterized by a relatively high degree of employment security and well developed social protection, (Botero et al., 2004).[3]

---

[3] Review of Swedish labor law is presented in Fahlbeck (1997). Comparison of the Swedish labor protection to that of other countries is presented in van Peijpe and Blanpain (1998). Issues of employment protection are discussed in Holmlund, and Storrie (2002).

In the event of unemployment workers in Sweden are entitled to generous unemployment compensation lasting for 300 working days (450 days for individuals older 57), which is financed from the tax on individuals.[4] The level of benefits cannot exceed 80% of previous wage and is bounded to 570 SEK (63.20 EUR) a day. To qualify for unemployment insurance one needs to work for six month. Those who do not qualify for unemployment insurance may receive cash assistance, paid during 150 days and amounts to 240 SEK (26.15 EUR) a day.

Employment relations in Sweden are regulated by the Swedish Employment Protection Act (*Lagen om anställningsskydd, LAS*) which was adopted in 1974. The law introduced fundamental restrictions on firms' rights to dismiss workers and defines possible scope of deviations through collective agreements.[5] The law covers virtually all categories of workers and contains provisions on types of employment, dismissal procedure, notification period, and priority rules in cases of workers layoff and recall.

The LAS defines two types of layoffs: layoff due to redundancy and temporary layoff with fixed recall date (*permittering*). The latter is allowed only if provided in collective agreement. In case of temporary layoff workers, as a rule, do not register with the employment office and do not engage in job search. Since 1985 the firms bears all costs of *permittering* and their attractiveness is substantially reduced. This paper focuses primarily on layoffs due to redundancy.

According to recall rules, defined in *LAS,* dismissed worker can return to the previous employer if a new position becomes available within one year after dismissal.[6] The rule applies to all redundant workers who had been working with the enterprise at least 12 months in the proceeding 3 years. If several dismissed workers apply to the same job they are ranked according to their firm-specific seniority. Moreover, given equal years of seniority the priority should be given to older workers. It is important to mention that recall rules are not binding and may be changed by collective agreement.

---

[4] Swedish unemployment insurance system differs from the one of U.S. in one important aspect, there is no "experience rating" in Sweden, this could possibly raise incidence of temporary layoffs as suggested by Feldstein (1978). However, the later conclusion was questioned in a number of studies; see Holmlund (1998) for literature review.
[5] English translation of the law is available at (www.sweden.gov.se).
[6] For people hired after 1 of January 1997, 9 month applies.

The recent amendments to *LAS* diminished rights of the dismissed workers to get reemployment. In particular, part-time workers, who wish to increase working hours, have a priority over dismissed workers that want to return to their previous employer.

3. Data description

The information on the length of unemployment spell is available from Händel database which covers all events an individual enquired for assistance in finding a job to the state employment agency.[7] The dataset provides complete information on all unemployment periods, participation in active labor market programs and benefit entitlement. Moreover, there is a detailed information on the reasons of deregistration from the employment office.

The Händel dataset contains incomplete information on individual employment history prior to becoming unemployed and lacks description of the enterprise individual has transited to after a period of unemployment. To provide such information we combine the information available at the unemployment registry with the employer-employee matched dataset which includes enterprise information available at Statistics Sweden's Business Register (RAMS).[8]

The matched dataset gives detailed description on the type of work and enterprises individual was working at and transited to after a period of unemployment. Such information is available for approximately 200,000 individuals. The RAMS dataset covers incidence of employment with enterprise as of November each year.

To construct the length of unemployment spell, we use the information provided by the employment registry considering individual to be unemployed if he was openly unemployed and searching for job.[9]

Information on the previous place of employment is determined from the business register. We assume that if the individual is observed working with the enterprise in a

---

[7] The database is found to be representative for unemployed, about 96% of unemployed contact employment agency (Jansson, 1996).

[8] Detailed description of the data is presented in Edin and Fredriksson (2001).

[9] In calculation of the length of unemployment spell we followed the procedure similar to that of Carling (2001), see appendix of the working-paper version of the paper, http://linda.nek.uu.se/1999wp20.pdf.

given year, he continues to work at the same enterprise until the moment of registration with the employment office. Moreover, if the individual exits the employment office for the reason of employment we assume that he transited on recall if we can identify him working with the same enterprise in the subsequent year.

To define destination of exit from unemployment we used information from unemployment registry on reasons of termination of registration with employment office. Thus, if the individual transited to a job, as given by the information form an employment registry, we try to identify him in the RAMS dataset. An individual is considered to be recalled if he transited to the same division within enterprise after a period of unemployment.

As illustrated in Figure 1 previously employed individual entered the employment office in February and remained unemployed until August when according to employment registry he found a job. From the Business Register we observe the enterprise an individual was working at in the year preceding unemployment. From the employment registry we observe the date of registration with employment office, February and the date when he exited unemployment, August. Moreover, employment database provides reasons of deregistration. If the reason of deregistration was obtaining a job, we trace individual in the Business Register in the year following unemployment. If identification number of the enterprise the individual was working at matches the identification number of the enterprise after a period of unemployment we assume he transited on recall. If identification numbers of the enterprise does not match or individual is employed with the enterprise which is not part of the Business Register sample we assume that he transited to a new job. Dashed lines represent periods then individual attachment to the enterprise is not directly observable.[10]

---

[10] This creates two problems. On the one hand, the unemployment duration, which is going to be used in the later analysis, is not necessarily the duration since the last employment by employer. On the other hand, exit from the employment office is not necessary done to the same employer. It may happen that the individual had different employers in the periods represented by the dash lines, but we can not control for it.

Figure 1. Sample construction

Duration of unemployment

November   February   August   November

Time
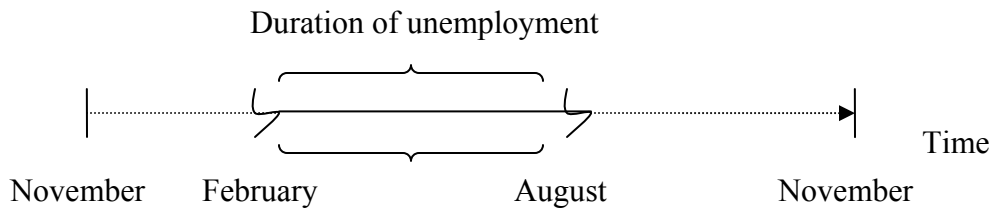
The definition of the employer is important in our analysis. Large and medium size enterprises may consist of several divisions. In the analysis enterprise division is used as a definition of employer to avoiding unnecessary aggregation. An individual is assumed to be permanently employed if and only if the wage received from the enterprise is his main source of labor income. The dataset does not contain information on individual hours worked and whether the labor-contract is temporary or permanent. Furthermore, there is no information on individuals' subjective probability of recall.[11]

3.1 Sample selection

Our sample consists of individuals registered with the employment office during the 12 month period from November 1997 to November 1998. We follow each person until the date of exit from unemployment or - if no exit is observed – until November 2000. Initially, we do not impose age restriction on our sample. Thus, all individuals from 18 to 64 are included in our analysis.

