The influence of previous labour market experiences on subsequent job tenure *

JOSÉ MARÍA ARRANZ
CARLOS GARCÍA-SERRANO
Universidad de Alcalá

Abstract

The aim of this paper is to analyse the influence of individual's previous labour market experiences on the duration of subsequent job matches in the Spanish labour market. The study draws on a sample of workers extracted from a Spanish administrative dataset. We find evidence on the existence of a scarring effect: the longer the time spent in non-employment since previous job separation, the shorter the duration of subsequent re-employment relationships. Other result is that workers whose previous job match terminated due to the ending of a temporary contract are very likely to come back to employment under another temporary job and have a higher probability of job termination. The exhaustion of unemployment benefits also seems to exert a scarring effect on job duration.

Keywords: job tenure, job separations, non-employment, employment.

JEL classification: J24, J44, J63.

1. Introduction

In the 1980s, the Spanish Employment Protection Legislation (EPL) was changed with the objective of favouring employment creation through increased labour market flexibility. In particular, a major reform took place in 1984 that permitted temporary contracts —entailing much lower dismissal costs than the regular permanent contracts— to be used for reasons other than the temporary nature of the job. The aim was that firms could adjust employment more easily without having to change separation rules for permanent contracts. As a result, the proportion of total wage and salary workers having a temporary contract surged during the second half of the 1980s and the early 1990s until reaching one third of total employees in 1992.

During the 1990s, despite other labour market reforms (in particular, those in 1997 and 2001) trying to provide a less stringent EPL for permanent contracts and some restrictions to the use of fixed-term contracts, the share of temporary employees remained above 30 per cent. In fact, temporary contracts accounted for more than 90 per cent of new hires (the majority under fixed-term contracts, since other type of temporary contracts such as seasonal, probationary, etc., have remained relatively unimportant).

Thus, in a short period of time the Spanish labour market has became a «dual» labour market with different consequences (see Dolado *et al.*, 2002). One of them is the rise of rotation. This is certainly behind the evolution of total public expenditure on unemployment protection and of the number of beneficiaries. It can be argued that the combination of the EPL and the design of the unemployment compensation system in association with increased rotation have influenced the behaviour of workers and firms, which in certain cases has resulted in a strategic use of unemployment benefits on the part of both agents, alternating periods of employment with periods of covered unemployment [1].

In addition, if rotation is important and mean duration of employment spells is low, active labour market programmes —which aim at improving job prospects of the unemployed with the objective of achieving higher levels of employment— can be inefficient, as one obvious risk of those programmes is that they can be successful to move the unemployed into work in the short-run but these individuals return quickly to unemployment. In other words, for such policy to be efficient it requires that the unemployed who find a job remain in employment for some time.

Finally, it may be the case that those individuals who suffer job interruptions and spend some time in unemployment not only experience likely earnings losses due to the spells of interruption but are also «scarred» by their experience of unemployment. In this case, the existence of costs linked to unemployment may motivate concern over the long-term prospects of those individuals and the most appropriate assistance policies for them. Therefore, understanding whether the costs of job interruptions are persistent and what circumstances may influence that persistence is an important step toward developing such policies.

In that context, the analysis of the likely relationship between previous and subsequent labour market experiences may provide additional insights on the knowledge of those costs. The issue of earning losses associated with spells of interruption has been previously documented in many empirical studies for the US (Hamermesh, 1987; Podgursky and Swaim, 1987b; Farber, 1993; Jacobson *et al.*, 1993; Stevens, 1997) and the UK labour markets (Arulampalam, 2001, and Gregory and Jukes, 2001). Evidence for other European economies are much more limited and less conclusive (Ackum, 1991, for Sweden; and Burda and Mertens, 2001, for Germany).

The effect of unemployment incidence and/or duration on future unemployment or subsequent job tenure has been less studied. On the one hand, the US evidence suggests that displaced workers face more unemployment than non-displaced workers (Podgursky and Swaim, 1987a; Ruhm, 1991). There is also international evidence on that individual's previous unemployment experience affects future unemployment occurrence (Arulampalam *et*

al., 2000, and Gregg, 2001, for the UK; Muhleisen and Zimmermann, 1994, for Germany; and Omori, 1997, for the US). On the other hand, studies on the effect of unemployment incidence and duration on subsequent job tenure are scarce. For Britain, Booth *et al.* (1999) find that the most recent labour history affects current job tenure (for instance, a layoff in the previous job has a positive impact on the layoff hazard in the following job). Results from Böheim and Taylor (2002) suggest that jobs following an unemployment spell have shorter mean duration than other jobs and that unemployment incidence rather than duration has the major severe penalty on subsequent job tenure.

Recent Spanish studies have shown that past non-employment incidence and duration have scarring effects on unemployed workers either in terms of wages (Arranz and García-Serrano, 2003b) or future unemployment experiences (Arranz and Muro, 2001). However, the impact of non-employment spells on subsequent job tenure has not investigated yet in the Spanish literature [2]. This will be the main purpose of this paper: to contribute evidence on how future job durations are affected by the length of previous non-employment spells using Spanish data. In addition, it will also analyse the effect of the reason for previous job termination (ending of a contract or layoff) on the exit rate (or the duration) of subsequent employments accepted by the unemployed.

The data we use in this study were obtained from the Spanish administrative dataset HSIPRE (Histórico del Sistema de Prestaciones por Desempleo). The main advantage of this database lies in that it contains retrospective information on the last job prior to the unemployment experience, including workers' wage, employment duration and job category. This information makes it possible to construct a labour history of a subsample of Spanish workers (those who received unemployment benefits at least twice) over the 1980s and the 1990s and to use their first two employment spells and the intervening non-employment spell to analyse the aforementioned issues. The main drawback is that this subsample excludes individuals who have been separated from their jobs without having the right of receiving unemployment benefits (quitters and job-to-job changers) and those who have received them once.

The rest of this work is organised as follows. Section two describes the construction of the dataset and the sample restrictions. Section three presents some descriptive statistics. Section four provides the results from the estimation of an independent competing risks framework to model the duration of job matches with previous labour market information and individual and job characteristics. Finally, some concluding remarks follow in section five.

2.   Data and sample

In this section, we describe how we have extracted the data from the original dataset and what type of sample restrictions we have imposed in order to investigate the influence of non-employment on job duration upon re-employment.

2.1. Constructing the data

Our investigation draws on data coming from longitudinal linkage of records from monthly payroll computer files for all registered unemployed workers who receive all types of unemployment benefits from the Spanish public agency (INEM, Instituto Nacional de Empleo) in charge of the administration of the payment of unemployment benefits.

