TIE ME UP, TIE ME DOWN! THE INTERPLAY OF THE UNEMPLOYMENT COMPENSATION SYSTEM, FIXED-TERM CONTRACTS AND REHIRINGS

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Abstract

Using an administrative dataset, we document the importance of recalls in labour market transitions and in compensated unemployment in Spain and examine the interplay between the unemployment compensation system, the widespread use of fixed-term contracts and the layoff-rehire process. We estimate a discrete-time duration model with competing risks of exits in order to investigate the individual, job and firm attributes that influence the probabilities of leaving unemployment to return to the same employer or to find a new job with a different employer. Our findings indicate that recalls are very common, with nearly half of job losers returning to their former employers, and that, although these are widespread along the Spanish labour market, there are certain types of contracts, firms and sectors which are more prone to them.

Keywords: re-employment probability, rehirings, fixed-term contracts, duration model, administrative data

JEL Classification: J23, J63, J64

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1. Introduction

An explicit analysis of rehirings (workers returning to their former employer after a period of non-employment) is necessary for a proper understanding of the determinants of unemployment durations and the impacts of unemployment policies. First, empirical studies over the last 15 years show that rehirings are more common in Europe than it was previously assumed: while temporary layoff unemployment affect at least one out of three unemployed workers in North America, recent studies have found that this figure is similar for some European countries (Winter-Ebmer, 1998; Røed and Nordberg, 2003; Jensen and Svarer, 2003; Mavromaras and Orme, 2004; Alba-Ramírez et al., 2007). Second, employer recall policies and/or implicit contracts between workers and employers are a key determinant of both the probability that individuals enter unemployment (the frequency of spells, via layoff decisions) and that they leave unemployment (the duration of spells, via search and rehire decisions). In particular, incomplete experience rating implies that the value of benefits received by unemployed workers exceeds their incremental cost to firms, so that the magnitude of this wedge can provide a powerful incentive towards increased layoffs. Moreover, this implies that simple measures of unemployment benefits incentives through the individuals' replacement ratio may be inappropriate in order to gauge the impact of the unemployment protection system on job search and exit behaviour of unemployed workers, since a (large) proportion of them have non-negligible recall expectations. Third, the use of temporary layoffs on the part of firms and the existence of positive recall prospects on the part of (a portion of) workers may affect the impact of labour market interventions (such as recruitment incentives and subsidies for the training of the unemployed). Therefore, recall expectations can alter the conclusions reached by the evaluations of such interventions.

The contribution of this paper is to document the importance of rehirings in labour market transitions and in compensated unemployment in Spain and to examine the interplay between the unemployment compensation system (hereafter, UCS), the widespread use of fixed-term contracts and the layoff-rehire process. This constitutes a relevant research and policy issue since it has to do with the design of the UCS. In the case of Spain, lack of experience rating

in the UCS and (seasonal) demand fluctuations may both provide strong incentives for implicit contracts. At the same time, the flexible availability of fixed-term contracts may be a reflection of these incentives since, when fixed-term contracts end, no particular costs arise for the employer. In this context, unemployment benefit entitlements may create incentives for employers to offer fixed-term instead of permanent contracts, as the end of the contract gives the firm employment flexibility and leaves open the possibility of future rehiring.

The structure of the paper runs as follows. Section 2 reviews the theoretical foundations of rehirings. Section 3 describes the Spanish UCS and some features of the labour market in order to focus attention on the potential incentives implied for the joint employment decisions of workers and firms. Section 4 presents the data (coming from a database that draws on administrative records for the period 2004-2007) and provides some basic facts on recalls, unemployment benefits and non-employment durations. Section 5 specifies the discrete-time hazard model with competing risks for modelling the transitions from non-employment and from insured unemployment to employment through recall or a different employer. Section 6 provides the estimation results. Finally, some concluding remarks are presented in section 7.

2. Theoretical background

The theoretical foundations of rehirings are both the implicit contract theory and the job search theory. While the former attempts at modelling temporary layoffs concentrated on the worker-firm relationship as an implicit contract and focused on the potentially collusive behaviour of workers and firms when faced with uncertain fluctuating product demand, the later examines temporary layoffs from the point of view of job-searching unemployed workers comparing the relative chances of a recall by their previous employer and a job with a new employer. Therefore, implicit contract theory stresses the demand for labour, while job search theory stresses the supply of labour: firms' economic incentives are of crucial importance for the use of temporary layoffs and for the timing of recalls, whereas at the same time individual economic incentives play an important role in workers' search behaviour and in their search for new jobs.

According to the implicit contract literature, firms are assumed to offer workers a combination of paid work and unemployment insurance (UI) supported leisure, providing a level of utility equal to the market offer. Therefore, UI is part of an overall compensation package, so that workers and firms enter implicit contracts to shift part of the expected production costs from themselves to the UCS. Feldstein (1976) sets out a model where firms operate with a fixed number of attached workers, continually adjusting employment to match product demand fluctuations. Attached workers always prefer to work for their specific firm because of their high firm-specific human capital and low outside options. During a boom, the firm employs all its attached workers; during a trough, some are put on temporary layoff in receipt of UI payments and wait for a recall without searching for alternative jobs. In this context, with an imperfect experience-rating scheme, layoffs are subsidised (the firm does not pay the entire cost of laying off workers), which increases overall unemployment by increasing temporary layoff unemployment: it makes layoffs less costly, so that firms will be less reluctant to dismiss workers at any point in time.

Burdett and Wright (1989) suggest that this result can be reversed with lower net unemployment resulting from a more generous UI system. They set out a more general model in which the optimal firm size is endogenised. If a reduction of the costs of temporary layoff unemployment takes place, firms will respond in two ways. First, they will increase the number of workers that they put on temporary layoff when product demand falls. Second, they will increase the optimal number of attached workers, which leads to lower unemployment. In other words, job creation will increase because firms anticipate that it will be less costly to dismiss workers in the future. The two effects work against each other in determining the overall employment effect of UI changes. The intuition is that when temporary layoffs are made less costly (through more generous UI or less experience rating), the move towards greater temporary layoffs will be compensated through greater hires and the overall employment effect of UI may be negative.

However, recent theoretical and empirical studies (Albrecht and Vroman, 1999; Anderson and Meyer, 2000; Fath and Fuest, 2005) find that the first effect dominates, so that overall employment increases as a result of raising the costs

of temporary layoffs (through increased experience rating). In other words, since with imperfect experience rating firms pay only a fraction of the benefits received by laid-off workers, the system provides a subsidy for this component of compensation relative to wages. Thus, temporary layoffs should be higher the larger this subsidy, i.e. the lower the degree of experience rating (Topel, 1983). Moreover, diverse theoretical and empirical findings suggest that an increase in the degree of experience rating reduces labour turnover and smoothes employment over the seasons and the business cycle (Card and Levine, 1994; Anderson and Meyer, 2000). The reason for this result would be that experience rating acts as an adjustment cost, making layoffs more costly and inducing firms to use other methods for capacity adjustment than layoffs and hiring. Furthermore, a system without experience rating subsidises firms or sectors with high labour turnover and tax firms or sectors with low turnover (for instance, UI systems subsidise the construction sector and penalise service industries; see Genosko et al, 1999, OECD, 2004, and Böheim, 2006).

In sum, only fully experience-rated UCS could operate efficiently, since the cost a layoff imposes on the UCS is perfectly internalised. Imperfect experience rating (like UI systems in most European countries which use uniform payroll taxes to finance unemployment benefits) may distort the employment and layoff decisions of firms since employers do not take into account the cost imposed on the UI system if workers are dismissed and become unemployed. This would give rise to too many layoffs. In addition, high layoff firms are subsidised by more stable firms, which would distort the allocation of resources across sectors.

Implicit contract models usually assume that individual's job search is irrelevant because it is the employers who determine the durations of the spells of unemployment of those who are laid off and know they will return to their employer. However, not all workers are (permanently) attached to a firm, which makes it necessary to model search for alternative jobs in a satisfactory fashion. Search models of temporary layoffs examine these from the point of view of job-searching unemployed. Mortensen (1990) postulated a model where a worker's productivity on a specific job is stochastic, allowing for the coexistence of permanent and temporary layoffs. When productivity falls the worker is put on

temporary layoff and when productivity recovers the worker is recalled. Search effort is smaller for workers on temporary layoffs than for completely unattached workers, and the reservation wage of an attached worker is larger than that of an equally qualified but unattached worker. And, as the productivity of the worker's previous job declines with unemployment duration, worker-firm attachments become weaker and search strategies are revised towards less recall and more search for a new job.

