

# Has Job Stability Decreased in Norway?\*

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## **Abstract**

A widespread belief in the popular press is that job stability has declined across Western economies over the last 15 years. However, little support for this is found in the empirical literature. We use an extensive employer–employee data set for Norway to analyse changes in job stability in Norway by first presenting descriptive measures of job stability for manufacturing, the public sector and private services. Both descriptive analyses of tenure, hire and separation rates as well as regression-adjusted measures controlling for changes in demographics and the business cycle, indicate a slight decrease in job stability in Norway driven by increased job separation rates. These changes are not equally distributed across sectors or sub-groups of workers. However, we do not find that this tendency towards less stable jobs led to an increase in job-to-unemployment/out of the labour force; rather it was characterized by more job-to-job changes.

**Keywords:** Job stability, employer-employee data.

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## **1. Introduction.**

A widespread belief in the popular press is that job stability has declined across Western economies over the last 15 years. This is supported by subjective sentiments of more job insecurity among workers (OECD, 1997). The main reasons suggested is that increased globalization and technological change lead firms to new staffing behaviour such as more focus on the use of temporary jobs, outsourcing of tasks and dividing some tasks into temporary projects (Levine, 2002). The issue has recently been stressed by the strong downsizing of the manufacturing sector in many Western countries. In Norway, the share of the labour force in the manufacturing sector has decreased from about 18 per cent to 12 per cent over the last 10–15 years and most rapidly over the last 5–6 years. However, most empirical studies have been using US or UK data, and they either find little support for large decreases in job stability or some support for very small changes for some worker groups.

This paper adds to the literature by analysing the stability of jobs in Norway over a 15-year period from 1986–2002. Several characteristics of the Norwegian economy make it a good case for analysing changes in job stability. First, it is a very open economy, which means that firms have to adjust to the international competitive climate because of quite strong export and import competition. Second, it has been noted by many authors that Norway demonstrates a compressed wage structure that has not changed much over time (Aaberge et al., 2000; Kahn, 1998). As a consequence, we do not expect strong competition from abroad that affects changes in firms' organization and staffing behaviour to be dampened by wage adjustment.

In this paper, we use an extensive employer–employee data set for Norway to analyse changes in job stability first by presenting descriptive measures of job stability for manufacturing, the public sector and private services. We use tenure as a measure of job stability. We divide these measures by gender as well as assessing the tenure distribution over

time for different sectors. Then we analyse the pattern of hires and separation rates in order to assess at which margin the changes are taking place.

We focus especially on two issues. First, the main sectors, such as the manufacturing, private services, and the public sectors, have undergone quite different structural changes in the period we are analysing. The manufacturing sector has been downsized dramatically. The private services and, not least, the public service sector in Norway have expanded. However, the public sector has undergone a quite strong modernization allowing for private competition in areas earlier protected as natural monopolies, such as postal services, electricity and telecommunication. Hence, not only do we have to take into account cyclical differences and compositional differences in the labour force in order to estimate secular changes in job stability, but also the different patterns of structural change taking place across industries. For instance, it is not obvious that we want to interpret increased tenure for older workers in the manufacturing sector as increased job stability when the sector is downsizing dramatically. Since we have matched employer–employee data we can calculate the net job creation at the firm level in order to assess differences in structural changes.

The second issue we are looking at is to what extent a reduction in tenure follows from job-to-job movement or whether it follows from increased job loss either by leaving the labour force or by unemployment. Using population-level data that includes not only those in the labour force but also those in other labour market states, we evaluate whether changes in job stability lead to increased movement between jobs or an increased probability of being out of work. Clearly, these two outcomes have very different policy implications.

The rest of the paper is organized as follows. We first present a short review of the literature before the data set is presented. Then we provide descriptive statistics in order to compare directly the results for Norway with previous figures for other countries. But since we are primarily interested in secular changes and not cyclical differences or compositional

changes in the labour force, we present regression-adjusted measures of tenure and separation rates. In the last section, we conclude.

## **2. Previous literature.**

Most of the literature in this field consists of studies from the US or the UK plus some few studies from non-Nordic European countries. This is the first Norwegian study.

Studies carried out in the US and the UK during the past decade have not reached any agreement on the question of job stability. One group of US studies finds a high degree of stability in job tenure during the 1980s and the 1990s, while other researchers report reduced stability as we approach the mid 1990s. Authors who find signs of decreasing job stability, particularly in the mid 1990s and for workers with low education and/or high seniority, are Neumark, Polsky and Hansen (1999) and Diebold, Neumark and Polsky (1997). Valetta (1999), on the other hand, finds no sizeable change. Note that different data sets have been used when these different results have been established, namely the Current Population Study (CPS) and the Panel Study of Income Dynamics (PSID). Jaeger and Huff Stevens (1999) use both data sets for the exact same time period, and find that the alleged divergence disappears. Their conclusion is that job stability has decreased during the 1990s for older workers. A recent study from the US using a data set for older men from 1969 to 1998 reaches the same conclusion (Huff Stevens, 2005).

