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Worker Displacement in France

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Abstract

In this paper, we consider the impact of displacement (defined as separation from a stable job due to firm closure) on workers in France. We find that a large share of displaced workers find new jobs without experiencing any interruption in their employment histories, and that falling into nonemployment seems to be a more transitory phenomenon for displaced workers than other separators. We find that the estimated effects of displacement on earnings in France is very sensitive to the measure of earnings used, as there seems to be a lot of part-year working that takes place in the years surrounding a displacement or other separation. Earnings changes for displaced workers in France seem to reflect a major difference between those who find new jobs quickly and those who do not. There is an annual earnings penalty of an additional 28 percent (relative to continuously employed workers) for those men who do not find new jobs in the year following their displacement, and this penalty is 47 percent for displaced women. However, this annual earnings penalty seems driven largely by people working fewer days per year, as the slow job finding penalty on average daily earnings is only 4 percent for displaced men and 20 percent for displaced women.

Résumé

Dans ce papier, nous examinons l'impact des licenciements pour raison économique en France. Compte tenu de nos contraintes statistiques, ces licenciements sont ici définis comme fins de relation d'emploi stable survenant après une fermeture d'entreprise. Nos résultats montrent qu'une fraction importante des travailleurs licenciés retrouve un nouvel emploi sans interruption de carrière, et que les épisodes de non-emploi qui suivent un licenciement collectif sont plus courts que ceux qui font suite à des séparations pour d'autres raisons. Nous trouvons également que l'impact d'un licenciement sur le salaire dépend beaucoup de la façon dont on mesure ce salaire. En effet, peu de travailleurs soumis à un licenciement collectif réussissent à travailler 360 jours par an au cours des années suivant ce licenciement. Les salaires des travailleurs licenciés qui retrouvent un emploi rapidement sont très différents de ceux des autres travailleurs. Ainsi, les hommes licenciés perçoivent un salaire inférieur de 28 pour cent aux salaires des hommes qui n'ont pas connu d'interruption de carrière. Pour les femmes, cette différence est de 47 pour cent. Pourtant, cette perte de revenu est due presque entièrement au fait que ces individus travaillent moins de jours dans l'année, car le manque à gagner en salaire quotidien ne baisse que de 4 pour cent pour les hommes licenciés, même si elle est de 20 pour cent pour les femmes licenciées.

Key Words: Displaced Workers, Earnings Losses, Nonemployment Durations, Part-Year Work, Matched Firm-Worker Panel Data, France

Mots Clés: Licenciements pour raison économique, licenciements collectifs, pertes de revenus, durées sans emploi, carrières interrompues, données longitudinales appariées employeur-employé, France

JEL: J22, J23, J31, J63, J64, J68

1. Introduction

This paper looks at the effects on workers of job displacement in France. Although the literature on displaced workers (i.e. involuntary worker separations from stable jobs for reasons beyond their control) in North America is already extensive, the European literature is still rather limited¹. This situation is unfortunate given that the North American labor markets share the feature of being relatively flexible concerning mass layoffs. On the other hand, European labor markets, and the French labor market in particular, tend to regulate layoffs rather strictly. In order to study worker displacement in France, we exploit administrative data² that matches workers to their employers, which has the advantages (relative to survey-based analyses) of providing large, representative samples of a wide range of workers from all sectors, and allowing for the straightforward construction of control groups. Administrative data have the additional advantage that reported earnings and employment durations are precisely measured and not subject to recall bias. By comparing France with what is known from analyses of North American labor markets, we highlight the roles that certain institutional and regulatory differences might play concerning labor market outcomes for laid-off workers.

One particularity of our approach is that we focus our attention on workers whose separation is a result of the closure of the employing firm. This is for two main reasons. First and foremost, our administrative data does not allow us to distinguish the reason for separation when the separation is not related to the employer's shutting down. Second, we avoid the frequently-cited problem of relying on workers to accurately report the reason for separation. This is particularly important for a heavily regulated labor market such as France, since the administrative procedures that must be followed in the case of layoffs (described in section 2 below) are typically much longer and more complicated than the procedures surrounding quits. For this reason, declared quits in these countries may frequently be layoffs disguised so as to avoid the administrative complications. Furthermore, workers often misreport firing for cause as layoffs - and these two events have possibly very different implications for the nonemployment durations and earnings losses involved.

A second issue is that we consider nonemployment, as opposed to unemployment, durations following displacement. This is due in part to the fact that our data do not allow us to distinguish whether the worker is actively looking for employment when not employed (as the ILO definition of unemployment requires). Another reason is that the complexity of the unemployment insurance schemes (see section 2 below) brings the explicit modeling of their role beyond the scope of this paper³. Because of this constraint, we are careful to interpret all of our results concerning women in light of the possibility that some part of their spells of nonemployment might correspond to

¹Bender, Dustmann, Margolis and Meghir (1998), to which much of the analysis described here is related, is a recent example.

²See Schoeni and Dardia (1998) for an analysis of earnings losses in California using similar administrative data.

³See, for example, Bonnal and Fougère (1993, 1996) for detailed studies of the French unemployment insurance system.

voluntary withdrawals from the labor market for reasons such as childbearing.

Our analysis concerns nonemployment durations following layoff and earnings changes experienced by workers who have been with a single firm for at least 4 years as the principal measures of interest, focusing in particular on individuals between 26 and 55 years old. We distinguish in our analysis between workers who separate from their firm as a result of a closure (and we refer to these workers as *displaced workers*), and those who separate for unknown reasons. This last category includes workers who are fired for cause, workers who left the firm because they received a better offer, and workers who dropped out of the labor force.⁴ The literature has concentrated largely on these measures,⁵ finding that displaced workers experience earnings losses both pre- and post-displacement, and that workers displaced as a result of a plant closure tend to have shorter nonemployment durations than workers who involuntarily separate from their employers for other reasons (Gibbons and Katz 1991).

We find that a large share of displaced workers find new jobs without experiencing any interruption in their employment histories, a fact probably related to the long forewarning received by French workers who will be laid off. Furthermore, conditional on falling into nonemployment, displaced workers have much shorter spells of nonemployment than those who separate for other reasons.

We find that the estimated effects of displacement on earnings in France are very sensitive to the measure of earnings used, as there seems to be a lot of part-year working that takes place in the years surrounding a displacement or other separation. Annual earnings losses for displaced workers in France are substantial, but there is a major difference between those who find new jobs quickly and those who do not. There is an additional annual earnings penalty of around 30 percent (relative to continuously employed workers), above the regular drop from 7 percent below to 20 percent below the earnings of continuously employed workers, for those workers who do not find new jobs in the year following their separation, be it for displacement or other reasons. However, this annual earnings decrease seems driven entirely by people working fewer days per year, as the average daily earnings actually increases around displacement (relative to continuously employed workers), although the penalty to slow job finding remains.

The structure of our paper is as follows. We begin by briefly describing the institutional setting surrounding layoffs and unemployment benefits in France in section 2. This discussion provides the context in which the subsequent results need to be considered. After briefly describing the data sources that we use in section 3, we provide some descriptive statistics concerning the incidence of displacement in section 4. We then proceed with a more detailed analysis of the nonemployment durations following displacement in section 5, followed by an analysis of the earnings losses associated with displacement (in the style of Jacobson, LaLonde and Sullivan (1993)) in section 6. Section 7 summarizes our results and concludes.

⁴Note that our age selection criteria are designed to eliminate retirement as a destination after separation from one's employer.

⁵See Fallick (1996) for a survey.

2. Institutions

France has detailed regulations concerning layoffs and unemployment compensation. The following is a brief summary of the labor law and jurisprudence surrounding worker displacement, or more precisely, layoffs for economic reasons. An excellent reference for this (in French) is Lefebvre (1996).

Laws Concerning Layoffs for Economic Reasons

The legislation and jurisprudence surrounding layoffs for economic reasons⁶ distinguishes 4 classes of layoffs: individual, less than 10 employees over 30 days, more than 10 employees over 30 days, and bankruptcy or reorganization.⁷ One common characteristic of all layoffs for economic reasons is that the employer is required to propose the option of participating in a (partially employer-funded) retraining scheme, run by the fund that finances unemployment benefits (ASSEDIC), to all employees who will be laid off.

- Individual layoffs for economic reasons have to meet the obligations surrounding both individual layoffs for personal reasons and layoffs of less than 10 employees over 30 days (with the exception of the obligation to inform the works council, see below). The individual layoffs for personal reasons obligations include a convocation to a “reconciliation” meeting at which the layoff will be discussed, the actual holding of the reconciliation meeting (to which the worker can bring an outside representative) and the notification of layoff letter, all with required delays and notice periods. In addition, the employee subject to an individual layoff for economic reasons must be guaranteed priority in future hiring for all jobs for which he or she is qualified, and this obligation runs for 1 year following the layoff.
- The case of layoffs for economic reasons involving less than 10 employees in a 30 day period is more complicated than that of individual layoffs for economic reasons. First, the works council (or personnel representatives in firms too small (less than 50 employees) to have a works council) must be consulted. The employer must provide all useful information to the works council concerning the economic circumstances that motivate the layoffs, the number of employees to be laid off by occupational category, the criteria used to determine the order of layoffs (i.e. which employees will go) and a preliminary calendar for the layoffs. Each employee still has to be invited to a “reconciliation” meeting, and the layoff letters can only be sent out after the appropriate waiting period following this meeting.
- In the case of collective layoffs involving more than 10 people over a 30 day period, things become even more complicated. The enterprise must devise a

⁶French labor law distinguishes between layoffs for economic reasons and layoffs for personal reasons, such as inadequate performance or misconduct.

⁷There are special considerations for large companies that lay off at least 10 people over a 3 month period without passing the 10 people in 30 day limit, but these will not be treated here.

“social plan” which, in addition to proposing ASSEDIC retraining programs, must also describe the possibilities for an internal reclassification within the enterprise (when the enterprise is larger than 50 employees), and the steps the enterprise is prepared to take in terms of helping laid off employees become self-employed, providing training in new fields, or reducing the work week. Along with all of the information described above in the case of fewer than 10 layoffs, this plan has to be given to the works council (when one exists, otherwise it goes to the personnel delegates) for consultation, and the works council can request the help of an “expert accountant” to evaluate the different aspects of the employer’s social plan and explanations for the layoffs. The local labor ministry office also receives a copy of the social plan, and both the works council and the labor ministry can make suggestions to which the employer must respond. There must be 2 meetings held with the works council, or 3 if the works council brings in an accountant. There are specified delays between each meeting which vary with the size of the proposed layoff, but there is no obligation to meet individually with each employee in this case. The selection of the individuals to be laid off will typically be determined by a governing collective agreement, but in the absence of such an agreement it is the employer who fixes the criteria after consultation with the works council. The layoff letters can only be sent out after a fixed delay following the final meeting with the works council.

- The conditions surrounding layoffs in the case of bankruptcy or court-ordered reorganization are similar to those for layoffs of 10 or more employees, except that it is the court-appointed administrator who makes the proposals, and the judge responsible for overseeing the liquidation or reorganization must approve all layoffs.

Advance Notice and Severance Pay

The forewarning that workers receive before being laid off varies according to the size of the layoff, whether or not an expert accountant is called in, the size of the firm and whether the employer decides to buy off the notice period. The time taken by just following the legal procedure (prior to the official advance notice that starts running from the moment the layoff letter is received) can vary from 35 days from the mailing of the convocation to the “reconciliation” meeting to the sending out of the layoff letter (in the case of an individual layoff for economic reasons), to 74 days or more starting from the date at which the first works council meeting is held (in the case of a layoff of 10 or more people in 30 days, with expert accountant called in, not counting the time it takes to devise the social plan or respond to suggestions made by the works council and the labor ministry). After the layoff letters are sent out, the official advance notice period begins. This period is a function of seniority: 1 month for employees with 6 months to 2 years of seniority, 2 months for employees with at least 2 years of seniority. If there exists a collective agreement that provides for longer notice periods, then the longer periods prevail.

Severance pay is a function of seniority, whether or not the employee had accrued unused paid vacation time, and whether the employer buys off the official notice period.

In general, the base rate of severance pay is 1/10th of monthly earnings per year of seniority (if seniority is greater than 2 years), with an additional 1/15th of monthly earnings per year of seniority if seniority is greater than 10 years. The worker also recovers the value of unused paid vacation time, plus 1-2 months of earnings in the case where the notice time is bought off, corresponding to the level of seniority.

Unemployment Benefit Eligibility and Levels

To be eligible for unemployment benefits, workers must meet the following conditions.⁸ First, they have to have been employed for a sufficiently long period preceding the start of the episode of unemployment. There are 5 criteria involving a minimum number of days or hours worked over a reference period.⁹ Second, they must be enrolled on the National Job Search Center (ANPE) lists. Third, they can not have voluntarily quit their previous job. All layoffs, even for cause, are acceptable.¹⁰ Fourth, they must be actively looking for a job, or if over 57 1/2 years old, reside in France. Fifth, they can not be older than 60, or between 60 and 65 and eligible for retirement with full benefits. Sixth, they must be physically able to hold down a job. Finally, they can not be “seasonally unemployed”; that is, they can not hold down a job that is classified as seasonal, nor can they hold down a job that, for 2 of the past 3 years, has regular periods of inactivity at more or less the same calendar dates each year.

Unemployment benefits are taxable as revenue and are made up of a base rate that applies for a first period, then a “digressivity coefficient” which lowers the benefits for a second period. The daily base rate is comprised of a fixed component (56.95 francs in June 1996) and a variable component corresponding to 40.4% of the reference earnings. The total can neither exceed 75% of the reference level of earnings nor be less than a statutory minimum level (138.84 francs in June 1996). There are also provisions relating to high-earnings workers that guarantee them at least 57.4% of their reference earnings.

⁸The links between the unemployment benefits schedules and eligibility requirements are quite complicated. What is presented here is a short synopsis of the important points of the unemployment insurance law prior to the substantial reforms that took place in 1996.

⁹The criteria are as follows. a) 122 days or 676 hours of work over the last 8 months preceding the end of the labor contract. b) 182 days or 1014 hours of work over the last 12 months preceding the end of the labor contract. c) 243 days or 1352 hours of work over the last 12 months preceding the end of the labor contract. d) 426 days or 2366 hours of work over the last 24 months preceding the end of the labor contract. e) 821 days or 4563 hours of work over the last 36 months preceding the end of the labor contract.

The end of the labor contract is defined as the last day of the notice period, regardless of whether this was bought off or not. Workers who become unemployed due to the closure of their plant are not required to satisfy criterion a). The levels and duration benefits varies according to the criterion satisfied, with the most difficult criterion (e) providing the highest benefits.

¹⁰Note that the eligibility rules for unemployment insurance give the worker the incentive to declare all separations as involuntary, while the administrative procedures described above give the firm the incentive to declare separations as voluntary. This conflict of interest often introduces a bargaining situation in the case where the employer intends to lay off a small number of workers. The firm can make side payments to the worker such that the worker declares the separation as voluntary (if asked) and does not apply for unemployment benefits. Anecdotal evidence suggests that this is a relatively frequent phenomenon.

The digressivity coefficient and the durations of the benefit periods are functions both of the age of the worker and his or her “length of affiliation” (cumulative seniority in any covered employers during a reference period). Durations range from 122 days (4 months) for workers with only 122 days or 676 hours of eligibility over the previous 8 months (all at the second period rate with a digressivity coefficient of 0.75) to an 821 day (27 month) first period and a 1004 day (33 month) second period, with digressivity coefficient of 0.92, for workers over 55 years old with 821 days, or 4563 hours of eligibility over the preceding 36 months. Thus if a 56 year old person worked 27 out of the 36 months preceding a spell of unemployment, he or she would have a right to 5 years of benefits, with the lowest rate still being 92 percent of his or her previous benefit level.¹¹

Wage Setting Institutions

During the period of time covered by our French data (1984-1989), the French industrial relations environment was undergoing significant changes. Although union membership was steadily declining, union coverage remained relatively stable. This phenomenon was largely due to the policy of contract extension. This policy allows the Ministry of Labor to take a collective agreement negotiated by an employers association and several union confederations and extend its coverage to all other enterprises in the same region or sector, or all individuals in the same occupation, as those covered by the contract, regardless of their participation or membership in the employers association or union confederation that actually negotiated the contract.¹²

Despite the high level of contract coverage, important modifications in the structure of collective bargaining were brought about by the Auroux laws of 1982. Two of the most important features were the establishment of works councils and the definition of their consultative role in mass layoffs (see above) and the requirement to engage in bargaining at the enterprise level for all firms over a minimum size. Although there was no obligation to come to an agreement, the fact that employers were required to negotiate locally encouraged a gradual shift of collective bargaining over wages from a centralized to a more decentralized level. This shift reduced the frequency with which the national, often extended, agreements had their salary grids renegotiated. Given the constant increase in the real minimum wage over the period (see below), the share of contracts for which the lowest earners on the salary grid earned more than the minimum wage fell from 15.3 percent in January of 1983 to 3.6 percent in January of 1985¹³.

The first minimum wage law in France was enacted in 1950, creating a guaranteed hourly wage rate that was partially indexed to the rate of increase in consumer prices. Beginning in 1970, the original minimum wage law was replaced by the current system (called the SMIC, “salaire minimum interprofessionnel de croissance”) linking

¹¹Note that, upon expiration of unemployment benefits, individuals may be eligible for the Minimum Insertion Allowance (Revenu minimum d’insertion), or RMI. The RMI is a means-tested income support whose conditions and levels are not directly linked to unemployment duration, previous wages or labor market histories.

¹²See Margolis (1993) for a detailed discussion of the institutional context surrounding contract extension in France, as well as an analysis of the implications of contract extension for wage setting and firm participation in employers associations.

¹³See Bughin (1985).

the changes in the minimum wage to both consumer price inflation and growth in the hourly blue-collar wage rate. In addition to formula-based increases in the SMIC, the government legislated increases many times over the next two decades. The statutory minimum wage in France regulates the hourly regular cash compensation received by an employee, including the employee's part of any payroll taxes.

Although the original minimum wage program (called the SMIG, "salaire minimum interprofessionnel garanti") was only partially indexed, in particular the inflation rate had to exceed five percent per year (two percent from 1957 to 1970) to trigger the indexation, the real minimum wage did not decline measurably over the entire post-war period and increased substantially during most decades.¹⁴ The French minimum wage lies near most of the mass of the wage rate distribution for the employed work force. In 1990, the first mode of the wage distribution was within five francs of the minimum wage and the second mode was within 10 francs of the minimum. In the overall distribution, 13.6% of the wage earners were at or below the minimum wage and an additional 14.4% were within an additional 5F per hour of the SMIC.¹⁵

3. Data

The base data set for France is the Annual Social Data Reports (Déclarations Annuelles des Données Sociales), or DADS, which is a random 1/25 sample of the French population.¹⁶ All people born in October of an even-numbered year, with the exception of civil servants (but including those employed by publicly held companies), are in the data whenever they are employed.¹⁷ These data cover the period from 1976-1996, with the exception of 1981, 1983 and 1990, since the French National Statistics Institute (INSEE) did not collect the data in these years. These data include earnings information on all employers of all of these individuals,¹⁸ with both individual and employer identifiers attached to each year-individual-enterprise-establishment observation. We also have the number of days worked during the course of the year and the job start and end dates if the job began or ended during the year. We impute information using auxiliary regressions run on other data sets to determine the job start dates for the left-censored spells.¹⁹ Temporary layoffs (of a length of shorter than one calendar year) are not considered as interruptions of an employment spell. With this information, we

¹⁴The inflation threshold was removed in 1970 with the reform that converted the SMIG into the SMIC.

¹⁵For a detailed analysis of the minimum wage in France, see Abowd, Kramarz and Margolis (1998).

¹⁶An exhaustive DADS data set file does exist for use primarily by the tax authorities, but we were only given access to the 1/25 sample.

