NON-EMPLOYMENT AND SUBSEQUENT WAGE LOSSES (*)

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ABSTRACT

This work is the first attempt to analyse the existence and the magnitude of wage penalties associated with the non-employment experience of individuals in the Spanish labour market. For that, we draw on a sample of Spanish workers across the period 1987-1997 with information coming from an administrative. We find that non-employment brings an earnings set-back but subsequent employment generates substantial recovery. In particular, the impact of past non-employment duration increases with the time spent since previous job separation, individuals with few job interruptions present the shortest wage penalty effect and certain groups of workers (those aged more than 45 years, those laid off, and those in blue collar occupations) suffer larger wage penalties upon re-employment.

Keywirds: wage losses, job separations, non-employment, panel data.

JEL classification: J31, J63, J64.

1. INTRODUCTION

One important issue in the empirical literature of labour economics is whether there are wage losses associated with job interruptions and whether wage losses (if exist) are temporary. Apart from the academic interest, attempts to respond to these questions become relevant from a policy perspective. If individuals who suffer job interruptions not only experience earnings losses during spells of interruption but are also “scarred” by their experience of unemployment, it will contribute to wage inequality and interfere with work incentives. The existence of persistent costs of the unemployment experience may motivate concern over the long-term prospects of those individuals and the most appropriate assistance policies for them. In this sense, understanding whether the costs of job interruptions are persistent and what circumstances may influence that persistence is an important step toward developing such policies.

The main objective of this study is to investigate the impact of non-employment spells on subsequent wages using Spanish data. Specifically, we are interested in giving answers to the questions of whether wage losses are affected by the length and the number of job separations and whether the time spent in re-employment may erode that wage penalty. Although there are many studies analysing these questions in the US, the evidence for the European countries is much more limited. In fact, up to our knowledge, there is no previous studies investigating whether there are earning losses associated with job separations in the case of the Spanish economy.

The instrument we use to address those questions is the Spanish administrative dataset HSIPRE (Histórico del Sistema de Prestaciones por Desempleo). This data source contains information on unemployment benefit histories for a random sample (40 per cent) of involuntarily unemployed workers (due to either the ending of temporary contracts or individual or collective layoffs) who ever received unemployment benefits over the period 1987-1997. The 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 retrospective information makes it possible to construct a complete labour history of Spanish workers (who received unemployment benefits at least twice) over the period 1983-1997 in order to compare pre- and post separations wages, along with data on timing of unemployment and employment spells.

The empirical framework consists of estimating a standard wage equation using the within group (WG) technique, which is similar to a simple least square estimation in which the variables are defined as deviations from their individual means.

The remainder of this study proceeds as follows. Section two reviews the economic theories that supply predictions about the impact of unemployment on subsequent wages. The empirical literature on the effects of job separations upon re-employment wages is presented in section three. Section four describes the construction of the dataset and the sample restrictions. Section five sets out the model to be estimated later in the econometric analysis. Section six presents estimates of workers' wage losses, distinguishing among different characteristics such as gender, age, type of job separation, and occupation categories. Finally, some concluding remarks follow in section seven.

2. ECONOMIC THEORY AND WAGE LOSSES

Several areas of economic theory provide predictions about the determinants of workers mobility and the effects of that mobility on subsequent wages: human capital theory, search theory, imperfect information theory, trade unions theory, and efficiency wages theory.

Human capital theory establishes that, as long as workers accumulates firm-specific skills (through experience and on-the-job training), they obtain higher wages since their productivity increases (Becker, 1975; Mincer, 1974). When the relationship between the worker and the firm is terminated, the contribution of firm-specific skills to the worker's productivity finishes, as those skills are not transferable. Moreover, unemployment experience may lead to the depreciation of general skills. Both aspects related to human capital imply that workers separated from their previous jobs are likely to be less productive in their subsequent jobs, at least initially, thus obtaining lower wages on re-entry.

Search or matching theory looks at workers' mobility and at any intervening spell of unemployment as a productive activity (Jovanovic, 1979; Mortensen, 1988). When a good (high productivity, high wage) match is terminated by either side, match capital is lost and a subsequent wage reduction is expected, since the wage reflects the resulting productivity of the match. However, when a bad (low productivity, low wage) match is terminated, future wages will be higher if a better match is achieved. Unemployment may help to attain this, since it allows improved sorting of workers among jobs, so higher wages may be expected.

Imperfect information theory is based on the idea that firms have a limited knowledge of new workers' productivity at the time of hiring. In order to reduce uncertainty, employers can use workers' past unemployment history (in terms of incidence and duration) as a signal conveying information on their productivity. This means that workers having a history with more job interruptions and longer unemployment durations will achieve lower wages (at least initially), since employers may consider them as low productivity workers (Vishwanath, 1989; Pissarides, 1992). However, if new workers prove to be of a higher productivity than the employer initially inferred from their unemployment history, the initial wage penalty at the time of re-employment due to incomplete information should be eroded over time. Another prediction related to this asymmetric information approach is that related to the type of separation: workers losing jobs due to plant closure are expected to suffer smaller wage losses than workers who have been selected for layoffs, since plant closure gives a less negative signal and workers losing jobs this way avoid being labeled as low-ability workers (Gibbons and Katz, 1991).

Other theories also point out that job separation and subsequent unemployment may command lower wages for workers upon re-employment. Workers losing jobs that paid wage premiums (due to the existence of trade unions or efficency wages to raise workers' productivity) are likely to earn less in their subsequent jobs if they pay standard wages. Workers who had accepted wages below their productivity level in return for higher earnings later in their careers (i.e. a deferred compensation scheme, Lazear, 1981) will also have lower wages in their new jobs after separations.

3. A LOOK AT THE EMPIRICAL LITERATURE

The issue of the re-employment earnings experience of unemployed workers has been most extensively analysed in the US while the number of existing studies for other different countries is small. In general, empirical research has focused on the effects of worker displacement defined as the involuntary separation of workers from their jobs due to plant closures or mass layoffs, which in turn can be attributed to technological innovation or sectoral reallocation.

The US studies on the effects of unemployment on re-employment wages use a wide variety of datasets. Most of the earlier research used either the Displaced Worker Survey (DWS) supplements to the Current Population Survey (CPS) or the Panel Study of Income Dynamics (PSID). The DWS is a biannual supplement to the annual CPS and is based on retrospective information (the preceeding three years). Displaced workers are those permanently displaced due to plant closure, job abolition or slack work, distinguishing those with at least three years of job tenure from all displaced workers. The PSID is a nationally representative survey conducted to households. It started in 1968. In this survey, displaced workers are those who have been permanently displaced, independently of their length of service in the job. The original copies of the survey questionnarie allow distinguishing layoffs from firings, but data used by researchers make it impossible to distinguish between workers who are laid off and workers who are fired.

Although it has been extensively used, the DWS has some shortcomings that make it difficult to assess the magnitude and temporal pattern of displaced workers' wage losses. First, focusing only on workers who have been displaced, it lacks a comparison group (the non-displaced workers). Second, it does not contain extensive predisplacement earnings data, so only a "before" and "after" comparison can be done. And third, there is a tendency for workers not to report more remote occasions of displacement. These problems were avoided with the use of the PSID and other datasets (as the Pennsylvania administrative dataset used by Jacobson et al., 1993). In particular, the longitudinal nature of the PSID allows the follow-up of individuals in order to control for individual-specific effects and for predisplacement and long-term postdisplacement effects.

The evidence from the US studies refers to three different dimensions of the displacement experience. First, there are some studies addressing the fact that the relative wages of displaced workers tend to decline prior to separation. Ruhm (1991) and de la Rica (1995) identify a 10 per cent wage deterioration at least two years prior to separation, while Jacobson et al. (1993) obtain that deterioration to be 15 per cent for high-tenure workers (six years or more) for at least three years prior to mass layoffs or plant closures.

Second, the US evidence suggests that displaced workers face more unemployment than nondisplaced workers (Podgursky and Swaim, 1987a; Swaim and Podgursky, 1991; Ruhm, 1991). Using the PSID, Ruhm (1991) reports that displaced workers experience eight weeks more unemployment than comparable workers in the year of displacement, though less than one week four years later.