Researchers in the UK have also come to different conclusions regarding job stability. Burgess and Rees (1996, 1998), applying data from The General Household Survey, find no change in the stability between the mid 1970s to the mid 1990s. Gregg and Wadsworth (1995), on the other hand, study the same period but with data from The British Labour Force Survey and find a drop in job stability at the end of the period. Gregg and Wadsworth (2002) compare these works and extend the period of observation from 1975 to 2000 and they too

report decreasing job stability, particularly for some sub-groups of workers in the second half of the 1990s. The groups that have experienced reduced job stability are older workers with long tenure and women with children. The latter is probably due to more generous maternity leave arrangements.

Some studies from other European countries are also worth noting. Bergemann and Mertens (2004) analyse the job stability in Germany in the period 1984 to 1997. They find no change in the stability for women, but somewhat decreased stability for men. They claim that the reduced tenure for men is caused by an increase in the degree of job separation, and not due to changes in the degree of new hires. Interestingly, they find no increase in transitions from job to joblessness; rather, it is the ratio of job-to-job transitions that has increased.

### **3. Data and methods.**

We use data from different Norwegian registers covering the period 1986–2002, provided by Statistics Norway.<sup>1</sup> An important characteristic of our data is the merging between the individual and the plant (employer–employee), and between the individual and labour market outcomes. This allows us to identify the year in which each individual was hired and in which plant. Hence, we can measure and model changes in job stability both in terms of length of tenure and in terms of the probability of plant separation. In addition, the data set contains individual background information like age, gender, education, etc., and sector classification of the plants. Information is updated yearly.

The data set covers the full population. We include all individuals 16–55 years of age that were employed at least one year during the period 1986 to 2002. The sample is truncated at 55 years partly to avoid early retirees being counted as unemployed, and partly to reduce a

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<sup>1</sup> See Møen, Salvanes and Sørensen (2004) for a description of the data applied in the present analysis.

censoring problem.<sup>2</sup> In any year, a person is defined as an employee if he/she is registered with a valid plant-ID. If not, he/she is defined as jobless.

We apply two types of indicators of job stability: tenure and job transition rates. Tenure in a given year is calculated as the time span between the recorded job start and the yearly update (May 31 until 1995; November 30 thereafter). Job transitions are based on plant identifiers. A transition to a *new job* is defined as being employed in  $t$  and being recorded as employed, but not at the same plant in  $t + 1$ . Transitions to *joblessness* are defined as being employed with a valid plant identifier in  $t$  but having no plant information in  $t + 1$ . Thus transitions out of the labour force are included as well as transitions to unemployment. Transition rates to joblessness and to new jobs sum up to *separation* rates.

In the analysis, we first present graphical evidence of tenure and transition rates, broken down by gender, age, and industry, where the purpose is to reveal any time trends consistent with decreasing (or increasing) job stability. We then proceed to regression analyses where the purpose is the same, but we control for changing population characteristics and for the state of the business cycle. In the tenure regressions, we focus on whether the probability of having short, long, or “intermediate” tenure has changed, by dividing the tenure distribution into <1 year, 1–7 years, and  $\geq 8$  years.<sup>3</sup> We proceed in two steps, following Jaeger and Huff Stevens (1999) and Gregg and Wadsworth (2002). In step 1, we pool all available years of individual information and use a logistic regression to estimate:

$$(1) y_{j,it}^* = \gamma_{j,t} + \beta_j' X_{it} + \varepsilon_{j,it},$$

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<sup>2</sup> There is a certain clustering of individuals registered with job start in 1978.

<sup>3</sup> As noted above, many job starts are censored in 1978. By choosing eight years as the limit for long tenures, we avoid erroneous coding for 1986.

where  $y_{j,it}^*$  is individual  $i$ 's propensity to belong to tenure band  $j$  in year  $t$ ,  $\gamma_{j,t}$  is a year-specific intercept,  $X_{it}$  is a vector of individual and job characteristics with an according vector  $\beta_j$  of coefficients, and  $\varepsilon_{j,it}$  is an error. The variables included in  $X_{it}$  are age (<25, 26–35, 36–45, 46–55), education ( $\leq 10$ , 11–14,  $\geq 15$ ), nationality (Norwegian/non-Norwegian), industry (first digit in ISIC code) and plant size (number of employees). Based on these regressions, performed by gender, we calculate estimates of year-specific probabilities for groups  $k$  as  $\hat{P}_{j,kt} \equiv \Lambda(\hat{\gamma}_{j,t} + \hat{\beta}_j' \bar{X}_{kt})$ , where  $\Lambda(\cdot)$  denotes the logit function. The averages are calculated for the full sample or for sub-groups (age and industry). Group-specific marginal effects of the year dummies are calculated as  $\hat{M}_{j,kt} = \hat{\gamma}_{j,t} \hat{P}_{j,kt} (1 - \hat{P}_{j,kt})$ .