¹⁷Note that these data include self-employed workers who pay themselves salaries. Self-employed workers who act as pure residual claimants will not be included. Unfortunately, the data do not allow us to separate self-employed wage earners from other wage earners.

¹⁸Our earnings data are available as 8-byte numeric variables and are subject to neither top nor bottom-coding. All labor earnings are reported.

¹⁹See Abowd, Finer, Kramarz and Roux (1997) for details. Given that our analysis sample begins in 1984 and that we consider seniority as a categorical variable for which the largest category is 10 years and above, our results are robust to most estimation error in the job start date due to the imputation for the left censored spells.

can calculate seniority at each job for each year. We observe seniority, sex, age, occupation, region, full- or part-time employment status (but not hours) and sector on all jobs held by the individual, and measure the length of nonemployment spells between jobs.

There are two problems with using this data to study displaced workers. First, the list of characteristics given above is exhaustive. Thus we do not know education, marital status or number of children, for example. The Permanent Dynamic Sample (Echantillon Dynamique Permanent), or EDP, provides some additional information. INSEE collected data on individuals born on the first 4 days of October that could be located in the 1968, 1975, 1982 or 1990 censuses, or for whom one of the following was available: the individual's birth, marriage or death certificate, or the birth, death or marriage of a parent or child of the individual concerned. Most of the demographic information of interest comes from the matches with the censuses. Since the EDP sampling frame overlaps that of the DADS in even-numbered years, it was possible to obtain a data set with all of the relevant variables from the DADS and the EDP.²⁰

The remaining problem is to know the reason behind a separation.²¹ We used a two-step approach to identifying displacements, or more precisely, firm deaths.²² First, we used the Unified System of Enterprise Statistics (Système Unifié de Statistiques d'Entreprise), or SUSE, to determine the last year in which the employing firm filed accounts with any of France's administrative authorities.²³ We then looked at all of the observations in the DADS that correspond to a given enterprise (not establishment). If the last year in which we observe data corresponding to the enterprise is 1996, we consider all separations from that employer as being for reasons other than firm death.²⁴

²⁰For individuals for whom EDP data was not available, we used a multinomial logit to impute the probability that the individual has each of the educational degrees possible. See the data appendix of Abowd, Kramarz and Margolis (1999) for more details.

²¹From 1988-1992 (1990 excluded), INSEE introduced two variables distinguishing whether the observation corresponded to a plant that had ceased to exist as an "economic" or "administrative" entity. The main difference between these variables is that firms occasionally continue to exist "administratively", but with zero workers, after their "economic" death. The manner by which mergers and acquisitions affect the plant identifier in our data is rather involved. Unfortunately, these data have serious inconsistencies, as individuals whose observations correspond to the economic or administrative death of their plant in the year t are just as likely to still be employed by the plant, and receiving a salary, in the year $t + 1$ as they are to have separated from the plant. Thus we do not consider these variables informative for the analysis of worker displacements.

²²Our approach to defining displacements is based on a combination of firm accounts data and payroll data. An alternative approach, such as considering separations that occur simultaneously with large reductions in firm employment as displacements (see Jacobson et al. (1993)) is not feasible with our data, as firm employment is not available for all employees at all dates.

²³The SUSE data used here are a sample of enterprises in France with differential sampling probabilities based on reporting requirements which vary with employment (the largest firms appear with probability 1). Depending on the size of the firm and the type of accounts it sends to the relevant regulating and tax authorities, information may be available on a detailed balance sheet, income statement and flow of funds statement. The smaller enterprises are not required to provide as much detailed information. Here we use the presence of *any* information on the firm as a sign of its continued existence. Thus we do not lose firms when they pass below the threshold for providing detailed accounts.

²⁴For separations in years prior to 1996, the firm clearly continues to exist, as workers are observed employed by it. For 1996, we are unable to determine whether the firm will disappear in 1997. These

If, on the other hand, we observe a firm for which the last year with DADS data is, say, 1985, we compare this date to the date found in the SUSE (where available). We considered the latter of the two dates for a given enterprise as its estimated death date, and we considered enterprises who filed accounts or were paying employees in 1996 as ongoing.

For the “dying” enterprises, we attempted to control for false firm deaths (change of firm identifier without cessation of activity) with the following procedure. Given that we only observe a random 1/25 sample of any firm’s employment, we focused explicitly all firms with at least 3 observed employees.²⁵ For these firms, we tested the hypothesis that 50 percent or more of the firm’s actual employees leaving the enterprise at its estimated death date were employed by the same subsequent employer, conditional on the total number of observed employees and the share of these who move together to the same subsequent firm identifier. This procedure is described in detail in appendix A.²⁶

Based on this dating procedure and correction, we constructed two definitions of displacement. In the first, the worker separates from the firm within the calendar year preceding the calendar year of the firm’s death.²⁷ In the second, we widen the window to two years preceding the year of the firm’s death. We report below results based on the two-year window definition, since our procedure for dating firm deaths is not very precise (particularly when SUSE data is involved) and because advance notice provisions may mean that some workers separate from their firm prior to its actual shutdown.²⁸ All other separations are classed as “other separations”.

It should be noted that, given the sampling scheme of the DADS, this approach over-attributes separations to the “displaced” category. This is even more likely to be the case for separations from small firms, especially when the separation occurs near the end of the sample period. Our selection criterion reduces the risk of this source of overclassification somewhat (see below), but nevertheless all of our results for France should be interpreted with this in mind.²⁹

observations could theoretically be considered displacements, but given our eventual sample selection restrictions (see below), the question of how to class these observations is moot.

²⁵The requirement that there be at least 3 observed employees means that, in expectation, the corresponding firm has at least 75 employees. It prevents us from arbitrarily classifying all departures from small firms as false firm deaths. On the other hand, it may cause us to miss all false firm deaths among the smallest firms in our sample. Unfortunately, given that we only have access to the 1/25 sample of employment, we cannot improve upon the treatment for small firms beyond the SUSE sampling scheme. SUSE data are available from financial reports that are mandatory for firms with total sales of at least 500,000 FF per year (or at least 150,000 FF per year for firms in service industries) and are optional for all others.

²⁶We are grateful to Peter Kuhn for suggesting this algorithm.

²⁷We consider the year preceding the year of firm death since, with SUSE data at least, we do not know the precise date within the year at which the firm ceased operations. Furthermore, a firm whose fiscal year ends after June 30 of the year $t + 1$ will have year $t + 1$ SUSE information, even if operations ceased in year t .

²⁸Results based on the more strict definition of displacement, considering only those separations occurring within a year of firm disappearance, are available upon request. A table indicative of the importance of the definitional differences can be found in appendix B.

²⁹There exist other data sources that allow us to identify layoffs at the plant level and to classify them by type (economic or personal reasons). However, these data do not allow us to tell *which*

The Sample Retained for Analysis

From the overall data base, we focus in particular on men between 26 and 50 years of age and with 4 or more years of seniority in some job in 1984.³⁰ These restrictions were imposed so that we could restrict our attention to adult,³¹ high-attachment workers that do not risk taking early retirement in the later years in the sample.³² As a further control against early retirement, our duration analyses exclude all workers who, following separation from their employer, experienced a censored nonemployment spell that pushed them over 56 years old (the minimum age for men to receive early retirement). Appendix C shows the differential effect of imposing this latter restriction by age at separation.³³

We focus on individuals observed during the window of 1984-1989 for our analyses for three reasons. First, given our definition of firm death for workers not matched to SUSE firms, we wanted to allow a time period after the end of the analysis period during which we might potentially observe people in a “dead” firm, in order to minimize incorrect classifications. Second, given the missing data in 1983 and 1990, this is the longest period without interruption in our data. Finally, this sample window makes the French data comparable with the German data (see below).

In general, we concentrate on the first separation observed for the individual in the sample window (1984-1989), and in so doing ignore the issue of multiple displacements (Stevens 1997). As mentioned above, our data include information on the year, age, education, seniority, log real annual gross earnings, sector of activity, skill level (unskilled blue collar, skilled blue collar or white collar) region and, of course, the reason for separation (displacement or other, calculated according to the procedures described above) if it occurred. Appendix D provides descriptive statistics for the sample in 1984.

It should be noted that, for the analyses of nonemployment durations, we allow for multiple, simultaneous job holding. Although this is a relatively infrequent phenomenon in our French data (only 6.4 percent of our observations were second jobs), these second jobs may play an important role in helping the individual in the event of a separation. In particular, multiple job holding may be an important source of observed “job-to-job” transitions (see section 5 below), and should be borne in mind. Nevertheless, given that 84% of second jobs in our sample are held by people who do not experience any separation in the year in which they are held, the magnitude of their role in our duration analyses is not likely to be very important.

Nevertheless, for the analyses of earnings changes surrounding separations, we ag-

workers are among those laid off and are subject to an even more restrictive sampling scheme than the SUSE data. One possible avenue for future research might assign a probability that a separation corresponds to a layoff for economic reasons, as opposed to relying on a simple indicator variable to denote the reason for each separation.

³⁰Margolis (1998) and Margolis (forthcoming) treat both men and women.

³¹Because of the complex interplay between youth employment promotion schemes (for which eligibility ends at 25 years of age) and the minimum wage in France (see Abowd, Kramarz, Lemieux and Margolis (forthcoming)), we begin considering individuals after they reach 26 years old.

³²Note that this does not mean that there will be no workers with seniority of less than 4 years in our data. In particular, for the earnings change models, we use post-separation information during which workers who have experienced a separation will typically have less than 4 years of seniority.

³³Note that the entire, non-selected, sample was used in the determination of firm “death” dates.

gregated our data to one observation per individual per year. In years preceding the separation, if the individual was employed by the employer from whom he or she will eventually separate, we keep the descriptive information (sector, occupation, seniority) corresponding to that job. For all other individual-year combinations, the descriptive information corresponds to the job that the person held for the longest duration during the year, and in the case of ties, the job that provided the highest gross earnings.

We constructed two measures of earnings for the analysis: Log Total Real Annual Earnings (*LTRA E*), corresponding to the log of the sum of all sources of labor earnings in the year (measured in thousands of 1980 francs); and Log Average Real Daily Earnings (*LARDE*), corresponding to the log of the average of daily labor earnings from all sources, weighted by the number of days worked in the particular job (also measured in thousands of 1980 francs).³⁴ Since the hours information in the DADS is limited in the earlier years (prior to 1993), this is the closest measure we can construct to log average hourly earnings.³⁵ Defining $RAE_{i,t,j}$ to be the real annual earnings received by individual i in year t from firm j , $dw_{i,t,j}$ to be the number of days worked by individual i in firm j during year t and $J(i,t)$ to be the set of firms j in which individual i worked at date t , our earnings measures were calculated as follows:

$$LTRA E_{i,t} = \log \left(\sum_{j \in J(i,t)} RAE_{i,t,j} \right) \quad (3.1)$$

$$LARDE_{i,t} = \log \left(\frac{\sum_{j \in J(i,t)} \left[\left(\frac{RAE_{i,t,j}}{dw_{i,t,j}} \right) dw_{i,t,j} \right]}{\sum_{j \in J(i,t)} dw_{i,t,j}} \right) = LTRA E_{i,t} - \log \left(\sum_{j \in J(i,t)} dw_{i,t,j} \right). \quad (3.2)$$

4. The Incidence of Displacement

We address the question of the rate of incidence of permanent job loss, or displacement, in our data in three ways. First, we look at the share of observations that correspond to separations and displacements in each year of our data. Second, we look at the separations more closely, distinguishing between displacements and separations for other reasons by seniority in the job from which the separation occurred and by age. Finally, we estimate probit models of incidence of displacements and other separations.

Table 1 below describes the incidence of permanent separation³⁶ in our data for all unique individual-year combinations. Note that, as we are aggregating jobs to the

³⁴As our data do not allow us to measure revenues from non labor market sources, our earnings measure is only available for years in which labor market earnings are strictly positive.

³⁵As we have no information on the number of hours habitually worked for neither full- nor part-time jobs, the weighted average does not treat days worked in a part-time job differently from days worked in a full-time job. Alternatively, we might have imputed average number of hours worked on full- and part-time jobs to construct weights for days spent in each type of employment, but it is likely that hours worked in the time leading up to a firm shutdown would not necessarily resemble hours worked for the same type of job in the population as a whole.

³⁶Recall that we are only looking at permanent separations (firm closures) in this paper, and thus individuals on temporary layoff who are recalled within one calendar year in our data are not considered as separations.

individual-year level, a person can experience both displacements and other separations in the same year, and as such the sum of the number of individual-years with displacements and other separations may exceed the number of individual years with any separation. This table covers all separations that occur in our sample window, and not just first separations. The spike in 1989 is due to the fact that we are missing data from 1990 (see section 3), and our coding algorithm would attribute all changes in employer identifier between 1989 and 1991 to the 1989 observation year, whereas at least some changes in employer certainly occurred during the (missing) 1990 observation year.

Table 1 : Incidence of Permanent Separation by Year						
Year	Total Observations	Total Separations	Total Displacements	Other Separations	Separations in Total	Displaced in Total
Men						
1984	119358	13551	5068	8801	11.35	4.25
1985	115027	14624	6558	8408	12.71	5.70
1986	111643	14465	5653	9206	12.96	5.06
1987	108886	15851	5645	10598	14.56	5.18
1988	105269	14117	5618	8951	13.41	5.34
1989	103709	22787	9354	14254	21.97	9.02
Σ	663892	95395	37896	60218	14.37	5.71
Women						
1984	65607	7476	2967	4659	11.40	4.52
1985	62133	7485	3030	4621	12.05	4.88
1986	59406	7440	3170	4432	12.52	5.34
1987	57228	7148	2723	4594	12.49	4.76
1988	55764	6880	2728	4330	12.34	4.89
1989	54529	11054	4514	6918	20.27	8.28
Σ	354667	47483	19132	29554	13.39	5.39

Sources: Author's calculations from DADS data.

Notes: Multiple observations in the same year are aggregated to the unique individual-year level.

We find that the incidence of separation increased slightly in France to a peak at 1987 for men and 1986 for women, and then declined of the remainder of the sample window. Whereas displacements as a share of individual-observations peaked simultaneously with separations for women, the share of displacements for men follows a less clean pattern, peaking in 1985, falling off, and then resuming their increase. The increase towards the end of the sample is likely related to the onset of the recession that began in the early 1990s.³⁷ Furthermore, there seem to be no consistent differences between men and women over the entire sample period in terms of either the share of separations in the total or the share of displacements. Since maternity leave, albeit generous by North American standards,³⁸ typically does not last longer than a full calendar year, and since women are guaranteed a job with their previous employer upon returning

³⁷Recall that we are using separations in the 2 calendar years preceding the calendar year in which the firm identifier disappears as our criterion for distinguishing displacements from other separations.

³⁸Women in France are guaranteed 8 weeks of maternity leave by law, of which 2 should be taken

from maternity leave, such a lack of differences in separation and displacement rates is less surprising.

As background, figure 4.1 shows the unemployment rate in France (plus Germany, the United States and Canada for comparison purposes), and figure 4.2 shows GDP per capita.³⁹ Over the sample period, unemployment was rising in France until 1987, and began dropping through the end of the sample period. That said, the French economy was growing at faster and faster rates more or less throughout the sample period. The results on GDP growth correspond to the drop in total displacements over the period, although the increasing share of displacements in total separations suggests that other sources of mobility became disproportionately less common. The higher unemployment rate in 1987 could be a product of the high rates of separation for men and women in 1986 and 1987 found in table 1, given the slow speed of exit from nonemployment (see section 5). The slowing of growth in 1987 and the onset of the recession in the early 1990s could also be playing a role in the share of displacements in total observations found in figure 1, especially since our 2-year window would class any separation occurring within 2 years of a firm closure⁴⁰ (which is likely to be correlated with growth) as a displacement.

The numbers in Table 1 refer to all individuals in our sample; they therefore combine individuals of varying degrees of seniority. Table 2 presents a similar breakdown of our data, aggregated to the individual-year level, by seniority on the lost job. Note that since we are considering all separations in our 1984-1989 window, and not just first separations, there will be some observations with less than 4 years of job seniority, corresponding to post-separation observations. Here we decompose the observations into continuously employed, total separations, displacements and other separations by seniority.

before childbirth and 6 after. However, collective agreements often extend the durations of available maternity leave, sometimes to 16 weeks or more. Furthermore, the employment relation is not interrupted because of maternity leave, and the woman is guaranteed a comparable position to the one she left upon returning from maternity leave.

³⁹The data behind these figures come from the U.S. Bureau of Labor Statistics' Foreign Labor Statistics web site, at <http://stats.bls.gov/flsdata.htm>.

⁴⁰To the best of our knowledge, there are no reliable aggregate time series figures of total firm births and deaths for France, let alone time series that weight by employment.

Figure 4.1: Unemployment Rates in France, Western Germany, Canada and the United States

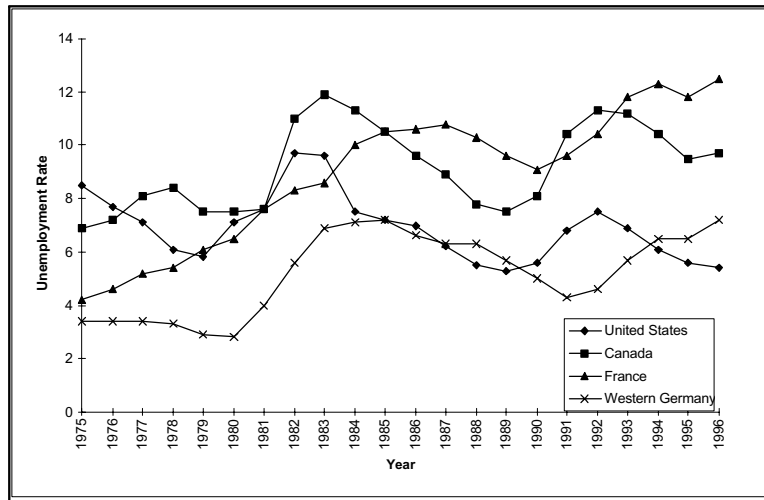


Figure 4.2: Rates of Growth of GDP per Capita for France, Western Germany, Canada and the United States

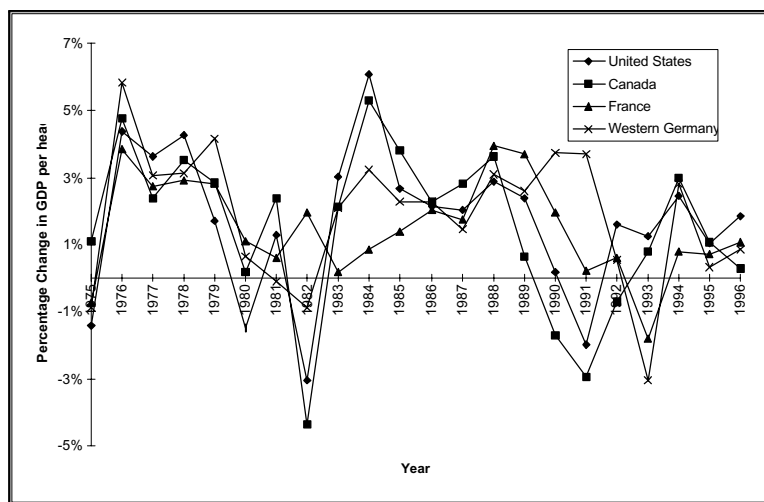


Table 2 : Incidence of Permanent Separation by Previous Seniority							
Variable	Total Obs.	Total Separations	Total Displacements	Other Separations	Separations in Total	Displaced in Total	Displaced in Separations
Men							
Sen.< 1	51172	17513	7108	12351	34.22	13.89	40.59
1 ≤ Sen.< 2	23646	5511	2571	3032	32.31	10.87	46.65
2 ≤ Sen.< 4	21668	4341	1900	2511	30.03	8.77	43.77
4 ≤ Sen.< 6	39406	6414	2401	4080	16.28	6.09	37.43
6 ≤ Sen.< 8	76176	10328	3721	6693	13.56	4.88	36.03
8 ≤ Sen.< 10	75578	10034	3840	6283	13.28	5.08	38.27
10 ≤ Sen.	376246	41254	16355	25268	10.96	4.35	39.64
Σ	663892	95395	37896	60218	14.37	5.71	39.73
Σ Stable Jobs	567406	68030	26317	42324	11.99	4.64	38.68
Women							
Sen.< 1	24415	7535	2846	5447	30.86	11.66	37.77
1 ≤ Sen.< 2	11548	2241	943	1323	19.41	8.17	42.08
2 ≤ Sen.< 4	11094	2102	947	1186	18.95	8.54	45.05
4 ≤ Sen.< 6	24643	3811	1437	2424	15.46	5.83	37.71
6 ≤ Sen.< 8	47024	6210	2455	3836	13.24	5.22	39.53
8 ≤ Sen.< 10	45498	5907	2515	3451	12.98	5.53	42.58
10 ≤ Sen.	190445	19677	7989	11887	10.33	4.19	40.60
Σ	354667	47483	19132	29554	13.39	5.39	40.29
Σ Stable Jobs	307610	35605	14396	21598	11.57	4.68	40.43

Sources: Author's calculations from DADS data.