And third, displaced workers incur large and long-lasting wage losses upon re-employment after they separate from distressed firms (Hamermesh, 1987; Podgursky and Swaim, 1987b; Addison and Portugal, 1989; Kletzer, 1989, 1991; Farber, 1993; Jacobson et al., 1993). Ruhm (1991) finds that wages for displaced workers are more than 10 per cent below those for comparable nondisplaced workers four years after displacement. Jacobson et al. (1993) reports declines of 25 per cent of pre-displacement earnings five years after separation. In general, all those studies address the long-term nature of separations' effects on re-employment wages. Stevens (1997) focuses on the importance of additional job losses that follow an initial displacement. Using the PSID, she finds that much of the persistence of wage losses can be explained by additional job losses in the years following an initial displacement. While average wage losses six or more years after a job loss are approximately 9 per cent, those workers who avoid additional displacements have wage losses of only 4 per cent.

In contrast to the overwhelming bulk of evidence on worker displacement in the US, evidence for European economies is limited. Ackum (1991) for young people in Sweden, Van Audenrode and Leonard (1995) for a sample of workers in Belgium and Pichelmann and Riedel (1993) for workers in Austria find very modest wage losses upon re-employment. In contrast, Cohen at al. (1997) obtain wage losses for France of the same order of magnitude of those for the US. In a more recent work, Burda and Mertens (2001) use data form the German Socioeconomic Panel (GSOEP). They report that full-time men displaced in 1986 and subsequently reemployed in 1987 suffer a reduction of wage growth of less than 4 per cent when compared to a group of continuously employed workers. What deserves attention is that this average post-displacement wage behaviour varies across previous position in the wage distribution. Accordingly, workers in the lowest earnings quartile (where displacement is concentrated) gain 2 per cent more, while wage growth losses for the upper three quartiles are 17 per cent (a figure comparable with the US evidence).

Finally, there are two other recent studies focusing their attention on the joblessness experience of workers in the UK labour market. They obtain results very similar to those for the US. On the one hand, Arulampalam (2001) uses a sample of men drawn from the British Household Panel Survey (BHPS) over the period 1991-1997. She finds a wage penalty attached to a spell of unemployment on re-employment to take an inverted U-shape: it is about 6 per cent during the first year of re-entry, increases overt the next three years within the same employment spell to about 14 per cent, and then declines to 11 per cent.

On the other hand, Gregory and Jukes (2001) use a very large sample constructed from an administrative dataset (the linked New Earnings Survey Panel Dataset –NESPD– and the Joint Unemployment and Vacancies Operating System –JUVOS–) containing information on over 150,000 men over 1984-1994. They split the effect of unemployment into two components: unemployment incidence (job interruption) and duration of the unemployment spell, respectively. They report a long-run wage penalty associated with a job interruption of 2 per cent. In addition, they find a further wage penalty varying directly with the length of the past unemployment spell. Combining these two effects, their results are very similar to those obtained by Arulampalam (2001), although both studies use very different databases covering different time periods.

In the case of Spain, as far as we know, no previous studies on the likely effects of past unemployment either in future earnings or in unemployment have been carried out. Since the Spanish institutional setting differs from that in the US or the UK labour markets (countries where there is evidence on scarring), it would be highly interesting to perform such an analysis in order to shed light on whether there are earning losses associated with job separations and their magnitude. Furthermore, given the relevance of temporary employment in the Spanish economy, other issues to address should be the significance of the reason for job separation (ending of a temporary contract versus either layoff or firing) and of additional job separations that follow an initial one.

4. DATA AND SAMPLE

In this section, we describe how we have constructed 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 earnings upon re-employment.

4.1. Constructing the data

The data we use come 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 in charge of the administration of the payment of unemployment benefits (INEM, Instituto Nacional de Empleo).

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)[1]. 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 received the name of 'historical' SIPRE (HSIPRE). We constructed our longitudinal data from a 40 per cent random samples of all unemployed workers who started their first UI or UA spell either in February, June, or November over the period 1987-1997[2].

All that means that 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 –if any-, and region where benefit is paid) and benefit parameters (level and duration) of covered unemployment spells but also to some important features of former employment relationships.

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1 There are two groups excluded from the files by definition: workers who quit and workers with very short-time contracts whose contribution periods are below the minimum.

2 HSIPRE data have also been used by Cebrián et al. (1996) and García-Serrano (1997) to analyse the exit from unemployment. However both studies focus on a single cohort of UI entrants in June 1990. Other works using the SIPRE data for a larger period of time (1987-1993) are Jenkins and García-Serrano (2000) and Arranz and Muro (2001).

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 last six months of employment)[3].

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 unemployment (for those finding a job before benefit exhaustion, we know the date of exit and, thus, the date of entry into a new employment 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).

Furthermore, thanks to the existence of information on the prior job match of new unemployed workers, our period of study is extended to some years prior to 1987. One important issue to have in mind is that collecting information on subsequent wages results impossible for those who never return to the UCS. But information on subsequent wages is always present for those who terminate any future job match.

4.2. 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 (February, 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 perceiving a wage equal to or greater than the statutory minimun wage (SMW) and working full-time (as information on exact working hours is not available, this is the only way to approximate daily wages consistently). Fourth, they must have an entitlement period (expressed in days) to receive UI or UA benfits which correspond with the legal provisions; this implies that we have also excluded those workers whose entitlement period did not correspond to those provisions (taking into accout the reform in-

[3] 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.

troduced 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) and to workers for whom the individual, job and unemployment spell characteristics are present. Finally, observations with missing values (mainly in the job category variable) were not omitted from the sample; thus, appropriate dummy variables for missing cases are used as additional regressors.

Studies using longitudinal data usually establish an additional restriction in order to reduce biases due to sample attrition. They require every worker to receive some wage or salary earnings during each calendar year (see Jacobson et al, 1993, and Stevens, 1997, for the US; and Arumpalam, 2001, and Gregory and Jukes, 2001, for the UK). In our case, this restriction is not necessary, since all workers who come back to the UCS incorporate the information on former wage. It is obvious that those workers who once entered the UCS and exited but never returned do not contribute information on re-employment wages. For us to have information on at least two employment spells and two wages, workers must have been separated from their previous jobs and entered the UCS at least two times. This means that we restrict the sample to those who were continuosly present in our data in paid employment in at least two employment spells (with at least one intervening non- employment spell).

After implementing the previous restrictions, the sample consists of 65,340 workers. Of them, 77.2 per cent have experienced two employment spells, 17.6 per cent three spells, 3.6 per cent four spells, and 1.6 per cent at least five spells. Table 1 reports descriptive statistics for all workers distinguishing by their number of employment spells.

Table 1

DESCRIPTIVE STATISTICS VARIABLES FOR WORKERS WITH AT LEAST TWO EMPLOYMENT SPELLS BY NUMBER OF EMPLOYMENT SPELLS

Variables	1.st employment		2.nd employment		3.rd employment		4.th employment		5.th employment	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Gender (men = 1, women = 0)	0.588	0.492	0.588	0.492	0.640	0.480	0.635	0.482	0.574	0.495
Age (years old)										
> 20 and ≤ 25	0.561	0.496	0.337	0.473	0.220	0.414	0.148	0.355	0.091	0.288
> 25 and ≤ 30	0.206	0.404	0.332	0.471	0.408	0.492	0.411	0.492	0.358	0.480
> 30 and ≤ 35	0.094	0.291	0.143	0.350	0.169	0.375	0.194	0.395	0.221	0.415
> 35 and ≤ 40	0.062	0.242	0.078	0.268	0.085	0.279	0.100	0.300	0.115	0.320
> 40 and ≤ 45	0.045	0.208	0.055	0.229	0.057	0.232	0.070	0.255	0.085	0.278
> 45	0.032	0.176	0.055	0.228	0.061	0.240	0.078	0.268	0.130	0.336

(*Keep*.)

(*Continuation*.)