The original administrative data, the Benefits Integrated System (SIPRE, Sistema Integrado de Prestaciones), can be defined as a cross-section, since it comes from the monthly payroll computer tapes of unemployment recipients. It registers claims of unemployment insurance (UI) and unemployment assistance (UA) benefits by all fully unemployed workers as well as some of those partially unemployed (i.e. on short-time work) [3]. From those monthly tapes information on individual entries to the Unemployment Compensation System (UCS) were extracted so that their evolution therein could be followed. This was undertaken by INEM with the purpose of facilitating the management of the system, thus allowing a complete month-by-month follow-up of recipients. This new longitudinal database has been named the «historical» SIPRE (HSIPRE). We constructed our longitudinal data from a 40 per cent representative random sample of all unemployed workers who started their UI or UA spell either in February, June, or November over the period 1987-1997 [4].

All that means that the HSIPRE gives information on spells of benefit receipt for each individual, being that information collected at the moment of entry in the UCS and during the ongoing unemployment spell. But what becomes essential for our purposes is that collected information relates not only to individual characteristics (age, gender, number of children, region where benefit is paid) and benefit parameters (level and duration) of covered unemployment spells but also to some important features of the former employment relationship. More precisely, information is gathered on the duration of previous job, reason for separation (mainly, ending of temporary contract, collective layoff or individual layoff), former job category (a proxy for occupation and educational attainment), and former wage (the average wage on the latest six months of employment) [5].

Therefore, we always have information on the previous employment relationship, which generated the right to receiving unemployment benefits (either UI or UA) for each individual entering the UCS. This means that we are able to construct «labour histories» for those individuals: we know the duration of former job (and other characteristics of the employment relationship), the date of job termination (and hence the date of entry into the UCS), and the date of exit from non-employment (for those finding a job before benefit exhaustion, we know the date of exit and, thus, the date of entry into a new job engagement; and for those exhausting the UI entitlement period, we can add information on duration of UA benefits if received and on duration of non-employment otherwise).

2.2. Sample restrictions

To be included in the analysis the individuals should meet some criteria. First, they must have entered the UCS for the first time in any of the months selected for the analysis (Febru-

ary, June, or November) over the period 1987-1997. Second, they must be in full unemployment; this means that we have excluded those entering covered unemployment due to either temporary layoffs or short-time work. Third, they were in paid employment obtaining a wage equal to or greater than the statutory minimum wage (SMW) and working full-time. Fourth, they must have an entitlement period (expressed in days) which corresponds with the legal provisions; this implies that we have also excluded those workers whose entitlement period do not correspond to those provisions (taking into account the reform introduced in April 1992 which modified the potential entitlement spells). Fifth, to avoid problems associated with the current employment status, we exclude self-employment. Sixth, we limit our sample to workers aged between 20 and 52 at the moment of first entry into the UCS (to avoid complications associated with early retirement). Seventh, we have selected all workers for whom all the individual, job and unemployment spell characteristics are present; only in the case of the job category variable observations with missing values were not omitted from the sample, since they accounted for a 7 per cent of the total sample (an appropriate category for missing cases is used as an additional regressor). Finally, we restrict the sample to those workers who were present in our data in paid employment in at least two employment spells (with at least one intervening non-employment spell).

After implementing all previous restrictions, the sample consists of 65,340 workers who first ever entered the UCS over the period 1987-1997 and experience at least two employment spells across the 1980s and 1990s. Descriptive statistics are provided in Table A.1 in the Appendix.

2.3.   Some comments on the dataset and the sample

It is quite obvious that the HSIPRE and the subsample of workers we use may be not representative of all Spanish labour market. First, HSIPRE information refers exclusively to individuals who exit from employment into covered unemployment and eventually return again to employment. Second, workers who quit, moved directly from job-to-job or have never been involuntarily separated from their jobs are not contained in the database. Third, in order to analyse the influence of previous labour market experience on subsequent job duration, we restrict the sample to workers with at least two employment spells (with at least one intervening non-employment spell), since this is the only way of having information on two successive job matches. This means that workers with one employment spell (passing only once through the UCS) are excluded from the sample, since collecting information on subsequent job matches results impossible for those who never return to the UCS [6].

What are the likely effects of these drawbacks? We expect exit rates from employment to be lower in our analysis due to the fact that we do not have information on those workers (workers moving from job to job and from employment to uncovered unemployment). These transitions would increase the censored observations when we analyse exits from employment that follow either the ending of a contract or a layoff. In spite of these restrictions, we consider that HSIPRE remains as a useful database since it allows (thanks to its longitudinal

information) analysing issues related to the labour market experience of Spanish workers that can not be investigated with any other database [7].

3. Descriptive statistics

As we have mentioned, we are going to use information on workers for their first two job matches and the intervening non-employment spell to analyse the influence of previous labour market experiences on subsequent job duration. The HSIPRE dataset provides us with information on some valuable variables related to workers' previous labour market experiences. In this section, we intend to give a flavour of the likely relationship between the reason for termination of previous job and the duration of previous non-employment spell, on the one hand, and the reason for termination of subsequent job and the duration of subsequent job, on the other hand. The basic data are provided in Table 1.

Table 1
Subsequent job duration (days) by reason for separation from previous job, duration of previous non-employment spell (in months) and reason for separation from subsequent job

	Total		≤ 6 months		6-24 months		>24 months	
	%	**Mean**	**%**	**Mean**	**%**	**Mean**	**%**	**Mean**
Exits from subsequent job due to:								
End of contract	87.5	528.1	87.5	565.7	87.9	517.6	86.4	462.5
Layoff	12.5	917.7	12.5	1,091.9	12.1	858.1	13.5	661.6
Total	100.0	577.2	100.0	631.7	100.0	559.0	100.0	489.6
Exits from previous job due to *the ending of a temporary contract* and from subsequent job due to:								
End of contract	90.7	511.2	91.4	541.3	90.5	501.0	89.0	454.0
Layoff	9.3	849.2	8.6	984.7	9.5	804.3	11.0	662.3
Total	100.0	542.6	100.0	579.4	100.0	529.8	100.0	476.9
Exits from previous job due to *layoff* and from subsequent job due to:								
End of contract	68.8	654.4	58.2	841.9	71.3	643	78.2	493.4
Layoff	31.2	1,035.6	41.8	1,255.9	28.7	962.1	21.8	661.3
Total	100.0	773.3	100.0	1,015.0	100.0	734.6	100.0	530.0

We first start by looking at the association between former and subsequent reason for job termination. As we have mentioned previously, the dataset registers the reason for termination of employment relationships for all workers: the ending of a temporary contract, collective layoff, individual layoff, and others [8]. Of all individuals who ever entered the UCS, 85 per cent of them terminated their first employment spell due to the ending of a temporary contract, while 15 per cent entered into unemployment due to a layoff. Considering the ter-

mination of the subsequent job match, again the majority (87.5 per cent) terminates in consequence of the ending of temporary contracts and only 12.5 per cent due to a layoff (either individual or collective). All this is consistent with the fact that during the 1980s and 1990s temporary contracts accounted for nearly all-new employment engagements in the Spanish economy.