Notes: 8 Multiple observations in the same year are aggregated to the unique individual-year level. Stable jobs refers to jobs on which the individual had 4 years of seniority or more.

Table 2 shows that, although there is a clear decline in the share of separations in total observations and the share of displacements in total observations for both men and women with previous job seniority,⁴¹ the share of separations represented by displacements (defined as separations in the two calendar years preceding the calendar year of firm closure) is relatively invariant to seniority among separations from stable jobs. On the whole, it seems that among stable jobs, women are slightly more likely to separate because of displacement than men, although the differences are very small and not consistent across seniority categories.

Although the share of displacements and separations in the total seems reasonable by North American standards, the share of separations attributed to the displaced category is quite high. This is likely due to two main reasons. First, given the sampling frames in our data, most departures from small firms will be classed as displacements, since the chances of observing another sampled individual in the firm, or observing firm financial data, after the separation are very low. Second, we are classifying separations occurring in a relatively long window preceding the calendar year of firm death as displacements. This approach will mislabel all separations that occur within the window

⁴¹These results concerning incidence of displacement are comparable to the studies cited by Fallick (1996), who notes that job seniority is negatively related to the incidence of displacement in the United States.

but are independent of the firm's impending demise as displacements. Unfortunately, given our data constraints, there is little we can do about these problems.

Table 3 present a similar decomposition to table 2, but this time by age. One point worth noting in table 3 is the very large share of separations in total observations for the 55-59 age group. Despite our restraining our attention to workers who are at most 50 years old in 1984, some of these workers will cross a threshold during our observation window that makes them eligible for early retirement. This is especially true for women, who can often draw regular and early retirement benefits at an earlier age than men in France. The fact that displacements as a share of separations drops so dramatically for this age group reinforces this idea. For this reason (as mentioned in section 3 above), we impose an additional control for early retirement in our analyses for post-separation nonemployment durations.

Table 3 : Incidence of Permanent Separation by Age							
Variable	Total Obs.	Total Separations	Total Displacements	Other Separations	Separations in Total	Displaced in Total	Displaced in Separations
Men							
25 ≤ Age < 30	39974	5525	2235	3471	13.82	5.59	40.45
30 ≤ Age < 35	128626	18559	7333	11844	14.43	5.70	39.51
35 ≤ Age < 40	157210	23087	9316	14480	14.69	5.93	40.35
40 ≤ Age < 45	135611	18523	7456	11591	13.66	5.50	40.25
45 ≤ Age < 50	112855	15802	6353	9849	14.00	5.63	40.20
50 ≤ Age < 55	82475	11563	4633	7178	14.02	5.62	40.07
55 ≤ Age < 60	7141	2336	570	1805	32.71	7.98	24.40
Σ	663892	95395	37896	60218	14.37	5.71	39.73
Women							
25 ≤ Age < 30	30943	4424	1686	2853	14.30	5.45	38.11
30 ≤ Age < 35	83816	11437	4477	7264	13.65	5.34	39.14
35 ≤ Age < 40	86651	11417	4578	7122	13.18	5.28	40.10
40 ≤ Age < 45	64579	8081	3389	4911	12.51	5.25	41.94
45 ≤ Age < 50	50144	6418	2734	3854	12.80	5.45	42.60
50 ≤ Age < 55	35587	4883	2023	2956	13.72	5.68	41.43
55 ≤ Age < 60	297	823	245	594	27.93	8.31	29.77
Σ	354667	47483	19132	29554	13.39	5.39	40.29

Sources: Author's calculations from DADS data.

Notes: Multiple observations in the same year are aggregated to the unique individual-year level. Stable jobs refers to jobs on which the individual had 4 years of seniority or more.

In order to get a more precise view of the determinants of displacement, we estimate probit models of the incidence of displacement, other types of separation and all separations combined on our data from 1984. Constraining ourselves to 1984 data eliminates the risk of separations into early retirement, as the oldest workers at this date are 50 years old. Table 4 presents the results of these models.⁴²

⁴²Appendix E presents the results of a similar estimation, but where the reference group is only those workers who remain continuously employed with the same employer throughout the 1984-1989 sample window.

Table 4: Probit Models of Incidence of Separation, Total and by Type of Separation Relative to All Alternative States - 1984

	Displacements		Other Separations		All Separations	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Men						
Age	0.0243	0.0109	0.0056	0.0090	0.0157	0.0080
Age ² /100	-0.0309	0.0141	-0.0060	0.0117	-0.0192	0.0104
4 ≤ Seniority < 6	0.0916	0.0167	0.1381	0.0139	0.1374	0.0123
6 ≤ Seniority < 8	0.2106	0.1200	0.3892	0.0945	0.3910	0.0860
Elementary School	-0.1317	0.0550	-0.0427	0.0462	-0.0837	0.0408
Junior High School	0.0933	0.0799	-0.0120	0.0702	0.0407	0.0609
High School	-0.0065	0.1052	0.1212	0.0826	0.0555	0.0754
Basic Vocational School	-0.0921	0.0520	-0.1344	0.0450	-0.1340	0.0393
Advanced Vocational School	-0.2402	0.0910	-0.0177	0.0673	-0.1066	0.0613
Undergraduate	0.1614	0.0901	0.1786	0.0746	0.1827	0.0671
Graduate School & Grande Ecole	-0.0158	0.0833	0.3394	0.0623	0.2522	0.0572
Constant	-2.4652	0.2184	-1.6801	0.1790	-1.7043	0.1592
N. Obs.	119358		119358		119358	
Log Likelihood	-20969.58		-31414.75		-42233.34	
Women						
Age	0.0015	0.0141	-0.0314	0.0121	-0.0223	0.0106
Age ² /100	-0.0006	0.0185	0.0347	0.0159	0.0254	0.0139
4 ≤ Seniority < 6	0.1587	0.0216	0.1444	0.0188	0.1734	0.0163
6 ≤ Seniority < 8	0.2422	0.1419	0.4178	0.1136	0.4002	0.1037
Elementary School	-0.0978	0.0818	0.0173	0.0701	-0.0423	0.0613
Junior High School	-0.0057	0.1042	-0.0920	0.0926	-0.0728	0.0796
High School	-0.0239	0.1306	-0.0348	0.1110	-0.0506	0.0975
Basic Vocational School	0.0255	0.0826	-0.0379	0.0728	-0.0234	0.0630
Advanced Vocational School	-0.0034	0.1025	-0.0861	0.0913	-0.0890	0.0788
Undergraduate	0.2142	0.1058	0.1342	0.0938	0.1933	0.0818
Graduate School & Grande Ecole	-0.2510	0.1729	0.4487	0.1217	0.1892	0.1142
Constant	-2.1640	0.2664	-1.0951	0.2271	-1.1191	0.1994
N. Obs.	65607		65607		65607	
Log Likelihood	-12085.10		-16812.02		-23270.64	

Source: Authors' calculations from DADS data.

Notes: Estimates include data from 1984 only, aggregated to one observation per individual.

All models also include controls for previous seniority, sector (15 categories) and skill level (3 categories). Reference group for Seniority: 10 or more years. Models estimate probability of specified type of separation relative to all alternative situations.

Table 4 suggests that age is not significantly related to the risk of separation (displacement or otherwise) in 1984,⁴³ with the exception being women who separate for reasons other than displacement. In this case, the probability of separation declines with age up until 45 years old, and then increases, with 55 year old women still having a lower probability of separation for reasons other than displacement than women under 35. The link between seniority and separation is not clear (note that the reference

⁴³This result is similar to what has been found in the United States (Seitchik 1991).

group is 10 years of seniority or more), and although certain specific degrees seem to be significantly related to the probability of displacement or other separation, once again the pattern is not clear.

5. Duration of Out of Work Spells

In North America, displaced workers often experience periods out of work following their displacement and prior to finding another job. In the more heavily regulated labor market of France (see section 2), advance notice requirements often serve to reduce or eliminate periods out of work.⁴⁴ In addition, decreasing unemployment benefits should also affect unemployed search intensity and thereby play a role on the duration of the nonemployment spells that follow displacement.⁴⁵ Thus the analysis of nonemployment durations following displacement in France can provide additional insight, not only into the functioning of the labor market, but also into the role that differences in the institutional and regulatory environment between France and the United States or Canada might play in determining the speed of reemployment.

5.1. Separation and Direct Transitions Between Employers

Table 5 breaks down all first separations in our data by seniority, and describes the share of separations which are followed by a period out of work. This is further broken down into displacements and other sorts of separations. Note that, given the eligibility criteria for our sample (at least 4 years of seniority in some job in 1984), all first separations coming from jobs with less than 4 years of seniority are second jobs that end, and not the primary job.

⁴⁴See Friesen (1997), Jones and Kuhn (1995) and Ruhm (1994) for recent work on advance notice in North America.

⁴⁵See, for example, Bonnal and Fougère (1990).

Table 5: Non-Employment Spells after Separation by Seniority - France

Seniority	All Separations	% Nonemp Spell	Displacements	% Nonemp Spell	Other Separations	% Nonemp Spell
Men						
Seniority < 1	3895	68.24	1567	62.28	2328	72.25
1 ≤ Seniority < 2	251	72.51	78	69.23	173	73.99
2 ≤ Seniority < 4	212	72.17	70	74.29	142	71.13
4 ≤ Seniority < 6	2175	83.59	576	77.95	1599	85.62
6 ≤ Seniority < 8	3467	83.88	964	82.05	2503	84.58
8 ≤ Seniority < 10	2828	83.49	798	81.83	2030	84.14
10 ≤ Seniority	10378	79.78	2793	75.44	7585	81.38
\sum	23206	79.12	6846	74.23	16360	81.16
\sum Stable Jobs	18848	81.53	5131	77.96	13717	82.87
Women						
Seniority < 1	1072	71.36	311	66.24	761	73.36
1 ≤ Seniority < 2	136	70.59	48	64.58	88	73.86
2 ≤ Seniority < 4	87	72.41	31	61.29	56	78.57
4 ≤ Seniority < 6	1420	90.35	369	87.80	1051	91.25
6 ≤ Seniority < 8	2289	89.38	669	86.55	1620	90.56
8 ≤ Seniority < 10	1863	89.43	526	86.88	1337	90.43
10 ≤ Seniority	5957	87.29	1592	81.91	4365	89.26
\sum	12824	86.70	3546	82.35	9278	88.37
\sum Stable Jobs	11529	88.43	3156	84.41	8373	89.94

Sources: Authors' calculations from DADS data.

Notes: Column 1: Total Number of Separations, by Seniority. Column 2: Percentage of nonemployment spells in total. Columns 3, 5: Number of Displacements and Other Separations. Columns 4, 6: Percentages of Displacements and Other Separations that are followed by positive duration nonemployment spells.

Statistics include only first separations and impose the retirement constraint (see section 3).

Stable jobs refers to jobs on which the worker had acquired at least 4 years of seniority by the time of displacement.

The numbers in table 5 demonstrate that the percentage of men who experience a nonemployment spell after separating from the firm peaks with 6-8 years of seniority (8-10 years for women), and then drops off rapidly. Furthermore, the share of positive-duration nonemployment spells is lower in general for displaced workers than for workers who separate for unknown reasons, with the difference being the most flagrant for the least senior workers. The fact that there is a slightly higher share of displaced men experiencing nonemployment in the 2-4 years of seniority range could simply be due to the small cell size, or it could imply that most of the other separations in this category are voluntary departures, while in the higher seniority categories the “other” group is likely to be dominated by firings.

Overall, the share of workers making direct job-to-job transfers is slightly higher for men than women (21 percent versus 13 percent), although the difference narrows when one focuses on stable jobs. Among workers with permanent attachments to their firm (those corresponding most cleanly to the definition of “displaced”), men seem to have a slight relative advantage in finding new jobs before they have to leave their old

firm. Women leaving stable jobs are 6.5 percentage points more likely to experience a nonemployment spell when displaced and 7.1 percentage points more likely when separating for other reasons. This may simply reflect women voluntarily leaving the labor force to have and raise children, a point on which we provide further evidence below.

Still, table 5 shows that approximately 22 percent of men and 16 percent of women who lose stable jobs because of firm closure never experience an interruption in their employment histories as a result of their displacement. This may be due to the employment protection legislation described in section 2 above. In fact, given the rigidity of the employment protection legislation and the long advanced notice periods it implies, one might wonder why the share of direct transitions is not higher. This is likely due to the length of the window used for defining displacement (see section 3), which includes separations that are not necessarily related to the firm closure and thus do not necessarily benefit from such generous employment protection legislation.

5.2. Nonparametric Duration Analysis

To analyze nonemployment durations in their entirety, we begin by calculating Kaplan Meier nonparametric hazard and survivor functions. Note that these results are conditional on experiencing a nonemployment spell of positive length, and that (as is always the case in duration modeling) our estimates are sensitive to the treatment of censored observations.⁴⁶ Figures 5.1, 5.2 and 5.3 show Kaplan-Meier estimates of the nonparametric survival functions of post-separation nonemployment spells for all spells of positive duration following stable jobs, and figure 5.4 shows the Kaplan Meier hazard function corresponding to the survivor function in figure 5.1.

Figure 5.1 suggests that not only do women experience positive spells of nonemployment with a higher probability than men, but they take longer to exit from nonemployment as well. However, figure 5.4 shows that the hazard functions for men and women cross between 24 and 36 months of nonemployment. The crossing of the two hazard functions can be interpreted as lending some support to the idea that some women “take advantage” of a separation from their employer to withdraw from the labor market and raise children. These women may not be searching with the same intensity at the beginning of their nonemployment spells as they would be later on when their children have reached a certain age. It is interesting to note, as an aside, that the maximum duration of a government benefit designed to allow women who stay at home and care for young children is 3 years, and this is consistent with an institutional justification behind the crossing point of the two hazard functions.

⁴⁶We treat all spells that do not end before December 31, 1989 as censored.

Figure 5.1: Kaplan Meier Survivor Functions, Both Types of Separation

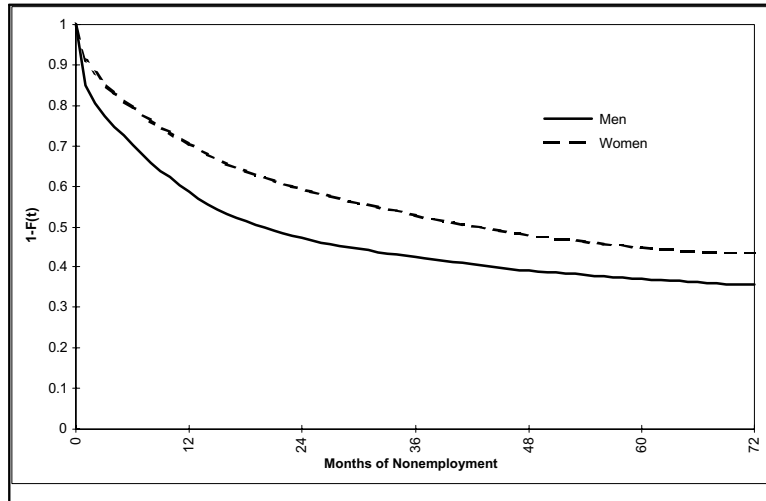


Figure 5.2: Kaplan Meier Survivor Functions - Men

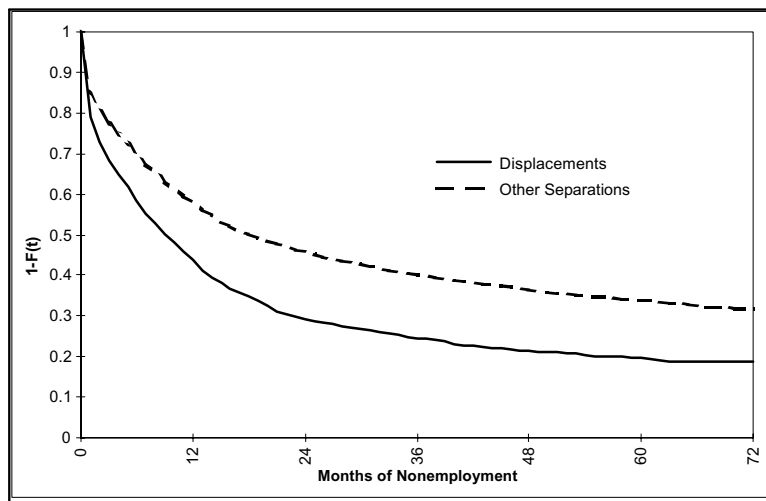


Figure 5.3: Kaplan Meier Survivor Functions - Women

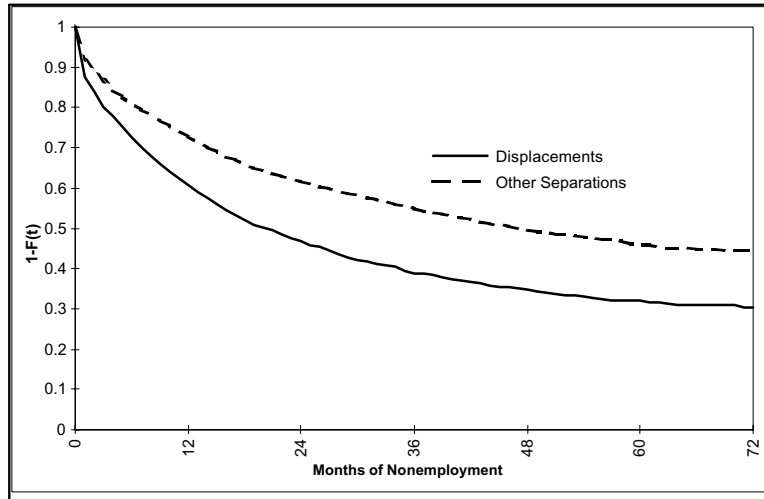
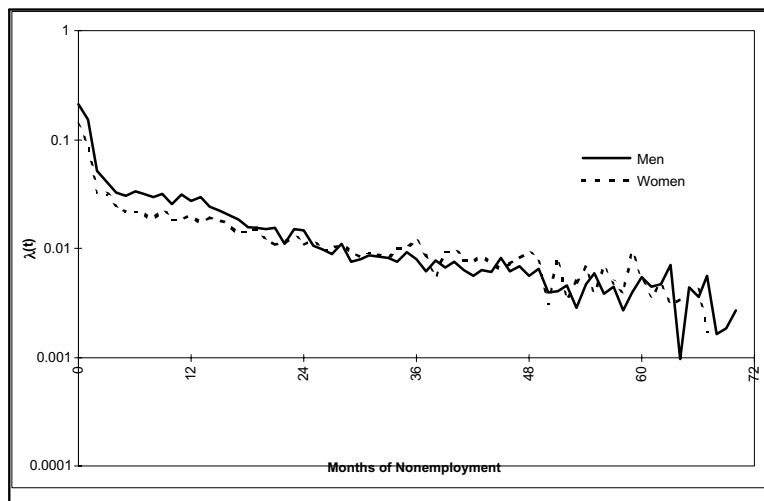


Figure 5.4: Kaplan Meier Hazard Functions



Considering figures 5.2 and 5.3, we see that displaced workers leave nonemployment at a faster rate than workers who separate for other reasons. The conditional survivors imply important differences in long term nonemployment, as less than 20 percent of displaced men, and just under 34 percent of other separators among men, are still out of employment 5 years after displacement.⁴⁷ Similar figures for women are just under 32 percent and just over 45 percent, respectively. Note, however, that these results are conditional on experiencing a nonemployment spell of positive length. Thus those separations for other reasons for which there was a positive duration spell of nonemployment following separation (for men in particular) are likely to be associated with firings for individual (as opposed to economic) reasons, and not necessarily voluntary departures. In addition, as mentioned above, some of the nonemployment spells of women may correspond to withdrawals from the labor force related to child raising activities. Nevertheless, given that displaced workers experience positive-length spells with, on average, a lower probability than other separators, this implies much more significant differences in expected durations of nonemployment, with expected durations (among those who have completed their spells within the sample window) being 21-23 percent longer for workers who separate for reasons other than displacement than for displaced workers. More precisely, taking into account the direct job-to-job transitions (but only considering completed spells), we find that the expected duration of nonemployment for displaced male workers is 6.42 months, while men who separate for other reasons have an expected duration on nonemployment of 7.77 months. The absolute differences are more dramatic for women, as the expected duration of nonemployment for displaced women is 9.27 months, while it is 11.38 months for women who separate for other reasons.