The dataset on unemployment benefit claimants was merged with the matched employee-employer dataset to determine individuals' previous place of employment. People never being employed cannot transit on recall and thus are excluded from the analysis. The resulting sample of unemployed includes 12,630 individuals.

---

[11] Individuals' expectations of recall my influence their job search behavior (Katz and Meyer, 1990; Anderson (1992); Burgess and Stuart, 1998).

Our analysis is restricted to unemployed with regular unemployment compensation and excludes disabled individuals. Moreover, the individuals who transit to unknown destinations (405 cases) are excluded. Furthermore, 732 individuals who lost their jobs due to enterprise liquidation or restructuring are deleted.[12] Excluding the individuals from the dataset is justifiable since their probability to return to the same enterprise equals to zero. The final sample used in the analysis includes 7,548 individuals.

4. Descriptive statistics

In line with the previous results for Sweden (Jansson, 2002), we report that a considerable number of individuals return to previous employer after a period of unemployment. The proportion of the individuals who transit to the previous employer out of all who transit to a job equals to 47% (Table 1).[13] Splitting the population into age groups reveals that older people are recalled more often.

Table 1. Share of recall among newly employed workers. The overall share and the share distributed according to age categories

	Recall	New job
Total	46.68	53.32
Age:		
18-24	41.12	58.88
25-44	46.63	53.37
45-64	65.26	34.74
Number of observations	1751	2000

Furthermore, those who transit to recall exit unemployment faster compared to individuals who transit to a new job (Table 2). Young workers tend to exit unemployment, irrespective of destination, sooner compared to older counterparts.

---

[12] Individual is considered to lose the job due to enterprise liquidation or restructuring if enterprise identification number disappears from the RAMS dataset in the year followed by unemployment. Although some individual dismissed from closing enterprises may still be eligible for recall we consider such possibility to be negligible.
[13] Jansson (2002) reports 45% recall rate.

Table 2. Distribution of unemployment duration, in days

	Total			Recall			New job		
	Mean	Std.	Median	Mean	Std.	Median	Mean	Std.	Median
Total	82.65	80.48	71	77.1	71.8	58	87.48	87.13	62
Age:									
18-24	59.10	59.10	54	53.17	42.88	42.5	63.24	58.66	48
25-44	84.20	84.20	73	77.61	67.94	61	89.9	87.56	63
45-64	134.01	134.01	153.5	120.2	122.02	86.5	159.87	141.78	122

The distribution of recall shares and the unemployment duration by tenure is presented in Tables A1-A2 in Appendix. The share of the rehired individuals, generally, increases with tenure. The duration of the unemployment spell is also higher for the workers with long tenure.

4.1 Sample statistics and empirical determinants of the probability of being recalled

This section presents descriptive statistics and examines the determinants of the probability of recall using a binary logistic model. The dependent variable is dichotomized and takes the value of 1 if individual was recalled and 0 otherwise.

The important variable used in the analysis is tenure at the enterprise. A number of empirical studies found that higher tenure associates positively with higher job security (Parson, 1972; Valletta, 1999, 2000, Arai and Vilhelmsson, 2004). On the other hand, long worker-firm attachment significantly reduces the probability of finding a new job and prolongs time spent in unemployment (Katz and Meyer, 1990; Idson, and Valletta, 1996). Previous studies of the duration of unemployment in Sweden did not account for tenure, concentrating on the total work experience. Using business register, the enterprise and the employer identity, we trace individuals back to 1990 and construct tenure variable as a dummy variable with maximum years of tenure equal to eight.[14]

To control for the size of the enterprise, the natural logarithm of the number of employees was included into the estimation. We expect that large firms rely on temporary

---

[14] Auer and Cazes (2000) report that average tenure in Sweden was equal 11.9 years.

internal labor reallocation, whereas small firms would be inclined to use temporary layoffs. The support of this hypothesis is found in Mavromaras and Helmut (1998). Authors also indicate that individuals laid off from large enterprises return to a previous employer at a much faster rate. Ownership and industry may influence probability of getting recalled and the duration of unemployment. We include in our estimation dummies for private ownership and industry.

Location and regional economic conditions may influence probability of being recalled and the time spent in unemployment. Two proxies were used in this paper: local unemployment rate and a dummy for residence in the big city.[15] Previous studies (e.g. Jansson, 2002) indicate that a high local unemployment rate increases chances and risk of exit unemployment on recall. However, high regional levels of unemployment prolongs unemployment spell when individuals exit unemployment to a new job. Residing in the big city is likely to produce negative impact on recall probability and decrease time spent in unemployment (Lazear, 2003). In the big cities, labor markets are likely to be thick and search cost is relatively low. Thus the individuals are more likely to find a new job which matches their skills.

To control for individual specific characteristics standard set of control variables such as age, gender, presence of children above 7 years old, education and country of origin were included. Finally, possible seasonal effects were captured by dummies for quarters of inflow into the unemployment.

Columns 1-3 (Table 3) present descriptive statistics according to destination of transition from unemployment. Column 4 provides the results of the estimation of logistic regression. The individuals who transit to a new job are on average four years younger compared to those who return to a previous employer. However, the results of regression analysis indicate that age does not influence the probability to return to an old place of work. Approximately 60% of all transitions to recall are done by males and 23% of individuals have at least one child below 7. The presence of children does not affect probability of transition to recall and males are more likely to transit to recall. Unemployed who get rehired have longer tenure compared to individuals who receive a new job. The regression confirms that tenure is a significant determinant of transition to

---

[15] Big cities are Stockholm, Gothenburg and Malmo.

recall. Individuals with low education tend to transit to recall. This result is confirmed when controlling for other characteristics. Immigrants are distributed evenly across destinations. Regression results indicate that being born outside Sweden does not influence the probability to be recalled. Recalls are concentrated in non-metropolitan areas and in areas with relatively high unemployment rate. These variables significantly affect the probability of being rehired. Among other enterprise characteristics individuals who had being employed in non-private companies or worked in constriction industry have higher incidence and probability of being rehired. Employment in the service sector decreases the probability of being recalled. Finally, the individuals registered with the employment office in winter have higher chances to transit to recall.