The predictions of search models of temporary layoffs are as follows (Jensen and Westergard-Nielsen, 1990; Katz and Meyer, 1990; Pichelmann and Riedel, 1992; Corac, 1995; Jansson, 2002): for any given stock of unemployed, higher UI payments will increase the number of recalls; the generosity of UI payments will have a positive influence on the duration of spells leading to a recall; the incorporation of temporary layoffs leaves the conventional positive relationship between the level of UI payments and unemployment duration (to a new job) unaltered; and, where UI payments are of limited duration, recalls are concentrated around the last few weeks before benefit exhaustion.

In general, empirical findings tend to give support to these predictions: (a) the UI system has a clear impact in increasing the incidence of temporary layoff unemployment and higher UI benefits are associated with higher recall rates (Topel, 1983; Katz and Meyer, 1990); (b) the risk that a firm loses laid-off workers, who expect recall, to alternative employers is lower if the laid-off workers receive unemployment compensation but, at the same time, UI recipients who expect to be recalled and are not tend to have quite long unemployment spells (Katz, 1986; Katz and Meyer, 1990); (c) unemployment-duration hazards, which usually show a rise in the first months of unemployment and a decline afterwards when treating exit to a job as a single risk, often decline more intensely for recalls when using competing job-exit risks while duration dependence for new jobs is close to horizontal or even positive (Katz, 1986; Jensen and Westergard-Nielsen, 1990; Katz and Meyer, 1990; Røed and Nordberg, 2003); and (d) a spike in the hazard close to the expiry date of benefits is often more visible for new jobs than for recalls (Katz and Meyer, 1990; Jansson, 2002; Mavromaras and Orme, 2004).

3. UCS system, temporary contracts and recalls in Spain: generation of hypotheses

In this section, we argue that some features of the structure and legal institutions of the Spanish labour market act to favour the use of rehirings. First of all, the UCS comprises two schemes: unemployment insurance (UI) and unemployment assistance (UA). UI is paid to employees (excluding civil servants, domestic workers and those without past work experience) who did not quit their job voluntarily, who can and want to work and who have paid a minimum number of contributions. Length of entitlement depends on the number of months contributions are made. Contributions for at least 12 months over the last 72 months are required for eligibility since 1992. The duration of entitlement is equal to twice the modulus of the number of contribution months divided by 6, up to maximum of 24, that is, the potential entitlement periods are 4, 6, 8, 10,..., 24. The amount of UI paid is equal to a fraction of the average of the 'regulatory base' in the last six months prior to unemployment, where the 'regulatory base' is the gross earnings used to calculate UI contributions. UI payments decline with the unemployment spell: that fraction equals 70 percent during months 1-6 of UI receipt and 60 percent thereafter. Payments are subject to minimum and maximum amounts that vary with the number of children the unemployed person has. UA is means tested and is available (depending on their characteristics) for those who exhaust the UI and those who are not eligible because they have not accumulated the minimum contribution period (although there are some minor exceptions). The UA benefit is a flat rate.

Furthermore, the Spanish UCS (more exactly, the UI scheme), like most systems in OECD countries, uses uniform payroll taxes to finance unemployment benefits (UA is financed from taxes). However, it contains certain elements of experience rating since contribution rates slightly reflect differences in labour turnover across sectors. In particular, although employers and employees both pay UI contributions, they differ across types of contracts. In the case of an open-ended contract, the contribution rate is 7.05 percent (employees: 1.55 percent; employers: 5.5 percent). For fixed-term contracts (even if the employer is a temporary help agency), employees pay 1.6 percent and employers pay 6.7 percent for full-time work (7.7 percent for part-time

work). This system does not try to internalise the costs of layoffs at the firm level although it somehow addresses the problem of cross-subsidization between sectors by levying higher contribution rates in sectors with high labour turnover and vice versa.

The existence of different contribution rates across types of contracts also has to do with two relevant characteristics of the Spanish labour market (i.e. its large share of temporary employment and its worrying unemployment problem), since it has been used as a labour market policy in order to reduce temporary employment and to foster permanent work. The Spanish unemployment rate has remained high on average in the last two decades. It was 16.3 percent in 1991, increasing during the sharp crisis of the early 1990s up to 24.2 percent in 1994. Since then, it has shown a prolonged decreasing trend, until it reached levels of 8 percent in 2007, still high compared with the rates in the US, Japan and the average of the OECD countries, although close to the average in the Euro zone. However, it jumped again to levels above 20 percent at the beginning of 2010. At the same time, the share of temporary employment has remained fairly stable since the early 1990s (around one third of total wage and salary workers hold fixed-term contracts) after a large increase occurred during the 1980s and in spite of diverse labour market reforms aimed at reducing non-standard types of employment. The latter reform (passed on 2006) was partially successful in doing that but the larger drop in the share occurred during the current recession (when it declined from 31 percent at the end of 2007 to 25 percent two years later).

Furthermore, employers do not have the obligation to offer an employee a permanent contract after a period of temporary work[1]. This makes the conversion rates from temporary to permanent contracts to be very low (Güell and Petrongolo, 2007). One may think that short-term employment periods may result as firms try to avoid the risk of higher firing costs which would follow the eventual firing of a permanent employee, so it may be tempting for employers to

[1] This was the case at least until 2006. The reform passed in that year established that all temporary workers who had had two or more contracts with the same employer and a length of service of at least 24 months within a period of 30 months in the same position would become permanent workers.

use temporary layoffs to maintain a fraction of the workforce without a permanent job. But one may also argue that the use of fixed-term contracts (and recalls) could be a reflection of the structure of production, characterised by a large proportion of small firms (workplaces with less than 50 employees account for 98 of all firms and nearly half of all wage and salary workers) and rather large tourist and construction sectors.

Given these features of the Spanish labour market and the UCS and given the theoretical and empirical findings reviewed previously, we formulate three hypotheses to be tested. The first one has to do with the degree of worker turnover. Then:

HYPOTHESIS 1: Experience rating, by increasing the costs of layoffs, reduces labour turnover and smoothes employment over the seasons and the business cycle. In the case of Spain, the interplay of a large proportion of temporary employment and the fact that the UCS is not experience rated imply that firms face lower costs of layoffs (at least from the perspective of the financing of the UCS system), which increases job separations and worker turnover.

The second one has to do with the effects of the combination of the lack of experience rating and the presence of unemployment benefits. Then:

HYPOTHESIS 2: The fact that the Spanish UCS is not experience rated, the relatively generous benefit levels (in particular, for those with lower wages) and the extended use of fixed-term contracts facilitate the succession of (short) spells of employment and unemployment and make rehirings more likely.

And the third hypothesis has to do with the interplay of the way of financing the UCS system and the flexible availability of fixed-term contracts. Then:

HYPOTHESIS 3: The degree of cross subsidization is large in the Spanish labour market and concentrates in firms and industries with higher labour turnover and temporary employment and with more seasonal product fluctuations.

4. Data

4.1. The dataset

This paper uses data from Social Security records that contain information on all employment, non-employment and insured unemployment spells of a 4 percent random sample of Spanish individuals who ever had any sort of relationship with the Social Security in any of the years of the period 2004-2007. The "Longitudinal Working Lives Sample" (*Muestra Continua de Vidas Laborales*, MCVL) dataset includes information on individual characteristics (gender, age, province of residence and nationality) and firm and job attributes (employer size, industry affiliation, qualification level, type of contract, tenure -dates of start and end of employment spells- and reason for termination of the spells). Moreover, it also provides information on the unemployment benefits received by each worker in the event they were laid-off and eligible for them: whether each individual was receiving unemployment benefits when out of work, the type of benefits received (UI or UA) and the number of days of benefit receipt. Unfortunately, we do not have information on the entitlement period (but we have it on previous employment duration, a proxy variable of entitlement duration).

In the present study, we use a subsample of the complete dataset. The selection is comprised of individuals whose employment spells ended at any time of the years 2004 or 2005. The longitudinal nature of the administrative dataset makes it possible to know the labour market status of the worker after the job separation: employment, insured unemployment, uninsured unemployment and other situation[2]. Moreover, since each establishment owns its identification code in each province it operates, the database contains an

[2] The distinction between job-to-job and employment-to-uncompensated unemployment movements has been done making a decision on the number of days between two consecutive spells of employment, since the database does not identify 'uncompensated unemployment' as a possible labour category (in fact, we use both 'uncompensated unemployment' and 'non-employment' interchangeably since it is impossible to know whether an individual not receiving unemployment benefits is either unemployed or out of the labour force). Workers must remain out of work for at least 15 days to be considered uninsured unemployed, so individuals with non-employment spells lasting less than 15 days are considered to experience straight movements from job to job without intervening non-employment. This decision is based on the fact that there is a large number of subsequent spells of employment with spells of non-employment lasting one week or less in between (many of them only last one day).

anonymous identification number for the employer associated with every single spell of employment. Thus, rehirings are identified by whether or not each firm's identification numbers of two subsequent employment spells coincide. This allows one to know whether job losers who went directly to a job were immediately rehired by the same or a different employer, and whether workers who had an intervening period of non-employment returned to the same employer or found a new job afterwards.