5.3. Parametric Duration Analysis

Of course, the differences between displaced workers and other separators in France may only be superficial, as the Kaplan-Meier survivor functions we have drawn in figures 5.1 - 5.4 do not consider the differences in the characteristics of the two populations. It may simply be the case that other separators have characteristics that make finding a new job harder after separation than displaced workers, and thus these workers would take longer to find new jobs independent of the reason for the separation. To control for observable heterogeneity in the populations, we estimate durations of nonemployment by using proportional hazard models with Weibull-distributed baseline hazards.⁴⁸ The effect of different covariates on nonemployment durations following separations are

⁴⁷Informal discussions with ASSEDIC administrators suggests that, in 1998 at least, approximately one third of individuals drawing unemployment insurance exhausted their benefits. These figures are roughly consistent with the survivor function measured a decade earlier shown in figure 1.

⁴⁸As suggested by figure 5.4, the estimated Kaplan-Meier hazards underlying figure 5.1 are roughly linear and decreasing in the log of the hazard rate, which suggests that a Weibull distributed baseline hazard is the most appropriate parametric specification. Semiparametric (Cox) models were not estimable under the material constraints (memory allocation and CPU time) imposed by INSEE.

given in table 6 for men and 7 for women, considering specifically workers with at least 4 years of seniority on the job of their first separation.⁴⁹ We estimate models with 1) both types of workers and an indicator variable for firm closure, as well as separately for 2) displaced workers and 3) workers who separate for other reasons. The first specification is equivalent to imposing identical coefficients on all covariates except the constant and an identical baseline hazard across the second and third specifications.

Table 6: Weibull Proportional Hazard Models - Men

Variable	All Separations		Separated for Unknown Reason		Displaced	
	Coef.	Std.E.	Coef.	Std.E.	Coef.	Std.E.
Constant	-1.2140	0.2575	-1.2848	0.2830	-0.1872	182.3635
6 ≤ Seniority < 8	-0.4442	0.1228	-0.4018	0.1350	-0.5036	0.1655
8 ≤ Seniority < 10	-0.4836	0.1336	-0.4138	0.1472	-0.5727	0.1784
10 ≤ Seniority	-0.4903	0.1192	-0.4435	0.1314	-0.5343	0.1582
Firm Closure	0.2186	0.1003				
Age	0.0038	0.0271	0.0015	0.0301	0.0073	0.0361
Elementary School	0.2117	0.1990	0.2716	0.2216	0.0907	0.2619
Junior High School	0.2219	0.2432	0.3535	0.2596	-0.0583	0.3645
High School	0.4542	0.2604	0.5554	0.2896	0.2436	0.3434
Basic Vocational School	0.3450	0.1935	0.4636	0.2169	0.1032	0.2525
Advanced Vocational School	0.4369	0.2381	0.4697	0.2565	0.5363	0.3423
Undergraduate	0.8703	0.2464	1.1836	0.2726	0.2066	0.3395
Graduate School & Grande Ecole	0.6906	0.2339	0.7533	0.2548	0.5410	0.3264
1985	0.0127	0.1122	-0.0317	0.1232	0.0811	0.1525
1986	0.1738	0.1203	0.1132	0.1316	0.2787	0.1640
1987	0.2494	0.1239	0.2108	0.1359	0.2968	0.1680
1988	0.2102	0.1344	0.1728	0.1481	0.2550	0.1802
1989	0.2643	0.1422	0.1572	0.1580	0.4444	0.1895
Weibull Shape Parameter	0.4396		0.4383		0.4504	
Number of Observations	16172		11774		4398	
Number of Failures	10344		7030		3314	
Log Likelihood	-31267.33		-21789.99		-9353.03	

Source: Authors' calculations from DADS data.

Notes: Data included first separations from stable jobs with positive nonemployment durations only. Right censoring occurs when the individual is not reemployed by December 31, 1989. All models included controls for sector of pre-separation firm (15 categories) and skill level (3 categories).

⁴⁹Note that, since the parameter estimates refer to the proportionality factor in the hazard function, a positive coefficient means that higher levels of the corresponding variable are associated with higher values of the hazard function, and thus shorter expected nonemployment durations.

Table 7: Weibull Proportional Hazard Models - Women

Variable	All Separations		Separated for Unknown Reason		Displaced	
	Coef.	Std.E.	Coef.	Std.E.	Coef.	Std.E.
Constant	-2.4121	0.3376	-2.2910	0.3720	-1.9059	311.9470
6 ≤ Seniority < 8	-0.3388	0.1496	-0.3133	0.1685	-0.3644	0.1920
8 ≤ Seniority < 10	-0.4876	0.1668	-0.3929	0.1860	-0.6319	0.2174
10 ≤ Seniority	-0.4293	0.1474	-0.3977	0.1658	-0.4419	0.1880
Firm Closure	0.2928	0.1233				
Age	0.0241	0.0342	0.0199	0.0386	0.0309	0.0438
Elementary School	0.2743	0.2606	0.3575	0.2964	0.1386	0.3310
Junior High School	0.6299	0.2844	0.5595	0.3206	0.8162	0.3688
High School	0.7621	0.3185	0.7814	0.3548	0.7444	0.4248
Basic Vocational School	0.5154	0.2626	0.5245	0.2979	0.5321	0.3349
Advanced Vocational School	0.5802	0.2913	0.5613	0.3295	0.5962	0.3734
Undergraduate	0.8665	0.3005	0.8504	0.3303	1.0041	0.4224
Graduate School & Grande Ecole	0.7288	0.3580	0.7007	0.3975	0.8244	0.4764
1985	0.0731	0.1385	0.0362	0.1547	0.1394	0.1818
1986	0.1967	0.1486	0.1409	0.1663	0.2989	0.1935
1987	0.2191	0.1555	0.2085	0.1752	0.2305	0.1995
1988	0.2037	0.1649	0.1783	0.1852	0.2316	0.2128
1989	0.1924	0.1814	0.0695	0.2061	0.4163	0.2312
Weibull Shape Parameter	0.4804		0.4965		0.4589	
Number of Observations	10563		7893		2850	
Number of Failures	5355		3579		1776	
Log Likelihood	-17182.70		-11706.71		-5397.78	

Source: Authors' calculations from DADS data.

Notes: Data included first separations from stable jobs with positive nonemployment durations only. Right censoring occurs when the individual is not reemployed by December 31, 1989. All models included controls for sector of pre-separation firm (15 categories) and skill level (3 categories).

Tables 6 and 7 show that the shape parameter of the Weibull model is always less than 1, indicating that the conditional probability of leaving unemployment decreases over time (decreasing hazard). This is consistent with the nonparametric hazards underlying figure 5.1. The results for the pooled estimations show that individuals who separate because of a closure have a higher conditional probability of re-entering employment than individuals who are separated for other reasons, and this effect is slightly stronger for women than for men. This can be explained by the set of individuals in the samples we are analyzing; since we only consider individuals who experience a non employment spell of positive duration, the group of workers who separate for other reasons may now consist mainly of workers who were fired for cause.⁵⁰

Seniority in the pre-separation firm seems to slow exit from nonemployment for both sexes and both sorts of separations, and this effect seems slightly stronger for displaced workers (relative to those who separate for other reasons). In general, most types of education seem to help workers leave nonemployment faster, relative to workers without

⁵⁰The layoffs and lemons model of Gibbons and Katz (1991) predicts such a phenomenon.

any degree, although which degrees help the most varies by reason for separation and sex. The only result consistent across sexes is that for workers who separate for reasons other than displacement (and, given that they experience a positive duration spell, were most likely to have been fired), the degrees that count are a high school baccalauréat, an undergraduate, grande école or graduate school degree (the vocational degrees are marginally less important). These results may reflect the value that a more general education might have in counterbalancing the negative signal sent by a firing for cause, as well as the extensive networks that some grandes écoles have available to help place their alumni who might otherwise have difficulty.

6. Earnings Before and After Separation

The literature notes that earnings losses occur, in particular, for workers who lose jobs in which they had a high level of seniority. It has also been noted that these earnings losses begin prior to displacement, and that measuring earnings losses by comparing only the final earnings on the job from which the worker was displaced with the new earnings is likely to underestimate the size of these losses. In our analyses, we consider both total earnings during the year and an average daily earnings measure, in order to get information on the role that part-year employment might have on earnings losses due to displacement.

6.1. Relative Earnings Evolution and Pre-Post Separation earnings Differentials

Figures 6.1 and 6.2 plot average total annual earnings for workers who were continuously employed over the at-risk period (1984-1989), workers whose first separation was a displacement during that period and workers whose first separation was for another reason during that period. We only include individuals with strictly positive average daily earnings for our calculations.⁵¹ For expository purposes, we look in particular at individuals whose first separation took place in 1987 (if at all).

Displaced men and women experience large real earnings losses in the year following displacement, although they go a long way towards making up these losses in the following year. The large gain two years after displacement, followed by the drop three years later suggests an important composition effect. Given that the 1990 number is imputed for those workers who were present both in 1989 and 1991 (recall that no data was available for 1990), the big drop afterwards is due to workers whose first

⁵¹Jacobson et al. (1993), on the other hand, suppose that workers not in employment after separation have zero earnings, and keep these workers in the sample for the calculation of their average earnings changes.

Figure 6.1: Mean Log Total Annual Earnings by First Separation During 1984-1989 Window - Men

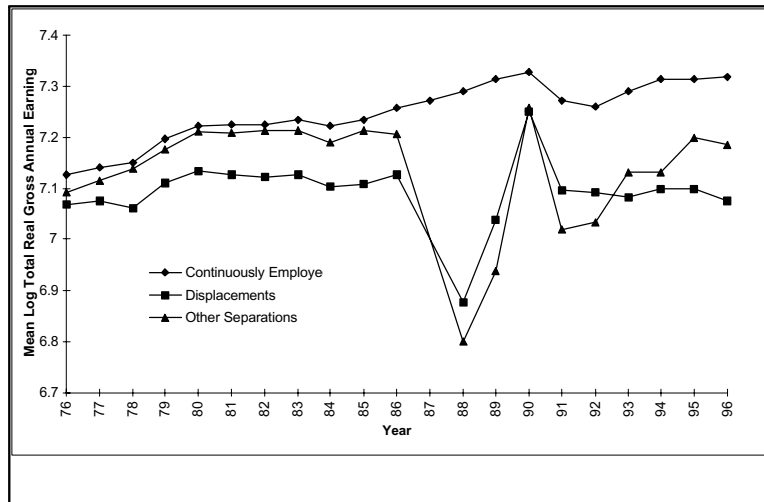
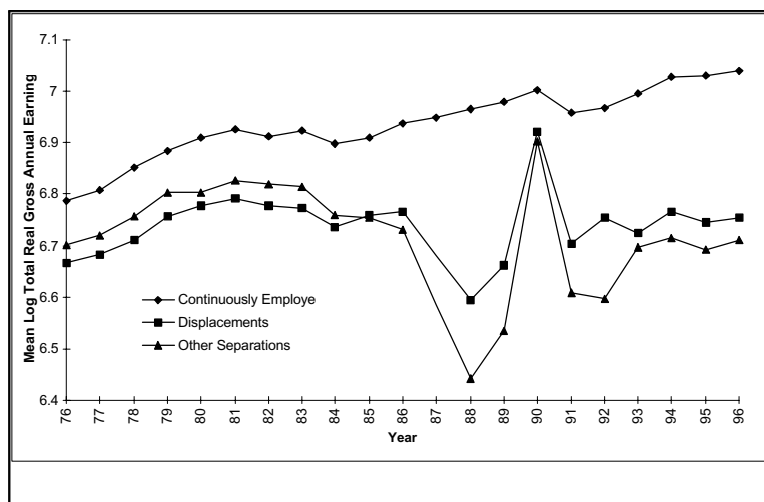


Figure 6.2: Mean Log Total Annual Earnings by First Separation During 1984-1989 Window - Women



reemployment comes at the earliest 3 years after displacement, who seem to earn a lot less than workers who got jobs sooner and have benefitted from early-job seniority benefits. As noted in Margolis (1996), seniority returns early in the job are very steep in France, and thus the big recovery seen in figures 6.1 and 6.2 could be largely due to these returns. However, the composition of the stock of workers employed 4 years after separation includes slow job finders with less seniority as well, thus dropping the average. Similar effects are visible as well among workers who separate for other reasons.

Another interesting point to draw from the figures is the order of earnings levels between the three categories. It appears that displaced workers have earnings that are, on average, lower than other sorts of workers, be they continuously employed or separated for other reasons than displacement. In the pre-separation period, men who separate from their employers for the first time (in the 1984-1989 window) by displacement in 1987 earn 9.01 percent less in 1984 than those whose first separation is for other reasons, who in turn earn 3.48 percent less than workers who are continuously employed over the whole period. For women, the differences are smaller for the displaced-other earnings gap, but larger for the continuously employed-other separations differential. Displaced women earn 2.29 percent less per year than other separators, who in turn earn 14.97 percent less than women continuously employed over the 1984-1989 period.

It should be noted that, unlike some U.S. studies, these simple plots of means do not suggest an important pre-separation dip in relative earnings for displaced workers. Both men and women who separate for other reasons, however, experience both absolute and relative declines in annual earnings in between 2 and 1 years prior to the eventual separation, and for women this is sufficient to invert the ranking of earnings of displaced and other separators in the pre-displacement year.

It should be noted, however, that many of these effects may be due to part-year work, possibly as a result of temporary layoffs in the years prior to firm closure. To capture these differences, figures 6.3 and 6.4 plot average daily labor earnings, thus eliminating the fluctuations in earnings due to part-year employment.

These figures tell a completely different story, particularly in the post-displacement period. Whereas both displaced workers and other separators suffered a large drop in annual earnings at separation, they seem to have gains in daily earnings between the year before and the year after displacement. Men who separate for reasons other than displacement also gain in daily earnings following the separation, although these gains are much smaller. Average real daily earnings grew by 1.97% for continuously employed men and 2.32% for continuously employed women between 1986 and 1988, whereas the gains for displaced workers were larger (12.68 and 7.33 percent for men and women, respectively). The gains for other separators over the same interval were smaller (2.07 and 0.74 for men and women, respectively). Part of this jump for displaced workers might be due to what is called “partial unemployment” in the period leading up to firm closure. In France, a firm can negotiate a contract with the unemployment

Figure 6.3: Mean Log Average Daily Earnings by First Separation During 1984-1989
Window - Men

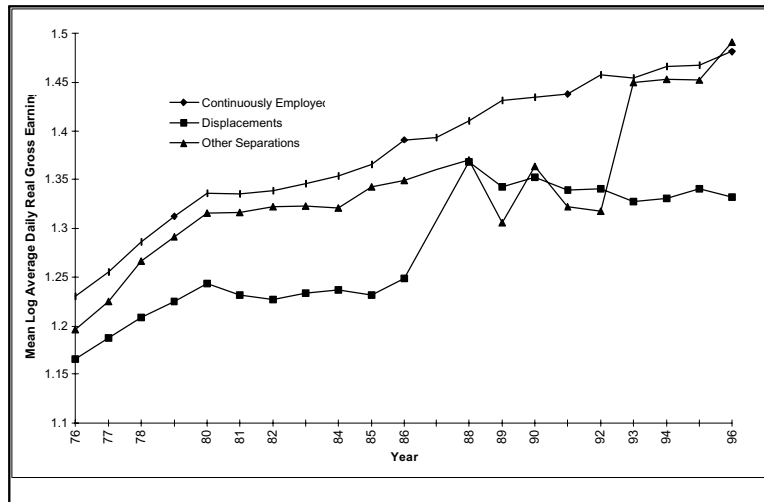
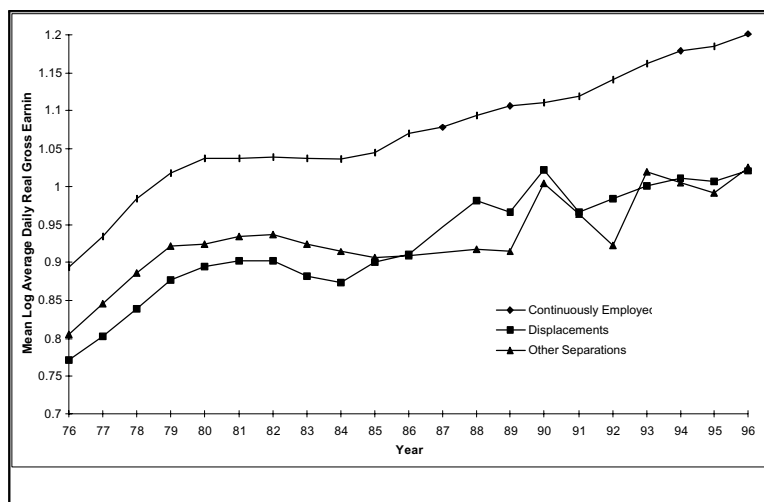


Figure 6.4: Mean Log Average Daily Earnings by First Separation During 1984-1989
Window - Women



insurance fund to put its workers on partial unemployment, in which case the worker receives a fixed fraction of his or her initial salary with the costs split between the employer and the unemployment insurance fund. The worker does not report to work, but maintains the employment relation. If employers report only the (lower) share of the (lower) workers' earnings paid during this period while not reducing the reported number of days for which compensation was paid, this would artificially lower the pre-displacement earnings level. Nevertheless, even in the presence of such a phenomenon, it seems unlikely that average daily earnings in France decline around separation.

Nevertheless, the "recovery" after separation, for both types of separation and both sexes, seems to imply slower earnings growth for both types of separation relative to continuously employed workers within the sample window.⁵² This could be due to any of several reasons. First, it could be interpreted as another indication of a composition effect, perhaps in the presence of a declining reservation wage for nonemployed, as well. Alternatively, post-displacement jobs may be of such bad quality that the real wage actually falls while days worked increases (thus maintaining annual earnings), or they may be such that the worker has to take a second job to maintain a standard of living⁵³.

A final point worth noting is the dip in average real daily earnings between the year following separation and two years after separation, for both displaced workers and those who separate for other reasons. Since we are calculating the averages used to draw figures 6.1 and 6.2 from employed individuals only, this dip, or rather lack of recovery, could once again be due to a composition effect. It may be the case that workers who take longer to find a job after separation not only work fewer days, but also earn less per day, on their new job than those who find their new job sooner. We explore this idea in detail in tables 8 and 9.