Table 3. Descriptive statistics according to destination of transition and results of binary logistic model

Variables		Mean values			Logistic regression	
		New Job	Recall	Other	Coeff.	Std.
		1	2	3	4	
Age		32.67	35.10	33.52		
	18-24	0.18	0.14	0.16	-0.109	(0.089)
	25-55	0.79	0.79	0.78		
	55-65	0.03	0.07	0.06	0.103	(0.121)
Male		0.54	0.59	0.45	0.208[1]	(0.064)
Child < 7		0.23	0.23	0.24	-0.048	(0.069)
Tenure		2.34	3.00	2.68		
	Tenure<=1	0.51	0.36	0.46		
	1<Tenure<=2	0.18	0.20	0.18	0.409[1]	(0.077)
	2<Tenure<=3	0.10	0.12	0.11	0.432[1]	(0.092)
	3<Tenure<=4	0.07	0.10	0.08	0.481[1]	(0.103)
	4<Tenure<=5	0.03	0.04	0.03	0.487[1]	(0.146)
	5<Tenure<=6	0.04	0.06	0.05	0.469[1]	(0.127)
	6<Tenure<=7	0.01	0.02	0.01	0.575[1]	(0.222)
	7<Tenure	0.05	0.09	0.08	0.382[1]	(0.109)
Education:	< Upper secondary, 2 years	0.15	0.25	0.21		
	Upper secondary, 2 years	0.39	0.41	0.41	-0.258[1]	(0.075)
	Upper secondary, 3 years	0.21	0.18	0.22	-0.310[1]	(0.094)
	University	0.25	0.16	0.17	-0.289[1]	(0.094)
Country of origin:	Sweden	0.94	0.93	0.92		
	Nordic	0.03	0.03	0.03	-0.140	(0.179)
	Europe	0.01	0.02	0.02	0.180	(0.217)
	Other	0.03	0.03	0.04	-0.096	(0.172)
Regional characteristic:	Regional unemployment rate	5.27	5.38	5.36	0.048[3]	(0.021)
	Big city	0.17	0.12	0.16	-0.291[1]	(0.089)
Enterprise characteristics:	Private ownership	0.70	0.70	0.69	-0.160[5]	(0.081)
	ln(size)	3.41	3.39	3.45	0.004	(0.018)
Industry:	Manufacturing	0.17	0.19	0.19	0.056	(0.090)
	Construction	0.12	0.20	0.06	0.779[1]	(0.098)
	Service & finance	0.06	0.04	0.07	-0.306[1]	(0.092)
	Other					
Quarter of inflow:	Autumn	0.18	0.16	0.16	-0.274[1]	(0.087)
	Winter	0.28	0.32	0.22		
	Spring	0.20	0.19	0.18	-0.154[7]	(0.083)
	Summer	0.34	0.33	0.44	-0.321[1]	(0.072)
Constant					-1.309[1]	(0.171)
Number of observations		2000	1751	3797	7548	
Log-likelihood value					-3918.59	

Notes: Superscripts denote significance level.
Panel 4 presents results of estimation of binary logistic regression model. Dependent variable takes value 1 if individuals transit to the same employer after a period of unemployment and 0 otherwise.

5. Empirical determinants of the duration of unemployment spell

This section presents results of estimation of the reduced form model of the duration of unemployment spell making distinction between exit to a new employer and exit on recall. Such an approach is referred to in the econometric modeling as an independent competing risk model (Lancaster, 1990; Narendranathan and Stewart, 1993; Jenkins, 2004). A competing risk model is required because of the possibility of different underlying processes determining the hazard to a new job and recall. In such a model observations which exit to an alternative destination are treated as censored. The cause specific hazard rate can be written:

$$\theta_{ij}(t) = \alpha_j(t) \, \{expx_i(t)' \, \beta_j\},$$

where $\alpha(t)$ is a baseline hazard rate, x_i is a vector of explanatory characteristics, β is a vector of unknown parameters to be estimated, $i = 1,\ldots,N$ and j = recall; new job. In our formulation we follow flexible base-line specification of hazard rate, allowing it to vary between monthly intervals, but restricting it to be constant inside each interval.[16] The model is assumed to be continuous and time is measured in weeks. Furthermore, we assume that all variables in the model are time-invariant and possible heterogeneity is captured by observed variables.[17] Similar formulation of the duration model was used to study duration of unemployment in Sweden before (e.g. Carling et. al (1996, 2001)).

5.1 Results of Estimation

This section focuses on the impact of socio-economic and enterprise characteristics on the risk of exit from unemployment. First, we treat exits to new a new job and on recall as a single destination. Next, we estimate a competing risk model. The results of estimations are presented in Table 4. The same explanatory variables as in the analysis of the probability of being rehired were used.

---

[16] We allow hazard to vary between 18 monthly intervals, restricting hazard to be constant onwards.
[17] We attempted to control for unobserved heterogeneity by estimating a model including gamma distributed unobsedved heterogeneity term. The results indicate negligible heterogeneity.

In general our results suggest that the single destination model does not provide an accurate picture of the impact of different covariates on the hazard rate from unemployment. Competing risk model with exits on recall and new job is preferred. Moreover, we test the appropriateness of competing risk model comparing it to a single destination model (Narendranathan and Stewart, 1993).[18] The results reject the null hypothesis that both models are the same.

The impact of age is similar across destinations. The hazard of exit form unemployment declines with age. Gender has an impact on the hazard rate from unemployment (Column 1). The results of competing risk model indicate that males have higher risk of transition than females only on recall. Having children below 7 years old does not affect the risk of transitions from unemployment. An important result concerns the impact of tenure on the duration of the unemployment spell. Similar to education, tenure has a mixed role in transition from unemployment. For low levels of tenure we find positive but not statistically significant relationships with the risk of transition from unemployment. Long tenure decreases hazard of transition from unemployment. The impact of tenure changes in competing risk model. Results indicate that the impact of tenure on the hazard rate varies depending on destination of transition from unemployment. Individuals who acquired a sufficiently long tenure are likely to be recalled by a previous employer; coefficients of tenure are positive and significant. The unemployed individuals who stayed long in the same job will face difficulties in finding a new job. The coefficients of tenure are negative and significant.[19]

In the previous section we found that the probability of being recalled declines with education. The results from duration modeling (Table 4) indicate that influence of education on the hazard of exit from unemployment varies depending on destination of transition. Individuals with education above short upper secondary (Upper secondary, 2 years) tend to find a job faster when exits to new jobs and recall are not distinguished. However, competing risk model support this result only for exit to a new job. Opposite

---

[18] The test statistics is $2[\ln(L_{CR}) - \ln(L_{SR}) - \sum_j n_j \ln(p_j)]$, where $\ln(L_{CR})$ is maximized log-likelihood value of competing risk model, $\ln(L_{SR})$ is maximized log-likelihood value of single-risk model, n_j number of exists to state j (j = 2) and $p_j = n_j/\sum_j n_j$. The test statistic is distributed Chi-squared with degrees of freedom equal to the number of restrictions. The value of the test is 328.9 which is highly significant.

[19] Documented relationship between tenure and the probability of finding a new job has been reported in several studies for the USA (Katz, 1986; Katz and Meyer, 1990; Idson and Valletta, 1996).

result is found for the risk of transition to recall. It appears that individuals with low level of education exit unemployment much faster when transit to recall. This relationship may imply that with every increase in educational level human capital becomes more transparent and unemployed depend less on the level of firm-specific skills. It is likely that single destination model underestimates the actual returns on education.[20] Competing explanation of a relatively high hazard of transition to recall for low educated workers comes from the fact that firms invest more in their training. If firms and workers share costs and profits from investment in on-the-job training rehiring should be a likely event (Becker, 1964, Hashimoto, 1981).