Therefore, the advantage of using this database for the analysis of flows in and out of employment and unemployment is twofold: the information is available, accurate and detailed on the jobs held by the individuals and on the spells of non-employment and insured unemployment; and it is possible to distinguish spells ending through recall from those ending through the finding of a new job.

Our estimating subsample comprises individuals aged 16-59 (to avoid complications associated with early retirement) whose employment spells finish (whatever the reason: the end of temporary contracts, layoffs, other involuntary reasons or the worker's own decision). We also limit our sample to wage and salary individuals who work in the non-agriculture private economy (the individuals were registered with the General System of Social Security in the previous job)[3] and delete observations with missing information on the reason for job termination and with incorrect information on the date of start or end of employment spells.

The data contains an initial sample of around 800,000 spells of employment ending each year (corresponding to about 330,000 individuals). After applying the indicated sample selections, we obtain a final sample of 1,029,033 spells (around 515,000 spells -228,000 individuals- per year)[4]. Descriptive statistics for this sample are given in Table A.1 of the Appendix.

[3] Specific regimes like Farming and Self-employment have different rules for accessing benefits and peculiarities of their employment relationships.

[4] In particular, 493,699 spells -221,601 individuals- in 2004 and 535,334 spells -235,248 individuals- in 2005.

4.2. A first look at the data

Table 1 provides the basic information after applying the corresponding sampling weight (each observation of the sample amounts to 25 observations of the population). The first figure to highlight is the large number of spells of employment ending at any time in 2004 or 2005: 25.7 million in total, which represents nearly 13 million employment spells ending each year. If we calculate the number of distinct persons making the transitions, we obtain that about 5.3 million ended their spells of employment at least once in any of these years. To put this figure in perspective, it corresponds to nearly half of total private employees (excluding those employed in the primary sector) in 2004. The ending of a fixed-term contract accounts for most of the spells (86 percent). This figure corresponds roughly to the share of temporary contracts over the inflow of total signed contracts.

More than half of the transitions out of employment involve a direct job-to-job move, while about one third are transitions to uncompensated unemployment and 13.4 percent to compensated unemployment (mainly, UI). Moreover, the proportion of workers who return to their previous employer is by no means large. Overall, rehirings account for as much as 46 percent of all spells of employment ending in one year. It is remarkable that nearly 60 percent of all job-to-job moves imply such return, while this proportion is 36 percent and 29 percent for the transitions out of uninsured and insured unemployment, respectively. The share of recalls also differs across types of contracts. For instance, focusing on those who have an intervening spell of non-employment, that share ranges from 74 percent for permanent per-task contracts and 44 percent for other fixed-term contracts to around one third for casual and temporary per-task contracts and even less for open-ended contracts[5]. These proportions are larger in the case of direct job-to-job moves.

[5] Workers under permanent per-task contracts enjoy strong links with their previous employer when they are out of work. This relationship is much stronger than with other types of contracts, since individuals retain seniority and other employment-related benefits.

Table 1. Transitions of job losers to employment, non-employment and insured unemployment (in period t+1) and from these states to a new job, a recall job, other benefits or other situation (in period t+2), by types of contract. Employment periods ending in 2004 or 2005. Spain: MCVL 2004-2007.

			TO												
			Employment			Non-employment			Insured unemployment					Missing	TOTAL
	Contract in previous job		**New job**	**Recall**	**Total**	**New job**	**Recall**	**Total**	**Other situation**	**New job**	**Recall**	**Other benefits**	**Total**		
FROM	Open-ended contract	*Cases*	1,090,525	240,475	1,331,000	506,450	120,775	627,225	45,150	389,875	22,450	130,025	587,500	115,925	2,661,650
		%	81.9	18.1	100.0	80.7	19.3	100.0	7.7	66.4	3.8	22.3	100.0	4.4	100.0
	Permanent per-task	*Cases*	80,650	368,275	448,925	49,850	144,175	194,025	1,825	28,175	201,775	42,525	274,300	7,675	924,925
		%	18.0	82.0	100.0	25.7	74.3	100.0	0.7	10.3	73.6	15.5	100.0	0.8	100.0
	Temporary per-task	*Cases*	2,237,000	2,456,425	4,693,425	2,145,200	1,242,000	3,387,200	25,900	690,175	388,500	161,925	1,266,500	191,150	9,538,275
		%	47.7	52.3	100.0	63.3	36.7	100.0	2.1	54.5	30.7	12.8	100.0	2.0	100.0
	Casual contract	*Cases*	1,808,950	3,607,650	5,416,600	2,358,175	1,220,800	3,578,975	29,500	625,175	296,150	163,475	1,114,300	229,650	10,339,525
		%	33.4	66.6	100.0	65.9	34.1	100.0	2.6	56.1	26.6	14.7	100.0	2.2	100.0
	Other fixed-term	*Cases*	261,050	1,113,700	1,374,750	370,175	282,600	652,775	5,075	82,400	87,425	21,800	196,700	37,225	2,261,450
		%	19.0	81.0	100.0	56.7	43.3	100.0	2.6	41.9	44.5	11.1	100.0	1.7	100.0
	Total	*Cases*	5,478,175	7,786,525	13,264,700	5,429,850	3,010,350	8,440,200	107,450	1,815,800	996,300	519,750	3,439,300	581,625	25,725,825
		%	41.3	58.7	100.0	64.3	35.7	100.0	3.1	52.8	29.0	15.1	100.0	2.3	100.0

Note: The category “Missing values” refers to job losers who do not appear in the dataset anymore.

Table 2. Distribution of spells of non-employment and insured unemployment and days of non-employment and unemployment, by types of contract and spell outcome. Employment periods ending in 2004 or 2005. Spain: MCVL 2004-2007.

	Spell outcome							
	Non-employment			**Insured unemployment**				
Contract in previous job	*New job*	*Recall*	*Total*	*Other situation*	*New job*	*Recall*	*Other benefits*	*Total*
Open-ended								
%Spells	80.7	19.3	100.0	7.7	66.4	3.8	22.1	100.0
%Total days of non-empl.	79.4	20.6	100.0	13.5	60.6	3.3	22.6	100.0
Mean duration (days)	152.9	166.0	155.4	503.2	260.9	243.9	292.4	285.8
Permanent per-task								
%Spells	25.7	74.3	100.0	0.7	10.3	73.6	15.5	100.0
%Total days of non-empl.	38.5	61.5	100.0	1.8	15.3	68.6	14.3	100.0
Mean duration (days)	144.7	80.1	96.7	208.7	116.2	72.9	72.2	78.2
Fixed-term								
%Spells	64.0	36.0	100.0	2.3	54.2	30.0	13.5	100.0
%Total days of non-empl.	78.5	21.6	100.0	4.6	61.9	17.6	15.8	100.0
Mean duration (days)	157.4	76.9	128.4	273.1	155.7	80.0	159.1	136.2
Total								
%Spells	64.3	35.7	100.0	3.1	52.8	29.0	15.1	100.0
%Total days of non-empl.	77.8	22.2	100.0	7.3	59.7	15.2	17.8	100.0
Mean duration (days)	156.8	80.6	129.7	368.7	177.7	82.2	185.4	157.1

Note: Fixed-term contracts include temporary per-task contracts, casual contracts and other fixed-term contracts.

However, it does not imply that these are the portions of non-employment which are accounted for by temporary layoffs. To calculate these shares, it is necessary to estimate the duration of spells of non-employment and the fraction of total days of non-employment due to rehirings, finding a new job or other reasons. Table 2 provides this information. Because spells of non-employment ending in a recall are generally shorter than spells of non-employment ending in the finding of a new job (a bit less than 3 months vs. more than 5 months), temporary layoff non-employment amounts to 22.2 percent of total uninsured unemployment and 15.2 percent of total insured unemployment, while it accounts for 36 percent and 29 percent, respectively, of the entire sample. These outcomes are obviously driven by the spells of workers holding temporary contracts since they make up the majority of job losers. In the case of permanent per-task workers, recalls account for about three quarters of their

spells while they account for about two thirds of their total non-employment. Finally, for open-ended contracts these proportions are lower, in particular when considering their transitions through the UCS.

To further investigate the duration issue, Figures 1 and 2 display the fraction of all spells that are due to rehirings distributed by non-employment duration for different groups of workers, distinguishing by types of transition (those who move from job to job with an intervening insured or uninsured spell of unemployment) and by types of contract (those with temporary or permanent contract in the previous employer). Rehirings are, as expected, concentrated among spells of short duration. In fact, spells ending in a recall make up more than half of all spells with a duration equal to one month: 51 percent for those moving through non-employment, 49 percent for UI recipients and 61 for UA recipients. These proportions fall with non-employment durations, which is most visible for the group of workers who receive UI benefits.

Figure 1. Rehirings as a fraction of all spells of non-employment by duration and types of transition.