We can take an insight of the association between former and subsequent reason for job termination comparing the distributions of workers by reason for subsequent job termination between both categories of reason for previous job termination. In the case of those who first entered unemployment due to the ending of a temporary contract, 90.7 per cent also ended their next employment relationship due to the same reason. On the contrary, 68.8 per cent of those who first entered unemployment due to a layoff finished their subsequent job match due to the ending of a temporary contract. This seems to point out that there a certain (large) proportion of individuals who are involved in a «temporary employment – unemployment – temporary employment» cycle.

Turning to job duration, there are distinct differences among jobs defined according to their reason for subsequent job termination. Employment relationships that terminate because the contracts expire are those with the shortest mean duration (528 days), while workers who are laid off enjoyed job matches with longer mean duration (918 days) [9].

Reason for previous job termination clearly influences the job duration of subsequent employment engagements. Mean duration of subsequent jobs accepted by workers whose previous job matches terminated due to a layoff are higher than mean duration of subsequent jobs accepted by workers whose previous job matches terminated due to the ending of a temporary contract: 773 days vs. 543 days (a 43 per cent higher). In fact, mean duration for workers whose first and second job matches terminated due to a layoff (1,036 days) doubles mean duration for comparable workers whose first and second job matches terminated due to the ending of a temporary contract (511 days).

We now turn to investigate the likely influence of previous non-employment duration on subsequent job duration [10]. For all workers, it holds that the longer the duration of the previous non-employment spell the shorter the duration of the subsequent employment spell. Differences across categories of the non-employment duration variable are apparent. Mean job duration is 632 days for workers whose non-employment spell was short (up to six months), compared to 559 days for workers involved in medium-tenured non-employment spells (between six and twenty four months) and just 490 days for those workers whose non-employment spell was long (more than two years). This implies a difference of nearly five months between the first and the third groups.

By reason for subsequent job termination, the association between longer past non-employment duration and shorter duration of subsequent job matches holds. This is specially true for workers whose jobs terminate due to layoffs. Mean job duration amounts to three years (1,092 days) for those whose former non-employment spell was short, compared to less than two years for those whose former non-employment spell was long (662 days).

Finally, combining the effect of reason for termination of previous job, duration of previous non-employment duration and reason for termination of subsequent job on the duration of subsequent job is highly interesting. Here, two findings arise. First, independently of the reason for previous and subsequent job termination, the effect of past non-employment duration is always to reduce the duration of subsequent jobs. Second, comparable individuals whose subsequent job terminated due to the same reason (either layoff or ending of a contract) but their reason for previous job termination was different show distinct job durations: the effect of the ending of contract in the previous job match is always to generate subsequent lower job durations in comparison with layoff in the previous job match. This also holds for all categories of former non-employment duration.

To sum up, the information presented so far seems to provide evidence on that the reason for termination of previous jobs influences the reason for termination of subsequent jobs: a large proportion of jobs which terminated due to the ending of temporary contracts are followed by new employment relationships involving temporary contracts. Moreover, mean job duration of these jobs is shortest, compared even with temporary jobs found by workers who first entered unemployment due to layoffs. Furthermore, workers who remain longer in non-employment seem to gain access to consistently shorter job matches [11]. This means that there are specific categories of unemployed workers (in particular, those who come from temporary employment and those with longer non-employment spells) that accept short-term job matches or poor quality employment engagements characterised by having high destruction rates.

4. Multivariate analysis

4.1. Model specification

The empirical analysis of labour market transitions is usually based on the standard job search theory (Mortensen, 1977; Lancaster, 1990). In this approach, the hazard rate from a job could be modelled as the sum of three probabilities: the probability of a worker being laid off, the probability of a job match being terminated due to the ending of a temporary contract, and the probability of a worker quitting [12]. This might be used as a starting point for a structural model.

However, we will not try to specify a structural model but use the more common procedure of specifying the hazard directly; that is, we will use a reduced-form specification. In particular, we will estimate the determinants of job separations using a discrete time proportional hazard model with competing risks of exits. This approach is referred in the literature as an independent competing risk model, where the log-likelihood may be separated into the sum of its risk specific hazards (Lancaster, 1990; Böheim and Taylor, 2002). In the competing risks model, we focus on exit rates from jobs than follow the ending of a temporary contract and a layoff. Observations that exit to a different destination are treated as censored. The virtue of this semi-parametric approach is that it is unnecessary to make parametric as-

sumptions concerning the hazard's time dependence. Formally, the hazard rate from a job can be written as [13]:

$$h_{ij}(t;X_{ij}) = \lambda_0(t)\exp[X_{ij}'\beta]\theta_i \qquad [1]$$

Where $\lambda_0(t)$ is the interval-specific baseline hazard rate, X_{ij} is a vector of individual and local labour characteristics which potentially may vary with time (calendar time or duration), β is a vector of parameters to be estimated, $i = 1 \dots$ N are individuals-month observations, j identify the competing risks (job matches terminated due to the ending of a temporary contract or layoffs), and finally θ_i captures unobserved individual characteristics that affect job tenure such as motivation, ability, absenteeism, and so on. A convenient and commonly distribution used for unobserved heterogeneity is the gamma distribution (Meyer, 1990). It can be shown that when θ is gamma distributed with unit mean and variance σ^2, the log-likelihood function becomes as follows (Meyer, 1990: 770) [14]:

$$logL = \sum_{i=1}^{n} log\left\{\left[1+\sigma^2\sum_{j=1}^{t_i-1}exp(X_{ij}'\beta+\gamma_j(t))\right]^{-\sigma^{-2}} - d_i\left[1+\sigma^2\sum_{j=1}^{t_i}exp(X_{ij}'\beta+\gamma_j(t))\right]^{-\sigma^{-2}}\right\} \qquad [2]$$

Where $\gamma(t)$ is a function that describes duration dependence in the hazard rate and includes a set of dummy variables differing for each t allowing the hazard rate to vary non-monotonically with job tenure; and d_i is a dummy variable that is equal to 1 if individual i's spell ends in a transition (either ending of a contract or layoff) and 0 otherwise (observations which exit to a different destination are treated as censored).

4.2. Results

Table 2 provides the determinants of job duration using reasons for separation from subsequent job as the competing risks. Two single risk estimations have been made based on the likelihood function (2) by the maximum likelihood estimator [15]. The first column reports estimated coefficients for exits from jobs that follow the end of a temporary contract and the second column from jobs that follow a layoff. The descriptive statistics of the variables included in the estimation can be found in the Appendix (Table A.1).