It appears that individuals from non-Nordic countries face difficulties in finding a new job. However, there is no significant difference between immigrants and natives in the speed of escape from unemployment on recall. This may indicate discriminatory behavior in the process of new hiring. Once foreigners reveal their true quality to the firm or establish strong labor-market attachment they face the same risk of transition to recall.

Among regional characteristics, in single destination model, both high local unemployment rate and residence in the big city prolong unemployment. Again this results contrast the findings of the competing risk model. High levels of unemployment reduce hazard to a new job, but have no effect on recall. Moreover, increase in the size of the labor market reduces the hazard of transition to recall and is insignificant determinant of the hazard to a new job.

Individuals from private enterprise wait to be recalled longer and enterprise size has no effect on the hazard rate of exit to any destination. Private companies are likely to adopt more aggressive human-resource management strategies, trying to attract new workers rather relying on stagnant pool of workers marginally attached to enterprise.

The industry controls affect the hazard of transition to employment Table 4. The individuals previously employed in the construction industry have higher hazard of transition from unemployment irrespective of destination. Employment in manufacturing industry decreases the hazard of transition to a new job and does not influence the recall hazard. The opposite result is found for the employees in the service sector. Employment

---

[20] Similar result was reported by Jansson (2002).

in the service sector decreases hazard of transition to recall and do not influence the hazard of transition to a new job.[21]

We also identify important seasonal variation, individuals who became unemployed in autumn and spring stay unemployed longer if transit to recall, while no significant pattern exists if individuals transit to a new job.

---

[21] We also estimate separate model for manufacturing industry. Results appeared to be sufficiently robust.

Table 4. Estimated models of the hazard rate to a job

Variables		Employment		New job		Recall	
		1		2		3	
		Coeff.	Std.	Coeff.	Std.	Coeff.	Std.
Age:	18-24	0.339[1]	(0.049)	0.442[1]	(0.065)	0.215[1]	(0.075)
	25-55						
	55-65	-0.651[1]	(0.083)	-0.988[1]	(0.134)	-0.402[1]	(0.102)
Male		0.080[3]	(0.036)	0.062	(0.049)	0.103[7]	(0.055)
Child<=7		0.014	(0.040)	0.025	(0.056)	0.003	(0.059)
Tenure:	Tenure <=1						
	1<Tenure<=2	0.041	(0.043)	-0.144[2]	(0.059)	0.285[1]	(0.067)
	2<Tenure<=3	0.044	(0.054)	-0.201[1]	(0.076)	0.345[1]	(0.079)
	3<Tenure<=4	-0.061	(0.060)	-0.363[1]	(0.087)	0.284[1]	(0.086)
	4<Tenure<=5	-0.076	(0.088)	-0.408[1]	(0.137)	0.281[2]	(0.116)
	5<Tenure<=6	-0.117	(0.072)	-0.417[1]	(0.115)	0.218[3]	(0.097)
	6<Tenure<=7	-0.008	(0.121)	-0.288	(0.186)	0.305[8]	(0.171)
	7<Tenure	-0.305[1]	(0.068)	-0.706[1]	(0.107)	0.094	(0.090)
Education:	< Upper secondary, 2						
	Upper secondary, 2	0.068	(0.045)	0.310[1]	(0.069)	-0.145[2]	(0.061)
	Upper secondary, 3	0.093[10]	(0.055)	0.350[1]	(0.080)	-0.139[8]	(0.077)
	University	0.221[1]	(0.052)	0.610[1]	(0.075)	-0.205[1]	(0.078)
Country of origin:	Sweden						
	Nordic	-0.131	(0.107)	-0.080	(0.143)	-0.194	(0.154)
	Europe	-0.233[10]	(0.141)	-0.531[3]	(0.229)	0.053	(0.181)
	Other	-0.345[1]	(0.101)	-0.447[1]	(0.139)	-0.226	(0.151)
Regional characteristic	Regional unemployment rate	-0.022[8]	(0.012)	-0.063[1]	(0.017)	0.026	(0.018)
	Big city	-0.125[1]	(0.047)	0.019	(0.062)	-0.320[1]	(0.078)
Enterprise characteristics	Private ownership	-0.089[5]	(0.046)	-0.023	(0.061)	-0.171[2]	(0.067)
	ln(size)	0.009	(0.010)	0.007	(0.013)	0.011	(0.015)
Industry:	Manufacturing	-0.100[6]	(0.053)	-0.154[4]	(0.073)	-0.041	(0.076)
	Construction	0.414[1]	(0.053)	0.181[3]	(0.081)	0.626[1]	(0.074)
	Service & finance	-0.177[1]	(0.050)	-0.092	(0.067)	-0.296[1]	(0.080)
	Other						
Quarter of inflow:	Autumn	-0.119[2]	(0.047)	0.004	(0.066)	-0.253[1]	(0.070)
	Winter						
	Spring	-0.076	(0.048)	-0.028	(0.067)	-0.125[8]	(0.069)
	Summer	-0.037	(0.042)	-0.016	(0.059)	-0.050	(0.061)
Constant		-4.282[1]	(0.403)	-4.651[1]	(0.574)	-5.403[1]	(0.591)
Log-likelihood value		-8313.13		-5547.68		-5196.82	

Notes: Notes: Superscripts denote significance level.
In this table we report models estimating the hazard rate of transition to a job. The sample consists of 7548 individuals and 108884 individual weeks. First panel, to the left, estimates the hazard rate to a job without distinguishing new job and recall. Out of 3751 individuals who transit to a job, 2000 transit to a new job and 1751 transit to recall. Panel two and three report results of independent competing risk specification distinguishing between new job and recall. Coefficients indicate variables' effects on the hazard function, a positive coefficient increases the probability of exit, and thereby decreases expected duration. Estimated duration parameters can be found in Appendix (Table A4).

5.2 Age and tenure profile

There remains an open question "how does age relate to tenure and the risk of transition to recall?" It is expected that old workers would accumulate more tenure and more firm-specific human capital. Thus, such workers should be recalled more often. Theoretical and empirical works suggest that individuals with higher tenure are often paid above their marginal product of labor, creating incentives for firms to layoff workers with high tenure (Lazear, 1979, 1981). However, old workers, typically with high tenure, are not dismissed since management faces reputation constraint and wants to create right incentives to junior workers.