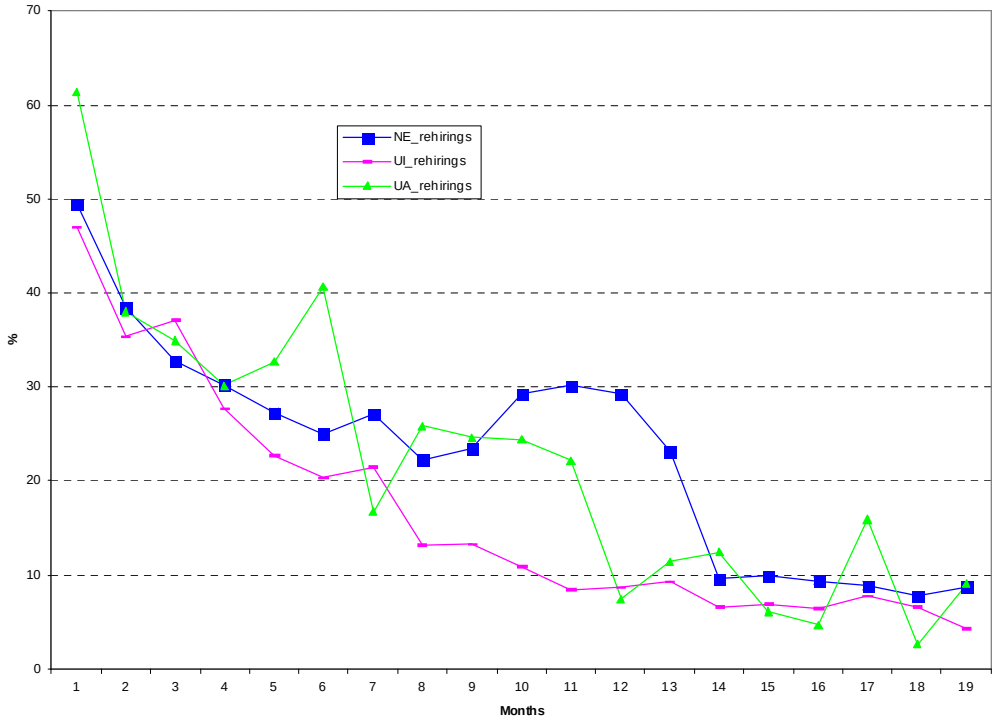
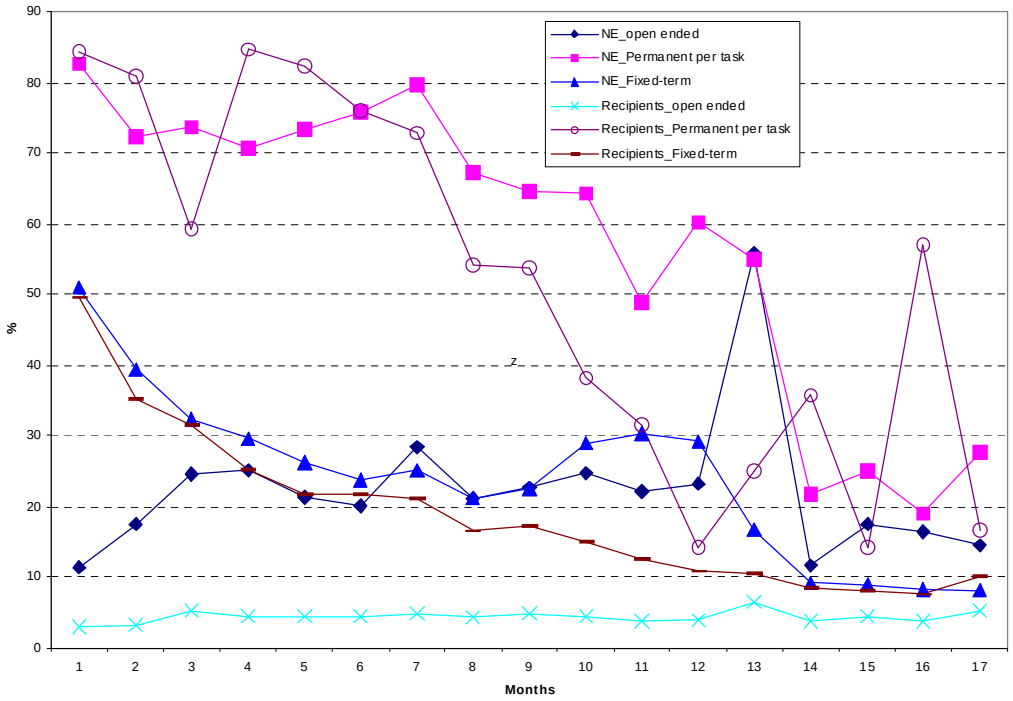


Figure 2. Rehirings as a fraction of all spells of non-employment by duration, types of transition and types of contract in previous job.



By type of contract, the proportion of recalls during the first month is above 80 percent for those with permanent per-task contracts and around 55 percent for those with fixed-term contracts (either recipients or non-recipients). This proportion remains high during the subsequent months for the former and declines steadily for the latter. On the other hand, the lowest fraction of recalls during the first month (less than 5 percent) corresponds to workers with open-ended contracts who pass through the UCS, remaining fairly stable across time.

Finally, the pattern of non-employment spells durations is displayed in Figures 3 and 4, which depicts the Kaplan-Meier monthly estimates of the hazard rates of exiting through recall or through the finding of a new job for the above-mentioned groups of workers. On the one hand, the recall hazard drops sharply over time for benefit recipients. This hazard masks the quite distinct patterns in the recall hazards of those receiving UI (whose hazard basically trends downward) and those receiving UA (whose hazard drops during the first 4 months, rises from months 4 to 10 and then declines). The recall hazard for the group of uncompensated non-employed workers is similar to that of compensated unemployed workers except for a hump at 10-13 months.

On the other hand, the new job hazard for the ones who do not receive benefits starts out quite high, although the pattern is similar to their recall hazard save for the fact that the former shows an upward trend starting after 18 months of duration. The new job hazard for those receiving benefits steadily trends downwards but shows a large spike at 25 months and a higher level of exits afterwards. This pattern is due to the behaviour of UI recipients, whose spike can be explained by the exhaustion of benefits of the ones entitled to the maximum period (24 months).

Figure 3. Rehirings and new job empirical hazards from uninsured non-employment and insured unemployment.

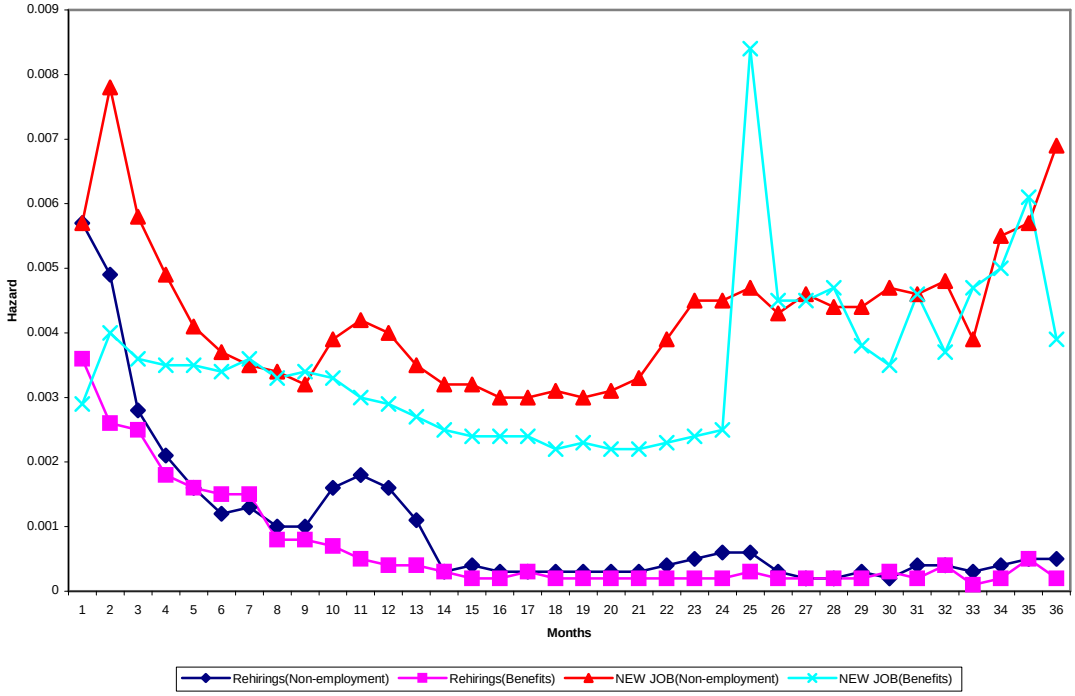
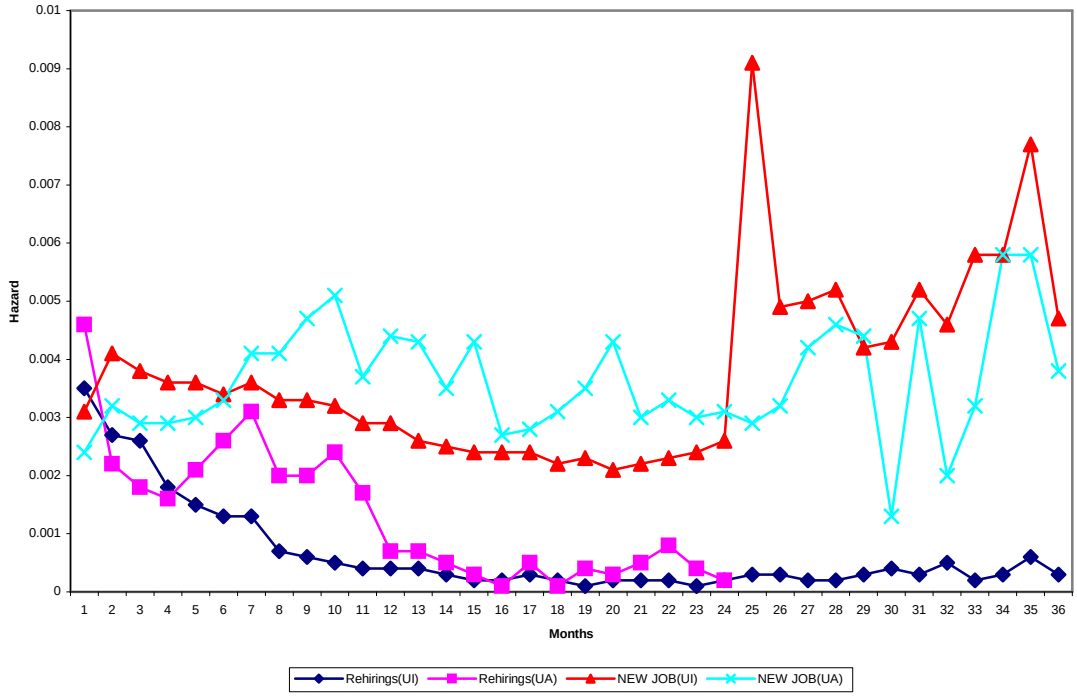