Our main variables of interest are those related to the individual's previous labour market experience. We have considered three sets of such variables. The first refers to the reason for termination of the former employment relationship. As our sample consists of workers who entered the UCS after having been employed, all of them come from previous job matches which ended due to any of these two reasons: ending of a temporary contract or layoff.

Moreover, all workers have been in covered unemployment for some time. Therefore, they all have been receiving unemployment benefits, but they differ in the time spent to exit from the UCS before or after the time of benefits exhaustion. The second variable related to previous labour market experience that we have included in the models thus captures the in-

Table 2
Discrete time proportional hazard estimations for job duration: jobs terminating due to either the ending of a temporary contract or a layoff (controlling for unobserved heterogeneity)

Variable	End of a contract separation			Layoff separation		
	Coeff.	Std.	Signif.	Coeff.	Std.	Signif.
Gender						
Men	–0.128	0.013	***	0.055	0.030	
Women	—	—	—	—	—	—
Age (years old)						
> 20 and ≤ 25	—	—	—	—	—	—
> 25 and ≤ 30	–0.544	0.015	***	–0.267	0.038	***
> 30 and ≤ 35	–0.511	0.019	***	–0.329	0.048	***
> 35 and ≤ 40	–0.391	0.024	***	–0.234	0.058	***
> 40 and ≤ 45	–0.374	0.027	***	–0.154	0.064	***
> 45	–0.581	0.028	***	–0.159	0.062	***
Job category						
High level/associated professional technicians and supervisors	0.303	0.027	***	0.860	0.058	***
Technical assistants and skilled clerical workers	–0.189	0.022	***	0.578	0.047	***
Semi-skilled clerical workers	0.186	0.030	***	–0.077	0.079	
Unskilled clerical workers	–0.125	0.020	***	0.243	0.048	***
Skilled production workers	—	—	—	—	—	—
Semi-skilled production workers	0.027	0.019		–0.012	0.047	
Unskilled production workers	0.228	0.018	***	–0.089	0.048	
Missing	0.095	0.037	***	–0.980	0.166	***
Children						
Yes	0.011	0.014		–0.059	0.033	
No	—	—	—	—	—	—
Duration (months) in:						
Previous employment	–0.022	0.001	***	–0.013	0.001	***
Previous non-employment	0.006	0.001	***	0.021	0.001	***
Reason for termination previous job matches						
End of a contract	0.320	0.018	***	–0.841	0.040	***
Layoff	—	—	—	—	—	—
Exhaustion previous unemployment benefits						
Yes	0.281	0.015	***	0.093	0.036	***
No	—	—	—	—	—	—
Ln wages (€ in 1990)	–0.862	0.021	***	–0.640	0.046	***
Regional unemployment rate	0.002	0.002		0.052	0.006	***
Gamma variance	0.412	0.022	***	0.963	0.160	***
χ^2 **(Prob > χ^2)**	521.567(0.000)			80.177(0.000)		
Log-likelihood	–117,046.14			–30,257.084		
Observations individual-months	402,918					

Notes:
— Regression also controls for regions, calendar and business cycle dummies and duration dummies variables. χ^2 statistics refers to testing model with unobserved heterogeneity against that without.
— *** indicates significance at 1 per cent; ** indicates significance at 5 per cent.

dividual's exhaustion state. Finally, the third group of variables refers to the duration (measured in months) of the individual's immediately previous employment spell and non-employment spell. The reference categories for the first and second variables are that past employment terminated due to a layoff and that the individual did not exhaust his or her previous unemployment benefits, respectively.

We first focus our attention on the estimations for the exit from a job due to the ending of temporary contracts. The coefficient of the categorical variable controlling for the way the previous employment relationship terminated is statistically significant with a positive sign. This means that the hazard rate from a job due to the ending of a temporary contract is 38 per cent higher if the prior job match also finished due to the same reason [16]. This result suggests that the reason for previous job termination influences the survival of future employment engagements.

The duration of the previous employment and non-employment spells affects significantly the hazard rate from a job, although in an opposite way. On the one hand, the hazard rate decreases with duration in the previous job match. This implies that the higher the relative job stability experienced by workers in their previous employment engagements the lower the exit rate from the subsequent job. On the other hand, the probability of job termination in the subsequent job match increases with duration in previous non-employment spells.

The individual's exhaustion state related to their previous unemployment spell also has a significant impact on the hazard rate from the subsequent job match. Workers who exited the UCS after the time of benefits exhaustion exhibit a 32 per cent higher probability of their subsequent employment relationship being terminated through the ending of a temporary contract in comparison with the hazard of workers who did not exhausted their previous unemployment benefits.

In the estimation of the hazard rate from a job due to layoffs (either collective or individual), the variables related to the individual's previous labour market experience present in general the same sign as previously, although they differ in the magnitude of the estimated effects. The exception is the categorical variable controlling for the termination of the prior employment relationship, which shows a statistically significant negative sign. This implies that the probability of job termination due to a layoff diminishes a 57 per cent if the previous employment finished in consequence of the ending of a temporary contract.

As we saw earlier, the longer the duration of the previous job match, the lower the hazard rate from a job. But now this negative effect is lower than in the case of jobs terminating due to the end of a temporary contract. This may suggest that job stability gained by workers in their previous employment relationships is more important for workers in temporary jobs as a signal for employers that their productivity is not low. At the same time, previous non-employment duration affects positively the probability of job termination due to a layoff. This finding reflects that past non-employment duration has a scarring effect on subsequent job duration, being the effect larger on future permanent jobs.

Finally, the exhaustion variable also indicates that workers who move to the employment state after having exhausted their previous unemployment benefits face a significant higher chance of leaving a job through a layoff. Nevertheless, this positive impact is lower in this case (1.10 times) compared to job termination through the ending of a temporary contract (1.32 times). This evidence suggests that workers who exhausted their unemployment benefits but happened to find a job with a permanent contract enjoy less stable employment experiences than workers who did not exhaust their benefits and found a permanent job, although they are relatively better than those individuals who were not able to access to such jobs.

Our next step is to consider the effects of other covariates included in the estimations. Men have a significantly 12 per cent lower probability of exiting a job than women when the reason for termination is the ending of a temporary contract. This means that men present longer employment durations than women when the reason of the exit from employment is the ending of a temporary contract [17]. However, there are no significant differences between men and women as for job termination due to a layoff [18]. Compared to workers aged less than 25, the hazard rate for job termination due to the ending of a temporary contract is lower for the rest of workers (especially for those aged more than 45). In the case of job termination due to layoffs, prime-age workers (25-40 years old) are less likely to exit. In addition, having children does not affect the probability of exiting from a job.