In the second step, we estimate linear regressions:

$$(2) \hat{M}_{j,kt} = \alpha_0 + \alpha_1 t + \alpha_2 U_t + e_{j,kt},$$

where  $U_t$  is the LFS unemployment rate, included to control for business cycle effects.<sup>4</sup> The parameter of interest, which will be reported in the results section, is the time trend,  $\alpha_1$ . An  $\alpha_1$  estimated significantly different from zero implies support to the hypothesis of changing tenure and, hence, changing job stability. Because the marginal effects are estimates, we report bootstrapped standard errors. Trends in transition rates are estimated using the same technique.

In the next section, we present some descriptive evidence on job stability, based on graphical illustration of median tenure and the transition rates defined above. Due to practical considerations, a 10 per cent random sample is used when constructing the figures. A redefinition of the public statistics implied that the new job rates had to be smoothed for the

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<sup>4</sup> Here, we follow Gregg and Wadsworth (2002) in using marginal effects. Jaeger and Huff Stevens (1999) use the estimated probabilities.

years 1995 and 1996; this also applies for the separation and jobless rates in 1994 and 1995. When we consider sector differences, we focus on the manufacturing sector and the private and public service sectors, omitting the remaining sectors.

#### **4. Descriptive evidence.**

##### **4.1 Median tenure.**

We begin by showing the gender-wise development of tenure for all employees in the period 1986 to 2002. The purpose is to illustrate whether jobs have become more unstable in the period. To the degree that we find a long-term negative trend in tenure, beyond what can be expected due to the business cycle – represented by the unemployment rate – it might be interpreted as a support for the instability hypothesis.

Figure 1. Median Tenure and Unemployment in Norway 1986–2002.

Figure 1 shows the median tenure by gender. We note that, as expected, women have shorter tenures than men. Median tenure decreases in the mid 1980s and then increases steadily through the recession in the late 1980s and early 1990s. When the economy recovers around 1994, median tenure appears to drop, but later for women than for men. The recession from 1998 was, however, not accompanied by increased tenure, so the negative trend from the mid 1990s appears to be independent of the business cycle. When tenure is stratified by age groups<sup>5</sup> it increases with age, as expected. Interestingly, the development of tenure appears to be more stable for the younger relatively to the older age groups. The oldest age groups respond the strongest to the business cycle and have the clearest indication of a negative trend in tenure from the mid 1990s onwards.

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<sup>5</sup> The age heterogeneity is not reported in this section but will be presented in the econometric analysis in Section 5.



Figure 2. Median Tenure in Norway 1986–2002 by Gender and Industry.

The business cycle affects different sectors in different ways. In addition, major structural changes have taken place within the sectors, like the downsizing of the industrial sector, the modernizing of the public sector, etc. Such changes are likely to have an impact on the job stability in the sectors. Figure 2 illustrates the development of tenure in the manufacturing sector, and in private service and the public sector, respectively. Tenure is lowest in the private service sector, for the entire period and for men as well as for women. The negative trend from the mid 1990s detected in Figure 1 appears to be prevalent in the private and public service sectors. Note, however, that the manufacturing sector evolves differently, with a slightly positive trend in the same period. It turns out that the increasing tenure at the end of the period stems from the oldest workers. In this case, increasing tenure should not be interpreted as increasing job security. On the contrary, the Norwegian manufacturing sector has been influenced by an increasing degree of competition, with international mergers, companies registering abroad, and unfavourable exchange rates being key ingredients. In the resulting downsizing, the seniority policy implied that employees with the least tenure were the first to go. In addition, young employees probably switched to other sectors to a larger degree than their older colleagues. In both cases, the median tenure for the remaining (increasingly older) labour force has increased.

#### **4.2 Hiring and separation rates**

As mentioned above, decreasing (increasing) tenure can be a result of an increasing (decreasing) fraction of newly hired employees, and/or an increasing (decreasing) fraction of separations (quits/layoffs). In this section, we report the descriptive evidence for both cases.

Figure 3. Hiring Rates in Norway 1986–2002 by Gender and Industry.

It is hard to determine any patterns in Figure 3. There has been some variation over the period, particularly in the service sectors, but nothing that supports the decreasing tenure in the service sectors at the end of the period. The exception is the manufacturing sector, where the rates move slightly downward in the last five observation years, supporting the upward movement in tenure.

Figure 4. Separation Rates in Norway 1986–2002 by Gender and Industry.

Figure 4 reveals a tendency of increased separation rates in recessions, leading to the lowest rates actually observed in 1992 and 1993, at the end of a recession. For the private service and public sector, there is a marked jump from 1993 to 1996,<sup>6</sup> after which the rates fluctuate around what appears to be a higher level than in the early 1990s. This coincides with the decreasing tenure level in the same period.