Figure 4. Rehirings and new job empirical hazards from UI and UA.



5. Econometric approach: discrete-time hazard model with competing risks

The model chosen for the analysis of the transitions of job losers from unemployment is the competing risks hazard model[6]. This model allows to distinguish between two possible transitions: to a recall job and to a new job[7]. In the competing risk model, the duration of unemployment is divided into a discrete and finite number of time intervals, examining whether or not the individual has exited the state of unemployment in each time interval. We assume for simplicity that the hazard rates are constant within each observation month. The hazard rate for the *i-th* individual into state *j* in period *t*, $h_{ij}(t)$, is the

[6] We follow the terminology proposed by Allison (1982) and Jenkins (1995) and extended by Steiner (2001), Røed and Nordberg (2003), D'Addio and Rosholm (2005), Alba et al. (2007) and Arranz et al. (2010), among others.

[7] In the case of workers receiving unemployment benefits, we also have information (after the exhaustion of benefits) on transitions from insured unemployment to other type of benefits and to other situation (either non-employment or attrition -because they do not appear in the dataset anymore-). We have considered these transitions as censored observations (remaining in unemployment at the end of the observation window). We will try to use them as other type of transitions in future analysis.

conditional probability of a transition to state *j* in this period, given that individual *i* has been unemployed until *t* :

$$h_{ij}(t) = Pr[T_i=t_i,\ J=j \mid T_i >= t_i] \qquad [1]$$

where t_i is the duration of the spells of unemployment of the individuals ($i=1\ldots N$). A spell of unemployment can end ($T=t$) in any of the following states: $j=1$ (new job), $j=2$ (recall job), $j=3$ (remaining in unemployment). Each observation continues until time t_i. At this point, an event occurs or otherwise the observation is censored. Spells of unemployment that are still in progress at the end of our sampling frame (that is, no transition out of unemployment is observed) are treated as right-censored observations. Assuming that the competing risks are independent, the hazard rate from unemployment is given by:

$$h_i(t) = \sum_{j=1}^{3} h_{ij}(t) \qquad [2]$$

Assuming that censoring is random, the sample likelihood function for the original state *j* may be written as follows:

$$L = \prod_{i=1}^{n}\left[\prod_{j=1}^{3}\left[\frac{h_{ij}(t)}{(1-h_{ij}(t))}\right]^{d_{ij}}\left[\prod_{k=1}^{t}(1-h_{ik})\right]\right] \qquad [3]$$

where the indicator function d_{ij} equals 1 if the duration is completed (the individual *i* makes a transition to state *j*) and 0 otherwise. In order to empirically estimate the likelihood function, for the hazard rate we choose the logistic specification that, with multiple events, generates the multinomial *logit* model. It allows for the three possible states considered (remaining in unemployment is the reference category). For individual *i,* the transition rate to state *j* specified as a competing risks model can be written as follows (D'Addio and Rosholm, 2005):

$$h_j(\mathrm{t} \mid \mathrm{X}(t), v_j) = \frac{\exp(D'(t)\alpha_j + X'(t)\beta_j^{'} + v_j)}{1+\sum_{m=1}^{2}\exp(D'(t)\alpha_m + X'(t)\beta_m + v_m)} \qquad [4]$$

where *X(t)* are covariates that may vary with time, β is a vector of parameters to be estimated and the term α is the so-called baseline hazard,

which represents the pattern of duration dependence. For the specification of the baseline hazard, we specify a two-order polynomial whose coefficients can differ among transitions from unemployment into the different states. Finally, *v* accounts for unobserved heterogeneity characteristics in the model[8].

Then, the contribution to the likelihood function for a single individual is equal to:

$$L = \prod_{k=1}^{t} \frac{\exp\left[\sum_{m=1}^{2} (D_k' \alpha_m + X_k' \beta_m + v_m) c_{mk}\right]}{1 + \sum_{m=1}^{2} \exp(D_k' \alpha_m + X_k' \beta_m + v_m)} \qquad [5]$$

where c_{mk} are indicators for the transitions to each possible destination state at time *k* (re-employment either through a new job (m=1) or with the same employer (m=2)). In [5] we assume that unobserved heterogeneity is discretely distributed with unknown support points, so the likelihood function for an individual may be obtained by integrating the following conditional likelihood distribution:

$$L(\beta, \alpha, v, \pi) = \prod_{s=1}^{S} L(\beta, \alpha \mid v = s)\pi(s) \qquad [6]$$

where *v* stands for the location points, π for the probability associated with them and *s* for the number of support points[9].

6. Results

Table 3 provides the results of the analysis on the impact of individual, job and firm characteristics on recall hazard rates from non-employment and insured unemployment. The exit rates are analysed using the discrete-time

[8] We assume that the unobserved heterogeneity effect is a specific destination state, constant over time and independent of the observed characteristics. This is a standard assumption in duration models (Jenkins, 1995; Steiner, 2001; D'Addio and Rosholm, 2005).

[9] In order to check whether the number of mass points found to be optimal is robust for the specification with unobservables in the competing risk duration model, we have used three alternative information criteria: Akaike information criterion (AIC), Hannan-Quinn information criterion (HIQ) and Schwarz information criterion (SIC). All information criteria lead to the same conclusion: accounting for individual unobserved heterogeneity by distinguishing two mass points improves the fit of the models, which means that the best model should include unobserved heterogeneity.

hazard model with competing risks and unobserved heterogeneity[10] presented in the previous section but, for the sake of brevity, we only comment on the parameters corresponding to the rehiring transition.

Many of the control variables used in the estimations turn out to be important predictors of the duration of the spells of non-employment until the individuals are recalled or find a new job. This is especially true for the job- and firm-related characteristics. Regarding the types of contract, workers who held a permanent per-task contract exhibit a noticeably higher recall hazard as compared to workers with a fixed-term contract and, above all, with workers with an open-ended contract. Given that workers with such contracts are treated as if they had maintained their employment relationship, they usually do not engage in job-seeking activities because they regard themselves as employed and they are virtually certain to return to their jobs at the end of the layoff period. Therefore, the observation that temporary layoff unemployment serves to accommodate seasonal fluctuations in production is confirmed by the estimated coefficients for the permanent per-task contract (see Alba-Ramírez et al., 2007).

In spite of that, the coefficients associated with the different types of temporary contracts (in particular “other fixed-term contracts”, which include interim contracts as the main ones) are also large, reflecting the relationship between temporary employment, unemployment and rehirings as a mechanism to adjust the demand for labour to fluctuations in product demand. This result is consistent with that of Jansson (2002), who finds that the proportion of recalls is much higher for seasonal employment than for the average population in the case of Sweden, but is at odds with the theoretical work of Fallick and Ryu (2007), who assume that workers who lost their jobs due to the ending of seasonal or temporary jobs face a recall hazard rate of 0 throughout their unemployment spell.