In the previous sections we found that large proportion of old workers is recalled. Yet, it is not clear if old workers have a priority over young workers to return to the enterprise. Current legislation suggests that given equal years of tenure older workers should have a priority to return to their enterprise. Thus, given equal tenure old workers should be recalled faster comparing to younger ones. We can test this proposition in the context of a duration model by treating tenure as a continuous variable and assuming age to be in intervals as before. The results are presented in Table 5. High level of tenure reduces time spent in unemployment for young workers. However, interaction of tenure with oldest group of workers corresponds to an increase length of unemployment spell. It appears that given equal years of seniority older workers have lower hazard of exit on recall. It is likely that, firms tend to deviate from the basic norms of current legislation in favor of young individuals. The later finding may be consistent with Freeman and Lazear (1998) hypothesis. In the model the authors predict that if workers participate in corporate governance and own stocks of the firm they would likely adopt efficient layoff rule, dismissing first very old workers. Same logic may be applied for rehiring rules, assuming that workers participate in corporate governance of the firm, priory to return to the enterprise should be given to young workers. Alternative explanation comes from the fact that workers above 55 are entitled to longer insured unemployment spell. Firms may prefer to recall younger workers first expecting that these workers cannot wait too long.

Table 5. Effect of age and tenure on the hazard rate to recall

Variable		Hazard of exit to recall including interactions terms		Hazard of exit to recall no interactions terms	
		1		2	
		Coeff.	Std.	Coeff.	Std.
Age:	18-24	0.062	(0.125)	0.215[1]	(0.075)
	25-55				
	55-65	-0.168	(0.185)	-0.402[1]	(0.102)
Age*tenure:	(18-24)*tenure	0.085[6]	(0.044)		
	(55-65)*tenure	-0.055[10]	(0.033)		
Tenure		0.024[3]	(0.011)		

Notes: Superscripts denote significance level.
In this table we report model estimating the hazard rate of transition recall. Except tenure which is now continuous variable and it's interaction with age all other variables are the same as in the Table 4. Panel 2, for comparison replicates result of the previous table.

5.3 Sensitivity analysis

Here we test if results are sensitive to the exclusion of various groups of unemployed. According to current legislation a modified rule in calculation of seniority is applied to workers above 45 years. Section 3 §3 of Swedish Employment Protection Act states that: "The employee may include in the calculation one extra month of employment for each month of employment commenced after the age of 45. However the employee may only be credited with a maximum of 60 such extra months."[22] To check if our results are sensitive to exclusion of this group of unemployed we restrict our sample to individuals from 18 to 44 in order to examine the impact of tenure on this group of unemployed. Results of estimation are presented in Appendix (Table A3).[23] Our results appear to be robust to exclusion of old individuals. In several cases significance of our estimates is alerted. However, our main conclusion about the impact of various covariates on the hazard rate remains unchanged.

---

[22] English translation of the law is available at (www.sweden.gov.se).
[23] Here we estimate Cox proportional hazard model.

5.4 Duration dependence

We examine the pattern of duration dependence using the specification reported in Table 4. Duration dependence, in the model is captured by 18 dummy variables up to 72 weeks, Table A3.

Previous research for Sweden (e.g. Carling et. al., 1996) finds negatively sloped hazards of transition to a job, which is interpreted as declining probability of finding a job as time passes. The authors, report a significant surge in job findings in the weeks just before benefits run out.

Several studies report that risk of transition to recall and to new employment increases prior to the point of benefit exhaustion (Katz, 1986; Katz and Meyer, 1990; Jurajda and Tannery, 2003).

Figure 2 presents baseline hazards with all covariates set to zero. We observe an initial increase in the hazard to a job, followed by a long-lasting decline from 28 to 60 weeks and a spike around week 64, which corresponds to a point of benefit exhaustion. Predicted hazard to a new job exhibits different trend. Hazard to a new job remains almost horizontal until the moment of benefit exhaustion and when it rises. At the same time baseline estimates for hazard on recall are not sensitive to benefits. Contrary to new job hazard, hazard on recall is non-monotonic and declines from week 28 and onwards. A small increase in the recall hazard around week 49 may correspond to the expiry of recall eligibility. As recall eligibility expires workers may inquire to the former employers for job directly or contact representative of the trade union.

Results of the duration dependence agree broadly with the previous findings for Sweden (Jansson, 2002). Similar to our results, the author finds close to horizontal hazard to a new job with strong effect of benefit exhaustion and declining hazard to recall with no clear benefit effect. Our results suggest that the hypothesis that firms recall individuals close to the benefit exhaustion may be rejected.

It is hard to identify an effect of law governing rehires in Sweden. To make inference about the effect of recall legislation on the risk of exit from unemployment we need to compare individuals eligible to be recalled with individuals who, according to the law, do not have a preferential right to return to a previous employer. In the institutional

settings of Sweden every individual who has been employed for at least twelve months in the preceding three years has a right to be reemployed. Thus construction of the "statistical twin" group is impossible; individuals who are eligible to be recalled always have longer tenure. It is unlikely that rules governing the process of recall would restrict "firms will" to choose employees; after all, rules of recall are subject to change at the discretion of the firm. However, it is likely that eligibility to be recalled affect new job finding rates through increased expectation of being recalled.

Figure 2. Predicted hazards
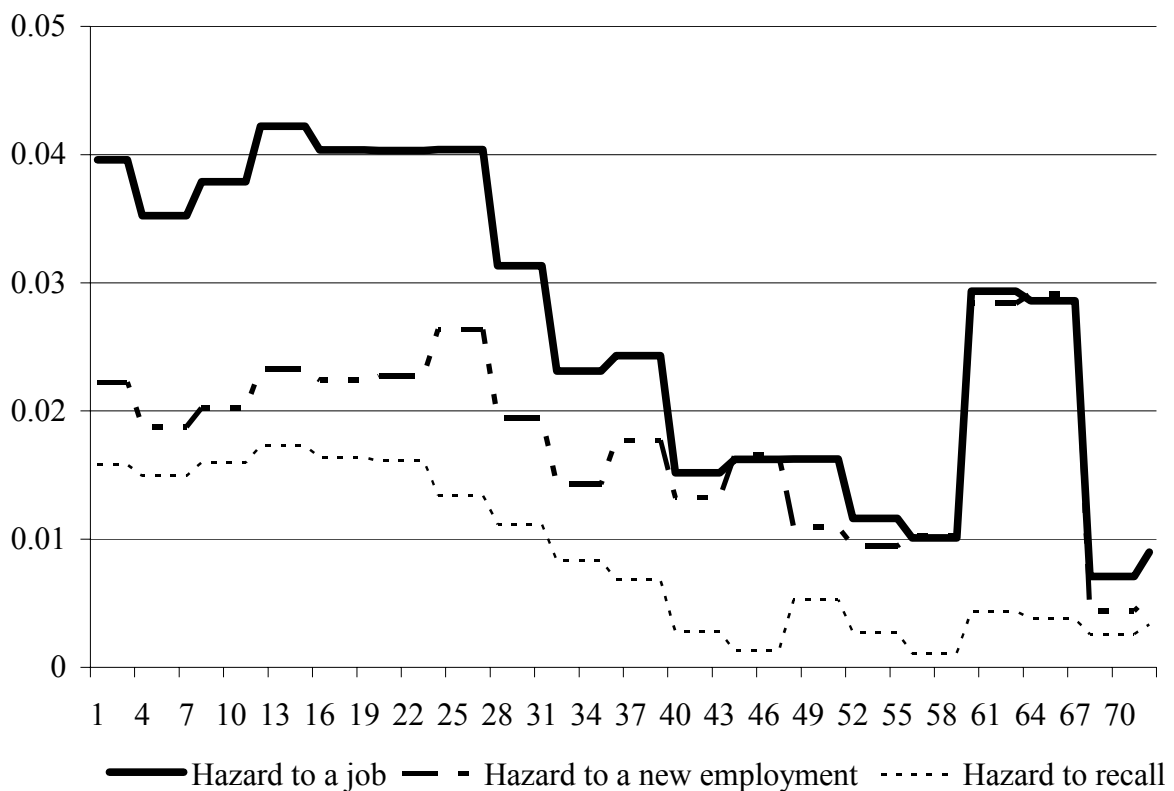
6. Discussion and conclusion