The separation rates for the manufacturing sector are somewhat lower, and the increase at the end of the period not that distinct. Recall that this is the sector where median tenure *increased* in the late 1990s.

Figure 5. Net Job Creation Rates in Norway 1986–2002 by Industry.

Figure 5 shows net job creation rates for the same sectors. The net job creation rate in any given year is the net job change in existing plants (positive or negative) plus the number of jobs in new plants minus the number of jobs in closed plants divided by total employment

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<sup>6</sup> Because of incomplete plant information, the rates could not be computed for 1994 and 1995.

(see Salvanes and Førre (2003) for a formal definition). The figure shows that the manufacturing sector has the lowest net job creation rate of the period and that it enters a period of negative rates as a result of the crisis towards the end of the 1990s. This sheds light on the tenure development in the sectors, and is a reminder that increased tenure should not necessarily be interpreted as increased job security. In the manufacturing sector the increasing tenure appears to be a result of downsizing and stagnation. Job creations have been outnumbered by job destructions. Workers have left the sector to a larger degree than in the other two sectors. But since the outflowing workers are younger and with lower tenure the remaining workers will have higher tenure. Obviously, this mechanism does not imply increased job security in the manufacturing sector; the opposite is more likely.

#### **4.3. From job to job or from job to joblessness?**

There may be several explanations to the observed decreasing tenure in the private service and public sectors. One possibility is that workers, voluntarily or involuntarily, leave the plant more often than earlier. This type of restructuring is hardly a welfare problem if the workers are re-employed within a short period. On the contrary: in that case decreasing tenure might be interpreted as a sign of increased flexibility in the labour market. If, on the other hand, those who leave the plants end up as unemployed, increased separation rates represent a welfare loss to the individuals and to society. In this section, we explore whether the alleged increase in separation rates implies less security in the form of joblessness, or whether the separations are followed by new jobs with new employers.<sup>7</sup>

Figure 6. Job Change Rates in Norway 1986–2002 by Gender and Industry.

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<sup>7</sup> See Section 3 for definitions.

Figure 6 suggests the latter. To leave one employer and be hired by another within one year is much more common in the late relative to the early part of the 1990s. According to Figure 7 below the alternative outcome, to become jobless, actually has become less frequent more or less during the whole period. Figure 6 also shows that the strongest increase in job changes is within private services, the sector with the strongest decline in median tenure. Correspondingly, the manufacturing sector, where tenure is increasing in the final years of the observation period, also has the lowest rates of job changes.

Figure 7. Joblessness in Norway 1986–2002 by Gender and Industry.

Figure 7 indicates that sector differences in joblessness transitions are relatively small, although women in the private service sector face the highest risk of becoming jobless for almost the entire period. We note a slight increase for all sectors at the very end of the period.

## **5. Regression results.**

The descriptive analysis in the previous section is not sufficient to conclude that there are trends in our material. First, these rates are unconditional on the business cycle, which undoubtedly is a determinant for job stability, but is not what we are looking for in the present analysis. Second, job stability also is affected by the composition of individual characteristics in the population, like age, education, etc., and the characteristics of the work place, like firm size, industry, etc. In this section we follow Jaeger and Huff Stevens (1999) and Gregg and Wadsworth (2002) and proceed in two steps to obtain estimates of tenure trends, as detailed in Section 3. We report estimated time trends in the three tenure bands, first by gender and age, and then by gender and industry.<sup>8</sup>

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<sup>8</sup> First step results are reported in the Appendix.

Table 1. Estimated Tenure Trends by Gender and Age.

Table 1 shows the estimated time trends for the full sample and by age (the unemployment coefficients are suppressed in the table). We follow Gregg and Wadsworth and multiply the estimates and the standard error by 100, thus the estimates may be interpreted as yearly percentage point changes in the average probability of belonging to a certain tenure band. For men, we find that there are positive trends in the probabilities of belonging to the lowest bands, and negative trends in the probability of having eight years or longer tenure. When splitting by age, we find that the tendency to reduced probability of having long tenure is most accentuated for the age groups above 35. However, none of the estimated trends in the lowest and highest bands are significant for women, while there appears to be a significantly negative trend in the probability of having tenure of intermediate length (1–7 years).

Table 2. Estimated Tenure Trends by Gender and Industry.

Table 2 shows time trends by gender and industry, based on the same first step estimation as Table 1.<sup>9</sup> We see that the largest inter-industry differences for male employees are in the upper part of the tenure distribution, from 0.12 to 0.25 per cent yearly reduction in the probability of having at least eight years' tenure. There are also differences in the lower part: the increase in short tenures is smallest in the manufacturing sector. This is compatible with Figure 2 where we saw an increase in median tenure in manufacturing. The regression results for women are less clarifying, as the only significant trends are found in tenures of intermediate length.

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<sup>9</sup> We report results for the same sectors as in the graphical analysis in Section 4, but private services are disaggregated into wholesale and financing, according to the first digit in the ISIC codes.