[10] The likelihood function with unobserved heterogeneity (eq. [6]) was estimated using GLLAMM (Generalized Linear Latent And Mixed Models), a Stata program written for the estimation of multilevel and longitudinal latent variable models (see Rabe-Hesketh et al., 2004, and Rabe-Hesketh and Skrondal, 2005).

Table 3. Results of the competing risks duration data model: recall and new job hazard rates with unobserved heterogeneity.

	Transitions from non-employment						Transitions from UI						Transitions from UA					
	New job			Recall			New job			Recall			New job			Recall		
	Coef.	S.E.	Sign.	Coef.	S.E.	Sign.	Coef.	S.E.	Sign.	Coef.	S.E.	Sign.	Coef.	S.E.	Sign.	Coef.	S.E.	Sign.
Duration																		
T	-0.187	0.002	***	-0.358	0.003	***	-0.205	0.004	***	-0.294	0.006	***	-0.301	0.020	***	-0.423	0.021	***
t^2	0.015	0.000	***	0.018	0.000	***	0.021	0.000	***	0.016	0.001	***	0.058	0.002	***	0.056	0.002	***
Gender																		
Men	0.178	0.006	***	-0.078	0.007	***	0.489	0.010	***	-0.169	0.013	***	0.461	0.037	***	0.067	0.039	*
Women (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Age groups																		
<24 years (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24-29 years	0.329	0.007	***	0.242	0.009	***	0.001	0.015		-0.141	0.022	***	0.178	0.054	***	0.108	0.066	*
30-44 years	0.218	0.007	***	0.400	0.009	***	-0.105	0.015	***	0.092	0.020	***	0.157	0.048	***	0.604	0.056	***
>44 years	0.015	0.011		0.546	0.011	***	-0.370	0.017	***	0.147	0.022	***	0.100	0.059	*	0.874	0.063	***
Nationality (Non-Spanish)	0.179	0.008	***	-0.224	0.011	***	0.058	0.016	***	-0.168	0.023	***	0.343	0.052	***	-0.260	0.065	***
Type of job																		
Groups 1 and 2 (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Group 3	-0.154	0.013	***	-0.294	0.014	***	0.107	0.018	***	-0.388	0.025	***	-0.245	0.092	***	-0.691	0.090	***
Group 4	-0.355	0.014	***	-0.101	0.015	***	0.237	0.018	***	-0.048	0.024	**	-0.251	0.094	***	-0.686	0.090	***
Group 5	-0.203	0.014	***	-0.233	0.015	***	0.124	0.019	***	-0.132	0.025	***	-0.311	0.094	***	-0.590	0.089	***
Group 6	-0.128	0.013	***	-0.350	0.014	***	0.054	0.018	***	-0.202	0.024	***	-0.401	0.090	***	-0.738	0.086	***
Industry																		
Manufact. and energy	-0.289	0.012	***	-0.071	0.015	***	-0.023	0.015		0.127	0.021	***	-0.217	0.065	***	0.648	0.073	***
Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wholesale & retail trade	-0.265	0.011	***	-0.619	0.015	***	0.059	0.016	***	-0.493	0.026	***	-0.173	0.064	***	0.001	0.080	
Hotels and restaurants	-0.295	0.011	***	-0.185	0.014	***	-0.031	0.018	*	-0.124	0.023	***	-0.118	0.064	*	0.699	0.074	***
Transport	-0.277	0.016	***	-0.016	0.018		0.071	0.021	***	0.316	0.028	***	0.108	0.097		1.218	0.096	***
Business activities, financial intermediation, real state and renting	-0.180	0.010	***	0.069	0.012	***	0.140	0.015	***	-0.168	0.022	***	0.181	0.062	***	0.607	0.074	***
Education and health	-0.524	0.016	***	-0.068	0.017	***	0.020	0.027		0.327	0.030	***	-0.133	0.099		0.253	0.111	**
Other services, personal services and housing	-0.424	0.013	***	0.046	0.014	***	0.072	0.022	***	0.171	0.029	***	-0.065	0.078		0.733	0.085	***
Firm size																		
0	0.135	0.008	***	-0.251	0.010	***	0.195	0.012	***	-0.279	0.019	***	0.205	0.045	***	-0.034	0.053	
1-9 workers (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10-19 workers	0.097	0.011	***	0.055	0.013	***	0.146	0.016	***	0.043	0.024	*	0.290	0.061	***	0.301	0.067	***
20-49 workers	0.109	0.010	***	0.100	0.012	***	0.178	0.015	***	0.161	0.021	***	0.239	0.058	***	0.322	0.060	***
50-249 workers	0.082	0.009	***	0.212	0.011	***	0.188	0.014	***	0.353	0.018	***	0.383	0.053	***	0.719	0.053	***
250+ workers	0.067	0.010	***	0.336	0.011	***	0.100	0.016	***	0.555	0.020	***	0.311	0.058	***	0.768	0.058	***
Contract in previous job																		
Open-ended (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Permanent per-task	-0.582	0.027	***	1.440	0.023	***	-0.379	0.036	***	2.551	0.031	***	-0.350	0.156	**	1.263	0.137	***
Temporary per-task	0.081	0.012	***	0.704	0.016	***	0.350	0.014	***	1.385	0.027	***	0.471	0.114	***	0.475	0.127	***
Casual	0.069	0.012	***	0.638	0.016	***	0.353	0.014	***	1.070	0.028	***	0.504	0.113	***	0.406	0.127	***
Other fixed-term	0.001	0.015		0.791	0.019	***	0.339	0.024	***	1.637	0.033	***	0.580	0.126	***	0.649	0.137	***
Tenure in previous job																		
< 6 months (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
≥6 months and <1 year	-0.012	0.009		0.116	0.010	***	-0.171	0.012	***	-0.234	0.014	***	-0.377	0.038	***	-0.483	0.042	***

≥1 year and <3 years	0.160	0.014	***	0.131	0.018	***	-0.243	0.012	***	-0.916	0.021	***						
≥3 years	-0.002	0.023		0.224	0.030	***	-0.480	0.018	***	-1.529	0.048	***						
Quarter of exit																		
1st quarter	0.244	0.008	***	0.023	0.009	***	0.126	0.012	***	-0.173	0.015	***	0.313	0.047	***	0.092	0.050	*
2nd quarter	0.064	0.007	***	-0.241	0.009	***	0.123	0.012	***	-0.324	0.016	***	0.064	0.045		-0.001	0.047	
3rd quarter (&)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4th quarter	0.265	0.008	***	-0.090	0.009	***	0.159	0.012	***	-0.244	0.017	***	0.348	0.049	***	0.186	0.051	***
Mass points and probability:																		
ε_1(s.e.)	-5.276(0.033)***						-2.573(0.038)***						-7.191(0.181)***					
ε_2(s.e.)	-1.626(0.010)***						-2.569(0.041)***						-2.598(0.146)***					
Pr(ε_1)	0.06						0.544						0.175					
Pr(ε_2)	0.94						0.456						0.825					
Sample (months-observ)	1575088						615,832						72562					
Log-likelihood	-977264.87						-307567.41						-37817.938					

Notes:
- Type of job is classified as: Group 1: High-skilled non-manual; Group 2: Medium-skilled non-manual; Group 3: Low-skilled non-manual; Group 4: High-skilled manual; Group 5: Medium-skilled manual; Group 6: Low-skilled manual.
-"&" indicates the characteristics of the reference individual; "S.E." means standard error; and ***, ** and * indicate significance at 1 percent, 5 percent and 10 percent, respectively.

Tenure in the previous job is another important factor that could potentially influence the recall strategy of the employers, if they consider that workers' firm-specific human capital is valuable for them. However, this seems to be true only for the group of uninsured job losers, while for the insured unemployed our results suggest the opposite result since the chance of being recalled diminishes with the duration of the previous job. This latter result agrees with Alba-Ramírez et al. (2007) and again appears to reflect the incentives of the availability of fixed-term contracts in combination with unemployment benefit entitlements which encourage employers to offer temporary instead of permanent contracts. Furthermore, the link between previous job tenure and entitlement duration could also explain that the recall hazard rates would be lower among workers who have longer previous job (entitlement) durations: they have accumulated enough contributions in order to receive benefits and to remain longer in unemployment until being recalled, if requiered by the former firm.

At the same time, we find that the recall (new job) hazard rate increases (decreases) with age, so in general the younger workers are more likely to find a new job while elder workers return faster to their previous employers (Jensen and Svarer, 2003). This result for age on the recall hazard rate is most probably related to the fact that older workers have more firm specific human capital, which is an attribute highly valued by the employer.