In this paper we looked at the determinants of the individuals' unemployment duration distinguishing between transitions form unemployment to a new job and to recall. The impact of covariates on the hazard rate from unemployment differs significantly between

the alterative destinations. Furthermore, the duration dependency of the hazard rate of transition from unemployment and the impact of the unemployment benefits entitlement also vary depending on the transition destination.

We provide evidence on the impact of individuals' tenure on the duration of unemployment spell in Sweden. Greater tenure raises the hazard of transition to recall but lowers the hazard of transition to a new job. The impact of tenure on the transition hazard is robust to exclusion of old workers protected by Swedish labor law. The private companies tend to rely on recalls less than the state companies. The later result is in line with the evidence presented in Aggel and Lundborg (2003) who report that approximately 57% of companies in their sample of Swedish firms used flexible arrangements to reduce costs associated with permanent labor contracts. Controlling for the effect of industries on the transition from unemployment indicates that recalls seem to be more common in the construction.

The individuals' socio-demographic characteristics such as education, country of birth, geographical location and regional economic conditions tend to have different effects on the hazard rate to a new job and recall. Better educated individuals are more likely to transit to a new job, while less educated workers are more likely to be recalled. This divide may imply that low educated workers are often trapped in unsecured jobs with the same employer. In line with the previous studies (e.g. Hansen, 2000) we report that individuals born outside Nordic countries have lower hazard of exit from unemployment. This conclusion, however, needs further elaboration. The negative impact of being born outside of Sweden is observed only for the hazard of transition to a new job. The risk of recall is not statistically different for immigrants and natives. Thus we are inclined to rule out the hypothesis of discriminatory behavior in the process of recall. Current legislation, the employment protection act, to some degree regulates the process of rehiring thus reinforcing "no discriminatory" behavior of enterprises. The residents of big cities in Sweden tend to have lower chances and lower hazard of transition on recall relative to all other individuals. High level of unemployment in administrative region reduces the hazard to a new job, but increases the risk of recall.

The baseline hazard functions of transition to a new job and recall have different shapes. The hazard to a new job is sensitive to the duration of unemployment

compensation entitlement which supports the predictions of the job-search theory. The exit rate from unemployment increases sharply when the entitlement to benefits expires. In contrast, the hazard of recall is not sensitive to the duration of unemployment benefit entitlement. The later finding is consistent with the theory of implicit contracts (e.g. Feldstein, 1976). We find a further support to the implicit contract hypothesis for recalls is provided by the interaction term of tenure and age. Given an equal tenure, the hazard of recall for older workers is smaller than the hazard of recall for younger workers. A plausible explanation to this fact is that employers are aware of the fact that old workers (aged 55 and above) are entitled to longer insured unemployment spell relative to younger individuals. Nevertheless, our results should be interpreted with caution given our assumption of constant individual expectations of recall may be violated.

Overall we are able to illustrate that a large fraction of unemployed individuals return to a previous employer after a period of unemployment. More importantly, the determinants of transition to a new job and recall are different. Firms' characteristics and individuals' tenure are important factors. The impact of tenure varies from a positive one for the risk of recall to a negative one for the risk of transition to a new job. Unemployment benefits have strong impact on the hazard to a new job, but have only limited effects on transition on recall. We present evidence that companies in Sweden may deviate from the norms suggested by the Swedish labor law by first recalling young individuals. However, these deviations are generally allowed subject to the trade-union approval.

The main policy implication of our paper concerns the potential importance of accounting for recall in targeting the active labor market policies for the unemployed. As it stands now the government objective is to offer the participation in active labor market programs at a relatively early stage of unemployment (Ackum Agell et al., 2002). To improve a relatively weak effect of early labor market interventions (Carling and Larsson, 2005) and avoid breaking valuable job matches it may be reasonable to condition participation in the programs on individual expectations of recall.

References

Alba-Ramirez A., and Munoz-Bullon F., (2004) Unemployment duration, unemployment insurance and temporary layoff in Spain. Paper presented at the conference "European unemployment: Recent developments in duration analysis using register data", Mannheim 2004.

Ackum Agell S., Forslund A., Hemström M., Nordström Skans O., Runeson C., Öckert B., (2002). Follow-up of EU's recommendations on labour market policies. IFAU, 2002:3.

Agell, J. and Lundborg, P. (2003), Survey Evidence on Wage Rigidity and Unemployment: Sweden in the 1990s., Scandinavian Journal of Economics, Vol.105(1).

Anderson, P. M. (1992). Time-Varying Effects of Recall Expectation, a Reemployment Bonus, and Job Counseling on Unemployment Durations. Journal of Labor Economics, Vol.10 (1).

Arai, M. and Vilhelmsson, R., (2004). Unemployment-Risk Differentials between Immigrant and Native Workers in Sweden. Industrial Relations, Vol. 43 (3), pp. 690-98.

Auer P. and Cazes S., (2000). The resilience of the long-term employment relationship: Evidence from the industrialized countries. International Labour Review, Vol. 139(4).

Becker, G. S. (1964). Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education, Columbia University Press for National Bureau of Economic Research, New York.

Botero, S., Djankov, R., La Porta, F., Lopez-de-Silanes and Shliefer A. (2004). The Regulation of Labor, Quarterly Journal of Economics, November, 2004

Burgess, P. L., Stuart, L. A., (1998). How do unemployment insurance and recall expectations affect on-the-job search among workers who receive advance notice of layoff? Industrial & Labor Relations Review, Vol. 51(2).

Carling K., Holmlund B., and Vejsiu A., (2001). Do Benefit Cuts Boost Job Finding? Swedish Evidence from the 1990s, Economic Journal, Vol. 111(474), pp. 766-90.

Carling, K. P-A Edin, A Harkman and B Holmlund, (1996). Unemployment Duration, Unemployment Benefits, and Labor Market Programs in Sweden. Journal of Public Economics, Vol.59(3), pp. 313-34.