6.2. Long Differences in Earnings and Speed of Reemployment

In order to get a handle on the importance of the composition effect and the role of slow job finding on earnings, tables 8 and 9 consider the raw averages in more detail, looking at long differences (of at least 2 periods) in average earnings around the displacement or separation date by seniority (prior to separation), distinguishing between continuously employed workers, displaced workers, and workers who separate for other reasons. For the continuously employed, the table simply provides average 2-year differences in earnings. For displaced and separated workers, the numbers refer to the earnings difference between the new job in the year after the separation year (if a new job has been found, otherwise it refers to the first year in which a new job has been found) and the old job in the year prior to the separation year. We have

⁵²The large jump between 1992 and 1993 for displaced men is outside of our sample window, and as such we do not control for separations from the continuously employed group during the recession of the early 1990s that may bring down their average relative earnings.

⁵³Equation 3.2 shows that taking a second job, and thus working additional days for the same total annual earnings, will cause average daily earnings to decline even when total annual earnings stays constant.

ur he se ar te ou wo ke s w o a e o se ve in mp oy en at he arie t t o c le da ye rs ft r s pa at on we ef r t th se or er as lo Di pl ce an Sl w O he Se ar ti ns Fi al y, t s ou d b no ed ha wo ke s a e c as ed y t ei fir t s pa at on in he 98 -1989 window, and thus the figure re er in to ow en or ty n t e d sp ac d a d o he se ar to s c te or es re ef r r ng o p st se ar ti n 2 ye r d ff en ia s, hie t os wi h l w s ni ri y i th co ti uo sl em lo ed ro p a e p o pe w os mo t r ce t j b c nt ib te mo e t th ir nn al ar in s t an her “ ai ” j b t at uaifi d t em or el ct on nt t e s mp e.

Table 8: Two Period Annual Earnings Growth by Seniority and Date of Separation										
	Contractual		All		Stable		Other		Stable/Other	
	Employed		Displaced		Displaced		Separations		Separations	
	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.
Men										
Seniority < 1	5.03	596	14.66	13945	44.39	533	14.68	19418	47.81	846
1 ≤ Seniority < 2	4.08	195	-4.54	3610	-48.03	35	-1.40	5262	-36.12	65
2 ≤ Seniority < 4	4.54	157	-3.54	1638	-31.73	10	-1.92	2454	78.75	11
4 ≤ Seniority < 6	4.64	13843	-23.84	3131	-34.85	478	-22.98	4300	-27.00	1003
6 ≤ Seniority < 8	4.93	35604	-16.76	5988	-23.42	640	-23.23	7377	-30.20	1289
8 ≤ Seniority < 10	4.35	29627	-13.66	4382	-21.47	301	-22.04	4777	-39.02	496
10 ≤ Seniority	3.24	142010	-17.00	16669	-32.63	1209	-21.65	16387	-31.89	2340
Σ	3.76	222032	-6.81	49363	-17.44	3206	-7.62	59975	-20.01	6050
Σ Stable Jobs	3.75	221084	-17.18	30170	-29.51	2628	-22.24	32841	-31.20	5128
Women										
Seniority < 1	3.04	217	5.51	6785	3.53	274	13.28	7698	21.88	394
1 ≤ Seniority < 2	4.83	81	-5.36	2331	-12.19	19	-3.67	1954	-46.03	35
2 ≤ Seniority < 4	5.11	69	-5.51	1160	-42.19	13	-2.41	932	-45.49	10
4 ≤ Seniority < 6	5.35	9326	-18.30	1622	-22.25	365	-21.86	2253	-29.01	774
6 ≤ Seniority < 8	4.39	23011	-14.03	3288	-23.63	586	-20.24	3704	-27.03	947
8 ≤ Seniority < 10	3.73	18309	-16.71	2178	-21.52	327	-20.23	2174	-35.98	318
10 ≤ Seniority	2.94	74275	-15.58	6629	-32.81	910	-22.57	6857	-31.68	1545
Σ	3.50	125288	-8.21	23993	-23.53	2494	-9.00	25572	-25.32	4023
Σ Stable Jobs	3.50	124921	-15.71	13717	-26.90	2188	-21.55	14988	-30.26	3584

Table 8 confirms the intuition derived from figures 6.1 and 6.2. Considering all displacement dates simultaneously (and not just 1987), we find that displaced workers suffer losses in total annual earnings between the year preceding displacement and the first year in which they found new employment following it. The effect is largely mitigated by earnings increases associated with post-separation jobs with little seniority, as the earnings loss associated with being displaced from a stable job is roughly three times as large for men, and twice as large for women, as the average loss in total earnings.

Furthermore, table 8 suggests that there is indeed a composition effect at work, as annual earnings losses are roughly three times as big for displaced men and women who took more than a year to find a new job relative to the overall average. Similar effects are also visible for workers who separate for reasons other than displacement (columns

“Slow Displaced” and “Slow Other Separations”). It should be noted, however, that slow job finders make up a relatively small share of workers who eventually find jobs following separation. The fact that post-displacement earnings do not continue to decline after 1990 in figures 6.1 and 6.2 implies that the first-year gains of displaced workers on their new jobs, even for slow job finders, are sufficiently strong to over-compensate the negative effects of the starting wage that workers who are slow to find jobs should have on the average.

Among the continuously employed population, the seniority profile of earnings seems roughly concave (especially if one discounts the relatively-underpopulated 1-4 years of seniority categories) as described in the literature for France (Margolis 1996). For displaced workers with stable jobs, however, earnings losses seem to follow a U-shape, with the most senior workers suffering the biggest losses and men with 8-10 or women with 6-8 years of prior job seniority being less seriously affected.

In addition, earnings losses for workers who separate from stable jobs for reasons other than displacement are larger than those of workers displaced from stable jobs, for both sexes and at most levels of prior job seniority. This may reflect the possibility that this group consists mainly of workers who have been laid off for cause. In absolute terms, it is the workers who separate for reasons other than displacement and who take more than a year to find a new job who lose the most with their separation, and this seems to be the case for both sexes.

Finally, women seem to lose more on average following separation (regardless of type) than men. However, this result is driven by the earnings increases of the very low seniority jobs for men, since among stable job losers, women experience smaller earnings losses. In addition, women’s additional losses associated with taking over a year to find a new job are smaller than for men. Given that our data do not allow us to distinguish unemployment from inactivity, the share of people who withdrew from the labor force for at least some of the period following separation in the slow reemployment group is likely to be higher for women than for men. There are many theories that would predict larger earnings losses on reemployment for long-term unemployed (declining reservation wages, unobserved heterogeneity, other signalling stories), yet most of these models do not generate similar predictions for voluntary labor force withdrawal. Thus the observed inversion in the relative losses when comparing overall losses and losses for those slow to be reemployed between men and women may be due to the difference in the share of people who at some point withdrew from the labor force in the stocks of slow reemployed.

Table 9: Two Period Daily Earnings Growth by Seniority at Date of First Separation

	Continuously Employed		All Displaced		Slow Displaced		Other Separations		Slow Other Separations	
	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.	% Δw	Obs.
Men										
Seniority < 1	5.65	596	3.09	13945	-27.39	533	1.91	19418	-18.23	846
1 \leq Seniority < 2	-1.45	195	3.22	3610	-32.27	35	3.30	5262	-12.53	65
2 \leq Seniority < 4	3.52	157	3.19	1638	28.00	10	3.23	2454	10.25	11
4 \leq Seniority < 6	4.65	13843	10.24	3131	-8.02	478	7.05	4300	-6.32	1003
6 \leq Seniority < 8	4.35	35604	10.14	5988	-3.05	640	4.74	7377	-18.42	1289
8 \leq Seniority < 10	3.38	29627	7.43	4382	-6.23	301	2.83	4777	-28.72	496
10 \leq Seniority	2.55	142010	7.50	16669	-7.35	1209	2.99	16387	-11.96	2340
Σ	3.08	222032	6.29	49363	-9.98	3206	3.17	59975	-14.62	6050
Σ Stable Jobs	3.08	221084	8.30	30170	-6.30	2628	3.89	32841	-14.10	5128
Women										
Seniority < 1	2.58	217	3.22	6785	-4.60	274	3.35	7698	-8.83	394
1 \leq Seniority < 2	0.81	81	2.45	2331	-16.27	19	3.47	1954	-17.13	35
2 \leq Seniority < 4	4.87	69	1.98	1160	-21.21	13	2.78	932	-15.82	10
4 \leq Seniority < 6	4.89	9326	1.85	1622	1.16	365	-2.17	2253	-14.68	774
6 \leq Seniority < 8	3.62	23011	3.23	3288	-2.02	586	-3.32	3704	-11.99	947
8 \leq Seniority < 10	3.19	18309	-0.50	2178	-6.70	327	-4.48	2174	-17.13	318
10 \leq Seniority	2.55	74275	-0.26	6629	-13.27	910	-6.78	6857	-18.93	1545
Σ	3.02	125288	1.69	23993	-6.76	2494	-1.50	25572	-15.32	4023
Σ Stable Jobs	3.02	124921	0.78	13717	-6.87	2188	-4.90	14988	-16.02	3584

Table 9 suggests that the results in table 8 need to be interpreted carefully, as for both types of separators the drops in annual earnings become smaller when measured in terms of daily earnings, and even become gains for some groups. Considering all displacement dates simultaneously, we find that displaced men as a whole make faster earnings gains than continuously employed workers or workers who separate for other reasons, and the earnings losses for women are converted to earnings gains (albeit smaller than those for continuously employed) when switching the earnings measure from annual to daily earnings. This is because the average daily earnings measure takes into account the fact that the post-separation year used for the comparison is likely to have been less than a full year of employment, whereas the pre-separation year was likely to have contributed a larger share of a year's worth of earnings to the comparison.

Substantial earnings losses occur on average for both displaced and other separating workers who take more than a year to find a new job, as suggested by figures 6.3 and 6.4. Taking this results together with the differences between tables 8 and 9, and given that previous job seniority does not play a systematic role in determining the size of the average daily earnings losses, the fact that it does appear important for total annual earnings suggests that, in the context of a standard job search model, the main source of earnings losses is a result of differential search intensity or offer arrival rates, and not due to workers with different levels of seniority facing different offer distributions.

On the other hand, as noted in section 2, unemployment benefit levels and duration are closely linked to previous job seniority, and thus reservation wages should also vary with seniority. However, since the benefit level and duration provisions are monotonically related to previous job seniority, the U-shaped relation between seniority and total annual earnings losses may be the result of one effect that dominates at lower levels of job seniority (low offer arrivals, perhaps), and another that dominates at higher levels of seniority (longer benefit durations driving slower reemployment).

6.3. Earnings Change Regressions

To investigate the possibility of a pre-displacement earnings dip, and to compare the dynamics of earnings of displaced and continuously employed workers more generally, we adopt an estimation strategy similar to that proposed by Jacobson et al. (1993) that exploits the panel data dimension on the worker side to observe earnings both before and after displacement. In particular, we estimate the following model

$$\ln w_{it} = x_i\beta_1 + z_{it}\beta_2 + \delta_t + \sum_{s \in A} k_{is}\gamma_s + \xi \sum_{\tau \in \omega} ks_{i\tau} + u_{it}, \quad (6.1)$$

where $\ln w_{it}$ represents log earnings for individual i at date t , x_i is a vector of time-invariant individual characteristics (such as education), z_{it} is a vector of time-varying individual characteristics (age, for example), and β_1 and β_2 are the corresponding coefficients. Macroeconomic shocks to earnings are described by δ_t . The indicator variables k_{is} take on the value 1 for individual i , s years before or after the separation (A being the set of pre- and post-separation dates). The variables $ks_{i\tau}$ take the value 1 τ periods after separation (ω being the set of dates following separation) for those individuals who are not observed in employment in the year after separation. Accordingly, the parameter ξ picks up a negative permanent effect for those individuals who remain out of work for more than one year after separation. The parameters γ_s reflect then the difference in earnings between the reference group and those separated/displaced workers who are observed in employment in the year after separation.

Tables 10 and 11 provide the results of estimating this model on total annual earnings, and tables 12 and 13 estimate the model on average daily earnings.⁵⁴ Models 1 and 3 compare workers who are displaced because of plant closure between 1984 and 1989 with workers who are continuously employed over that period. Models 2 and 4 compare continuously employed workers with workers who separate for unknown reasons. As mentioned above, these latter separations consist of voluntary quits, temporary layoffs in the period preceding firm closure and firings for cause. The variable *Perm* takes on the value 1 in all years following the first separation if it took the individual more than 12 months to find a job after displacement. The variables *Sep_i* assume the value one in the i th year prior to or following the worker's first separation. Note that we are only considering first separations in these regressions, and that we have excluded earnings in the separation year for workers who separate. The reason is that the last earnings

⁵⁴We also estimated the model with individual fixed effects. These results can be found in appendix F.

before separation is considerably lower than prior or subsequent earnings, which may be due to the inability of closing firms to pay the entire wage bill, or to agreements between workers and firms in the case of quits.

**Table 10: Log Average Real Annual Earnings
Ordinary Least Squares Regressions - Men**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Separated	-0.0765	0.0073	-0.0491	0.0066	-0.0751	0.0072	-0.0474	0.0066
Sep ₋₄	0.0021	0.0089	0.0072	0.0082	0.0037	0.0089	0.0078	0.0081
Sep ₋₃	-0.0042	0.0085	-0.0180	0.0076	-0.0012	0.0084	-0.0179	0.0075
Sep ₋₂	-0.0101	0.0081	-0.0200	0.0073	-0.0076	0.0081	-0.0189	0.0073
Sep ₋₁	-0.0211	0.0079	-0.0487	0.0072	-0.0143	0.0078	-0.0425	0.0071
Perm	-0.3280	0.0074	-0.3973	0.0057	-0.4109	0.0075	-0.4427	0.0057
Sep ₁	-0.2973	0.0082	-0.3459	0.0076	-0.0051	0.0089	-0.0343	0.0084
Sep ₂	-0.1692	0.0083	-0.2339	0.0078	0.1214	0.0090	0.0850	0.0086
Sep ₃	-0.1386	0.0085	-0.1726	0.0080	0.0443	0.0093	0.0732	0.0089
Sep ₄	-0.1378	0.0091	-0.1510	0.0084	0.0253	0.0098	0.0740	0.0094
Sep ₅	-0.1454	0.0106	-0.1342	0.0097	0.0096	0.0109	0.0655	0.0101
Age	0.0506	0.0011	0.0489	0.0011	0.0468	0.0011	0.0443	0.0012
Age ² /100	-0.0493	0.0013	-0.0474	0.0014	-0.0453	0.0013	-0.0426	0.0014
2 ≤ Seniority < 4					0.3116	0.0060	0.3280	0.0058
4 ≤ Seniority < 6					0.3357	0.0055	0.3602	0.0055
6 ≤ Seniority < 8					0.3471	0.0050	0.3777	0.0051
8 ≤ Seniority < 10					0.3582	0.0049	0.3965	0.0050
10 ≤ Seniority					0.3731	0.0046	0.4126	0.0047
1985	-0.0071	0.0024	-0.0079	0.0025	-0.0103	0.0025	-0.0106	0.0026
1986	0.0048	0.0025	0.0062	0.0026	-0.0014	0.0026	0.0024	0.0027
1987	0.0035	0.0025	0.0046	0.0027	-0.0013	0.0026	-0.0040	0.0028
1988	0.0100	0.0025	0.0093	0.0027	0.0067	0.0027	-0.0026	0.0028
1989	0.0231	0.0026	0.0261	0.0028	0.0199	0.0027	0.0139	0.0029
Elementary School	0.0463	0.0059	0.0647	0.0063	0.0468	0.0059	0.0652	0.0062
Junior High School	0.2180	0.0089	0.2345	0.0092	0.2152	0.0088	0.2335	0.0092
High School	0.3379	0.0108	0.3822	0.0113	0.3389	0.0107	0.3821	0.0112
Basic Vocational School	0.1270	0.0056	0.1446	0.0060	0.1296	0.0056	0.1459	0.0059
Advanced Vocational School	0.2861	0.0084	0.3196	0.0087	0.2866	0.0084	0.3221	0.0086
Undergraduate	0.3827	0.0102	0.4130	0.0105	0.3856	0.0101	0.4188	0.0104
Graduate School & Grande Ecole	1.0733	0.0088	1.0810	0.0090	1.0764	0.0088	1.0869	0.0089
Constant	2.9284	0.0228	2.9133	0.0239	2.6529	0.0237	2.6243	0.0248
N. Obs.	444577		488513		444577		488513	
R ²	0.3402		0.3187		0.3512		0.3314	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year.

The variables Sep_{*i*} equals one in the *i*th year before/after separation. Sep₋₅ is the reference category.

**Table 11: Log Average Real Annual Earnings
Ordinary Least Squares Regressions - Women**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Separated	-0.1020	0.0114	-0.0687	0.0107	-0.0960	0.0113	-0.0611	0.0106
Sep ₋₄	-0.0038	0.0141	-0.0242	0.0132	-0.0009	0.0140	-0.0230	0.0130
Sep ₋₃	-0.0057	0.0133	-0.0556	0.0123	-0.0027	0.0132	-0.0540	0.0122
Sep ₋₂	-0.0020	0.0127	-0.0866	0.0119	0.0021	0.0126	-0.0838	0.0118
Sep ₋₁	-0.0182	0.0124	-0.1444	0.0116	-0.0120	0.0123	-0.1377	0.0115
Perm	-0.6384	0.0135	-0.5692	0.0092	-0.6135	0.0136	-0.5679	0.0093
Sep ₁	-0.1940	0.0130	-0.3575	0.0127	-0.0314	0.0149	-0.0755	0.0143
Sep ₂	-0.1252	0.0132	-0.2774	0.0130	0.0413	0.0151	0.0115	0.0147
Sep ₃	-0.0898	0.0136	-0.2163	0.0132	-0.0364	0.0156	0.0019	0.0151
Sep ₄	-0.0930	0.0144	-0.1652	0.0141	-0.0589	0.0165	0.0358	0.0159
Sep ₅	-0.1170	0.0168	-0.1789	0.0164	0.0004	0.0174	0.0345	0.0173
Age	0.0662	0.0017	0.0655	0.0018	0.0532	0.0017	0.0530	0.0018
Age ² /100	-0.0720	0.0021	-0.0705	0.0022	-0.0571	0.0021	-0.0563	0.0022
2 ≤ Seniority < 4					0.2765	0.0097	0.3371	0.0103
4 ≤ Seniority < 6					0.0481	0.0095	0.2183	0.0095
6 ≤ Seniority < 8					0.1050	0.0091	0.2776	0.0089
8 ≤ Seniority < 10					0.1448	0.0090	0.3144	0.0088
10 ≤ Seniority					0.2354	0.0086	0.4033	0.0084
1985	-0.0026	0.0038	0.0008	0.0040	-0.0146	0.0038	-0.0114	0.0041
1986	0.0119	0.0039	0.0172	0.0041	-0.0087	0.0040	-0.0031	0.0043
1987	0.0132	0.0039	0.0189	0.0042	-0.0221	0.0041	-0.0153	0.0044
1988	0.0097	0.0040	0.0200	0.0043	-0.0343	0.0042	-0.0223	0.0045
1989	0.0146	0.0041	0.0194	0.0045	-0.0358	0.0043	-0.0291	0.0047
Elementary School	0.0440	0.0105	0.0586	0.0114	0.0464	0.0104	0.0601	0.0113
Junior High School	0.2448	0.0130	0.2428	0.0141	0.2420	0.0129	0.2370	0.0140
High School	0.3857	0.0156	0.3918	0.0168	0.3910	0.0155	0.3912	0.0167
Basic Vocational School	0.1986	0.0106	0.2013	0.0115	0.1945	0.0106	0.1954	0.0114
Advanced Vocational School	0.3166	0.0126	0.3312	0.0135	0.3173	0.0125	0.3326	0.0134
Undergraduate	0.3116	0.0146	0.2799	0.0156	0.3197	0.0145	0.2864	0.0155
Graduate School & Grande Ecole	0.8965	0.0205	0.9548	0.0214	0.9084	0.0204	0.9613	0.0212
Constant	2.4957	0.0339	2.4440	0.0362	2.5947	0.0352	2.3701	0.0373
N. Obs.	246094		262220		246094		262220	
R ²	0.2142		0.2118		0.2251		0.2248	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year.