Our data set does not contain variables related to the individual's educational attainment or occupation. However, it provides information regarding the required level of qualification for the job. Results are rather similar according to the types of transitions. A sort of gradation exists in the recall probabilities by type of job, although it is more clearly observed for individuals who move from employment to uninsured unemployment: workers in high- and medium-skilled non-manual jobs show the highest chances of being recalled, followed by workers in high-skilled manual jobs, then workers in low-skilled non-manual and medium-skilled manual jobs and, finally, workers in low-skilled manual jobs. Therefore, in general we find that white-collar workers holding jobs that require higher qualification levels are more likely to be recalled faster by their previous employers, while workers in lower qualified (white- and blue-

collar) jobs suffer the greatest difficulties in being recalled by their previous employers.

Regarding industries, and focusing on the group of workers passing through the UI, we find that "Wholesale and retail trade", "Hotels and Restaurants" and "Business activities and financial intermediation" are the sectors where the duration of unemployment spells are longer until rehirings take place, being the recall hazard rates largest in the case of "Transport" and "Education and health". For UA recipients, rehirings are also faster in "Transport". In the case of workers who have an intervening spell of uninsured unemployment, the largest recall hazards correspond to all sectors except "Business activities and financial intermediation" and "Other services". These results are difficult to compare with previous studies, since they usually use different disaggregations of sectors (see, for instance, Böheim, 2006)[11].

Moreover, our results show that the hazard rate of exiting from unemployment through recall increases with firm size. This effect is strongest for UA recipients followed by UI recipients and uninsured workers. For instance, compared to firms with less than 10 employees, the recall hazard rate for UI (UA) recipients is 4.4 percent (35 percent) higher in firms with 10-19 employees, 17.5 percent (38 percent) higher in firms with 20-49 workers and 74 percent (115 percent) higher in the ones with 250 employees or more. Workers employed in smaller firms can be expected to experience longer recall durations because they will be less able to influence the timing of such recall and because it is more likely that the production and financial structure of large firms facilitates the use of rehirings. As firm size increases, there will be more and

[11] In a previous version of the paper which used information of private and public employees, we found that recall hazard rates were larger in sectors such as "Health", "Education" and "Public Administration". This evidence fitted nicely with previous studies. For instance, Arranz et al. (2010) find that workers (in particular, women) previously employed in the public sector are more likely to exit to temporary jobs but are less likely to access permanent jobs, which suggests the existence of a pattern of temporary job-unemployment-temporary job in the public sector, reflecting this sector's increasing use of temporary contracts. Dolado et al. (2002) highlighted that the public sector has exhibited a steady increase in the share of temporary employment since the mid-1990s. The reasons may be a change in hiring behaviour after the Growth and Stability Pact and that a high proportion of the EC Structural Funds received by local administrations for promoting active labour market policies have been used to hire workers in targeted groups under temporary contracts. D'Addio and Rosholm (2005) also address this result for all EU Member States using data from the ECHP for the period 1994-1999.

stronger works councils with both the power and the incentive to intervene and assist workers' optimising behaviour; at the same time, the complexity of the organization of production can favour the strategic use of recalls on the part of the firms.

Finally, seasonal conditions are controlled for in the regressions by including dummies for the quarter of exit. In general, recalls tend to be faster in the third quarter for those passing through the UI and in the first and fourth quarters for those passing through UA.

7. Conclusions

This piece of research has tried to document the importance of rehirings in labour market transitions and in compensated unemployment in Spain and to shed some light on the interplay between the UCS, the widespread use of fixed-term contracts and the layoff-rehire process. We have made a reasoning built on the implicit contract theory and the search theory. Given the features of the Spanish labour market and the unemployment protection system, we have formulated three hypotheses to be tested.

The first one had to do with the degree of worker turnover. Experience rating, by increasing the costs of layoffs, reduces labour turnover and smoothes employment over the seasons and the business cycle. In the case of Spain, the interplay of a large proportion of temporary employment and the fact that the UCS is not experience rated imply that firms face lower costs of layoffs (at least from the perspective of the financing of the UCS system), which increases job separations and worker turnover. Our results suggest that worker turnover is relatively large in the Spanish labour market, with nearly half of total private employees (excluding those employed in the primary sector having had at least one job loss in a period of one year).

The second hypothesis had to do with the effects of the combination of no experience rating and the presence of unemployment benefits. The fact that the Spanish UCS is not experience rated, the relatively generous benefit levels (in particular, for those with lower wages) and the extensive use of fixed-term contracts facilitate the succession of (short) spells of employment and unemployment and make rehirings more likely. Our results indicate that recalls

are very common, with nearly half of job losers returning to their former employers: 60 percent of all direct job-to-job moves imply such return, while this proportion is 36 percent and 29 percent for the transitions out of uninsured and insured unemployment, respectively. Likewise, the mean duration of the spells of non-employment ending in a recall tends to be shorter than the one corresponding to spells of non-employment ending in a new job.

The third hypothesis had to do with the interplay of the way of financing the UCS system and the flexible availability of fixed-term contracts. The degree of cross subsidization is large in the Spanish labour market and concentrates in firms and industries with higher labour turnover and temporary employment and with more seasonal product fluctuations. Our results suggest that, although recalls are widespread along the Spanish labour market, there are certain types of contracts, firms and sectors which are more prone to them. In fact, the proportion of workers who return to their previous employer with intermediate spells of uninsured or insured unemployment is highly concentrated on the permanent per-task contracts (74 percent) and other fixed-term contracts (44 percent). Moreover, large firms and certain services are more prone to the use of rehirings in combination with permanent per-task and temporary contracts. In all these types of contracts, firms and sectors, recall hazard rates are the highest.

Overall, these results suggest that there is room for the reform of the way the UCS is financed, in combination with changes in other labour market institutions. One proposal (Blanchard and Tirole, 2003) would be to transform the uniform payroll taxes to finance unemployment benefits into a layoff (or separation) tax so that firms using the UCS more intensely are the ones paying higher contribution rates. This would make employers to internalise the social costs associated with layoffs, reduce excessive job separations and eliminate (or at least reduce) cross-subsidization across firms and industries.

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APPENDIX

Table A.1. Descriptive statistics of job losers by type of transition: to employment, to non-employment, to insured unemployment and to other situation (missing/attrition). Employment periods ending in 2004 or 2005. Spain: MCVL 2004-2007.

	Employment		Non-employment		Insured unemployment		Other situation	
	Mean	**S.E.**	**Mean**	**S.E.**	**Mean**	**S.E.**	**Mean**	**S.E.**
Gender								
Men	0.558	0.497	0.543	0.498	0.548	0.498	0.517	0.500
Women	0.442	0.497	0.457	0.498	0.452	0.498	0.483	0.500
Age groups								
<24 years	0.210	0.408	0.334	0.472	0.094	0.292	0.220	0.414
24-29 years	0.279	0.449	0.270	0.444	0.241	0.428	0.201	0.401
30-44 years	0.376	0.485	0.297	0.457	0.460	0.498	0.356	0.479
>44 years	0.134	0.341	0.099	0.299	0.205	0.403	0.223	0.416
Nationality (Non-Spanish)	0.112	0.316	0.134	0.341	0.081	0.272	0.274	0.446
Type of job								
Group 1	0.034	0.182	0.025	0.157	0.031	0.173	0.055	0.227
Group 2	0.055	0.227	0.037	0.188	0.041	0.199	0.047	0.211
Group 3	0.235	0.424	0.249	0.432	0.221	0.415	0.251	0.434
Group 4	0.227	0.419	0.195	0.396	0.258	0.438	0.192	0.394
Group 5	0.156	0.363	0.170	0.376	0.187	0.390	0.167	0.373
Group 6	0.292	0.455	0.325	0.468	0.262	0.439	0.289	0.453
Industry								
Manufact. and energy	0.075	0.263	0.083	0.276	0.174	0.379	0.098	0.297
Construction	0.153	0.360	0.170	0.376	0.203	0.402	0.129	0.335
Trade	0.090	0.287	0.134	0.341	0.154	0.361	0.153	0.360
Hotels and restaurants	0.123	0.328	0.145	0.352	0.141	0.348	0.161	0.367
Transport	0.064	0.245	0.044	0.205	0.058	0.235	0.056	0.230
Business activities, financial intermediation, real state and renting	0.355	0.478	0.288	0.453	0.172	0.377	0.246	0.431
Education	0.011	0.106	0.026	0.160	0.018	0.134	0.039	0.194
Health	0.040	0.196	0.026	0.159	0.024	0.153	0.030	0.172
Other services, personal services and housing	0.089	0.285	0.083	0.276	0.055	0.228	0.088	0.284
Firm size								
0	0.231	0.422	0.241	0.427	0.246	0.431	0.180	0.384
1-9 workers	0.142	0.349	0.200	0.400	0.208	0.406	0.251	0.434
10-19 workers	0.075	0.263	0.090	0.287	0.094	0.291	0.102	0.302
20-49 workers	0.117	0.321	0.118	0.322	0.128	0.334	0.136	0.343
50-249 workers	0.206	0.405	0.176	0.381	0.177	0.382	0.183	0.386
250+ workers	0.229	0.420	0.176	0.381	0.147	0.354	0.148	0.355
Contract in previous job								
Open-ended	0.100	0.300	0.074	0.262	0.171	0.376	0.199	0.399
Permanent per-task	0.034	0.181	0.023	0.150	0.080	0.271	0.013	0.114
Temporary per-task	0.354	0.478	0.401	0.490	0.368	0.482	0.329	0.470