We now turn to estimates of trends in separation rates, job-change rates, and joblessness rates. As in Section 4, a job separation in year  $t$  is defined as being in firm  $j$  in year  $t$ , but not in year  $t + 1$  (having a valid firm ID in year  $t$  but not having the same ID in year  $t + 1$ ). Separations are divided into job changes (new valid firm ID in  $t + 1$ ) and job losses (no firm ID in  $t + 1$ ).

Table 3. Job Separations, Job Changes and Joblessness: Estimated Trends by Gender and Age.

For both genders there is a positive but insignificant trend in the probability of a job separation. However, the trends in job changes and joblessness are significant. There is a positive trend in the job-change rate and a negative trend in the joblessness rate. Thus there is an increased tendency for turnover, but not for unemployment. This picture is consistent with a fairly stable (compared to other European countries) unemployment rate. In particular, joblessness has decreased most in the youngest and the oldest age groups. The increase in the job-change rate is inversely related to age.

Table 4. Job Separations, Job Changes and Joblessness: Estimated Trends by Gender and Industry.

Table 4 shows trends in the same rates by industry. There is little variation across industries in the separation rates, however there is slightly more variation in the job-change and joblessness rates.

## **6. Conclusions.**

We have analysed the degree of job stability in Norway over a 15-year period from 1986–2002. Our findings broadly correspond to the results reported from other countries. First, we

find – when aggregating over all sectors and all groups of workers – that there appears to be a small decline in tenure during the second half of the 1990s. In the descriptive part of our analysis there is a distinct heterogeneity between sectors. While the private service and public sectors have experienced a noticeable decline in median tenure, tenure has increased in the manufacturing sector in the same period. When controlling for the business cycle and individual and plant characteristics, we estimate a small negative trend for all branches, including manufacturing. However, the three main sectors have undergone very different changes and care has to be taken when interpreting the results. The quite severe downsizing of the manufacturing sector as picked up by a negative net job creation rate is very different from the expansion of the two other sectors.

In the final part of the descriptive section we ask whether the alleged decreasing tenure is due to increased in-stream of new employees or, alternatively, increased ratio of employees separating from an establishment to enter a new job or to transit to joblessness. Our findings point in the direction of the latter: Reduced tenure is a result of increased separation rates, not increased rates of new hires. This is also the result from the regression analysis: On average, and for the whole period, there is a sizeable increase in the rate of job changes; more for the younger age groups and more for women, and a decrease in transitions to joblessness, once again most distinct for the youngest sub-group and for women.

The finding that job separations mostly consist of transitions to new jobs rather than transitions to joblessness has implications for the evaluation of the changes that have taken place. Since the employees in a vast majority of cases find new jobs within one year, it might be argued that the welfare losses are moderate. In addition, reduced tenure/increased separation also represent increased flexibility in the labour market. A complete evaluation of the welfare gains and losses is, however, beyond the scope of the present paper.

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## Appendix

Table A1 Tenure Regressions.

Tenure band	<1 year		1–7 years		≥8 years	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
<i>Men</i>						
Age 26–35	–1.029	0.006	0.336	0.006	3.407	0.031
Age 36–45	–1.636	0.007	–0.153	0.006	4.633	0.031
Age 46–55	–2.021	0.008	–0.482	0.006	5.153	0.031
11–14 yrs educat	–0.136	0.005	0.118	0.004	–0.035	0.005
15+ yrs education	–0.069	0.008	0.400	0.006	–0.472	0.008
Foreign	0.371	0.016	0.170	0.014	–0.803	0.021
Firm size	5.48E-07	9.08E-08	–1.07E-06	7.50E-08	1.01E-06	8.84E-08
(1) Agriculture	–0.189	0.021	0.401	0.017	–0.384	0.024
(2) Mining	–0.256	0.023	–0.222	0.015	0.350	0.016
(4) Electricity	–0.123	0.023	–0.080	0.016	0.119	0.017
(5) Construction	0.287	0.008	0.138	0.007	–0.477	0.008
(6) Wholesale	0.199	0.007	0.148	0.006	–0.407	0.007
(7) Transport	0.310	0.009	0.030	0.007	–0.309	0.008
(8) Financing	0.543	0.009	0.078	0.007	–0.652	0.009
(9) Public services	0.402	0.007	–0.129	0.006	–0.158	0.007
<i>Women</i>						
Age 26–35	–0.959	0.006	0.496	0.006	3.269	0.037
Age 36–45	–1.556	0.007	0.299	0.006	4.413	0.037
Age 46–55	–2.062	0.008	–0.097	0.006	5.151	0.037
11–14 yrs educat	–0.041	0.006	0.054	0.005	–0.008	0.006
15+ yrs education	0.074	0.008	0.224	0.006	–0.461	0.009
Foreign	0.326	0.017	0.036	0.015	–0.552	0.023
Firm size	4.99E-07	8.35E-08	1.51E-07	6.84E-08	–8.04E-07	8.96E-08
(1) Agriculture	–0.011	0.030	0.319	0.026	–0.611	0.042
(2) Mining	–0.439	0.039	–0.148	0.027	0.568	0.031
(4) Electricity	0.027	0.043	–0.044	0.032	–0.004	0.039
(5) Construction	0.242	0.021	–0.012	0.017	–0.250	0.022
(6) Wholesale	0.078	0.009	0.127	0.008	–0.297	0.010
(7) Transport	0.028	0.014	0.148	0.011	–0.281	0.015
(8) Financing	0.298	0.011	–0.116	0.009	–0.148	0.012
(9) Public services	0.285	0.009	–0.071	0.007	–0.195	0.009