Edin, P-A and P Fredriksson (2001), LINDA - Longitudinal INdividual Data for Sweden, Working Paper 2001:6, Department of Economics, Uppsala University.

Fahlbeck R., (1997). Labour and Employment Law in Sweden. Juristförlaget i Lund.

Feldsein M., (1976). Temporary layoffs in the theory of unemployment. Journal of Political Economy. Vol 84, pp.937-957.

Feldstein, M., (1978). The Effect of Unemployment Insurance on Temporary Layoff Unemployment. American Economic Review, Vol.68(5), pp. 834-46.

Fischer, G., and Pichelmann, K., (1991). Temporary Layoff Unemployment in Austria: Empirical Evidence from Administrative. Applied Economics, Vol.23(9), pp. 1447-52.

Freeman R. B., and Lazear E. P. (1998). Relational Investing: The Worker's Perspective. Meaningful Relationships: Institutional Investors, Relational Investing and the Future of Corporate Governance, eds. Ronald Gilson, John C. Coffee and Louis Lowenstein (New York: Oxford University Press),

Haltiwanger J. C., (1984). The Distinguishing Characteristics of Temporary and Permanent Layoffs. Journal of Labor Economics, pp. 523-538.

Hansen J., (2000). The Duration of Immigrants' Unemployment Spells: Evidence from Sweden. Discussion paper N155, Institute of the study of labor (IZA).

Hashimoto, M. (1981). Firm-specific Human Capital as a Shared Investment, American Economic Review 71, 475–482.

Holmlund, B., (1998). Unemployment Insurance in Theory and Practice. Scandinavian Journal of Economics. Vol. 100 (1), pp. 113-41.

Holmlund, B., and Storrie D., (2002). Temporary Work in Turbulent Times, Economic Journal. Vol. 112(480), pp. 245-69.

Idson, T. L., and Valletta, R., G., (1996). Seniority, Sectoral Decline, and Employee Retention: An Analysis of Layoff Unemployment Spells. Journal of Labor Economics, Vol. 14(4), pp. 654-76.

Jansson F., (1996). Återflödet till arbetsförmedlingen efter ett arbete. in Harkman et al. Arbetslöshetsersättningen och arbetsmarknadens funktionssätt, Arbetsmarknadsstyrelsen, Ura 1997:1.

Jansson, F. (2002). Rehires and Unemployment Duration in the Swedish Labour Market--New Evidence of Temporary Layoffs. Labour, Vol.16 (2), pp. 311-45.

Jenkins S. P., (2004). Survival analysis. Lecture notes, <http://www.iser.essex.ac.uk/teaching/degree/stephenj/ec968>.

Jensen ,P. and Westergård-Nielsen, N., (1990). Temporary Layoffs. in Hartog J. m.fl (ed.) Panel Data and Labour Market Studies, Amsterdam, North-Holland.

Jurajda, S., (2004). Recalls and Unemployment Insurance Taxes. Applied Economics Letters, Vol. 11(10), pp. 651-56.

Jurajda, S., Tannery, F. J., (2003) Unemployment Durations and Extended Unemployment Benefits in Local Labor Markets. Industrial and Labor Relations Review. Vol. 56(2), pp. 324-48

Katz L. and Meyer B., (1990). Unemployment Insurance, Recall Expectations, and Unemployment Outcomes. The Quarterly Journal of Economics, Vol. 105(4), pp. 973-1002.

Katz L., (1986). Layoffs, Recall and the Duration of Unemployment, NBER Working Paper No. 1825.

Carling K., and Larsson L., (2005). Does early intervention help the unemployed youth? Labour Economics, (*forthcoming*).

Lancaster, T. (1990), "The econometric analysis of transition data", Econometric Society Monographs, Cambridge University Press, Cambridge.

Lazear E. P., (1979). Why is there mandatory retirement? Journal of Political Economy, Vol. 87, pp. 841-64.

Lazear E. P., (1981). Agency, earnings profiles, productivity and hours restrictions. American Economic Review, Vol. 71, pp. 606-20.

Lazear E. P., (2003). Firm-Specific Human Capital: A Skill-Weights Approach, NBER Working Paper No. w9679.

Mavromaras, K., G. and Orme, C., D., (2004) Temporary Layoffs and Split Population Models; Journal of Applied Econometrics, Vol. 19(1), pp. 49-67.

Mavromaras, K.,G. and Rudolph, H., (1998). Temporary separations and firm size in the German labour market. Oxford Bulletin of Economics & Statistics, Vol. 60(2), pp. 215-226.

Narendranathan, W., and Stewart, M., B., (1993). Modelling the Probability of Leaving Unemployment: Competing Risks Models with Flexible Base-line Hazards. Journal of the Royal Statistical Society: Series C (Applied Statistics), Vol. 42(1), pp. 63-84.

Parson D., O. (1972). Spesific Human Capital: An Application to Quit Rates and Layoff Rates. Journal of Political Economy, Vol. 80, pp.1120-43.

Pissarides, C. A., (1982). Job Search and the Duration of Layoff Unemployment; Quarterly Journal of Economics. Vol. 97(4), pp. 595-612

Robertson, M., (1989) Temporary Layoffs and Unemployment in Canada, Industrial Relations, Vol.28(1), pp.82–90.

Rodriguez-Planas, N., (2004) Playing Hard to Get: Theory and Evidence on Layoffs, Recalls und Unemployment, Federal Reserve Board Working Paper, Discussion Series No. 1999-09.

Roed, K. and Nordberg, M., (2003). Temporary Layoffs and the Duration of Unemployment, Labour Economics, Vol. 10, 381-398.

Valletta R., (1999). Declining Job Security. Journal of Labor Economics, (part 2). Vol. 17(4), pp. 170-97.

Valletta R., (2000). Declining Job Security. On the job: Is long-term employment a thing of the past? New York: Russell Sage Foundation, pp. 227-56.

van Peijpe T. and Blanpain R., (1998). Employment Protection under Strain (Sweden, Denmark, The Netherlands). Bulletin of Comparative Labour Relations 33.