Casual	0.408	0.492	0.424	0.494	0.324	0.468	0.395	0.489
Other fixed-term	0.104	0.305	0.077	0.267	0.057	0.232	0.064	0.245
Tenure in previous job								
< 6 months	0.779	0.415	0.825	0.380	0.533	0.499	0.713	0.452
≥6 months and <1 year	0.096	0.294	0.109	0.311	0.235	0.424	0.116	0.320
≥1 year and <3 years	0.086	0.280	0.050	0.219	0.162	0.368	0.101	0.302
≥3 years	0.040	0.196	0.016	0.124	0.071	0.256	0.069	0.254
Sample	530588		337608		137572		23265	
Sample (weighted)	13264700		8440200		3439300		581625	

Note: Type of job is classified as: Group 1: High-skilled non-manual; Group 2: Medium-skilled non-manual; Group 3: Low-skilled non-manual; Group 4: High-skilled manual; Group 5: Medium-skilled manual; Group 6: Low-skilled manual.

Table A.2. Descriptive statistics of the transitions of job losers to employment, non-employment and insured unemployment (in period t+1) and from these states to a new job, a recall job or other situation (in period t+2). Employment periods ending in 2004 or 2005. Spain: MCVL 2004-2007.

	Transitions from non-employment						Transitions from UI				Transitions from UA					
	New job		Recall		Other type of benefits or non-employment		New job		Recall		Other type of benefits or non-employment		New job		Recall	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Gender																
Men	0.567	0.495	0.498	0.500	0.476	0.499	0.638	0.481	0.497	0.500	0.336	0.472	0.450	0.498	0.336	0.472
Women	0.433	0.495	0.502	0.500	0.524	0.499	0.362	0.481	0.503	0.500	0.664	0.472	0.550	0.498	0.664	0.472
Age groups																
Less than 23 years	0.353	0.478	0.300	0.458	0.066	0.248	0.113	0.316	0.066	0.248	0.104	0.305	0.168	0.374	0.085	0.279
24-29 years	0.279	0.448	0.253	0.435	0.217	0.412	0.283	0.451	0.208	0.406	0.185	0.388	0.229	0.420	0.147	0.354
30-44 years	0.287	0.452	0.316	0.465	0.473	0.499	0.447	0.497	0.484	0.500	0.507	0.500	0.450	0.497	0.516	0.500
+45 years	0.081	0.273	0.131	0.337	0.244	0.429	0.157	0.364	0.242	0.429	0.205	0.404	0.154	0.361	0.252	0.434
Nationality (Non-Spanish)	0.150	0.357	0.106	0.308	0.086	0.281	0.085	0.279	0.067	0.250	0.091	0.287	0.106	0.307	0.065	0.247
Type of job																
Group 1	0.021	0.143	0.033	0.179	0.033	0.178	0.036	0.187	0.029	0.169	0.012	0.109	0.014	0.118	0.010	0.098
Group 2	0.032	0.175	0.045	0.208	0.044	0.205	0.045	0.207	0.037	0.189	0.026	0.158	0.028	0.165	0.033	0.178
Group 3	0.247	0.431	0.252	0.434	0.260	0.439	0.236	0.425	0.176	0.381	0.197	0.398	0.225	0.417	0.205	0.404
Group 4	0.198	0.399	0.189	0.391	0.235	0.424	0.275	0.446	0.272	0.445	0.171	0.377	0.185	0.388	0.165	0.371
Group 5	0.172	0.378	0.167	0.373	0.188	0.391	0.176	0.380	0.198	0.399	0.215	0.411	0.201	0.401	0.221	0.415
Group 6	0.330	0.470	0.314	0.464	0.240	0.427	0.232	0.422	0.288	0.453	0.379	0.485	0.347	0.476	0.366	0.482
Industry																
Manufact. and energy	0.081	0.273	0.086	0.281	0.185	0.388	0.171	0.377	0.191	0.393	0.129	0.335	0.112	0.316	0.172	0.377
Construction	0.192	0.394	0.131	0.337	0.178	0.382	0.246	0.431	0.173	0.378	0.150	0.357	0.190	0.392	0.067	0.250
Trade	0.159	0.365	0.090	0.287	0.193	0.395	0.172	0.377	0.089	0.285	0.190	0.392	0.184	0.388	0.122	0.327
Hotels and restaurants	0.148	0.356	0.139	0.346	0.134	0.341	0.103	0.304	0.177	0.382	0.181	0.385	0.175	0.380	0.239	0.426
Transport	0.041	0.199	0.049	0.216	0.050	0.218	0.059	0.236	0.069	0.253	0.032	0.176	0.035	0.184	0.078	0.269
Business activities,	0.266	0.442	0.329	0.470	0.164	0.370	0.171	0.377	0.171	0.377	0.192	0.394	0.202	0.401	0.202	0.402

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financial intermediation, real state and renting																
Education	0.021	0.142	0.037	0.189	0.016	0.126	0.013	0.114	0.032	0.177	0.013	0.112	0.015	0.121	0.015	0.120
Health	0.020	0.140	0.037	0.188	0.025	0.158	0.018	0.132	0.036	0.186	0.039	0.193	0.022	0.148	0.022	0.148
Other services, personal services and housing	0.072	0.258	0.103	0.303	0.055	0.228	0.047	0.211	0.062	0.241	0.076	0.266	0.065	0.246	0.083	0.276
Firm size																
0	0.272	0.445	0.183	0.387	0.265	0.441	0.281	0.450	0.163	0.369	0.285	0.451	0.276	0.447	0.180	0.384
1-9 workers	0.207	0.405	0.187	0.390	0.247	0.431	0.217	0.412	0.160	0.367	0.258	0.437	0.229	0.420	0.175	0.380
10-19 workers	0.091	0.288	0.089	0.285	0.097	0.295	0.098	0.298	0.087	0.283	0.089	0.284	0.092	0.289	0.085	0.279
20-49 workers	0.116	0.320	0.122	0.327	0.123	0.329	0.128	0.334	0.137	0.344	0.109	0.311	0.111	0.314	0.122	0.328
50-249 workers	0.160	0.367	0.204	0.403	0.149	0.356	0.155	0.362	0.232	0.422	0.154	0.361	0.164	0.371	0.239	0.427
250+ workers	0.154	0.361	0.214	0.410	0.119	0.324	0.120	0.326	0.220	0.414	0.107	0.309	0.127	0.334	0.198	0.399
Contract in previous job																
Open-ended	0.093	0.291	0.040	0.196	0.330	0.470	0.235	0.424	0.026	0.159	0.035	0.184	0.025	0.155	0.002	0.042
Permanent per-task	0.009	0.095	0.048	0.214	0.026	0.158	0.015	0.122	0.215	0.411	0.020	0.140	0.014	0.119	0.113	0.316
Temporary per-task	0.395	0.489	0.413	0.492	0.306	0.461	0.378	0.485	0.402	0.490	0.371	0.483	0.398	0.489	0.337	0.473
Casual	0.434	0.496	0.406	0.491	0.297	0.457	0.329	0.470	0.273	0.445	0.500	0.500	0.490	0.500	0.442	0.497
Other fixed-term	0.068	0.252	0.094	0.292	0.041	0.198	0.042	0.201	0.084	0.278	0.073	0.260	0.074	0.261	0.107	0.309
Tenure in previous job																
< 6 months	0.825	0.380	0.825	0.380	0.415	0.493	0.497	0.500	0.571	0.495	0.743	0.437	0.775	0.417	0.787	0.409
≥6 months and <1 year	0.102	0.303	0.121	0.326	0.192	0.394	0.193	0.395	0.328	0.470	0.257	0.437	0.225	0.417	0.213	0.409
≥1 year and <3 years	0.056	0.230	0.040	0.196	0.242	0.428	0.217	0.412	0.086	0.280						
≥3 years	0.017	0.128	0.014	0.117	0.151	0.358	0.093	0.290	0.015	0.121						
Sample	217,194		120,414		20,868		65,507		34,155		2,762		6,769		5,125	
Sample (weighted)	5,429,850		3,010,350		521,700		1,637,675		853,875		69,050		169,225		128,125	

Notes: See Table A.1