Variables	1.st employment		2.nd employment		3.rd employment		4.th employment		5.th employment	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Children (yes)	0.176	0.381	0.267	0.442	0.297	0.457	0.312	0.464	0.360	0.480
Job category										
High level/associated professional technicians and supervisors	0.059	0.235	0.076	0.265	0.066	0.248	0.061	0.240	0.049	0.216
Technical assistants and skilled clerical workers	0.084	0.277	0.111	0.314	0.102	0.303	0.087	0.281	0.086	0.281
Semi-skilled clerical workers	0.038	0.192	0.044	0.204	0.046	0.209	0.039	0.193	0.029	0.167
Unskilled clerical workers	0.158	0.365	0.154	0.361	0.124	0.330	0.105	0.306	0.085	0.278
Skilled production workers	0.146	0.353	0.192	0.394	0.236	0.425	0.275	0.447	0.293	0.455
Semi-skilled production workers	0.186	0.389	0.175	0.380	0.173	0.378	0.190	0.392	0.226	0.418
Unskilled production workers	0.268	0.443	0.221	0.415	0.224	0.417	0.213	0.409	0.194	0.396
Missing	0.061	0.239	0.028	0.164	0.028	0.166	0.031	0.174	0.038	0.192
Duration (days)										
Tenure in current employment	506.6	424.7	577.2	443.3	496.4	356.2	418.5	284.7	358.3	206.9
Previous unemployment	—	—	231.5	241.9	181.1	174.2	152.7	136.6	133.7	96.7
Previous non-employment	—	—	380.2	367.3	303.3	285.3	258.5	231.4	216.8	181.4
Accumulated past unemployment	—	—	231.5	241.9	351.1	259.8	411.4	231.1	474.8	210.0
Accumulated non-employment	—	—	380.2	367.3	577.5	397.5	675.4	366.3	747.8	332.1
Accumulated tenure	506.6	424.7	1083.9	706.8	1268.5	717.0	1341.9	658.9	1405.0	567.9
Daily wages (€-1990 prices)	20.2	8.2	22.5	9.7	22.1	9.2	21.3	8.8	19.7	9.1
Reason for job termination										
End of contract	0.852	0.355	0.873	0.332	0.905	0.294	0.935	0.247	0.957	0.203
Collective layoff	0.130	0.336	0.111	0.314	0.085	0.279	0.060	0.237	0.040	0.197
Individual layoff	0.016	0.127	0.014	0.118	0.009	0.094	0.004	0.066	0.001	0.031
Others	0.002	0.043	0.001	0.037	0.001	0.038	0.001	0.030	0.002	0.044
Regions										
Andalucia	0.187	0.390	0.187	0.390	0.200	0.400	0.224	0.417	0.273	0.446
Extremadura	0.018	0.135	0.018	0.132	0.020	0.139	0.022	0.147	0.017	0.130
Canarias	0.072	0.259	0.072	0.259	0.085	0.279	0.087	0.282	0.056	0.229
Asturias	0.019	0.138	0.019	0.137	0.016	0.125	0.012	0.109	0.003	0.054
Murcia	0.028	0.165	0.028	0.165	0.030	0.170	0.029	0.167	0.037	0.190
Castilla-León	0.046	0.209	0.044	0.206	0.041	0.198	0.037	0.189	0.036	0.185
Castilla-Mancha	0.032	0.176	0.032	0.175	0.030	0.170	0.032	0.177	0.025	0.156

(*Keep*.)

(*Continuation.*)

Variables	1.st employment		2.nd employment		3.rd employment		4.th employment		5.th employment	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Galicia	0.060	0.238	0.060	0.238	0.058	0.233	0.051	0.220	0.037	0.190
País Vasco	0.037	0.188	0.036	0.187	0.032	0.177	0.023	0.150	0.015	0.123
Cantabria	0.009	0.097	0.009	0.096	0.009	0.093	0.008	0.090	0.004	0.062
Cataluña	0.157	0.364	0.158	0.364	0.142	0.349	0.125	0.331	0.118	0.323
Madrid	0.160	0.367	0.162	0.368	0.149	0.356	0.116	0.320	0.077	0.266
Navarra	0.010	0.100	0.010	0.100	0.008	0.089	0.009	0.094	0.009	0.093
Baleares	0.030	0.170	0.030	0.170	0.048	0.214	0.092	0.290	0.174	0.379
Aragón	0.022	0.147	0.022	0.146	0.018	0.134	0.011	0.107	0.006	0.076
La Rioja	0.005	0.069	0.005	0.070	0.005	0.070	0.005	0.071	0.006	0.076
Entry year	88.4	1.976	90.5	1.815	91.3	1.656	91.8	1.537	92.3	1.456
Exit year	89.9	1.717	92.5	2.059	93.1	1.915	93.3	1.820	93.4	1.588
Sample	65,340		65,340		14,880		3,397		1,041	

Workers' age distribution change as we move from the first employment spell to the second and subsequent employment spells. The proportion of workers aged 20-25 decreases from 56 per cent in the first employment spell to 34 per cent in the second spell, 22 per cent in the third, 15 per cent in the fourth and 9 per cent in the fifth. At the same time, the share of those aged 25-30 grows from 21 in the first employment spell up to 35 per cent in the fifth employment spell. These figures simply imply that workers become older as calendar time passes by.

The distribution of workers between those with and those without dependent children (that may be considered a proxy for marital status) reflects what happens with the age. The share of workers who have dependent children grows from 18 per cent in the first employment spell up to 36 per cent in the fifth employment spell.

The main reason for job separation is the ending of a temporary contract: more than 85 per cent of all first employment spells terminate due to that reason. This proportion increases with the number of employment spells until reaching 96 per cent in the fifth employment spell.

Workers with job interruptions are characterised to having been employed in large proportions in manual, low skilled jobs across the employment spells. This proportion happens to be around 40 per cent across the first five employment spells. It is worth noting that the share of workers in manual, high skilled jobs increases from 15 per cent in the first employment spell to 29 per cent in the fifth employment spell. This rising trend may be a reflection of the impact of the sharp economic crisis of the early 1990's in the manufacturing industry in Spain.

Average duration of the first employment relationship is almost 510 days. It increases to 577 days in the second spell but decreases to 358 days in the fifth spell. However, these figures are not really informative since the distributions of job durations may have changed. Table 2 has been designed to shed light on that. It provides the distributions for the duration of tenure in the current job but also the distributions for the duration of unemployment and non-employment spells for workers who experience at least two employment spells.

Table 2

DISTRIBUTION OF TENURE IN CURRENT EMPLOYMENT, PREVIOS NON-EMPLOYMENT AND UNEMPLOYMENT DURATION FOR WORKERS WITH AT LEAST TWO EMPLOYMENT SPELLS

Duration (months)	1st empl.	2nd empl.			3rd empl.			4th empl.			5th empl.		
	E	E	PNE	PU	E	PNE	PU	E	PNE	PU	E	PNE	PU
≤ 6	0.426	0.256	0.395	0.661	0.262	0.456	0.752	0.309	0.521	0.826	0.316	0.624	0.912
> 6 and ≤ 12	0.195	0.297	0.220	0.147	0.364	0.253	0.132	0.419	0.256	0.104	0.525	0.229	0.053
> 12 and ≤ 24	0.163	0.213	0.230	0.148	0.212	0.203	0.100	0.177	0.167	0.065	0.118	0.122	0.036
> 24 and ≤ 36	0.107	0.132	0.097	0.032	0.106	0.064	0.015	0.070	0.043	0.005	0.030	0.018	—
> 36	0.109	0.102	0.058	0.012	0.056	0.025	0.001	0.025	0.012	0.001	0.011	0.007	—
Sample	65,340	65,340			14,880			3,397			1,041		

Note: E = Employment; PNE = Previous non-employment; PU = Previous unemployment.

Comparing the distributions of job duration across the first five employment spells, we observe that the shortest duration category (six months or less) is the most important, with a reduction of its weight from the first employment spell (43 per cent) to the fifth employment spell (32 per cent). At the same time, there is an increase of the weight of the medium-tenured spells (6-24 months). Finally, the share of the category concerning the longest employment durations (more than 36 months) decreases from 11 per cent in the case of the first employment spell to only 1 per cent in the case of the fifth employment spell.

Tables A.1 to A.4 in the Appendix provide information concerning the employment, unemployment and non-employment duration distributions distinguishing among different groups of workers according to the number of job interruptions. This is done in order to shed some light on issues related to the unstability of job matches. In particular, workers with at least five job interruptions display shorter average employment durations in comparison with workers with only two, three or four employment interruptions. Moreover, when we consider the first job match, differences among those groups of workers are relevant: the shortest job durations weigh far more for workers with at least five employment spells (76 per cent) when compared to workers with only four (63 per cent), three (52 per cent) or two (39 per cent) employment spells. The same is true for the second and subsequent employment spells. This suggests that the first group of workers appears to work in more unstable, temporary jobs.

The short-term, temporary nature of the majority of employment relationships drives the appearance of the covered previous unemployment spells distribution. Two out of three unemployment spells last six months or less after the first job interruption. This proportion increases to more than 90 per cent unemployment spells after the fourth job interruption. In fact, average duration decreases from 231 days for the first unemployment spell to 134 days for the fifth unemployment spell. These figures suggest again that as long as workers accumulates job matches and interruptions their employment relationships seem to be more unstable.