Appendix A

Table A1. Share of recall among employed workers by tenure

	Recall	New job
Tenure<=1	37.97	62.03
1<Tenure<=2	48.82	51.18
2<Tenure<=3	51.90	48.10
3<Tenure<=4	55.52	44.48
4<Tenure<=5	56.93	43.07
5<Tenure<=6	56.68	43.32
6<Tenure<=7	56.14	43.86
7<Tenure	62.17	37.83

Table A2. Distribution of mean unemployment duration days by tenure

	Total			Recall			New Job		
	Mean	Std.	Median	Mean	Std.	Median	Mean	Std.	Median
Tenure<=1	76.02	72.57	53	71.89	65.85	53	78.55	76.31	53
1<Tenure<=2	82.46	79.34	62	74.23	66.21	69	90.31	89.49	56.5
2<Tenure<=3	76.62	71.47	59	67.15	60.63	65.5	86.84	80.48	47.5
3<Tenure<=4	85.37	81.62	62	73.74	67.07	77	99.88	95.05	56
4<Tenure<=5	91.31	81.02	70	88.32	77.74	72	95.25	85.67	70
5<Tenure<=6	95.82	79.23	77	95.17	73.01	73	96.67	87.15	82.5
6<Tenure<=7	102.88	96.80	79	90.13	54.40	77	119.20	132.46	84.5
7<Tenure	112.61	120.88	70	100.55	107.13	70	132.42	138.91	70.5

Table A3. Cox model, excluding individuals above 44

		Employment		New Job		Recall	
		1		2		3	
		Coeff.	Std.	Coeff.	Std.	Coeff.	Std.
Age:	18-24	0.184[1]	(0.045)	0.208[1]	(0.059)	0.148[4]	(0.069)
	25-34						
	35-44	-0.116[2]	(0.046)	-0.217[1]	(0.064)	-0.001	(0.067)
Male		0.077[6]	(0.040)	0.054	(0.053)	0.107[9]	(0.062)
Child<=7		-0.009	(0.042)	-0.023	(0.058)	0.011	(0.063)
Tenure:	Tenure <=1						
	1<Tenure<=2	0.042	(0.047)	-0.143[3]	(0.064)	0.296[1]	(0.073)
	2<Tenure<=3	0.074	(0.058)	-0.148[7]	(0.080)	0.365[1]	(0.086)
	3<Tenure<=4	-0.014	(0.065)	-0.268[1]	(0.092)	0.301[1]	(0.097)
	4<Tenure<=5	-0.096	(0.100)	-0.340[3]	(0.149)	0.215	(0.141)
	5<Tenure<=6	-0.108	(0.076)	-0.414[1]	(0.121)	0.246[2]	(0.105)
	6<Tenure<=7	-0.036	(0.153)	-0.263	(0.239)	0.226	(0.215)
	7<Tenure	-0.205[3]	(0.091)	-0.522[1]	(0.138)	0.158	(0.120)
Education:	< Upper secondary, 2						
	Upper secondary, 2	0.055	(0.054)	0.220[1]	(0.079)	-0.111	(0.075)
	Upper secondary, 3	0.168[1]	(0.062)	0.349[1]	(0.087)	-0.016	(0.088)
	University	0.233[1]	(0.061)	0.549[1]	(0.084)	-0.159[9]	(0.092)
Country of origin:	Sweden						

		Coeff.	Std.	Coeff.	Std.	Coeff.	Std.
	Nordic	-0.031	(0.130)	0.084	(0.165)	-0.203	(0.204)
	Europe	-0.431[3]	(0.194)	-0.749[2]	(0.293)	-0.110	(0.240)
	Other	-0.340[1]	(0.111)	-0.441[1]	(0.149)	-0.220	(0.167)
Regional characteristic	Regional unemployment rate	-0.014	(0.014)	-0.051[1]	(0.018)	0.030	(0.021)
	Big city	-0.176[1]	(0.052)	-0.056	(0.067)	-0.348[1]	(0.086)
Enterprise characteristics	Private ownership	-0.104[4]	(0.050)	-0.058	(0.067)	-0.163[3]	(0.074)
	ln(size)	0.017	(0.011)	0.005	(0.015)	0.0345	(0.017)
Industry:	Manufacturing	-0.127[4]	(0.058)	-0.134[10]	(0.079)	-0.118	(0.086)
	Construction	0.363[1]	(0.059)	0.158[8]	(0.088)	0.566[1]	(0.085)
	Service & finance	-0.168[1]	(0.055)	-0.062	(0.072)	-0.330[1]	(0.090)
	Other						
Quarter of inflow:	Autumn	-0.148[1]	(0.053)	-0.037	(0.072)	-0.291[1]	(0.083)
	Winter						
	Spring	-0.063	(0.052)	-0.057	(0.072)	-0.062	(0.077)
	Summer	-0.062	(0.046)	-0.073	(0.063)	-0.041	(0.069)
Log-likelihood value		-24346.28		-13376.28		-10883.62	

Notes: Superscripts denote significance level.
In this table we perform sensitivity check by excluding all individuals older than 45. The sample consists of 6175 individuals and 77790 individual weeks. First panel, to the left, estimates the hazard rate to a job without distinguishing new job and recall. Out of 3041 individuals who transit to a job, 1692 transit to a new job and 1349 transit to recall. Panel two and three report results of independent competing risk specification distinguishing between new job and recall. Coefficients indicate variables' effects on the hazard function, a positive coefficient increases the probability of exit, and thereby decreases expected duration.

Table A4. Estimates of baseline hazard parameters

		Employment		New Job		Recall	
		1		2		3	
	Weeks	Coeff.	Std.	Coeff.	Std.	Coeff.	Std.
Duration parameters	1-4	1.112[1]	(0.390)	-0.154[4]	(0.073)	1.317[3]	(0.574)
	5-8	1.002[2]	(0.391)	0.181[3]	(0.081)	1.265[3]	(0.574)
	9-12	1.083[1]	(0.391)	-0.092	(0.067)	1.340[2]	(0.575)
	13-16	1.204[1]	(0.392)	-0.154[4]	(0.073)	1.427[2]	(0.576)
	17-20	1.172[1]	(0.393)	0.181[3]	(0.081)	1.383[2]	(0.577)
	21-24	1.182[1]	(0.394)	-0.092	(0.067)	1.376[2]	(0.580)
	25-28	1.196[1]	(0.396)	-0.154[4]	(0.073)	1.202[4]	(0.584)
	29-32	0.953[2]	(0.402)	0.1813	(0.081)	1.026[9]	(0.592)
	33-36	0.663	(0.412)	-0.092	(0.067)	0.744	(0.607)
	37-40	0.731[8]	(0.416)	-0.154[4]	(0.073)	0.562	(0.625)
	41-44	0.273	(0.441)	0.181[3]	(0.081)	-0.334	(0.725)
	45-48	0.354	(0.447)	-0.092	(0.067)	-1.08[5]	(0.907)
	49-52	0.365	(0.457)	-0.154[4]	(0.073)	0.328	(0.683)
	53-56	0.050	(0.498)	0.181[3]	(0.081)	-0.327	(0.810)
	57-60	-0.075	(0.542)	-0.092	(0.067)	-1.217	(1.150)
	61-64	1.032[3]	(0.463)	-0.154[4]	(0.073)	0.189	(0.809)
	65-68	1.057[3]	(0.487)	0.1813	(0.081)	0.068	(0.904)
	69-72	-0.303	(0.803)	-0.092	(0.067)	-0.286	(1.151)

Notes: Superscripts denote significance level. First panel presents baseline hazard parameters of a single destination model to a job. Panel two and three report the baseline hazard parameters of independent competing risk specification distinguishing between transition to a new jobs and recall.