The variables Sep_{*i*} equals one in the *i*th year before/after separation. Sep₋₅ is the reference category.

Looking at model in tables 10 and 11, we note that men who will be displaced in year *t* have earnings 5 years before the displacement that are around 7.4 percent lower than workers who are continuously employed over the entire period, conditional on age, education and macroeconomic shocks, and women earn 9.7 percent less. This gap increases from earning 7.4 percent less in *t* - 5 to earning 9.3 percent less in the year immediately preceding displacement. The pre-displacement dip for women is proportionally smaller, going from 9.7 percent below the continuously employed earnings level to 11.3 percent less. This pre-displacement dip, is, however, relatively small (as

compared to what was found by Jacobson et al. (1993) in the United States), and was practically invisible in figures 6.1 and 6.2.

There are several explanations for continuously lower pre-displacement earnings of workers who experience a displacement. Firms which close down may be less productive, or may be concentrated in low productivity sectors. However, given that we control for industry with a set of 15 indicator variables in all of these regressions, this hypothesis sounds less credible. A further explanation for the lower pre-separation earnings profiles of workers in the displacement group may be that workers in firms which close down are of lower productivity. Our fixed-effect regressions (found in appendix F) suggest that this is the most likely explanation, as there is no significant annual earnings variation in the pre-separation period for either male or female displaced workers.

In the year following displacement, French men earn 31.2 percent less than their continuously employed counterparts and women earn 25.6 percent less, a feature that closely resembles the “drop” in the U.S. Literature. This drop is roughly consistent with figures 6.1 and 6.2 and table 8, suggesting that heterogeneity in worker characteristics between groups does not explain much of the relative earnings differentials.⁵⁵ In later years, however, displaced workers make up some of this loss, so that 5 years after displacement, men earn only 19.9 percent less than their continuously employed counterparts, and women earn only 19.7 percent less. This represents a “recovery” of 16 percent for men and 8 percent for women with respect to the immediate post-displacement relative earnings level.

Note that Jacobson et al. (1993) found pre-displacement earnings in the U.S. to be consistently lower for displaced workers (relative to continuously employed workers), and thus these results for France are not surprising. However, they also found that the post-displacement earnings recovery happened essentially during the first 6 quarters following displacement, while we find that workers relative earnings are still improving even between the second and third year after displacement. This is surprising given our differential treatment of post-separation earnings. Jacobson et al. (1993) treat nonemployed workers as zeros in their regressions, which should bring their immediate post-separation mean earnings down dramatically, whereas we exclude these observations from the estimations. As workers find jobs in the American sample, zeros are replaced with (relatively large) positive numbers, thus generating an observed recovery. In our data, these additional workers contribute to the identification of the slow job finders indicator variable, and (when not controlling for seniority) drag down the slope of the recovery in France. Given this information, one possible explanation is that American workers are reemployed at a *much* faster rate than French workers, such that essentially all who will eventually be reemployed have found jobs within 6 quarters of their displacement.

Column 2 displays results for workers who separate for other reasons, including quits and being fired for cause. In this group, the picture which emerges is slightly different. Workers who separate for reasons other than displacement still earn relatively less per year than their continuously employed counterparts, but not as dramatically as

⁵⁵Appendix D shows that the continuously employed, displaced and other separator samples seem relatively homogeneous in terms of observed characteristics.

for displaced workers (as suggested by figures 6.1 and 6.2). There is still a dip pre-separation, which is much larger for workers who separate for other reasons than for workers who will be displaced. The coefficient in the year preceding separation is an extra 4.6 percentage points lower than at $t - 5$ for men, and an extra 12.5 percentage points lower for women, whereas the corresponding difference were 2.0 percentage points below for displaced men and 1.7 percentage points below for displaced women.⁵⁶

In the year immediately following separation, workers who separate for reasons other than firm closure are worse off than displaced workers. The recovery brings the relative earnings gap for men from 32.6 percent in the year following separation to 16.8 percent five years after separation, and the recovery is slightly lower (in percentage terms) for women, going from 34.7 percent to only 21.9 percent below the annual earnings of continuously employed with similar characteristics.

In columns 3 and 4, we have added indicator variables for seniority. The reference group is workers with less than 2 years of seniority. The inclusion of controls for seniority does not seem to affect significantly the paths of relative earnings in either country in the pre-separation period. However, the inclusion of controls for seniority has dramatic effects for the post separation period. For men, it cuts the size of the relative earnings gap to on average 15.5 percent of the value without seniority controls for displaced workers, and it becomes an average post-separation earnings advantage relative to continuously employed workers for other separators when seniority controls are added. For women, the average reduction in the gap with respect to the continuously employed is less dramatic, with the average post-separation earnings differential for continuously employed women being reduced to 52.7 percent of the uncontrolled value in the case of displacement and 21.7 percent in the case of other separations.

Figures 6.5 and 6.6 plot the earnings paths of displaced workers (relative to continuously employed workers) for the years surrounding displacement for men and women, respectively. Figures 6.7 and 6.8 do the same for workers who separate for reasons other than firm closure for men and women, respectively. As mentioned above, and as can be seen in all of these figures, including controls for seniority dramatically changes the shape of the drop and recovery. This further emphasizes the importance of controlling for seniority when estimating equations such as (6.1).

It is important to note that, for both types of separations, there seems to be a large penalty, in particular for workers who separate for reasons other than displacement, for not finding employment in the year after separation. When we do not control for seniority and look two years after separation, French men's relative earnings are on

⁵⁶The baseline values at $t - 5$ were higher for displaced workers (7.4% below and 9.7% below for men and women, respectively) than for other separators (4.8% below and 6.6% below for men and women, respectively).

Figure 6.5: Relative Annual Earnings Path - Displaced Men

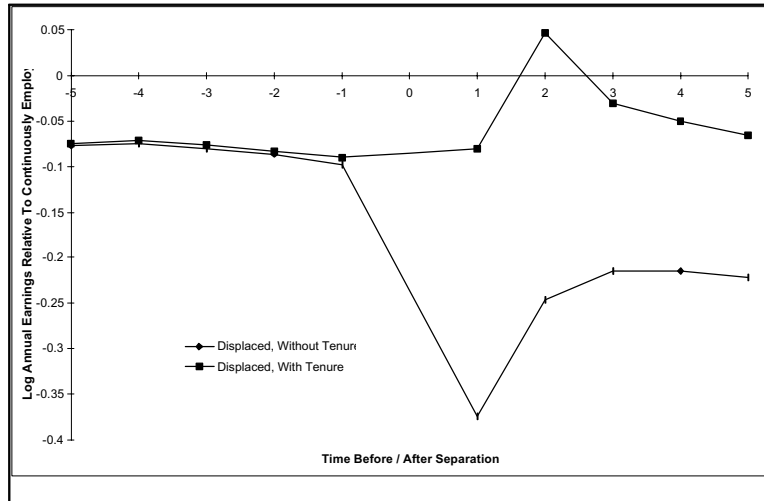


Figure 6.6: Relative Annual Earnings Path - Displaced Women

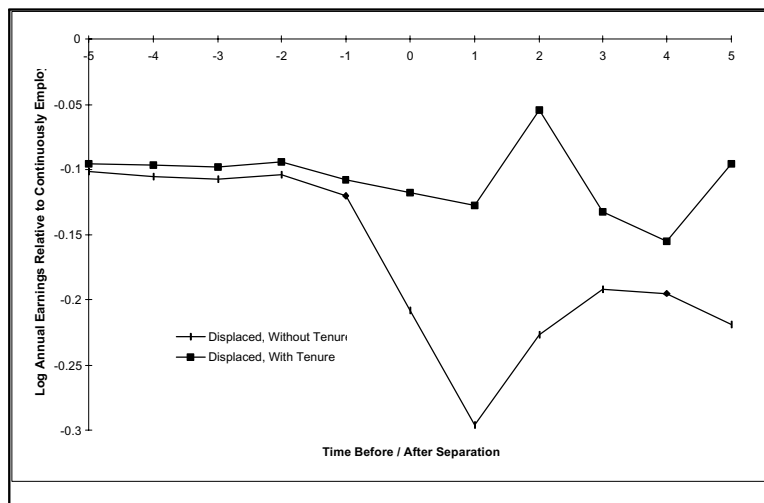


Figure 6.7: Relative Annual Earnings Path - Men Who Separate for Other Reasons

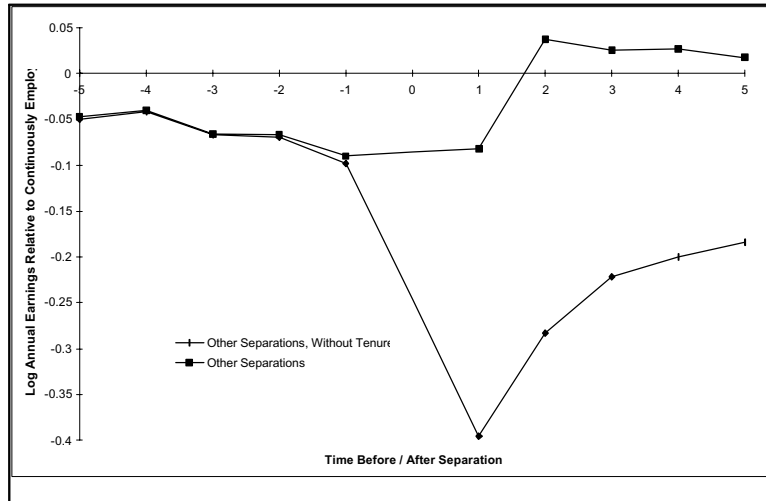
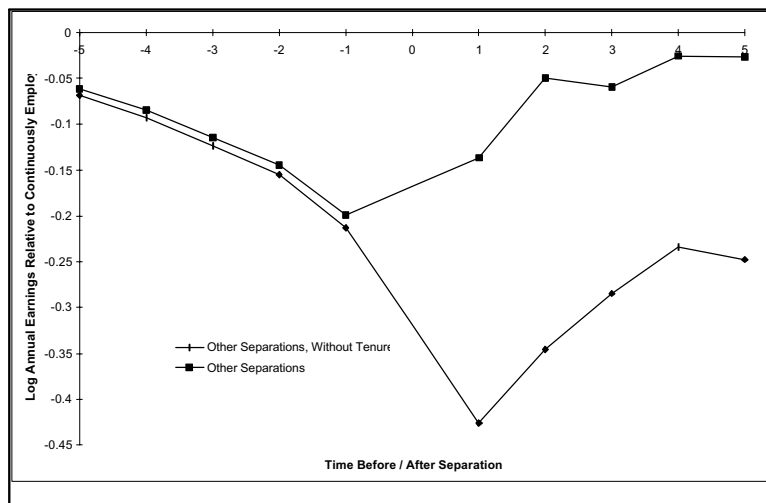


Figure 6.8: Relative Annual Earnings Path - Women Who Separate for Other Reasons



average 33 percent lower (when separating for reasons other than displacement) and 28 (when displaced) percent less than similar separating workers who find jobs more quickly during the post-separation period, and the equivalent figures are 43 and 47 percent lower for women, respectively. This is coherent with what was seen in table 8, and suggests that there is indeed a composition effect in figures 6.1 and 6.2.

In addition, controlling for seniority causes this relative earnings penalty to increase even further, with average earnings of slow job finders being 34 percent lower for displaced men and 36 percent lower for men who separate for other reasons in the post-separation period. The differences for women when controlling for seniority are essentially nil. Given the size and significance of the returns to seniority terms, interpretation of this result for men is straightforward.⁵⁷ By the time that those workers who are slow to find new jobs are reemployed, comparable separators can already have at least one year of seniority, if not more. In addition, workers who separate for reasons other than displacement and take over a year to find a new job were likely to have been fired, and the firing may be sending a negative signal about the worker to the labor market. The fact that the average post-separation gap is larger when controlling for seniority thereby implies that the quality of the jobs found by those who take over a year to become reemployed is lower than those who are reemployed more rapidly.⁵⁸ One explanation (among others) of this phenomenon could be that nonemployed workers in France have declining reservation earnings over time, since unemployment benefits also decline with the length of the spell (see section 2). This would lead workers who are out of a job for a longer time to have, on average, lower reemployment earnings when they eventually find new jobs.

Tables 12 and 13, however, suggest that we should nuance our interpretations slightly. In these tables we find that the pre-displacement dip is similar in percentage terms, although the relative position of displaced workers (and workers who separate for other reasons) five years before displacement is generally slightly worse when measured as daily earnings instead of annual earnings (it is slightly improved for women who separate for reasons other than displacement). It is interesting to note that, although average daily earnings seemed to blip up in the year before separation in figures 6.3 and 6.4, they continue to trend downwards in the regression results. This is consistent with the figures that denote 1985 as a relatively worse year than 1986.

⁵⁷Other research (Margolis 1996) has shown that the first-order terms in returns to seniority in France are strong, albeit slightly lower than those found by Topel (1991) for the United States using similar econometric methods.

⁵⁸We estimated several alternative specifications, including allowing the *Perm* variable to affect pre-separation earnings, and creating a similar variable (*Nonemp*) that takes on the value 1 when the worker experienced a nonemployment spell of positive duration and 0 otherwise. The specification described here consistently explained a larger share of the variance in log annual earnings than any of these alternatives.

**Table 12: Log Average Real Daily Earnings
Ordinary Least Squares Regressions - Men**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Separated	-0.0909	0.0065	-0.0544	0.0058	-0.0894	0.0065	-0.0530	0.0058
Sep ₋₄	-0.0002	0.0080	-0.0028	0.0071	-0.0003	0.0080	-0.0018	0.0071
Sep ₋₃	-0.0055	0.0076	-0.0212	0.0066	-0.0051	0.0076	-0.0204	0.0066
Sep ₋₂	-0.0099	0.0073	-0.0225	0.0064	-0.0097	0.0073	-0.0214	0.0064
Sep ₋₁	-0.0258	0.0071	-0.0408	0.0062	-0.0248	0.0071	-0.0388	0.0062
Perm	-0.0441	0.0066	-0.0823	0.0049	-0.0583	0.0068	-0.0873	0.0050
Sep ₁	0.0765	0.0073	0.0798	0.0067	0.1078	0.0080	0.1216	0.0074
Sep ₂	0.0335	0.0075	0.0173	0.0068	0.0662	0.0082	0.0606	0.0076
Sep ₃	0.0222	0.0077	-0.0064	0.0070	0.0519	0.0084	0.0223	0.0078
Sep ₄	0.0026	0.0081	-0.0114	0.0074	0.0319	0.0088	0.0148	0.0083
Sep ₅	-0.0096	0.0095	-0.0106	0.0084	0.0237	0.0098	0.0250	0.0089
Age	0.0476	0.0010	0.0479	0.0010	0.0431	0.0010	0.0433	0.0010
Age ² /100	-0.0458	0.0012	-0.0457	0.0012	-0.0407	0.0012	-0.0407	0.0012
2 ≤ Seniority < 4					0.0117	0.0054	0.0671	0.0051
4 ≤ Seniority < 6					-0.0003	0.0050	0.0164	0.0049
6 ≤ Seniority < 8					0.0130	0.0045	0.0290	0.0045
8 ≤ Seniority < 10					0.0278	0.0045	0.0457	0.0044
10 ≤ Seniority					0.0478	0.0042	0.0650	0.0041
1985	0.0004	0.0022	-0.0010	0.0022	-0.0026	0.0022	-0.0043	0.0023
1986	0.0078	0.0022	0.0109	0.0023	0.0027	0.0023	0.0057	0.0024
1987	-0.0056	0.0022	-0.0050	0.0023	-0.0137	0.0023	-0.0139	0.0024
1988	-0.0038	0.0023	-0.0073	0.0024	-0.0138	0.0024	-0.0186	0.0025
1989	0.0032	0.0024	-0.0039	0.0025	-0.0074	0.0025	-0.0158	0.0026
Elementary School	0.0499	0.0053	0.0465	0.0055	0.0486	0.0053	0.0453	0.0055
Junior High School	0.2080	0.0080	0.2095	0.0081	0.2067	0.0080	0.2083	0.0081
High School	0.3441	0.0097	0.3587	0.0099	0.3443	0.0097	0.3590	0.0099
Basic Vocational School	0.1271	0.0051	0.1165	0.0052	0.1261	0.0051	0.1154	0.0052
Advanced Vocational School	0.2741	0.0076	0.2717	0.0076	0.2730	0.0076	0.2708	0.0076
Undergraduate	0.3924	0.0092	0.3936	0.0092	0.3937	0.0092	0.3950	0.0092
Graduate School & Grande Ecole	1.0501	0.0079	1.0368	0.0079	1.0521	0.0079	1.0391	0.0079
Constant	-2.8783	0.0205	-2.9210	0.0209	-2.8101	0.0215	-2.8681	0.0218
N. Obs.	444577		488513		444577		488513	
R ²	0.3378		0.3161		0.3386		0.3171	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year.

The variables Sep_{*i*} equals one in the *i*th year before/after separation. Sep₋₅ is the reference category.

**Table 13: Log Average Real Daily Earnings
Ordinary Least Squares Regressions - Women**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Separated	-0.1112	0.0100	-0.0551	0.0091	-0.1054	0.0100	-0.0484	0.0091
Sep ₋₄	-0.0035	0.0124	-0.0275	0.0112	-0.0009	0.0123	-0.0263	0.0111
Sep ₋₃	-0.0044	0.0117	-0.0533	0.0105	-0.0019	0.0116	-0.0516	0.0104
Sep ₋₂	0.0052	0.0112	-0.0785	0.0101	0.0086	0.0111	-0.0759	0.0101
Sep ₋₁	-0.0152	0.0109	-0.1182	0.0099	-0.0107	0.0108	-0.1137	0.0098
Perm	-0.2171	0.0119	-0.2014	0.0078	-0.2170	0.0120	-0.2088	0.0079
Sep ₁	0.0250	0.0115	-0.0632	0.0109	0.1115	0.0131	0.0528	0.0122
Sep ₂	0.0209	0.0116	-0.0755	0.0111	0.1133	0.0133	0.0477	0.0125
Sep ₃	0.0336	0.0120	-0.0881	0.0113	0.0869	0.0137	0.0171	0.0129
Sep ₄	0.0158	0.0127	-0.0768	0.0120	0.0641	0.0145	0.0268	0.0136
Sep ₅	0.0095	0.0148	-0.0859	0.0140	0.1139	0.0153	0.0366	0.0148
Age	0.0584	0.0015	0.0584	0.0015	0.0458	0.0015	0.0463	0.0016
Age ² /100	-0.0637	0.0018	-0.0633	0.0019	-0.0492	0.0019	-0.0496	0.0019
2 ≤ Seniority < 4					0.1072	0.0085	0.1119	0.0088
4 ≤ Seniority < 6					-0.0427	0.0084	0.0142	0.0081
6 ≤ Seniority < 8					0.0178	0.0080	0.0681	0.0076
8 ≤ Seniority < 10					0.0549	0.0079	0.1014	0.0075
10 ≤ Seniority					0.1425	0.0076	0.1883	0.0072
1985	-0.0044	0.0033	-0.0009	0.0034	-0.0164	0.0034	-0.0119	0.0035
1986	0.0100	0.0034	0.0165	0.0035	-0.0107	0.0036	-0.0021	0.0037
1987	0.0082	0.0034	0.0147	0.0036	-0.0266	0.0036	-0.0177	0.0038
1988	0.0050	0.0035	0.0098	0.0037	-0.0386	0.0037	-0.0312	0.0039
1989	0.0079	0.0036	0.0113	0.0038	-0.0420	0.0038	-0.0359	0.0040
Elementary School	0.0400	0.0092	0.0487	0.0097	0.0417	0.0092	0.0496	0.0096
Junior High School	0.2374	0.0115	0.2325	0.0120	0.2338	0.0114	0.2277	0.0120
High School	0.3651	0.0138	0.3816	0.0143	0.3696	0.0137	0.3818	0.0143
Basic Vocational School	0.1829	0.0094	0.1841	0.0098	0.1781	0.0093	0.1785	0.0098
Advanced Vocational School	0.3169	0.0111	0.3264	0.0115	0.3169	0.0110	0.3272	0.0115
Undergraduate	0.2856	0.0129	0.2496	0.0133	0.2937	0.0128	0.2565	0.0132
Graduate School & Grande Ecole	0.8965	0.0181	0.9526	0.0183	0.9065	0.0179	0.9602	0.0181
Constant	-3.2031	0.0299	-3.2554	0.0308	-3.0201	0.0310	-3.1290	0.0319
N. Obs.	246094		262220		246094		262220	
R ²	0.2286		0.2150		0.2385		0.2239	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year.