If we consider non-employment instead of unemployment distributions, the share of the shortest durations turns out to be lower than in the distribution of the previous unemployment durations for all workers. Thus, less than 40 per cent of all workers presents previous non-employment durations of six months or less after the first job interruption, share which increases to 62 per cent after the fourth job interruption. Accordingly, the share of the rest of durations increases with the number of job interruptions, as many individuals add time spent in inactivity to time spent in covered unemployment. The result is that average duration of non-employment diminshes from over one year for the first spell to about seven months for the fifth spell.

Regarding wages, Table 1 shows that average daily wages (in 1990 €) increase from 20.2 € in the first employment spell to 21.2 € in the fourth spell. In other words, on average there was a real wage gain when workers moved from one job match to another job match with an intervening non-employment period. In order to compare wage levels between different groups of workers, Table 3 presents the average daily wage for all workers with at least two employment spells.

Male, older, more qualified workers receive the highest wages during their first and subsequent employment spells. Those with children and those collectively laid off also gain more. One important feature coming out from the figures is the relationship between the wage level and the duration of previous non(un)-employment: the longer the past non-employment or unemployment spell, the lower the average daily wage in the current job[4].

When we provide separate information on average wages for workers with different number of employment spells (see Tables A.5 to A.8), the above-mentioned evidence holds. Wages increases for all group of variables across the second and subsequent employment spells, although the magnitude of wage gains differs among groups of workers.

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[4] One interesting issue to be investigated would be how wages of individuals re-entering employment after a spell out of work compare with wages of other workers. Gregg and Wadsworth (2000) have found that there are large entry wage gaps relative to other jobs in the case of the UK economy and that the wage gap has increased during the 1980s and the 1990s.

Table 3

DAILY WAGES (€ in 1990) FOR WORKERS WITH AT LEAST TWO EMPLOYMENT SPELLS

Variables	1st employment			2nd employment			3rd employment			4th employment			5th employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Gender															
Women	19.11	7.49	26909	21.12	9.11	26909	21.26	9.47	5355	20.11	8.86	1240	17.88	8.82	443
Men	20.97	8.58	38431	23.42	10.00	38431	22.56	9.02	9525	21.91	8.70	2157	21.04	9.08	598
Age (years old)															
> 20 and ≤ 25	18.94	6.29	36632	20.57	7.24	21989	20.79	7.84	3268	20.12	7.78	503	16.75	6.71	95
> 25 and ≤ 30	21.50	8.80	13459	23.03	9.54	21709	22.25	8.76	6078	21.41	8.45	1395	20.13	9.24	373
> 30 and ≤ 35	22.25	10.24	6125	24.21	11.39	9357	23.27	10.61	2513	22.31	9.38	658	20.93	9.37	230
> 35 and ≤ 40	21.76	10.39	4081	23.69	11.54	5080	22.56	10.41	1263	22.02	11.13	340	18.61	9.19	120
> 40 and ≤ 45	22.21	11.43	2953	23.40	11.63	3614	21.87	9.72	847	20.94	8.61	237	21.18	10.94	88
> 45	22.24	11.97	2090	23.53	12.07	3591	22.04	9.67	911	19.27	7.09	264	18.44	7.62	135
Job category															
High level/associated professional technicians and supervisors	34.43	13.94	3833	38.00	14.75	4963	36.40	13.91	983	33.86	14.67	208	32.96	17.52	51
Technical assistants and skilled clerical workers	24.53	10.46	5484	26.27	11.06	7260	25.56	10.81	1519	22.64	8.91	294	19.80	9.13	90
Semi-skilled clerical workers	21.64	6.50	2498	23.02	7.45	2856	22.33	7.42	680	23.31	8.26	132	20.11	7.22	30
Unskilled clerical workers	19.86	6.26	10334	21.61	7.34	10078	21.53	7.37	1850	21.14	7.98	355	18.68	6.66	88
Skilled production workers	20.34	6.27	9545	21.88	7.29	12519	21.64	7.20	3519	21.19	7.03	935	19.65	7.77	305
Semi-skilled production workers	19.51	5.93	12129	20.72	6.96	11408	20.95	7.41	2572	20.06	7.61	645	19.34	8.32	235
Unskilled production workers	18.15	5.15	17541	19.04	6.01	14446	19.30	6.28	3336	19.39	6.62	722	18.87	7.47	202
Missing	11.36	0.26	3976	11.15	0.20	1810	11.068	0.164	421	11.01	0.15	106	11.04	0.17	40

(*Keep.*)

(*Continuation*.)

Variables	**1st employment**			**2nd employment**			**3rd employment**			**4th employment**			**5th employment**		
	Mean	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**
Current tenure (months)															
≤ 6	18.80	6.75	27837	20.29	7.81	16743	20.88	8.10	3894	21.38	8.28	1050	21.54	7.80	329
> 6 and ≤ 12	19.76	7.36	12765	20.11	8.79	19391	19.81	8.79	5418	19.04	8.54	1425	17.26	9.11	547
> 12 and ≤ 24	20.61	7.69	10629	23.84	9.18	13899	24.48	8.92	3152	23.85	8.19	600	24.13	9.27	123
> 24 and ≤ 36	20.37	8.24	6990	25.13	10.23	8634	25.42	9.79	1580	25.54	9.64	238	23.52	7.59	31
> 36	25.72	12.19	7119	28.51	12.51	6673	27.21	10.65	836	26.62	9.34	84	25.19	10.37	11
Past unemployment (months)															
≤ 6	—	—	—	22.75	9.80	43198	22.38	9.27	11184	21.44	8.92	2805	19.73	9.22	949
> 6 and ≤ 12	—	—	—	23.14	9.71	9635	22.63	8.88	1963	21.68	8.28	352	21.10	8.12	55
> 12 and ≤ 24	—	—	—	21.65	9.51	9668	19.98	8.86	1491	18.64	7.64	220	16.71	6.45	37
> 24 and ≤ 36	—	—	—	19.19	7.93	2065	17.45	8.02	222	15.30	6.90	18			
> 36	—	—	—	17.75	7.28	774	14.55	4.70	20	19.86	1.85	2			
Past non-employment (months)															
≤ 6	—	—	—	23.53	10.24	25829	22.91	9.42	6783	21.66	9.27	1771	19.13	9.14	650
> 6 and ≤ 12	—	—	—	22.55	9.36	14368	22.39	8.91	3762	21.55	8.15	870	20.66	8.44	238
> 12 and ≤ 24	—	—	—	21.99	9.27	15026	21.11	8.93	3014	20.34	8.60	568	21.00	9.47	127
> 24 and ≤ 36	—	—	—	20.80	8.72	6307	19.43	8.78	953	19.16	7.10	146	19.24	12.21	19
> 36	—	—	—	19.71	9.52	3810	18.79	8.78	368	17.45	6.97	42	16.67	7.66	7
Children															
Yes	21.98	10.71	11493	23.18	11.16	17453	22.20	9.76	4422	21.56	9.20	1061	20.35	8.54	375
No	19.82	7.51	53847	22.21	9.11	47887	22.04	8.97	10458	21.12	8.61	2336	19.33	9.39	666
Reason for job termination															
End of contract	19.63	7.29	55652	21.88	8.95	57074	21.83	8.90	13459	21.17	8.75	3176	19.69	9.17	996
Collective layoff	23.13	11.61	8492	26.13	13.14	7252	24.21	11.39	1265	22.10	9.37	203	19.16	6.88	42
Individual layoff	26.73	11.76	1076	29.51	12.88	925	27.10	11.92	134	25.72	8.08	15	18.98	0.00	1
Others	23.06	8.40	120	30.06	13.34	89	29.86	10.84	22	29.49	16.20	3	31.23	15.71	2
Sample	65,340			65,340			14,880			3,397			1,041		

5. MODEL SPECIFICATION AND ESTIMATION

To measure the effect of the length of time since a job separation took place, the number of job interruptions and the duration of the employment spell on subsequent wages, we use a wage equation of standard form, including human capital variables and measures of time spent in non-employment and employment. More specifically, the effect of non-employment for worker i on wages in year t can be modelled as:

$$\ln(w_{it}) = X_{it}\beta + D_{it}\alpha + \lambda_i + \varepsilon_{it} \qquad (1)$$

where $\ln(w_{it})$ is the natural logarithm of daily wage at time t for individual i deflated to 1990 prices by the retail prices index; X_{it} is a vector of observable variables which can be time variant or invariant; D_{it} is a dummy variable that indicates the recent spell of non-employment prior to the wage observation (this dummy variable takes value 1 when the worker exits out of non-employment k quarters before to the wage observation); λ_i is a time invariant individual specific error that captures the effects of unobservable characteristics; and ε_{it} is assumed to have a constant variance and to be uncorrelated across individuals and time. With this specification we try to exploit two of the main strenghts of our data set: it covers a long period of time and it contains information on many individuals having different numbers of employment spells. This will allow us to obtain a picture of wage losses across time and workers.