The dataset does not provide us with variables related to the individual's educational attainment and occupation. However, there is a variable concerning the workers' job category in former employment relationship that allows distinguishing very broadly between non-manual and manual occupations. Results are somewhat mixed. In general, it seems that non-manual categories (especially the first one) present a positive and statistically significant coefficient. Workers in manual occupations also have a significantly higher probability of exiting a job than the reference when the reason for termination is the ending of a temporary contract. For exits that are consequence of layoffs, results indicate that workers in manual jobs are relatively less likely to terminate their employment relationships.

Wages present a disincentive effect on the hazard rates for job termination either due to the ending of a temporary contract or due to a layoff: the higher the daily wage, the lower the probability of job termination.

Regarding the effect of local labour market characteristics on job duration, the model estimations also include either dummies to take account of the existence of regional differences or a continuous variable on the regional unemployment rate. Using the dummies (not reported in the table), compared to the regional reference category (Andalucía, where the share of temporary workers over total workers is the highest in Spain), the rest of regions present a lower hazard rate for job termination in consequence of the ending of temporary contracts. Regions where this hazard is specially low are Madrid, Cataluña, Aragón, and La Rioja, i.e. regions with unemployment rates below the national average. However, regarding the exit due to layoffs, differences among regions are less marked. When we use the regional unemployment rate as a measure of demand side factors, we find that it is positively corre-

lated with the hazard rate from a job due to a layoff: workers are laid off when labour demand is low and unemployment high. This result is consistent with other studies showing that layoffs are countercyclical (Gregg and Wadsworth, 1995, and Böheim and Taylor, 2002).

Finally, we address that the estimation results favour the gamma heterogeneity specification because the size of the variance of the gamma mixture distribution relative to its standard error suggests that unobserved heterogeneity is significant. This result means that exit rates from jobs that follow the ending of a temporary contract (or a layoff) are affected not only by the measured individual and job characteristics and previous labour market history of workers but also by their unmeasured characteristics.

When comparing estimation results with and without (not reported) unobserved heterogeneity components, we find that the estimated coefficients and the value of the log-likelihoods are affected by the inclusion of controls for unobserved heterogeneity. On the one hand, the unobserved heterogeneity component increases the log-likelihood values in the estimations, therefore improving the fits of the models. On the other hand, there are some differences in the coefficients for some variables (gender, age, wages) that increase the magnitude of the parameters of the exit rates from jobs that follow the ending of a temporary contract. The likelihood ratio test of a model with unobserved heterogeneity against that without also suggests the same conclusion that unobserved heterogeneity is significant.

4.3. Some extensions

We are interested in further investigating the relationships between the effects of some characteristics of previous employment and non-employment spells and of workers and jobs on subsequent employment durations. Table 3 displays the estimate results from interacting some variables [19].

First, we analyse the effect from interacting gender with duration of previous employment spell, duration of previous non-employment spell, exhaustion of previous unemployment benefits, and reason for prior job termination. Results suggest that the rise in the hazard rate from a job due to the ending of a temporary contract is magnified for men through the duration of previous employment and non-employment spells and through the termination of the former job match due the ending of a temporary contract. However, the exhaustion of unemployment benefits seems to be less scarring for men: a 36.17 per cent less (a point estimate of $-0.308 - 0.141 = -0.449$). These interactions are found to have an insignificant effect on the probability of job termination due to a layoff (only the duration of previous non-employment spell has a significant positive influence).

We have also tried some interactions between the effects of age, occupation and characteristics of previous spells. Regarding age, we are interested in looking at the influence of two variables on the hazard rate from a job for workers aged over 45: the reason for former job termination and the exhaustion of unemployment benefits. Although the exit rate is lower for those workers relative to those aged 25 or less, the interaction terms suggest that the

Table 3
Some extensions (controlling for unobserved heterogeneity)

Variable	End of a contract			Layoff		
	Coeff.	Std.	Signif.	Coeff.	Std.	Signif.
Gender						
Men	–0.308	0.048	***	0.020	0.089	
Women	—	—	—	—	—	—
Age						
> 20 and ≤ 25	—	—	—	—	—	—
> 25 and ≤ 30	–0.552	0.015	***	–0.287	0.037	***
> 30 and ≤ 35	–0.537	0.020	***	–0.347	0.046	***
> 35 and ≤ 40	–0.429	0.024	***	–0.236	0.056	***
> 40 and ≤ 45	–0.416	0.028	***	–0.146	0.062	***
> 45	–1.155	0.058	***	–0.248	0.084	***
Duration (months) in:						
Previous employment	–0.014	0.001	***	–0.019	0.002	***
Previous non-employment	0.004	0.001	***	0.017	0.002	***
Reason for termination of previous job match						
Ending of a contract	0.521	0.040	***	–1.162	0.074	***
Layoff	—	—	—	—	—	—
Exhaustion of previous unempl. benefits						
Yes	0.355	0.022	***	0.136	0.053	***
No	—	—	—	—	—	—
Men and						
Previous employment duration (months)	0.003	0.001	***	–0.001	0.002	
Previous non-employment duration (months)	0.004	0.001	***	0.006	0.002	***
Previous unempl. benefits exhausted	–0.141	0.028	***	–0.073	0.069	
Previous job match (end of contract)	0.182	0.038	***	0.021	0.065	
Aged > 45 and						
Previous unempl. benefits exhausted	0.108	0.053	**	0.389	0.101	***
Previous job matches (end of contract)	0.654	0.063	***	–0.104	0.101	
Previous employment duration and						
Previous job match (end of contract)	–0.013	0.001	***	0.018	0.002	***
Previous job match (end of contract) and						
Unskilled manual workers in subsequent job	–0.089	0.046		–0.741	0.085	***
Gamma variance	0.434	0.022	***	0.744	0.131	***
χ^2 **(Prob > χ^2)**	591.053(0.000)			61.577(0.000)		
Log-likelihood	—116,882.221			–30,199.663		
Observations individual-months	402,918					

Notes:

— Regression also controls for regions, job category, wages, children, regional unemployment rate, calendar and business cycle dummies and duration dummies variables. χ^2 statistics refers to testing model with unobserved heterogeneity against that without.

— *** indicates significance at 1 per cent; ** indicates significance at 5 per cent.

probability of job exit due to the ending of a temporary contracts doubles for workers aged over 45 if they terminated their prior job match due the same reason (a point estimate of 1.175 for workers aged 45 and above compared to 0.521 for workers under 45). This interaction is not significant for the probability of job exit due to a layoff. However, the exhaustion of unemployment benefits significantly increases this latter probability (it also increases the former). This means that the scarring effect of benefit exhaustion is magnified for workers aged over 45 relative to those aged 45 or less.

The impact of the interaction term of reason for prior job termination and being working in manual, less skilled occupations is relevant for the exit rate from a job due to a layoff. Results indicate that, while workers in manual, unskilled occupations face a significantly greater probability of leaving a job than the reference (manual, skilled workers), the hazard rate decreases when those workers come from a job terminating due to the ending of a temporary contract.