The variables Sep_{*i*} equals one in the *i*th year before/after separation. Sep₋₅ is the reference category.

Tables 12 and 13 show that, even after controlling for observable individual characteristics, men who separate because of firm closure earn 8.7% less than continuously employed workers 5 years prior to the actual separation, while displaced women earn 10.5 percent less than their observationally equivalent but continuously employed counterparts. This could be due in part to unobserved heterogeneity across individuals, such that the individual employed by firms who will close earn less anyway, or it could be that low wage firms have a higher risk of going out of business than better paying

firms.⁵⁹ The fixed effect regressions in appendix F suggest that this differential does not vary over the pre-separation period, implying that it is indeed related (at least in part) to unobserved worker heterogeneity.⁶⁰

Tables 12 and 13 also show that both displaced workers and other separators make relative earnings gains between the year before separation and the year after separation. However, as suggested by figures 6.3 and 6.4 and table 9, there is a significant additional penalty to taking a long time to find a job after separation. For displaced men, this penalty is on average 4.3 - 5.7 percent (depending on the specification), while it is 19.5 percent for displaced women. It is larger (7.9 - 8.4 percent for men and 18.2-18.8 for women, depending on the specification) for workers who separate for other reasons. The result for displaced workers could be interpreted in the context of a declining reservation wage, in which case workers who take longer to find jobs would have, on average, lower reemployment wages. On top of this “penalty” comes an additional negative signal for male workers who separate for other reasons. If these workers take longer than a year to find a new job, the separations are more likely to have been firings for cause than voluntary quits, and thus these workers would receive, on average, lower wage offers as the market infers that they have a lower value of marginal product. On the other hand, female workers do not seem to be subject to the same signalling effect when they take longer than a year to find a new job after having left for reasons other than firm closure. Since many of these separations might be associated with labor force withdrawal, there is less informational content for the labor market in knowing that a woman has not been employed for over a year than having the same information for men.⁶¹

A final aspect of tables 12 and 13 worth noting is the impact that controls for seniority have on the results for the time paths of relative earnings. Although our estimates of the coefficients in the pre-separation period are not substantially modified, once again the post separation earnings profiles are quite different. The post separation earnings differentials are much smaller when controlling for differences in job seniority, as might be expected. In fact, earnings of displaced men in the year after displacement go from being 1.4 percent below to 1.9 percent above earnings of continuously employed workers when adding controls for the difference in seniority. Displaced women go from earning

⁵⁹Abowd et al. (1999) show that the firm specific component of earnings is negatively related to the probability of firm survival on the same DADS data, but the estimates are relatively imprecise.

⁶⁰It should be noted that we are not controlling for firm effects in the appendix F regressions, since there are no observations to identify the firm effect after firm death. As such, the estimated individual effects in the pre separation period represent a mixture of the individual specific earnings components and firm specific earnings components. Only under the hypothesis that the worker is randomly assigned to firms in the pre- and post-separation periods would the estimated effects from appendix F be interpretable as pure individual heterogeneity.

⁶¹One way around this issue would be to measure the presence of young children in the household. Unfortunately, our administrative data in the DADS do not include this information, and the coding of births in the EDP has only rarely been used by statisticians (see section 3).

8.3 percent less than continuously employed women in the year following separation (without seniority controls) to earning 0.6 percent more when these controls are included. Earnings for men continue to decline in the post separation period, suggesting perhaps that our inclusion of a simple indicator variable for taking a year or more to find a new job after separation is not a flexible enough specification for capturing the composition effects of slow job finders. Such an effect is not visible for women, likely for the same reasons as mentioned above.

The differences in the drop (or absence thereof) in relative earnings losses seen when comparing tables 10 and 11 with tables 12 and 13 has a simple explanation. The large annual earnings losses observed in table 8 are largely due to workers not being employed for as many days per year as continuously employed workers in the post-separation period, perhaps through the use of temporary layoffs (*chômage partiel*).⁶² This interpretation is confirmed by other regressions (not shown here) that imply that the number of days worked per year is (in general) 30 percent lower in the year following separation (relative to continuously employed workers) for men and 19 percent lower in the year following separation for women.⁶³ Workers who separate from their employers do not make up the difference in the number of days worked, even 5 years after separation. At 5 years after separation, displaced men and women still work 11 percent fewer days 5 years after their separation.

Another interesting difference between tables 10-11 and 12-13 is that the coefficient on finding a job slowly drops dramatically when we switch from considering annual earnings to considering daily earnings. The lower coefficient on *Perm* is coherent with a model of heterogeneous jobs, in which the best jobs (which entail full-year employment) are taken first, and the jobs with higher probabilities of temporary layoffs (and thus earnings risk) are taken later. Still, slow job finders earn much less per day than those reemployed within a year of separation.

Inclusion of seniority controls in models 3 and 4 of tables 12 and 13 converts the relative earnings loss post-other separation for men into a relative earnings gain, albeit a small one. Displaced men still have a relative earnings loss, albeit much smaller than without seniority controls, and similar results hold for women. Figures 6.9 and 6.10 plot the daily earnings paths of displaced workers (relative to continuously employed workers) for the years surrounding displacement for men and women, respectively. Figures 6.11 and 6.12 do the same for workers who separate for reasons other than firm closure for men and women, respectively.

⁶²Our earnings measures do not capture the complementary payments from the unemployment insurance system that serve to “top up” the lower salary payments during temporary layoffs, this could also help explain the larger pre-displacement dip observed in table 8 relative to table 9.

⁶³These regressions are available upon request.

Figure 6.9: Relative Daily Earnings Path - Displaced Men

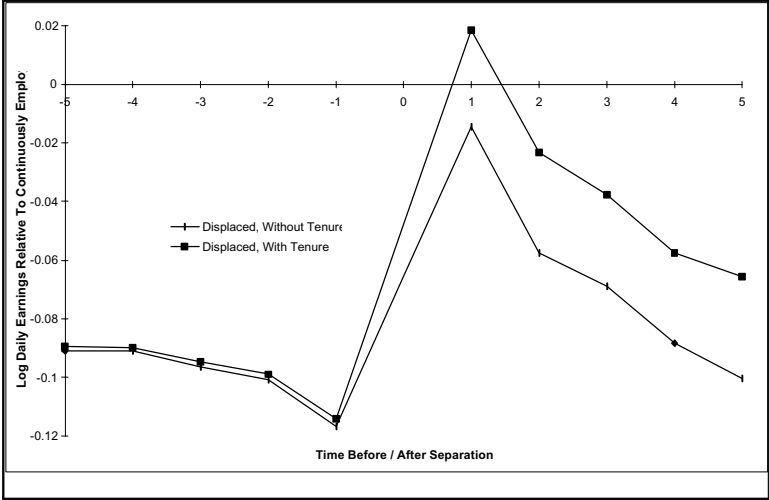


Figure 6.10: Relative Daily Earnings Path - Displaced Women

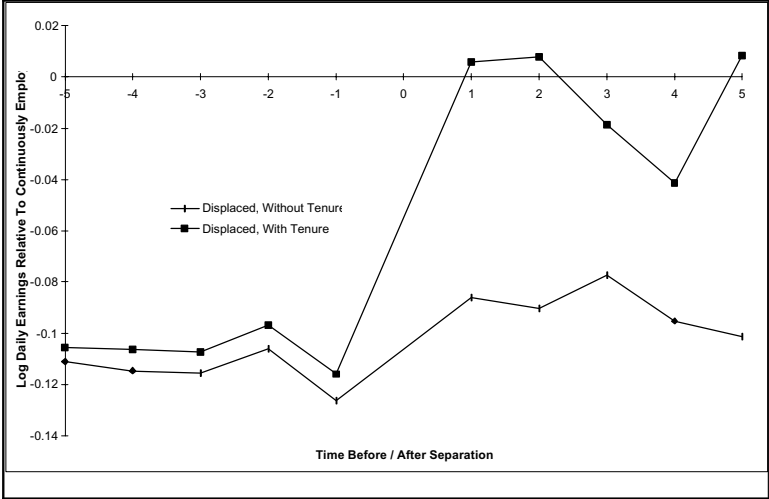


Figure 6.11: Relative Daily Earnings Path - Men Who Separate for Other Reasons

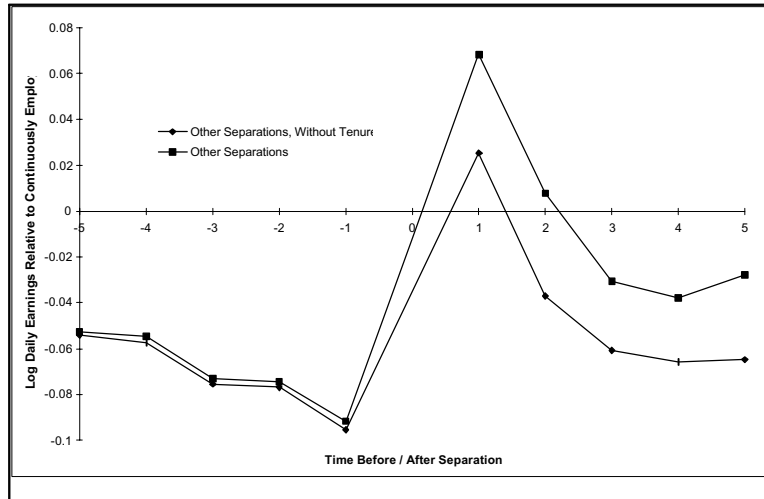
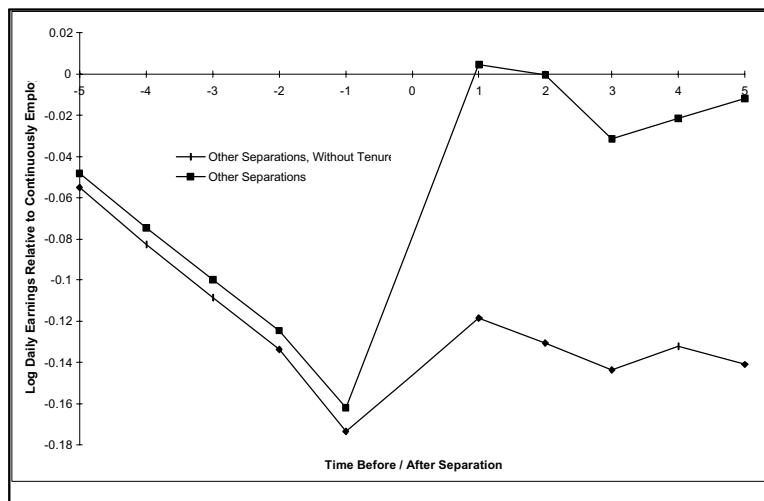


Figure 6.12: Relative Daily Earnings Path - Women Who Separate for Other Reasons



In all cases, but especially for women, it is clear that controls for seniority improve the post-separation relative daily earnings. These figures make clear not only how earnings relative to continuously employed workers improve with separation, but given France's steep early returns to seniority, the flat post-separation profile for women (which in some cases shows dips) in the non-seniority corrected estimates again suggests a composition effect. The declining profile for men may suggest that our indicator variable is not sufficient to capture the post-separation composition effect, although appendix F casts some doubt on this hypothesis. The increases in earnings around displacement found in table 9 are also clearly visible in figures 6.3 and 6.4.

Finally, it should be noted that, although there appear to be little or no recovery in daily earnings post separation (and in some cases a loss), the level of daily earnings (relative to continuously employed workers) is, in all cases where we control for seniority losses, higher than the relative earnings level even five years before separation. This has an important implication in that it suggests that perhaps displacements and other separations play a role in eliminating poor matches on average for workers who manage to find new jobs within a year of separation. The same can not be said for workers who are slow to find new jobs, and of course one must keep in mind that these models are estimated on the (selected) sample of workers who have found new jobs within five years of separation. Nevertheless, if there is a negative correlation between nonemployment duration and marginal product, the impact of including these excluded workers (if we could observe their daily earnings or if we assigned them zero earnings as in Jacobson et al. (1993)) would likely be primarily to further increase (in absolute value) the coefficient on *Perm*.

In conclusion, the difference between the annual and daily earnings results, insofar as the elimination of the drop is concerned, suggests that even if daily earnings do not suffer from separation, workers who separate from their employers still tend to work fewer days in the year than their continuously employed counterparts. The fact that the recovery is positive for the annual earnings measure while it is flat or decreasing in most cases for daily earnings suggests once again that part-year employment is a major phenomenon in the post-separation period, and increases in the number of days worked over time may help workers make up some of the differential with respect to continuously employed workers. Still, given that daily earnings 5 years after separation are still below the daily earnings of continuously employed workers (for almost all types), increases in the number of days worked will not be sufficient to allow these workers to catch up to the position that their never-separating counterparts held at identical stages in their careers.

7. Conclusions

In this paper, we considered the impact of displacement on workers in France. We found that a large share of displaced workers find new jobs without experiencing any interruption in their employment histories, a fact probably related to the long forewarning received by French workers who will be laid off. In addition, falling into nonemployment seemed to be a more transitory phenomenon for displaced workers, which coupled with

the lower probability of having a positive duration spell, meant that displaced men had an expected nonemployment duration (conditional on reemployment within the sample window) of 6.42 months, as opposed to an expected duration of 7.77 months for workers who separate for reasons other than displacement. For women, the difference is 9.27 versus 11.38 months, although it is not clear that nonemployment for men and women corresponds to the same thing.

We found that the estimated effects of displacement on earnings in France was very sensitive to the measure of earnings used, as there seems to be a lot of part-year working that takes place in the years surrounding a displacement or other separation. Earnings changes for displaced workers in France seemed to reflect a major difference between those who find new jobs quickly and those who do not. There is an annual earnings penalty of an additional 28 percent (relative to continuously employed workers) for those men who do not find new jobs in the year following their displacement, and this penalty is 47 percent for displaced women. However, this annual earnings penalty seems driven largely by people working fewer days per year, as the slow job finding penalty on average daily earnings is only 4 percent for displaced men and 20 percent for displaced women. On the other hand, the pre-separation pattern of earnings shows a drop in the year preceding separation, both in terms of annual earnings and in terms of average daily earnings. In sum, the earnings movements in France are not wildly different from those found in the United States or Canada, although we find that the manner in which one treats the number of days worked can dramatically influence the interpretation of the results.

References

- Abowd, John M., Francis Kramarz, and David N. Margolis**, “Minimum Wages and Employment in France and the United States,” *CREST and LAMIA Working Paper*, August 1998.
- , — , and — , “High Wage Workers and High Wage Firms,” *Econometrica*, March 1999, *67* (2), 251–333.
- , — , **Thomas Lemieux, and David N. Margolis**, “Minimum Wages and Youth Employment in France and the United States,” in David G. Blanchflower and Richard B. Freeman, eds., *Youth Employment and Joblessness in Advanced Countries*, Chicago: NBER, forthcoming.
- , **Hampton S. C. Finer, Francis Kramarz, and Sébastien Roux**, “Job and Wage Mobility: An Analysis of the Dynamics of Employment Durations Using Matched Employee and Employer Data from the U.S. and France,” Present at NBER Summer Institute, Labor Studies group (July 1997), July 1997.
- Bender, Stefan, Christian Dustmann, David Margolis, and Costas Meghir**, “Worker Displacement in France and Germany,” LAMIA-TEAM mimeo, March 1998.
- Bonnal, Liliane and Denis Fougère**, “Les déterminants individuels de la durée de chômage,” *Economie et Prévision*, 1990, *96* (5), 45–82.
- and — , “Estimating the Structural Effect of Unemployment Benefits on Job Search Costs,” CREST Working Paper, 1993.
- and — , “Estimating the Structural Effects of Unemployment Benefits and the Minimum Wage Level on Unemployment Durations,” CREST Working Paper, July 1996.
- Bughin, Evelyne**, “La négociation salariale de branche en 1984,” *Travail et Emploi*, June 1985, *24*, 51–57.
- Fallick, Bruce C.**, “A Review of the Recent Empirical Literature on Displaced Workers,” *Industrial and Labor Relations Review*, October 1996, *50* (1), 5–16.
- Friesen, Jane**, “Mandatory Notice and the Jobless Durations of Displaced Workers,” *Industrial and Labor Relations Review*, July 1997, *50* (4), 652–666.
- Gibbons, Robert and Lawrence F. Katz**, “Layoffs and Lemons,” *Journal of Labor Economics*, October 1991, *9* (4), 351–380.
- Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan**, “Earnings Losses of Displaced Workers,” *American Economic Review*, September 1993, *83* (4), 685–709.

- Jones, Stephen R. G. and Peter Kuhn**, “Mandatory Notice and Unemployment,” *Journal of Labor Economics*, October 1995, 13 (4), 599–622.
- Lefebvre, Francis**, *Social 1996, droit du travail et sécurité sociale Mementos Pratiques*, Levallois, France: Editions Francis Lefebvre, 1996.
- Margolis, David N.**, “Compensation Practices and Government policies in Western European Labor Markets.” PhD dissertation, Cornell University, Ithaca, New York, U.S.A. 1993.
- , “Cohort Effects and Returns to Seniority in France,” *Annales d’Economie et de Statistique*, January-June 1996, 41/42, 443–464.
- , “Worker Displacement in France,” May 1998. LAMIA and CREST mimeo.
- , “Part-Year Employment, Slow Reemployment and Earnings Losses: The Case of Worker Displacement in France,” in James Spletzer Jules Theeuwes John Haltiwanger, Julia Lane and Kenneth Troske, eds., *The Creation and Analysis of Linked Employer-Employee Data*, Amsterdam: North Holland, forthcoming.
- Ruhm, Christopher J.**, “Advance Notice, Job Search, and Postdisplacement Earnings,” *Journal of Labor Economics*, January 1994, 12 (1), 1–28.
- Schoeni, Robert F. and Michael Dardia**, “Earnings Losses of Displaced Workers in the 1990s,” Rand Institute mimeo, May 1998.
- Seitchik, Adam**, “Who Are Displaced Workers?,” in John T. Addison, ed., *Job Displacement: Consequences and Implications for Policy*, Detroit, Michigan: Wayne State University Press, 1991.
- Stevens, Ann Huff**, “Persistent Effects of Job Displacement: The Importance of Multiple Job Losses,” *Journal of Labor Economics*, January 1997, 15 (1), 165–188.
- Topel, Robert**, “Specific Capital, Mobility and Wages: Wages Rise with Job Seniority,” *Journal of Political Economy*, February 1991, 99 (1), 145–176.