Logit coefficients. Year dummies not reported. Age reference: 16–25. Education reference: ≤10 years. Sector reference: manufacturing

Table A2 Job Transitions Regressions.

	Separation		Job change		Joblessness	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
<i>Men</i>						
Age 26–35	–0.536	0.002	–0.151	0.003	–0.732	0.003
Age 36–45	–0.796	0.002	–0.358	0.003	–0.980	0.003
Age 46–55	–0.499	0.002	–0.658	0.003	–0.141	0.003
11–14 yrs educat	–0.080	0.002	0.097	0.002	–0.233	0.002
15+ yrs education	–0.104	0.003	0.186	0.003	–0.422	0.004
Tenure < 1 yr	0.581	0.002	0.421	0.002	0.512	0.002
Tenure ≥ 8 yrs	–0.522	0.002	–0.552	0.003	–0.394	0.003
Foreign	0.272	0.005	0.068	0.006	0.386	0.007
Firm size	–1.04E-05	6.81E-07	–1.40E-05	9.25E-07	–5.06E-06	8.54E-07
(1) Agriculture	0.472	0.006	0.353	0.008	0.433	0.008
(2) Mining	–0.023	0.007	–0.090	0.009	0.052	0.009
(4) Electricity	–0.010	0.007	0.094	0.009	–0.138	0.010
(5) Construction	0.173	0.003	0.127	0.003	0.173	0.003
(6) Wholesale	0.274	0.002	0.306	0.003	0.145	0.003
(7) Transport	0.328	0.003	0.384	0.004	0.154	0.004
(8) Financing	0.326	0.003	0.420	0.003	0.080	0.004
(9) Public services	0.266	0.002	0.227	0.003	0.233	0.003
<i>Women</i>						
Age 26–35	–0.579	0.002	–0.396	0.003	–0.453	0.003
Age 36–45	–0.990	0.002	–0.542	0.003	–1.033	0.003
Age 46–55	–0.778	0.003	–0.834	0.003	–0.397	0.003
11–14 yrs educat	–0.029	0.002	0.090	0.002	–0.130	0.002
15+ yrs education	–0.072	0.003	0.138	0.003	–0.268	0.003
Tenure < 1 yr	0.474	0.002	0.398	0.002	0.327	0.002
Tenure ≥ 8 yrs	–0.448	0.002	–0.561	0.003	–0.267	0.003
Foreign	0.210	0.006	0.051	0.007	0.277	0.007
Firm size	–5.11E-05	9.87E-07	–5.61E-05	1.35E-06	–3.23E-05	1.22E-06
(1) Agriculture	0.400	0.009	0.361	0.011	0.284	0.011
(2) Mining	–0.215	0.012	–0.232	0.017	–0.147	0.015
(4) Electricity	0.027	0.013	0.183	0.017	–0.134	0.017
(5) Construction	0.266	0.006	0.397	0.008	0.050	0.008
(6) Wholesale	0.246	0.003	0.311	0.004	0.098	0.004
(7) Transport	0.194	0.004	0.365	0.006	–0.048	0.006
(8) Financing	0.234	0.004	0.463	0.005	–0.092	0.005
(9) Public services	0.209	0.003	0.247	0.004	0.107	0.003

Logit coefficients. Year dummies not reported. Age reference: 16–25. Education reference: ≤10 years. Sector reference: manufacturing. Tenure reference: 1–8 years.