Finally, the interaction between the reason for previous job termination and duration of that spell of employment shows interesting results. The longer the duration of prior job match (if termination was due to the ending of a temporary contract), the lower the probability of terminating the subsequent job match due to the same reason. This adds to the reduced effect that duration of prior employment spells exerts on the hazard rate. This seems to suggest that accumulation of work experience have a positive influence on the stability of future job matches. However, the influence of previous employment relationships does not appear to work the same way in the case of permanent jobs, since what makes some difference in subsequent duration is duration in prior permanent matches.

5.   Conclusions

This paper has aimed at analysing the effects of previous labour market experiences on subsequent job duration for Spanish workers over the 1980s and the 1990s. In particular, we have investigated how the subsequent employment relationship of unemployed workers is affected by previous labour market experiences: the reason for termination of previous job matches, the duration of previous employment and non-employment spells, and the exhaustion of unemployment benefits received by workers in their prior unemployment spell. To focus on these issues, we have used information related to the first two employment spells and the intervening non-employment spell of a sample of Spanish workers from the administrative dataset HSIPRE.

The findings from our analysis suggest that there is a scarring effect of previous non-employment duration on subsequent job duration: the longer the time spent in non-employment since previous job separation, the shorter the duration of subsequent re-employment relationships. This result is consistent with the job search theory which predicts shorter job duration after longer non-employment spells: unemployed workers will decrease their reservation wage as time passes by, accepting jobs which are more likely to be destroyed. This makes those workers more likely to experience more unemployment in the future (Pissarides,

1992). In contrast with this effect of non-employment duration, we have also found a positive influence of previous employment experiences on future jobs: the longer the job stability experienced by workers in their previous employment engagements, the lower the exit rate from the subsequent job.

Other results refer to the reason for termination of prior employment relationships. The evidence points out that workers whose previous job match terminated due to the ending of a temporary contract are very likely to come back to employment under another temporary job and have a higher probability of job termination (their new employment engagements last less time). This suggests that there is a group of workers who are involved in a «temporary employment-unemployment-temporary employment» cycle. If this is related to the seasonality of the economic activity, it is difficult to judge, although it seems that seasonal contracts in Spain is not as large as one might expect (see Dolado *et al.*, 2002).

Finally, the exhaustion of unemployment benefits —which may partially be interpreted as a proxy for individual differences in either job search intensity or reservation wage— also seems to exert a scarring effect on job duration: workers who exit the unemployment state before the time of exhaustion find more durable and stable jobs than workers who exhausted their previous unemployment benefits. This result is consistent with search theory that predicts longer job duration after shorter unemployment spells because of the higher probability of receiving job offers with high wage and, therefore, more durable and stable jobs.

Hence, our results highlight that there are specific categories of unemployed workers for which the scarring effect of previous non-employment in terms of increasing the probability of re-entering unemployment is most important: those who come from temporary employment, those who wait until the exhaustion of unemployment benefits to accept a job, and those with longer non-employment spells. These effects are also magnified for some other categories of workers, as those aged over 45.

Previous studies having detected this scarring effect are those by Heckman and Borjas (1980), Arulampalam *et al.* (2000), Gregg (2001) and Böheim and Taylor (2002). The existence of scarring suggests that public policies aimed at preventing unemployment would have a long-term impact on aggregate unemployment. As scarring seems to be particularly important in the case of the long-term unemployed and older workers, public programmes aimed at the prevention of long-term unemployment and targeted to particular groups of workers should be in the public agenda. At the same time, active labour market policies towards job finding would be efficient since they can reduce individual unemployment durations and speed up the return to employment. However, it is important to consider the effect of excessive rotation on the functioning of active policies: one risk of these programmes is that they can be successful to move the unemployed into work in the short-run but these individuals return quickly to unemployment. In other words, we can observe that measures which increase labour market flexibility raise the hazard rates from unemployment to employment but also those from employment to unemployment (García-Fontes and Hopenhayn, 1996).

Moreover, appropriate on-the-job training and more stable jobs would avoid depreciation in acquired skills and undesirable effects linked to the employment-unemployment chain. Supply-side policies that make individuals more employable and increase work incentives should go hand in hand with demand-side policies to generate more (stable) employment. In addition, EPL and UCS should be designed to avoid the use of temporary contracts for permanent activities and of unemployment benefits to combine employment and covered unemployment spells which are not justified.

Notes

1. On the part of firms, there are some firms (especially working on specific sectors of economic activity) who lay off a portion of their workforce in certain periods of the year (months of summer and Christmas time) and then hire those workers again in months such as September and January, once they have used their corresponding unemployment benefits. On the part of workers, they can work some months during several years and accumulate the necessary twelve months of contributions to get access to the unemployment insurance benefits (instead of the unemployment assistance benefits) and then use them in months of inactivity.

2. There are works on job duration, such as García-Fontes and Hopenhayn (1996), García-Serrano and Malo (1996) and García-Pérez (1997), but they do not analyse the influence of previous labour market experiences and the different reasons for job termination.

3. There are two groups excluded from the files by definition, since they can not receive unemployment benefits: workers who quit and workers with very short-time contracts whose contribution periods are below the minimum.

4. HSIPRE data have also been used to analyse the exit from unemployment by Cebrián *et al.* (1996) and García-Serrano (1997). However both studies focus on a single cohort of UI entrants in June 1990. Other works using the HSIPRE data for a larger period of time (1987-1993) are Arranz and Muro (2001) and Jenkins and García-Serrano (2003).

5. Although information on protected unemployment spells and benefit parameters is very complete, information on marital status and educational attainment, for instance, does not exist. In addition, more details on the former job (industry, firm size, redundancy payments) are, unfortunately, not available in the dataset.

6. Table A.1 provides descriptive statistics for these individuals. As compared with workers with at least two unemployment incidences, they were slightly working in more qualified occupations, proportionally more with permanent contracts and in jobs with longer employment durations.

7. The selection of a sample of workers with at least two employment spells may create a non-random sample because we have dropped workers with only one job interruption who do not report information on two job matches and their corresponding employment durations. If this is not properly taking into account, the estimated exit rates may be biased. To correct this potential non-randomness, we have estimated a reduced form probit model (as one cross-section) on the presence in the sample. We have included the associated Heckman correction term as a regressor in the hazard rate equation. Results indicate that the correction term is not significant and the estimated coefficients in the equation are unchanged. This seems to point out that this type of selection is random. Estimates for the probit model are available from the authors on request.

8. As the number of individuals experiencing unemployment spells after being collectively laid off is very small (1.4 per cent), we have decided to merge spells ending due to individual (11.1 per cent) and collective layoffs. In addition, in this analysis we have excluded observations terminating due to «other reasons» (0.1 per cent of total observations).