The parameters of interest (α,β,λ) are estimated using within group (WG) estimation. This estimation method has been used recently in the empirical wage losses literature (Jacobson et al., 1993; Stevens, 1997; Arulampalam, 2001). It is equivalent to a simple least squares estimation of the model in which the variables are defined as deviations from their means. This estimation approach is a generalisation of the "difference in differences" technique which requires individuals to be found in employment in at least two spells with non missing wage information[5].

This method controls for a possible correlation between λ_i and X_{it}. For example, tenure and experience (age) variables will be correlated with unobservable

[5] 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 wages (i.e. they do not come back to the UCS after re-entering employment). If this is not properly taking into account, the estimated wage losses may be understated. To correct this potential non-randomness, we have estimated a reduced form probit model (as one cross-section) on the presence in the wage sample. We have included the associated Heckman correction term as a regressor in the wage equation. Results indicate that the correction term is not significant and the estimated coefficients in the wage 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.

job specific variables because high-tenured workers are better paid since their productivity (unobservable) rises with time on the job and more experience implies higher general skills. Moreover, if less-able or motivated (less productivity) workers are more prone to layoffs, estimates of displacement effects may fail to control for λ_i and will be biased toward finding higher wage losses. As a result of this, tenure and experience variables, or type of separation, will be correlated with unobservable job specific variables and, therefore, ordinary least squares (OLS) generates biased parameters for tenure and experience variables (see Altonji and Williams,1997, and Dustman and Meghir, 1999).

In the next section, we estimate a basic model that includes in X variables such as age, number of children, job tenure, regions and entry and exit years dummies to control for calendar and business cycle effects, respectively.

6. RESULTS

We present our results in order to shed light on three issues. First, whether wage losses are affected by the length of time spent into non-employment after a job separation takes place and the time spent later in re-employment. Second, whether differences on wage losses exist according to workers' characteristics prior to the job separation. And third, whether the existence of multiple job interruptions have an effect on subsequent wage losses.

6.1. The effect of the length of job interruptions and the time spent in re-employment

Table 4 provides the estimates of log real daily wage equations for all individuals. The first column shows the estimated wage losses for all workers included in the sample when we take into account previous non-employment duration since job interruption and tenure in subsequent employment engagements. Dummies for these variables allow us to check whether the "scarring effect" of a spell of job interruption diminishes over time.

Compared to those workers who only remain one year or less in non-employment, wage equation estimates indicate that an individual who remains more than two but less than three years in non-employment is estimated to earn about 2.3 per cent less[6]. This scarring effect of non-employment increases to 5.5 per cent if the individual stays more than three years in non employment. Therefore, the longer the permanence in non-employment, the larger the relative wage loss the individual incurs.

6 The percentage effect on wages is calculated as $(e^{\beta} - 1)*100$.

Table 4

LOG REAL DAILY WAGE EQUATIONS

	All sample		Two job interruptions		Three job interruptions		Four job interruptions		Five job interruptions	
	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.
Tenure										
1 year or less	—		—		—		—		—	
> 1 and ≤ 2 years	0.111	***	0.111	***	0.117	***	0.099	***	0.131	***
	(0.003)		(0.003)		(0.005)		(0.009)		(0.017)	
> 2 and ≤ 3 years	0.116	***	0.127	***	0.108	***	0.061	***	-0.158	***
	(0.003)		(0.004)		(0.007)		(0.014)		(0.027)	
> 3 years	0.174	***	0.177	***	0.157	***	0.118	***	0.068	
	(0.004)		(0.005)		(0.008)		(0.022)		(0.048)	
Non-employment										
1 year or less	—		—		—		—		—	
> 1 and ≤ 2 years	0.022	***	0.020	***	0.015	***	-0.003		0.049	***
	(0.003)		(0.004)		(0.005)		(0.010)		(0.016)	
> 2 and ≤ 3 years	-0.023	***	-0.033	***	-0.022	***	-0.040	***	-0.010	
	(0.004)		(0.006)		(0.009)		(0.019)		(0.044)	
> 3 years	-0.054	***	-0.070	***	-0.043	***	-0.122	***	-0.170	***
	(0.006)		(0.007)		(0.014)		(0.039)		(0.078)	

Notes: Regression controls for individual fixed effects, regions, age, children and calendar and business cycle dummies variables.

*** indicates significance at 1 per cent.

Note that at the same time the longer the time spent with the following employer the larger the wage gains. Compared to those workers with short job tenure (one year or less), an individual who keeps working more than two but less than three years is estimated to earn about 12 per cent more. This wage gain increases to 19 per cent per cent if the individual stays more than three years in employment. All this means that, although the impact of past non-employment duration implies the existence of wage losses, the non-employment incidence is found to have a temporary penalty effect since it disappears rapidly after workers re-enter into employment.

The second and subsequent columns in the table provide the same information that the first one but they are aimed at checking whether the scarring effect of a spell of job interruption diminishes over time for individuals who experienced only two, only three, only four or at least five job interruptions. In other words, the same model has been estimated for different groups of workers separated according to their number of job interruptions. Results indicate that wage losses associated with the length of previous non-employment spells are larger for workers who experience a higher number of job interruptions. Thus, a non-employment spell of more than three years carries a wage penalty of 7 per cent for workers with only two job interruptions. This penalty increases up to 13 per cent and 19 per cent for workers with four and at least five job interruptions.

In contrast, re-employment wage gains are smaller for individuals with more job interruptions. Staying more than three years in employment implies a wage gain of nearly 20 per cent for workers with only two job interruptions, while wage gains after the same period of time in re-employment are limited to 7 per cent for workers with at least five job interruptions. This means that workers characterised by having a higher number of job interruptions incur more permanent wage penalties upon re-employment since the effect of non-employment duration does not disappear with re-employment in the short-term.

6.2. Differences by workers' characteristics

Table 5 provides the estimated wage losses for various workers' characteristics. The effect of non-employment duration is larger in the case of men than in the case of women. After a non-employment spell of two to three years, men incur wage losses (4 per cent) that are non-existent for women. The scar remains larger for men (6.6 per cent) than for women (3.7 per cent) after a non-employment spell of more than three years. Gender differences are also present when workers come back to the employment status. Re-employment implies wage gains for both men and women, having the latter more steep wage gains.

Next columns in Table 5 disaggregate workers by reason for job termination (whether the employment relationship terminated due to the ending of a temporary contract or layoff)[7]. The effect of non-employment duration on wage losses turns out to be larger in the case of workers who were laid off than in the case of comparable workers whose temporary contracts ended. A non-employment spell of more than three years carries a wage penalty higher than 10 per cent for those laid off in their previous job but less than 5 per cent for those whose contract ended[8]. In addition, re-employment wage gains increase more quickly for the latter. Therefore, workers whose job termination was due to the ending of temporary contracts not only suffer a less pronounced scarring effect attached to the duration of non-employment spells but also their wages increase more rapidily with job tenure after re-employment.

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[7] We have merged spells ending due to collective and individual layoffs because the small number of observations concerning individual layoffs generated unreliable coefficients.

[8] In estimations not shown here, we have also found that workers losing jobs due to collective layoffs suffer smaller wage losses than workers who have been individually laid off, as Gibbons and Katz (1991) argue. However, as we have just said, the small sample of individuals having been laid off generated unreliable coefficients, which has refrained us to provide the results differentiated for both reasons for job termination.