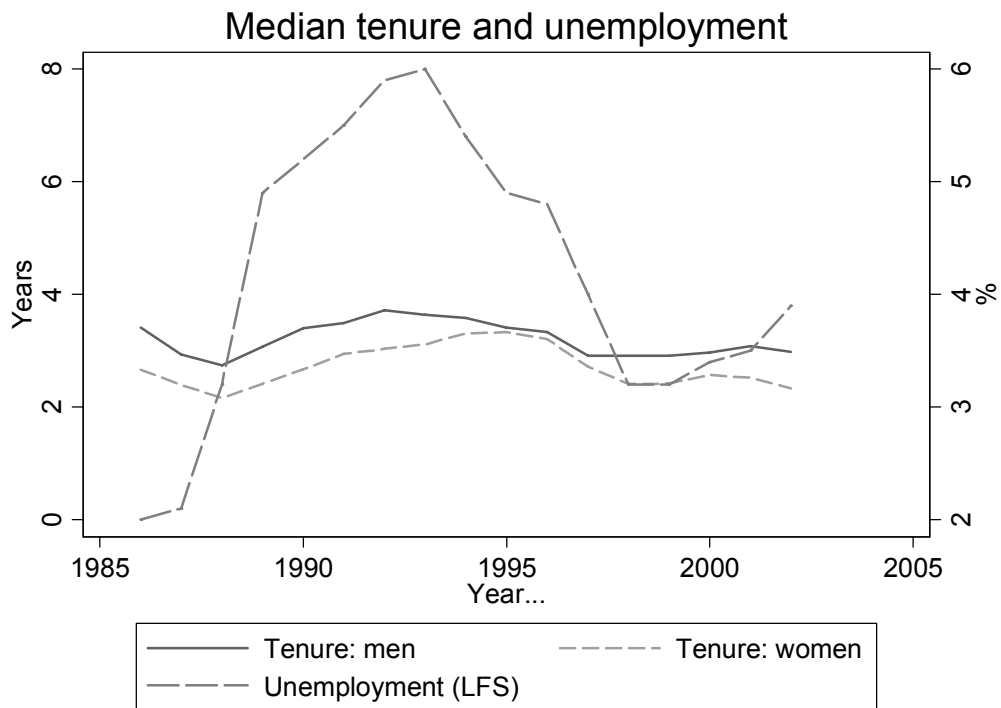


Figure 1. Median Tenure and Unemployment in Norway 1986–2002.



Figure 2. Median Tenure in Norway 1986–2002 by Gender and Industry.



Figure 3. Hiring Rates in Norway 1987–2002 by Gender and Industry.



Figure 4. Separation Rates in Norway 1986–2001 by Gender and Industry.

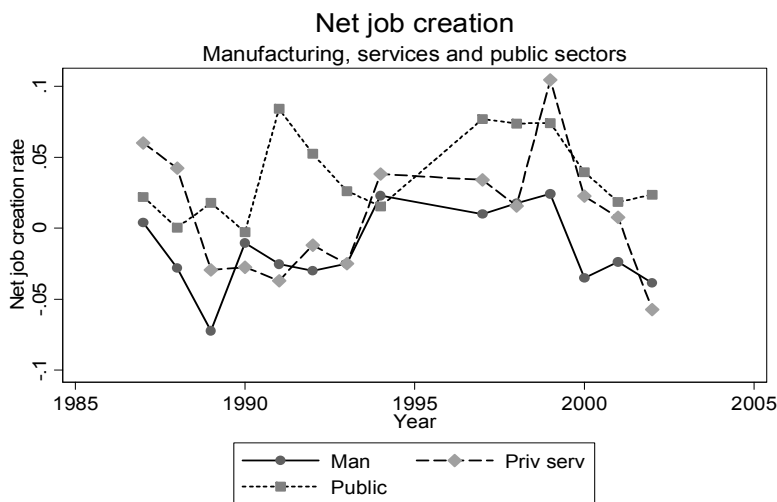


Figure 5. Net Job Creation Rates in Norway 1986–2001 by Industry.



Figure 6. Job Change Rates in Norway 1986–2001 by Gender and Industry.



Figure 7. Joblessness in Norway 1986–2001 by Gender and Industry.

Table 1. Estimated Tenure Trends by Gender and Age.

	Men			Women		
	Coef	SE	z	Coef	SE	z
<i>Tenure &lt; 1</i>						
All	0.12	0.05	2.61	0.15	0.11	1.38
By age						
16–25	0.17	0.07	2.25	0.21	0.15	1.36
26–35	0.11	0.05	2.14	0.16	0.13	1.25
36–45	0.07	0.03	2.10	0.11	0.09	1.20
46–55	0.05	0.03	2.06	0.08	0.07	1.16
<i>Tenure 1–7</i>						
All	0.11	0.16	1.75	–0.24	0.07	–3.37
By age						
16–25	0.10	0.06	1.57	–0.2	0.07	–3.26
26–35	0.09	0.06	1.57	–0.2	0.07	–3.19
36–45	0.10	0.06	1.57	–0.2	0.07	–3.22
46–55	0.10	0.06	1.57	–0.2	0.07	–3.28
<i>Tenure &gt;=8</i>						
All	–0.19	0.03	–5.50	0.08	0.08	0.99
By age						
16–25	–0.01	0.00	–4.49	0.00	0.00	1.01
26–35	–0.13	0.03	–4.53	0.06	0.06	0.99
36–45	–0.28	0.06	–4.37	0.13	0.14	0.97
46–55	–0.33	0.08	–4.28	0.16	0.17	0.93

Marginal effects of year dummies regressed on time trend and unemployment rate, each line represents a separate regression. Yearly percentage point changes. Normalized on 1986. Bootstrapped standard errors.