9. Figures not reported here indicate that workers who are collectively laid off are those who benefited from job matches characterised by having the longest durations and the highest wages. Employment engagements finis-

hing due to individual layoffs are situated in between. This finding is very interesting. The asymmetric information theory argues that plant closure gives a less negative signal than individual firing, since workers losing jobs that way avoid being labelled as low-ability workers (Gibbons and Katz, 1991). Therefore, the prediction would be that workers losing jobs due to plant closure are expected to suffer smaller losses (in terms of future wages or job stability) than workers who have been selected for layoffs. Our results are consistent with that prediction.

10. The definition of non-employment refers to covered unemployment (workers receiving unemployment benefits) for those who do not exhaust those benefits, adding information on extra time of either unemployment without receiving benefits or inactivity for those who do exhaust those benefits.

11. We have also found that previous unemployment benefits' exhaustion state also influences the survival and the duration of subsequent employment matches: those who exit unemployment before exhaustion appears to find more stable and durable jobs. This additional information can be found in Arranz and García-Serrano (2003a).

12. This latter probability is not considered here because we do not have the possibility of observing job-to-job transitions in our dataset, as mentioned in section two.

13. This semi-parametric approach has found applications in the study of unemployment duration (Meyer, 1990; Narendranathan and Stewart, 1993) and employment duration (Böheim and Taylor, 2002).

14. Alternatively, the distribution can be approximated non-parametrically (Heckman and Singer, 1984). However, the choice of gamma distribution is made for computational reasons, which could be debatable (Narendranathan and Stewart, 1993).

15. All estimations were performed using Stata 7.0 with a programme *(pgmhaz)* written by Jenkins (1997).

16. The ratio of the hazard rate of an individual with a dummy variable equal to 1 to the hazard rate of the reference is $\exp(\beta)$. The percentage of increment (detriment) in the hazard rate is calculated as $(\exp(\beta)–1)*100$.

17. There are no previous empirical works obtaining this result. Looking at the INEM statistics (duration of temporary contracts by type and gender), they show that about 60 per cent of male workers with an eventual contract have durations of one month or less, while this proportion increases to nearly 70 per cent for female workers; in the rest of duration categories (more than one month), the proportions are always higher in the case of men.

18. The fact that men appear to have different hazard rates from jobs that follow the ending of a temporary contract than women has motivated us to estimate separate models (not reported). The hazard rates do not present special alterations (even having children does not affect the probability of exiting from a job).

19. Comparing models of Tables 2 and 3, we note that the inclusion of interaction terms is accepted on the basis of the likelihood ratio test. The value of the likelihood ratio test statistic for the model that reports estimated exit coefficients from jobs that follow the ending of a temporary contract (layoff) is 114.842 (327.838). This value exceeds the critical chi square value of 15.507 for 8 d.f. at significance level of 5 per cent.

References

Ackum, S. (1991), "Youth unemployment, labor market programs and subsequent earnings", *Scandinavian Journal of Economics,* 93: 531-543.

Addison, J. T. and P. Portugal (2002), "Job search methods and outcomes", *Oxford Economic Papers,* 54: 505-533.

Arulampalam, W. (2001), "Is unemployment really scarring? Effects of unemployment experiences on wages", *The Economic Journal,* 111 (November): 585-606.

Arulampalam, W., A. Booth and M. P. Taylor (2000), "Unemployment persistence", *Oxford Economic Papers,* 52: 24-50.

Arranz, J. M. and J. Muro (2001), "New evidence on unemployment histories", *Working Paper,* Madrid: Universidad de Alcalá, http://www2.uah.es/docecon/documentos/DT2.pdf.

Arranz, J. M. and C. García-Serrano (2003a), "The influence of previous labour market experiences on subsequent job tenure", *Papeles de Trabajo,* 17, Madrid: Instituto de Estudios Fiscales.

Arranz, J. M. and C. García-Serrano (2003b), "Non-employment and subsequent wage losses", *Papeles de Trabajo,* 19, Madrid: Instituto de Estudios Fiscales.

Böheim, R. and M. P. Taylor (2002), "The search for success: do the unemployed find stable employment?", *Labour Economics,* 9: 717-735.

Booth, A., M. Francesconi and C. García-Serrano (1999), "Job tenure and job mobility in Britain", *Industrial and Labour Relations Review,* 53: 43-70.

Burda, M. and A. Mertens (2001), "Estimating wage losses of displaced workers in Germany", *Labour Economics,* 8: 15-41.

Cebrián, I., C. García, J. Muro, L. Toharia and E. Villagómez (1996), "The influence of unemployment benefits on unemployment duration: evidence from Spain", *Labour,* 10: 239-267.

Dolado, J. J., C. García-Serrano and J. F. Jimeno (2002), "Drawing lessons from the boom of temporary jobs in Spain", *The Economic Journal,* 112 (June): 270-295.

Farber, H. S. (1993), "The incidence and costs of job loss: 1982-91", *Brookings Papers on Economic Activity. Microeconomics,* 73-119.

García-Fontes, W. and H. Hopenhayn (1996), "Flexibilización y volatilidad del empleo", *Moneda y Crédito,* 202: 205-227.

García-Pérez, J. I. (1997), "Las tasas de salida del empleo y el desempleo en España (1978-1993)", *Investigaciones Económicas,* 21: 29-53.

García-Serrano, C. and M. A. Malo (1996), "Desajuste educativo y movilidad laboral en España", *Revista de Economía Aplicada,* 11 (4): 105-131.

García-Serrano, C. (1997), "Spanish unemployment and benefits", in P. Gregg (ed.), *Jobs, wages and poverty: patterns of persistence and mobility in the new flexible labour market,* London: Centre for Economic Performance, London School of Economics.

Gibbons, R. and L. Katz (1991), "Layoffs and lemons", *Journal of Labor Economics,* 9: 351-380.

Gregg, P. (2001), "The impact of youth unemployment on adult unemployment in the NCDS", *The Economic Journal,* 111 (November): 626-653.

Gregg, P. and J. Wadsworth (1995), "A short history of labour turnover, job tenure, and job security, 1975-1993", *Oxford Review of Economic Policy,* 11: 73-90.

Gregory, M. and R. Jukes (2001), "Unemployment and subsequent earnings: estimating scarring among British men 1984-94", *The Economic Journal,* 111 (November): 607-625.

Heckman, J. J. and G. J. Borjas (1980), "Does unemployment cause future unemployment? Definitions, questions and answers from a continuous time model of heterogeneity and state dependence", *Economica,* 47: 247-283.

Heckman, J. J. and B. Singer (1984), "A method for minimising the impact of distributional assumptions in econometric models for duration data", *Econometrica,* 52: 272-320.

Hamermesh, D. (1987), "The costs of worker displacement", *Quarterly Journal of Economics,* 28: 51-75.