Table 5

LOG REAL DAILY WAGE EQUATIONS BY WORKERS' CHARACTERISTICS
(gender, reason for job termination, and age)

	Gender				Reason for job termination				Age-groups					
	Men		Women		End of contract		Layoff		> 20 and ≤ 35		> 35 and ≤ 45		> 45	
	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.
Tenure														
1 year or less	—	—	—	—	—	—	—	—	—	—	—	—	—	—
> 1 and ≤ 2 years	0.106	***	0.120	***	0.117	***	0.072	***	0.124	***	0.117	***	0.077	***
	(0.003)		(0.004)		(0.003)		(0.014)		(0.003)		(0.009)		(0.014)	
> 2 and ≤ 3 years	0.111	***	0.126	***	0.115	***	0.086	***	0.140	***	0.097	***	0.084	***
	(0.004)		(0.005)		(0.004)		(0.017)		(0.004)		(0.012)		(0.019)	
> 3 years	0.164	***	0.191	***	0.175	***	0.116	***	0.217	***	0.111	***	0.102	***
	(0.005)		(0.006)		(0.005)		(0.014)		(0.004)		(0.012)		(0.018)	
Non-employment														
1 year or less	—	—	—	—	—	—	—	—	—	—	—	—	—	—
> 1 and ≤ 2 years	0.017	***	0.030	***	0.022	***	-0.019		0.063	***	0.025	***	0.007	
	(0.004)		(0.005)		(0.003)		(0.014)		(0.003)		(0.009)		(0.014)	
> 2 and ≤ 3 years	-0.038	***	-0.001		-0.024	***	-0.057	***	0.043	***	-0.045	***	-0.057	***
	(0.006)		(0.007)		(0.005)		(0.021)		(0.005)		(0.014)		(0.021)	
> 3 years	-0.064	***	-0.036	***	-0.044	***	-0.107	***	0.038	***	-0.041	**	-0.071	***
	(0.009)		(0.009)		(0.007)		(0.028)		(0.007)		(0.020)		(0.029)	

Notes: Regression controls for individual fixed effects, regions, age, children and calendar and business cycle dummies variables.

** indicates significance at 5 per cent.

*** indicates significance at 1 per cent.

Estimations for three different age groups show an interesting relationship between age and subquent wage losses. While spells of non-employment do not carry a scarring effect on future wages for young workers (under 35 years), prime-age workers and, above all, older workers (over 45 year) are seriously penalized. For the latter, the effect of non-employment is larger than for prime-age workers. After a non-employment spell of more than three years, older workers suffer a penalty of 7.4 per cent (for prime-age workers relative wage losses is around 4 per cent). These results are consistent with the evidence found by Gregory and Jukes (2001) for the UK: wage penalties are least for young workers and greatest for prime-age workers. At the same time, re-employment implies strong wage gains for young workers, while wage increases for prime-age and older workers are more limited.

Table 6

LOG REAL DAILY WAGE EQUATIONS BY JOB CATEGORY

	Job category							
	White collar skilled workers		**Clerical workers**		**Blue collar skilled workers**		**Blue collar unskilled workers**	
	Coeff. (Std. error)	**Signif.**	**Coeff. (Std. error)**	**Signif.**	**Coeff. (Std. error)**	**Signif.**	**Coeff. (Std. error)**	**Signif.**
Tenure								
1 year or less	—	—	—	—	—	—	—	—
> 1 and ≤ 2 years	0.110	***	0.114	***	0.090	***	0.089	***
	(0.017)		(0.006)		(0.007)		(0.004)	
> 2 and ≤ 3 years	0.088	***	0.140	***	0.065	***	0.072	***
	(0.021)		(0.007)		(0.009)		(0.005)	
> 3 years	0.191	***	0.197	***	0.099	***	0.116	***
	(0.022)		(0.008)		(0.010)		(0.007)	
Non-employment								
1 year or less	—	—	—	—	—	—	—	—
> 1 and ≤ 2 years	-0.043	**	0.006		-0.005		-0.006	
	(0.019)		(0.006)		(0.008)		(0.004)	
> 2 and ≤ 3 years	-0.048		-0.014		-0.093	***	-0.047	***
	(0.032)		(0.010)		(0.013)		(0.007)	
> 3 years	-0.068		-0.088	***	-0.134	***	-0.086	***
	(0.045)		(0.014)		(0.017)		(0.010)	

Notes: Regression controls for individual fixed effects, regions, age, children and calendar and business cycle dummies variables.

** indicates significance at 5 per cent.

*** indicates significance at 1 per cent.

Finally, the estimated effects of non-employment on wages by job category are provided in Table 6[9]. They suggest that for all type of occupations it holds

[9] The job category variable has been recoded in four categories in comparison with Table 1: category 1 is recoded as 1 (white collar skilled workers); categories 2, 3 and 4 as 2 (clerical workers); category 5 as 3 (blue collar skilled workers); and categories 6 and 7 as 4 (blue collar unskilled workers).

the general finding we have obtained previously: the longer the non-employment spell, the larger the damage on future wages. Nevertheless, one category of workers is even more seriously affected by the magnitude of wage losses: the skilled manual workers. After a non-employment spell of more than three years, wage losses are found to be larger than 14 por cent[10]. The estimated effects are somewhat persistent for this group since wages increase 10 per cent after three years in re-employment, while in the rest of categories the wage gains are larger (especially for workers in non-manual occupations).

6.3. The effect of the number of job interruptions

The main characteristic of the sample of workers we use in this investigation is that all of them have ever entered the UCS and have had at least two job interruptions. In fact, as we said before, three out of four individuals in the sample have experienced only two job interruptions, while the rest have had three, four or at least five spells. One interesting question we want to address is whether multiple job separations affect significantly wage patterns. In other words, does the number of job interruptions experienced by workers influence the magnitude of subsequent wage losses after a job separation?

Table 7

LOG REAL DAILY WAGE EQUATIONS BY NUMBER OF JOB INTERRUPTIONS

	All sample		Men		Women	
	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.	Coeff. (Std. error)	Signif.
Job interruptions						
2	—		—		—	
3	-0.008 (0.003)	**	-0.007 (0.004)	*	-0.009 (0.005)	*
4	-0.041 (0.007)	***	-0.041 (0.008)	***	-0.041 (0.011)	***
5+	-0.096 (0.009)	***	-0.071 (0.012)	***	-0.129 (0.014)	***

Notes: Regression controls for individual fixed effects, regions, age, children, tenure, previous non-employment spells and calendar and business cycle dummies variables.

* indicates significance at 10 per cent.

** indicates significance at 5 per cent.

*** indicates significante at 1 per cent.

Previous results using separated samples for workers divided by their number of job separations (see Table 4) already indicated that wage losses associated

[10] For the US economy, Podgursky and Swaim (1987b) find that blue-collar workers are more penalized than white-collar workers. Gregory and Jukes (2001), analysing the UK labour market, also find that skilled manual workers are those who suffer larger wage losses.

with the length of previous non-employment spells are larger for workers who experience a higher number of job interruptions. Now, we estimate the same model using the whole sample and including in the regression dummy variables which indicate the number of previous job interruptions. Table 7 presents the estimated effects on log real daily wage equations taking account of this.

Compared to workers who have only had two job interruptions, an individual who come into current employment after experiencing three job interruptions earn about 0.8 per cent less. This wage penalty effect increases up to 4 and 10 percent for individuals who have experienced four or at lest five job interruptions, respectively. The effect of previous job interruptions is larger in the case of women than in the case of men but only for the most unstable workers: female wage penalty at least double that for for men when the number of job interruptions is at least five. In summary, the first job interruptions seem to carry small wage penalties but subsequent job interruptions are associated with the largest wage losses.

7. CONCLUSIONS

The aim of this paper has been to investigate the effects of length of time since a job separation, multiple job interruptions, and duration upon re-employment on subsequent wages using information for Spanish workers over the 1980s and 1990s coming from an administrative dataset, the HSIPRE.

Evidence has been found (for workers as a whole and for groups of workers differentated by various characteristics) that past non-employment damages future wages (the so called “scarring effect”). Since our sample consists of workers who have been in unemployment at least twice (i.e. they all have experienced some unemployment sometimes in the past), we are unable to compare the experience of the unemployed with the experience of those workers continuously employed. However, it is possible to analyse the influence of non-employment duration and multiple job separations on wage patterns. We have detected that the longer the time spent in non-employment since job separation and the higher the number of job interruptions, the larger the wage penalty attached to future re-employment relationships.

According to human capital theory, this effect may come up since, when the relationship between the worker and the firm is terminated, the contribution of firm-specific skills to the worker’s productivity finishes and unemployment experience may lead to the depreciation of general skills. It may also arise because workers with longer non-employment durations and multiple job interruptions achieve lower wages as employers may consider them as low productivity workers, as the imperfect information theory suggests.

Furthermore, non-employment duration is found to have a temporary penalty effect on wages, since it is eliminated after one year in re-employment: once workers come back to employment and accumulate tenure, they obtain wage gains. This effect is consistent with the human capital theory: workers obtain higher wages as long as they accumulate firm specific skills again. It is also consistent with predictions from the imperfect information theory: if new workers prove to be of a higher productivity than the employer initially inferred from their unemployment history, the initial wage penalty at the time of re-employment due to incomplete information should be eroded over time.