Table 2. Estimated Tenure Trends by Gender and Industry.

	Men			Women		
	Coef	SE	z	Coef	SE	z
<i>Tenure &lt; 1</i>						
All	0.12	0.05	2.61	0.15	0.11	1.38
By industry						
(3) Manufacturing	0.10	0.04	2.67	0.13	0.09	1.39
(6) Wholesale	0.13	0.05	2.59	0.16	0.12	1.36
(8) Financing	0.13	0.05	2.57	0.16	0.12	1.39
(9) Public sector	0.12	0.05	2.65	0.15	0.11	1.39
<i>Tenure 1–7</i>						
All	0.11	0.16	1.75	–0.24	0.07	–3.37
By industry						
(3) Manufacturing	0.11	0.06	1.74	–0.24	0.07	–3.37
(6) Wholesale	0.11	0.06	1.75	–0.24	0.07	–3.36
(8) Financing	0.11	0.06	1.77	–0.24	0.07	–3.38
(9) Public sector	0.11	0.06	1.74	–0.25	0.07	–3.38
<i>Tenure &gt;=8</i>						
All	–0.19	0.03	–5.50	0.08	0.08	0.99
By industry						
(3) Manufacturing	–0.25	0.05	–5.10	0.10	0.10	0.99
(6) Wholesale	–0.12	0.02	–5.60	0.04	0.04	0.98
(8) Financing	–0.14	0.03	–5.58	0.09	0.09	1.00
(9) Public sector	–0.23	0.04	–5.44	0.09	0.09	0.99

Marginal effects of year dummies regressed on time trend and unemployment rate, each line represents a separate regression. Yearly percentage point changes. Normalized on 1986. Bootstrapped standard errors.



Table 3. Job Separations, Job Changes and Joblessness: Estimated Trends by Gender and Age.

	Men			Women		
	Coef	SE	z	Coef	SE	z
<i>Separations</i>						
All	0.11	0.06	1.79	0.17	0.13	1.39
By age						
16–25	0.15	0.08	1.77	0.21	0.16	1.36
26–35	0.11	0.06	1.78	0.19	0.13	1.41
36–45	0.09	0.05	1.79	0.15	0.11	1.42
46–55	0.10	0.06	1.78	0.16	0.11	1.41
<i>Job changes</i>						
All	0.30	0.09	3.22	0.40	0.24	2.80
By age						
16–25	0.43	0.13	3.26	0.59	0.21	2.82
26–35	0.36	0.11	3.24	0.45	0.16	2.81
36–45	0.28	0.09	3.20	0.37	0.13	2.80
46–55	0.20	0.06	3.15	0.27	0.10	2.78
<i>Joblessness</i>						
All	–0.18	0.07	–2.62	–0.21	0.09	–2.40
By age						
16–25	–0.31	0.12	–2.58	–0.31	0.12	–2.48
26–35	–0.16	0.06	–2.63	–0.22	0.09	–2.42
36–45	–0.12	0.04	–2.66	–0.14	0.06	–2.37
46–55	–0.22	0.08	–2.62	–0.22	0.09	–2.41

Marginal effects of year dummies regressed on time trend and unemployment rate, each line represents a separate regression. Yearly percentage point changes. Normalized on 1986. Bootstrapped standard errors.

Table 4. Job Separations, Job Changes and Joblessness: Estimated Trends by Gender and Industry.

	Men			Women		
	Coef	SE	z	Coef	SE	z
<i>Separations</i>						
All	0.11	0.06	1.79	0.17	0.13	1.39
By industry						
(3) Manufacturing	0.10	0.05	1.82	0.16	0.1112	1.36
(6) Wholesale	0.12	0.07	1.79	0.19	0.14	1.39
(8) Financing	0.12	0.07	1.78	0.18	0.13	1.38
(9) Public sector	0.11	0.06	1.79	0.17	0.12	1.39
<i>Job changes</i>						
All	0.30	0.09	3.22	0.40	0.24	2.80
By industry						
(3) Manufacturing	0.25	0.08	3.21	0.21	0.11	2.77
(6) Wholesale	0.34	0.11	3.25	0.44	0.16	2.81
(8) Financing	0.37	0.11	3.27	0.46	0.16	2.83
(9) Public sector	0.30	0.09	3.24	0.38	0.14	2.80
<i>Joblessness</i>						
All	-0.18	0.07	-2.62	-0.21	0.09	-2.40
By industry						
(3) Manufacturing	-0.16	0.06	-2.62	-0.20	0.08	-2.39
(6) Wholesale	-0.20	0.08	-2.62	-0.24	0.10	-2.43
(8) Financing	-0.16	0.06	-2.64	-0.19	0.08	-2.40
(9) Public sector	-0.18	0.06	-2.63	-0.20	0.08	-2.40

Marginal effects of year dummies regressed on time trend and unemployment rate, each line represents a separate regression. Yearly percentage point changes. Normalized on 1986. Bootstrapped standard errors.