Jacobson, L. S., R. J. LaLonde and D. G. Sullivan (1993), "Earnings losses of displaced workers", *American Economic Review,* 83: 685-709.

Jenkins, S. P. (1997), "Discrete time proportional hazards regression", *Stata Technical Bulletin,* 39: 22-32.

Jenkins, S. P. and C. García-Serrano (2003), "The relationship between unemployment benefits and re-employment probabilities: evidence from Spain", *Oxford Bulletin of Economics and Statistics,* 65 (forthcoming).

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

Meyer, B. D. (1990), "Unemployment insurance and unemployment spells", *Econometrica,* 58: 757-782.

Mortensen, D. T. (1977), "Unemployment insurance and job search decisions", *Industrial and Labor Relations Review,* 30: 505-517.

Muhleisen, M. and K. F. Zimmerman (1994), "A panel analysis of job changes and unemployment", *European Economic Review,* 38: 793-801.

Narendranathan, W. and M. B. Stewart (1993), "Modelling the probability of leaving unemployment: competing risk model with flexible hazards", *Journal of the Royal Statistical Society,* Series C: Applied Statistics 42: 63-83.

Omori, Y. (1997), "Stigma effects of non-employment", *Economic Inquiry,* XXXV, April: 394-416.

Pissarides, C. (1992), "Loss of skill during unemployment and the persistence of employment shocks", *Quarterly Journal of Economics,* 107: 1371-1391.

Podgursky, M. J. and P. L. Swaim (1987a), "Duration of joblessness following displacement", *Industrial Relations,* 26(3): 213-226.

Podgursky, M. J. and P. L. Swaim (1987b), "Job displacement and earning loss: evidence from the Displaced Workers Survey", *Industrial and Labor Relations Review,* 41: 17-29.

Ruhm, C. (1991), "Are workers permanently scarred by job displacements?", *American Economic Review,* 81: 319-324.

Stevens, A. H. (1997), "Persistent effects of job displacement: the importance of multiple job losses", *Journal of Labor Economics,* 15: 165-188.

Resumen

El objetivo de este artículo es analizar la influencia que tienen las experiencias laborales anteriores de los trabajadores españoles sobre la duración de sus futuros períodos de empleo. A partir de una base de datos administrativa del INEM se observa que existe un efecto estigma en el mercado de trabajo español, porque cuanto mayor es la duración de los períodos anteriores de no empleo, menor es la duración de los períodos siguientes de empleo. También, se aprecia que los trabajadores que finalizaron el empleo debido al fin de su contrato tienen mayor probabilidad de volver a emplearse con un contrato temporal y de recaer nuevamente en el desempleo. Finalmente, los trabajadores que agotaron una prestación por desempleo en el pasado presentan menores duraciones futuras en el empleo.

Palabras clave: duración del empleo, interrupciones laborales, no empleo, empleo.

Clasificación JEL: J24, J44, J63.

APPENDIX
Descriptive statistics

Variables	Workers with two employment spells				Workers with only one employment spell	
	1st employment		2nd employment			
	Mean	Std.	Mean	Std.	Mean	Std.
Gender (men=1, women=0)	0.588	0.492	0.588	0.492	0.489	0.499
Age (years old)						
> 20 and ≤ 25	0.561	0.496	0.337	0.473	0.404	0.491
> 25 and ≤ 30	0.206	0.404	0.332	0.471	0.238	0.426
> 30 and ≤ 35	0.094	0.291	0.143	0.350	0.136	0.343
> 35 and ≤ 40	0.062	0.242	0.078	0.268	0.093	0.291
> 40 and ≤ 45	0.045	0.208	0.055	0.229	0.069	0.254
> 45	0.032	0.176	0.055	0.228	0.059	0.235
Children (yes)	0.176	0.381	0.267	0.442	0.254	0.435
Job category						
High level/associated professional technicians and supervisors	0.059	0.235	0.076	0.265	0.082	0.274
Technical assistants and skilled clerical workers	0.084	0.277	0.111	0.314	0.123	0.329
Semi-skilled clerical workers	0.038	0.192	0.044	0.204	0.034	0.182
Unskilled clerical workers	0.158	0.365	0.154	0.361	0.167	0.373
Skilled production workers	0.146	0.353	0.192	0.394	0.138	0.345
Semi-skilled production workers	0.186	0.389	0.175	0.380	0.166	0.372
Unskilled production workers	0.268	0.443	0.221	0.415	0.220	0.414
Missing	0.061	0.239	0.028	0.164	0.071	0.257
Duration (days)						
Tenure in subsequent employ.	506.6	424.7	577.2	443.3	842.9	598.7
Previous unemployment	—	—	231.5	241.9	—	—
Previous non-employment	—	—	380.2	367.3	—	—
Accumulated tenure	506.6	424.7	1083.9	706.8	—	—
Accumulated past unemployment	—	—	231.5	241.9	—	—
Accumulated non-employment	—	—	380.2	367.3	—	—
Daily wages (€-1990 prices)	20.2	8.2	22.5	9.7	22.5	10.7
Reason for job termination						
End of contract	0.852	0.355	0.873	0.332	0.711	0.453
Collective layoff	0.130	0.336	0.111	0.314	0.244	0.429
Individual layoff	0.016	0.127	0.014	0.118	0.042	0.200
Others	0.002	0.043	0.001	0.037	0.004	0.061
Regions						
Andalucía	0.187	0.390	0.187	0.390	0.177	0.382
Extremadura	0.018	0.135	0.018	0.132	0.020	0.139
Canarias	0.072	0.259	0.072	0.259	0.050	0.217
Asturias	0.019	0.138	0.019	0.137	0.022	0.146
Murcia	0.028	0.165	0.028	0.165	0.025	0.157
Castilla y León	0.046	0.209	0.044	0.206	0.046	0.209
C. Valenciana	0.107	0.309	0.108	0.310	0.105	0.306
Castilla-La Mancha	0.032	0.176	0.032	0.175	0.034	0.181
Galicia	0.060	0.238	0.060	0.238	0.061	0.238
País Vasco	0.037	0.188	0.036	0.187	0.043	0.202
Cantabria	0.009	0.097	0.009	0.096	0.010	0.097
Cataluña	0.157	0.364	0.158	0.364	0.176	0.381
Madrid	0.160	0.367	0.162	0.368	0.174	0.379
Navarra	0.010	0.100	0.010	0.100	0.011	0.105
Baleares	0.030	0.170	0.030	0.170	0.019	0.135
Aragón	0.022	0.147	0.022	0.146	0.025	0.155
La Rioja	0.005	0.069	0.005	0.070	0.006	0.075
Entry year	88.4	1.976	90.5	1.815	89.513	2.496
Exit year	89.9	1.717	92.5	2.059	91.854	2.287
Sample	65,340		65,340		187,273	