In particular, the main specific findings we have obtained in this investigation are the following:

1) The relative wage penalty (in comparison with those with a non-employment spell of one year or less) attached to those workers re-entering to a job after having stayed in non-employment between two and three years is estimated to be about 2 per cent. This wage penalty increases to 5 per cent if workers face a non-employment spell of three years or more. At the same time, returning to a job implies a wage gain of 12 per cent if the job lasts between two and three years, increasing to almost 19 per cent if the job lasts at least three years.
2) The wage losses associated with the length of previous non-employment spells increase with the number of job interruptions, while the wage gains associated with the duration of the subsequent job match decrease with that number. This result imply that individuals with more job interruptions do not face the same opportunities to recover from wage losses caused by job separations.
3) Men are detected to be more scarred than women. Average wage reductions three years or more after a job loss are above 6 per cent in the case of men and 3 per cent in the case of women.
4) Workers who experience a job interruption because they were laid off are found to be more scarred relative to comparable workers whose temporary contract ended. The penalty wage attached to a non-employment spell of three or more years of duration is estimated to be about 10 per cent in the case of laid off workers and about 4 per cent in the case of those workers whose contract ended. In addition, re-employment wage gains increase more quickly for the latter.
5) Among young workers (aged under 35), subsequent wages do not seem to be damaged by job interruptions. However, workers aged 35-45 and, particularly, workers aged more than 45 are seriously scarred. For this group of workers, we have found an average wage penalty above 7 per cent if they remain in non-employment at least three years.

6) All categories of occupations exhibit realtive wage losses due to non-employment durations, but they are larger for workers in manual skilled occupations. The penalty effect for this group is more permanent: if the re-employment relationship lasts at least three years, the wage gain turns out to be around 10 per cent. Instead, for similar workers in non-manual skilled occupations, wage gains after three years in employment increase to more than 21 per cent.
7) The workers with few job interruptions present the shortest scarring effect. It is less than 1 per cent for those who have experienced two job interruptions. Subsequent spells of job separations command larger wage penalties (more pronounced for women than for men). This wage penalty increases to 7 per cent for men and 14 per cent for women if they face at least five job interruptions. This implies a substantial scarring effect caused by increasing number of job interruptions.

Our general findings are broadly similar to those obtained in previous studies for other countries. In particular, Arulampalam (2001) and Gregory and Jukes (2001) for the UK obtain that the impact of non-employment duration is proportional to the length of separations among jobs (the long-term penalty attached to non-employment spells is estimated to be around 10 per cent) and that wage gains increase with tenure in the current job after re-employment. For the US, Stevens (1997) finds that much of the persistence of wage losses can be explained by additional job separations after an initial one: average wage losses for all workers (including those with multiple job separations) are around 9 per cent six or more years after a job loss, while those workers who avoid additional job losses suffer wage penalties of only 4 per cent.

These findings suggest important implications for policies. On the other hand, from a macroeconomic point of view, since prevention of unemployment is better than cure, one important feature to enhance the re-employment prospects of the unemployed would be a high level of economic activity, which reduces the duration of unemployment spells.

On the other hand, scarring can contribute to wage inequality and poverty, and can interfere with work incentives. There is a need to provide financial incentives to those individuals to go back to employment that carries a wage penalty. As scarring seems to be particularly important in the case of the long-term unemployed and older workers, 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 policies towards job finding would be efficient since they can reduce individual unemployment durations and speed up the return to employment.

Finally, 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.

APPENDIX

Table A.1

DISTRIBUTION OF TENURE IN CURRENT EMPLOYMENT, PREVIOUS NON-EMPLOYMENT DURATION AND PREVIOUS UNEMPLOYMENT DURATION FOR WORKERS WITH TWO EMPLOYMENT SPELLS

	1st employment	2nd employment		
	E	E	PNE	PU
Duration (months)				
≤ 6	0.387	0.180	0.367	0.628
> 6 and ≤ 12	0.201	0.313	0.211	0.156
> 12 and ≤ 24	0.173	0.228	0.242	0.164
> 24 and ≤ 36	0.117	0.154	0.110	0.038
> 36	0.122	0.125	0.070	0.014
Mean (days)	537.5	638.3	411.5	249.6
Sample	50,460			

Note: E = tenure in employment; PNE = previous non-employment; PU = previous unemployment.

Table A.2

DISTRIBUTION OF TENURE IN CURRENT EMPLOYMENT, PREVIOUS NON-EMPLOYMENT DURATION AND PREVIOUS UNEMPLOYMENT DURATION FOR WORKERS WITH THREE EMPLOYMENT SPELLS

	1st employment	2nd employment			3rd employment		
	E	E	PNE	PU	E	PNE	PU
Duration (months)							
≤ 6	0.523	0.456	0.463	0.746	0.171	0.411	0.713
> 6 and ≤ 12	0.185	0.262	0.253	0.131	0.396	0.251	0.149
> 12 and ≤ 24	0.139	0.183	0.203	0.106	0.237	0.229	0.117
> 24 and ≤ 36	0.078	0.070	0.059	0.014	0.126	0.078	0.019
> 36	0.074	0.029	0.022	0.004	0.070	0.031	0.002
Mean (days)	423.6	398.2	292.2	181.7	548.8	332.8	196.7
Sample	11,483						

Note: E = tenure in employment; PNE = previous non-employment; PU = previous unemployment.

Table A.3

DISTRIBUTION OF TENURE IN CURRENT EMPLOYMENT, PREVIOUS NON-EMPLOYMENT DURATION AND PREVIOUS UNEMPLOYMENT DURATION FOR WORKERS WITH FOUR EMPLOYMENT SPELLS

	1st employment	2nd employment			3rd employment			4th employment		
	E	E	PNE	PU	E	PNE	PU	E	PNE	PU
Duration (months)										
≤ 6	0.634	0.659	0.562	0.844	0.480	0.553	0.854	0.192	0.445	0.779
> 6 and ≤ 12	0.160	0.197	0.250	0.092	0.300	0.279	0.089	0.451	0.267	0.131
> 12 and ≤ 24	0.110	0.106	0.156	0.062	0.158	0.141	0.053	0.228	0.213	0.082
> 24 and ≤ 36	0.056	0.029	0.028	0.002	0.053	0.023	0.003	0.094	0.059	0.007
> 36	0.040	0.009	0.004	0.000	0.010	0.004	0.000	0.035	0.017	0.001
Mean (days)	344.5	293.9	224.6	136.8	353.9	219.6	137.1	480.1	295.1	168.6
Sample	2,356									

Note: E = tenure in employment; PNE = previous non-employment; PU = previous unemployment.

Table A.4

DISTRIBUTION OF TENURE IN CURRENT EMPLOYMENT, PREVIOUS NON-EMPLOYMENT DURATION AND PREVIOUS UNEMPLOYMENT DURATION FOR WORKERS WITH AT LEAST FIVE EMPLOYMENT SPELLS

	1st employment	2nd employment			3rd employment			4th employment			5th employment		
	E	E	PNE	PU	E	PNE	PU	E	PNE	PU	E	PNE	PU
Duration (months)													
≤ 6	0.765	0.824	0.651	0.920	0.769	0.726	0.941	0.573	0.695	0.932	0.316	0.624	0.912
> 6 and ≤ 12	0.105	0.114	0.237	0.037	0.163	0.217	0.042	0.349	0.232	0.042	0.525	0.229	0.053
> 12 and ≤ 24	0.051	0.040	0.093	0.039	0.057	0.054	0.016	0.061	0.064	0.025	0.118	0.122	0.036
> 24 and ≤ 36	0.057	0.015	0.014	0.002	0.007	0.003	0.000	0.015	0.007	0.001	0.030	0.018	0.000
> 36	0.023	0.006	0.004	0.001	0.004	0.000	0.000	0.001	0.003	0.000	0.011	0.007	0.000
Mean (days)	292.1	235.1	188.0	115.6	240.6	167.3	108.8	279.0	175.7	116.7	358.3	216.8	133.7
Sample	1,041												

Note: E = tenure in employment; PNE = previous non-employment; PU = previous unemployment.