A. Correction for False Firm Deaths in France

Suppose we observe n_1 workers associated with firm j_1 in the last available year for the firm (prior to 1996), and a share p_{1k} were observed the following year in firm j_k , $k \neq 1$. Using p_{1k} as an estimator of \tilde{p}_{1k} , the true share of workers moving from firm j_1 to firm j_k , we take a normal approximation to the underlying binomial distribution under which the standard error of p_{1k} is $\sigma_{1k} = \sqrt{\frac{p_{1k}(1-p_{1k})}{n_1}}$. Thus, if for any k , $k \neq 1$, $p_{1k} + 2\sigma_{1k} \geq 0.5$, we can not reject the hypothesis that at least 50 percent of the firm's work force moved together to the same successor firm ($\tilde{p}_{1k} \geq 0.5$) at the 95 percent confidence level. If this was the case for any $k \neq 1$, we only considered separations to firms for which we could reject $\tilde{p}_{1k'} \geq 0.5$, i.e. for which $p_{1k'} + 2\sigma_{1k'} < 0.5$, to be real separations. All of these were classified as separations for reasons other than displacement, since there is at least one possible successor firm to j_1 . All other changes in firm identifier for individuals with $p_{1k} + 2\sigma_{1k} \geq 0.5$ were considered to be false firm deaths, and were not coded as separations.⁶⁴ In the event that the test statistic was less than 0.5 for all k , $k \neq 1$, we maintained the estimated firm death date. This procedure leads us to reclassify 2.6% of our estimated firm deaths in France as false firm deaths.

B. Definitions of Displacement

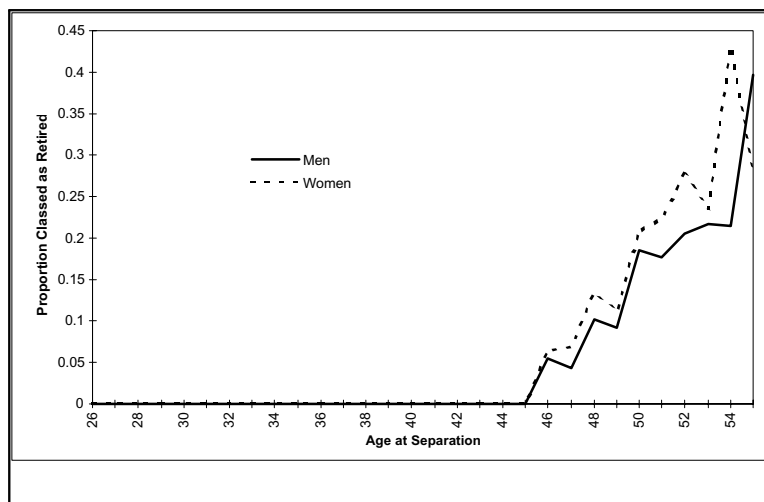
Year	Total	Closure within		Closure within	
	Separations	one year	Percent	two years	Percent
84	14418	4672	32.40	5162	35.80
85	15587	6150	39.46	6716	43.09
86	15475	5114	33.05	5763	37.24
87	16881	4749	28.13	5768	34.17
88	15331	5259	34.30	5760	37.57
89	25097	8323	33.16	9640	38.41
Σ	102789	34267	33.34	38809	37.76

Sources: Authors' calculations from DADS data.

C. Impact of the Retirement Constraint in France

⁶⁴We nevertheless restarted the seniority counter at zero the year following the false firm death. This is because the individuals moving to a new firm identifier in this manner are "new employees" for the successor firm, despite their experience with the predecessor firm.

Figure C.1: Impact of the Retirement Constraint by Age at First Separation



D. Descriptive Statistics

Table A2: Sample Statistics - 1984 - Men

	Continuously Employed 84-89		First Separation Displacement		First Separation Other Reason	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Age	37.83	6.93	37.63	7.12	37.99	7.26
Log (Average Daily Earnings (1980 KF))	4.22	0.46	4.05	0.58	4.07	0.73
Log (Average Annual Earnings (1980 KF))	-1.65	0.45	-1.81	0.51	-1.73	0.57
Seniority < 1	0.00		0.04		0.05	
1 ≤ Seniority < 2	0.00		0.00		0.00	
2 ≤ Seniority < 4	0.00		0.00		0.00	
4 ≤ Seniority < 6	0.17		0.22		0.24	
6 ≤ Seniority < 8	0.23		0.24		0.24	
8 ≤ Seniority < 10	0.00		0.00		0.00	
10 ≤ Seniority	0.60		0.50		0.46	
No Educational Certification	0.19		0.20		0.20	
Elementary School	0.26		0.26		0.25	
Junior High School	0.06		0.05		0.06	
High School	0.04		0.04		0.04	
Basic Vocational School	0.30		0.30		0.29	
Advanced Vocational School	0.06		0.06		0.06	
Undergraduate University	0.04		0.04		0.05	
Graduate School & Grande Ecole	0.05		0.05		0.06	
N. Obs	55508		25088		38762	

Notes: Table constructed with one observation per person per year (as in section 6).

Table contains information from all jobs, and not just stable jobs (as in figures 6.1-6.4).

Table A3: Sample Statistics - 1984 - Women

	Continuously Employed 84-89		First Separation Displacement		First Separation Other Reason	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Age	36.61	6.93	36.57	7.30	36.37	7.38
Log (Average Annual Earnings (1980 KF))	3.90	0.54	3.68	0.72	3.59	0.90
Log (Average Daily Earnings (1980 KF))	-1.97	0.50	-2.15	0.61	-2.15	0.71
Seniority < 1	0.00		0.03		0.04	
1 ≤ Seniority < 2	0.00		0.00		0.00	
2 ≤ Seniority < 4	0.00		0.00		0.00	
4 ≤ Seniority < 6	0.20		0.25		0.27	
6 ≤ Seniority < 8	0.24		0.27		0.25	
8 ≤ Seniority < 10	0.00		0.00		0.00	
10 ≤ Seniority	0.56		0.43		0.42	
No Educational Certification	0.14		0.15		.015	
Elementary School	0.33		0.33		0.32	
Junior High School	0.09		0.09		0.09	
High School	0.06		0.06		0.06	
Basic Vocational School	0.21		0.21		0.21	
Advanced Vocational School	0.08		0.08		0.08	
Undergraduate University	0.06		0.06		0.06	
Graduate School & Grande Ecole	0.03		0.03		0.03	
N. Obs	31322		13971		20314	

Notes: Table constructed with one observation per person per year (as in section 6).

Table contains information from all jobs, and not just stable jobs (as in figures 6.1-6.4).

E. Incidence Probit Models Using the Continuously Employed as the Reference Group - France

Table A4: Probit Models of Incidence by Type of Separation Relative to Continuously Employed Workers - 1984				
	Displacements		Other Separations	
	Coef.	Std. Err.	Coef.	Std. Err.
Men				
Age	0.0226	0.0119	0.0069	0.0096
Age ² /100	-0.0266	0.0154	-0.0077	0.0125
2 ≤ Seniority < 4	0.2433	0.0188	0.3251	0.0151
4 ≤ Seniority < 6	0.1350	0.0181	0.1487	0.0149
6 ≤ Seniority < 8	0.3100	0.1323	0.4262	0.1001
Elementary School	-0.1690	0.0596	-0.0302	0.0495
Junior High School	0.0976	0.0865	0.0087	0.0741
High School	0.0422	0.1108	0.1341	0.0883
Basic Vocational School	-0.1472	0.0565	-0.1268	0.0483
Advanced Vocational School	-0.2638	0.0986	0.0013	0.0709
Undergraduate	0.2599	0.0955	0.1956	0.0793
Graduate School & Grande Ecole	0.0917	0.0893	0.3978	0.0663
Constant	-2.3432	0.2366	-1.6689	0.1909
N. Obs.	80596		94270	
Log Likelihood	-18925.85		-28517.23	
Women				
Age	-0.0192	0.0153	-0.0355	0.0129
Age ² /100	0.0260	0.0201	0.0406	0.0170
2 ≤ Seniority < 4	0.2568	0.0237	0.3133	0.0198
4 ≤ Seniority < 6	0.1922	0.0232	0.1682	0.0201
6 ≤ Seniority < 8	0.3351	0.1545	0.4409	0.1223
Elementary School	-0.1100	0.0882	0.0006	0.0755
Junior High School	0.0092	0.1122	-0.0786	0.0985
High School	-0.0342	0.1393	-0.0398	0.1170
Basic Vocational School	0.0170	0.0893	-0.0396	0.0779
Advanced Vocational School	0.0126	0.1104	-0.1375	0.0977
Undergraduate	0.2746	0.1151	0.1486	0.0998
Graduate School & Grande Ecole	-0.1035	0.1825	0.4559	0.1310
Constant	-1.7003	0.2881	-0.9747	0.2423
N. Obs.	45293		51636	
Log Likelihood	-10954.49		-15299.73	

Source: Authors' calculations from DADS data.

Notes: Estimates include data from 1984 only, aggregated to one observation per individual. All models also include controls for previous seniority, sector (15 categories) and skill level (3 categories). Reference group for Seniority: 10 or more years. Models predict probability of specified type of separation relative to all alternative situations.

F. Individual Fixed Effects Regressions for Earnings Changes

**Table A5: Log Average Real Annual Earnings
Individual Fixed Effect Regressions - Men**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Sep ₋₄	0.0005	0.0057	-0.0018	0.0054	0.0006	0.0057	-0.0023	0.0053
Sep ₋₃	0.0035	0.0056	-0.0064	0.0051	0.0034	0.0056	-0.0076	0.0051
Sep ₋₂	-0.0005	0.0055	-0.0062	0.0052	-0.0002	0.0055	-0.0079	0.0052
Sep ₋₁	0.0009	0.0056	-0.0186	0.0052	0.0069	0.0055	-0.0209	0.0052
Perm	-0.4579	0.0103	-0.3692	0.0071	-0.5060	0.0104	-0.4220	0.0072
Sep ₁	-0.2647	0.0062	-0.3446	0.0062	-0.1300	0.0074	-0.2003	0.0071
Sep ₂	-0.1755	0.0064	-0.2749	0.0065	-0.0384	0.0076	-0.1242	0.0074
Sep ₃	-0.1572	0.0067	-0.2213	0.0067	-0.0389	0.0079	-0.0761	0.0078
Sep ₄	-0.1515	0.0072	-0.1949	0.0072	-0.0353	0.0084	-0.0550	0.0082
Sep ₅	-0.1398	0.0083	-0.1793	0.0082	-0.0422	0.0090	-0.0686	0.0087
Age	0.0978	0.0028	0.1187	0.0030	0.0947	0.0028	0.1130	0.0030
Age ² /100	-0.0461	0.0018	-0.0568	0.0020	-0.0435	0.0019	-0.0513	0.0020
2 ≤ Seniority < 4					0.0573	0.0043	0.0385	0.0043
4 ≤ Seniority < 6					0.1349	0.0051	0.1449	0.0051
6 ≤ Seniority < 8					0.1479	0.0048	0.1747	0.0049
8 ≤ Seniority < 10					0.1569	0.0048	0.1874	0.0048
10 ≤ Seniority					0.1589	0.0047	0.1959	0.0047
1985	-0.0521	0.0028	-0.0668	0.0030	-0.0543	0.0028	-0.0685	0.0030
1986	-0.0899	0.0049	-0.1193	0.0052	-0.0933	0.0049	-0.1228	0.0052
1987	-0.1393	0.0072	-0.1819	0.0076	-0.1418	0.0072	-0.1862	0.0076
1988	-0.1794	0.0095	-0.2346	0.0101	-0.1814	0.0095	-0.2395	0.0101
1989	-0.2140	0.0118	-0.2750	0.0126	-0.2150	0.0118	-0.2792	0.0126
N. Obs.	444577		488513		444577		488513	
R ²	0.7938		0.7774		0.7945		0.7784	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year. The variables Sep_{*i*} equals one in the *i*th year before/after separation.

Sep₋₅ is the reference category.

**Table A6: Log Average Real Annual Earnings
Individual Fixed Effect Regressions - Women**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Sep ₋₄	0.0082	0.0087	-0.0011	0.0085	0.0080	0.0087	-0.0013	0.0085
Sep ₋₃	0.0121	0.0085	-0.0163	0.0082	0.0114	0.0085	-0.0170	0.0082
Sep ₋₂	0.0103	0.0084	-0.0370	0.0082	0.0093	0.0084	-0.0384	0.0082
Sep ₋₁	0.0029	0.0085	-0.0792	0.0083	0.0012	0.0085	-0.0802	0.0083
Perm	-0.5052	0.0168	-0.5829	0.0118	-0.5019	0.0169	-0.6000	0.0119
Sep ₁	-0.2312	0.0096	-0.3763	0.0101	-0.2659	0.0119	-0.2832	0.0122
Sep ₂	-0.1941	0.0100	-0.3202	0.0106	-0.2282	0.0123	-0.2233	0.0127
Sep ₃	-0.1757	0.0104	-0.2667	0.0110	-0.2065	0.0127	-0.1722	0.0132
Sep ₄	-0.1747	0.0112	-0.2204	0.0119	-0.2034	0.0134	-0.1278	0.0139
Sep ₅	-0.1737	0.0129	-0.2010	0.0137	-0.1779	0.0139	-0.1205	0.0149
Age	0.0809	0.0039	0.0969	0.0043	0.0787	0.0039	0.0940	0.0043
Age ² /100	-0.0189	0.0028	-0.0244	0.0031	-0.0163	0.0028	-0.0215	0.0031
2 ≤ Seniority < 4					-0.0036	0.0067	0.0210	0.0075
4 ≤ Seniority < 6					-0.0657	0.0082	0.0724	0.0088
6 ≤ Seniority < 8					-0.0492	0.0081	0.1023	0.0085
8 ≤ Seniority < 10					-0.0390	0.0080	0.1147	0.0084
10 ≤ Seniority					-0.0342	0.0080	0.1204	0.0084
1985	-0.0530	0.0039	-0.0648	0.0044	-0.0563	0.0040	-0.0691	0.0044
1986	-0.0926	0.0068	-0.1192	0.0075	-0.0983	0.0068	-0.1268	0.0076
1987	-0.1463	0.0098	-0.1873	0.0109	-0.1538	0.0099	-0.1961	0.0109
1988	-0.1978	0.0129	-0.2453	0.0143	-0.2066	0.0130	-0.2550	0.0144
1989	-0.2480	0.0162	-0.3057	0.0178	-0.2575	0.0162	-0.3153	0.0179
N. Obs.	246094		262220		246094		262220	
R ²	0.7691		0.7524		0.7692		0.7527	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year. The variables Sep_i equals one in the *i*th year before/after separation.

Sep₋₅ is the reference category.

**Table A7: Log Average Real Daily Earnings
Individual Fixed Effect Regressions - Men**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Sep ₋₄	0.0022	0.0052	-0.0035	0.0047	0.0018	0.0052	-0.0037	0.0047
Sep ₋₃	0.0023	0.0050	-0.0114	0.0045	0.0018	0.0050	-0.0118	0.0045
Sep ₋₂	-0.0003	0.0050	-0.0109	0.0046	-0.0009	0.0050	-0.0116	0.0046
Sep ₋₁	-0.0099	0.0050	-0.0295	0.0046	-0.0114	0.0050	-0.0304	0.0046
Perm	0.0574	0.0093	-0.0561	0.0063	0.0667	0.0095	-0.0606	0.0064
Sep ₁	0.0550	0.0056	0.0301	0.0055	0.0311	0.0067	0.0498	0.0063
Sep ₂	0.0319	0.0058	-0.0013	0.0057	0.0075	0.0069	0.0186	0.0066
Sep ₃	0.0319	0.0061	-0.0199	0.0060	0.0042	0.0072	-0.0112	0.0069
Sep ₄	0.0216	0.0065	-0.0230	0.0064	-0.0060	0.0076	-0.0172	0.0072
Sep ₅	0.0134	0.0075	-0.0309	0.0072	-0.0013	0.0081	-0.0183	0.0077
Age	0.0545	0.0025	0.0546	0.0026	0.0519	0.0025	0.0517	0.0027
Age ² /100	-0.0514	0.0016	-0.0521	0.0018	-0.0481	0.0017	-0.0490	0.0018
2 ≤ Seniority < 4					0.0118	0.0039	0.0429	0.0038
4 ≤ Seniority < 6					-0.0429	0.0046	0.0095	0.0045
6 ≤ Seniority < 8					-0.0387	0.0044	0.0163	0.0043
8 ≤ Seniority < 10					-0.0293	0.0043	0.0251	0.0043
10 ≤ Seniority					-0.0244	0.0042	0.0309	0.0042
1985	-0.0030	0.0025	-0.0039	0.0027	-0.0046	0.0025	-0.0051	0.0027
1986	0.0069	0.0045	0.0109	0.0046	0.0042	0.0045	0.0088	0.0046
1987	-0.0021	0.0065	-0.0003	0.0067	-0.0064	0.0065	-0.0037	0.0068
1988	0.0005	0.0086	0.0022	0.0089	-0.0051	0.0086	-0.0020	0.0089
1989	0.0089	0.0107	0.0098	0.0111	0.0027	0.0107	0.0054	0.0111
N. Obs.	444577		488513		444577		488513	
R ²	0.7897		0.7710		0.7898		0.7711	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year. The variables Sep_{*i*} equals one in the *i*th year before/after separation.

Sep₋₅ is the reference category.

**Table A8: Log Average Real Daily Earnings
Individual Fixed Effect Regressions - Women**

	Displacements		Other Seps.		Displacements		Other Seps.	
	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.	Coeff.	Std.E.
Sep ₋₄	0.0076	0.0073	-0.0087	0.0070	0.0076	0.0073	-0.0089	0.0070
Sep ₋₃	0.0091	0.0071	-0.0212	0.0068	0.0087	0.0071	-0.0218	0.0068
Sep ₋₂	0.0155	0.0070	-0.0376	0.0068	0.0149	0.0070	-0.0386	0.0068
Sep ₋₁	0.0020	0.0071	-0.0704	0.0069	0.0021	0.0071	-0.0711	0.0069
Perm	-0.0769	0.0141	-0.1497	0.0097	-0.0819	0.0142	-0.1606	0.0098
Sep ₁	-0.0052	0.0081	-0.0889	0.0083	0.0374	0.0100	-0.0101	0.0100
Sep ₂	-0.0191	0.0084	-0.0968	0.0087	0.0245	0.0103	-0.0159	0.0105
Sep ₃	-0.0108	0.0088	-0.1091	0.0091	0.0211	0.0106	-0.0374	0.0109
Sep ₄	-0.0168	0.0094	-0.1025	0.0098	0.0129	0.0113	-0.0345	0.0115
Sep ₅	-0.0154	0.0109	-0.0981	0.0113	0.0165	0.0117	-0.0380	0.0123
Age	0.0278	0.0033	0.0290	0.0036	0.0259	0.0033	0.0268	0.0036
Age ² /100	-0.0162	0.0023	-0.0172	0.0026	-0.0139	0.0023	-0.0151	0.0026
2 ≤ Seniority < 4					0.0279	0.0057	0.0422	0.0062
4 ≤ Seniority < 6					0.0227	0.0069	0.0663	0.0072
6 ≤ Seniority < 8					0.0389	0.0068	0.0860	0.0070
8 ≤ Seniority < 10					0.0474	0.0067	0.0962	0.0070
10 ≤ Seniority					0.0516	0.0067	0.1017	0.0069
1985	-0.0071	0.0033	-0.0065	0.0036	-0.0100	0.0033	-0.0094	0.0036
1986	0.0038	0.0057	0.0037	0.0062	-0.0011	0.0057	-0.0014	0.0062
1987	-0.0032	0.0083	-0.0058	0.0090	-0.0093	0.0083	-0.0121	0.0090
1988	-0.0051	0.0109	-0.0082	0.0118	-0.0121	0.0109	-0.0153	0.0118
1989	-0.0081	0.0136	-0.0079	0.0147	-0.0153	0.0136	-0.0149	0.0148
N. Obs.	246094		262220		246094		262220	
R ²	0.7937		0.7689		0.7938		0.7692	

Reference Education Group: No Educational Certification.

The variable Perm equals one for observations after separation if time between the 2 jobs exceeded 1 year. The variables Sep_{*i*} equals one in the *i*th year before/after separation.

Sep₋₅ is the reference category.