Table A.5

DAILY WAGES (€ in 1990) FOR WORKERS WITH TWO EMPLOYMENT SPELLS

Variables	1st employment			2nd employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.
Gender						
Women	19.21	7.67	21554	21.24	9.35	21554
Men	21.43	8.97	28906	23.96	10.47	28906
Age (years old)						
> 20 and ≤ 25	19.04	6.37	27839	20.65	7.43	15397
> 25 and ≤ 30	21.83	9.12	10599	23.21	9.73	17427
> 30 and ≤ 35	22.73	10.53	4812	24.62	11.69	7702
> 35 and ≤ 40	22.26	10.81	3220	24.15	12.01	4071
> 40 and ≤ 45	22.79	12.02	2324	23.77	12.03	2860
> 45	23.02	12.62	1666	24.04	12.56	3003
Job category						
High level/associated professional technicians and supervisors	35.38	14.25	3090	38.84	14.93	4045
Technical assistants and skilled clerical workers	24.93	10.62	4462	26.68	11.29	5943
Semi-skilled clerical workers	21.78	6.52	1932	23.30	7.50	2196
Unskilled clerical workers	20.00	6.36	8398	21.79	7.48	8138
Skilled production workers	20.68	6.52	7219	22.18	7.54	9407
Semi-skilled production workers	19.67	6.03	9195	20.87	7.14	8573
Unskilled production workers	18.22	5.15	13021	19.07	6.05	10512
Missing	11.36	0.25	3143	11.14	0.19	1646
Current tenure (months)						
≤ 6	18.87	6.91	19540	20.34	8.28	9094
> 6 and ≤ 12	19.83	7.55	10155	19.88	8.90	15796
> 12 and ≤ 24	20.83	7.90	8718	23.92	9.32	11510
> 24 and ≤ 36	20.72	8.39	5898	25.28	10.28	7749
> 36	25.99	12.36	6149	28.57	12.50	6311
Past unemployment (months)						
≤ 6	—	—	—	23.28	10.30	31686
> 6 and ≤ 12	—	—	—	23.35	9.95	7878
> 12 and ≤ 24	—	—	—	21.72	9.69	8266
> 24 and ≤ 36	—	—	—	19.19	7.99	1903
> 36	—	—	—	17.79	7.31	727
Past non-employment (months)						
≤ 6	—	—	—	24.27	10.78	18507
> 6 and ≤ 12	—	—	—	23.00	9.77	10629
> 12 and ≤ 24	—	—	—	22.18	9.57	12234
> 24 and ≤ 36	—	—	—	20.81	8.78	5547
> 36	—	—	—	19.77	9.61	3543

(*Keep*.)

(*Continuation.*)

Variables	1st employment			2nd employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.
Children						
Yes	22.53	11.14	9031	23.58	11.60	14043
No	20.04	7.75	41429	22.50	9.43	36417
Reason for job termination						
End of contract	19.82	7.50	42392	22.11	9.27	43211
Collective layoff	23.58	11.94	7027	26.53	13.33	6339
Individual layoff	27.08	11.79	947	29.73	12.74	837
Others	23.41	8.92	94	31.04	14.01	73
Sample	50,460					

Table A.6

DAILY WAGES (€ in 1990) FOR WORKERS WITH THREE EMPLOYMENT SPELLS

Variables	1st employment			2nd employment			3rd employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Gender									
Women	18.79	6.85	4115	20.88	8.37	4115	21.58	9.80	4115
Men	19.80	7.32	7368	22.14	8.56	7368	22.77	9.26	7368
Age (years old)									
> 20 and ≤ 25	18.66	6.05	6894	20.54	6.93	5043	20.73	7.98	2171
> 25 and ≤ 30	20.53	7.66	2215	22.68	9.04	3413	22.39	8.88	4927
> 30 and ≤ 35	21.07	9.22	974	22.59	9.96	1272	23.59	10.89	2064
> 35 and ≤ 40	20.53	8.92	637	22.46	9.61	754	22.78	10.40	962
> 40 and ≤ 45	20.85	9.40	458	23.00	10.69	561	22.50	10.52	649
> 45	19.59	8.85	305	21.46	9.37	440	22.64	10.27	710
Job category									
High level/associated professional technicians and supervisors	31.06	12.17	582	35.15	13.70	744	37.10	13.97	785
Technical assistants and skilled clerical workers	23.08	9.66	817	24.74	9.86	1060	26.04	10.95	1250
Semi-skilled clerical workers	21.44	6.31	441	22.22	7.04	534	22.44	7.45	548
Unskilled clerical workers	19.32	5.88	1594	20.98	6.74	1595	21.78	7.49	1496
Skilled production workers	19.54	5.46	1719	21.26	6.62	2341	21.83	7.18	2658
Semi-skilled production workers	19.18	5.64	2214	20.56	6.64	2123	21.21	7.64	1869
Unskilled production workers	18.06	5.20	3469	19.11	6.12	2950	19.32	6.47	2488
Missing	11.36	0.29	647	11.20	0.20	136	11.06	0.16	389
Current tenure (months)									
≤ 6	18.68	6.37	6008	20.31	7.52	5239	21.02	8.86	1963
> 6 and ≤ 12	19.68	6.75	2124	21.34	8.44	3012	19.78	8.86	4542
> 12 and ≤ 24	19.72	6.75	1598	23.63	8.59	2097	24.47	8.86	2720
> 24 and ≤ 36	18.93	7.30	901	24.33	9.82	801	25.44	9.73	1449
> 36	24.18	11.16	852	27.88	12.58	334	27.28	10.61	809

(*Keep.*)

(*Continuation*.)

Variables	1st employment			2nd employment			3rd employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Past unemployment (months)									
≤ 6	—	—	—	21.66	8.46	8565	22.79	9.60	8191
> 6 and ≤ 12	—	—	—	22.37	8.71	1501	22.72	8.96	1709
> 12 and ≤ 24	—	—	—	21.47	8.72	1216	20.03	9.01	1348
> 24 and ≤ 36	—	—	—	19.33	7.34	156	17.56	8.07	215
> 36	—	—	—	17.22	6.88	45	14.55	4.70	20
Past non-employment (months)									
≤ 6	—	—	—	22.12	8.84	5320	23.62	9.83	4725
> 6 and ≤ 12	—	—	—	21.63	8.28	2903	22.68	9.13	2878
> 12 and ≤ 24	—	—	—	21.34	8.02	2328	21.14	9.03	2626
> 24 and ≤ 36	—	—	—	20.75	8.33	679	19.49	8.81	896
> 36	—	—	—	18.91	8.11	253	18.84	8.86	358
Children									
Yes	20.46	9.03	1866	21.97	9.47	2633	22.46	10.07	3524
No	19.24	6.73	9617	21.60	8.20	8850	22.29	9.20	7959
Reason for job termination									
End of contract	19.15	6.63	10109	21.47	8.12	10634	22.05	9.13	10216
Collective layoff	21.26	9.93	1233	24.06	11.85	758	24.41	11.55	1121
Individual layoff	24.44	11.64	117	27.57	14.46	77	27.02	11.87	126
Others	22.09	6.28	24	26.59	8.92	14	30.61	10.96	20
Sample	11,483								

Table A.7

DAILY WAGES (€ in 1990) FOR WORKERS WITH FOUR EMPLOYMENT SPELLS

Variables	1st employment			2nd employment			3rd employment			4th employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Gender												
Women	18.70	6.92	797	20.34	7.51	797	20.82	8.90	797	20.91	9.50	797
Men	18.86	6.18	1559	20.53	6.81	1559	22.09	8.40	1559	21.87	8.68	1559
Age (years old)												
> 20 and ≤ 25	18.60	6.20	1403	20.13	6.49	1126	21.18	7.91	765	20.61	7.99	274
> 25 and ≤ 30	19.53	6.31	444	21.07	7.04	634	22.04	8.55	858	21.52	8.59	1051
> 30 and ≤ 35	19.24	7.89	225	21.33	8.71	248	22.04	9.13	315	22.46	9.34	500
> 35 and ≤ 40	18.19	6.55	129	20.55	8.16	164	23.05	11.57	195	22.37	11.10	227
> 40 and ≤ 45	18.22	4.91	102	18.68	6.31	112	19.68	6.18	113	21.32	9.40	152
> 45	18.77	8.56	53	20.11	6.83	72	20.67	7.19	110	19.42	7.58	152

(*Keep*.)

(*Continuation.*)

Variables	1st employment			2nd employment			3rd employment			4th employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Job category												
High level/associated professional tecnhi-cians and supervisors	28.51	10.17	125	30.14	10.46	131	34.38	13.23	148	34.17	14.58	158
Technical assistants and skilled clerical workers	21.72	8.80	143	24.27	9.88	179	24.40	10.40	186	22.88	8.51	196
Semi-skilled clerical workers	20.64	6.82	94	21.75	7.68	96	21.94	7.41	103	23.85	8.53	99
Unskilled clerical workers	18.76	4.87	266	20.71	6.20	268	20.76	7.14	273	21.80	8.13	279
Skilled production workers	19.00	4.73	376	20.26	5.90	516	21.63	7.80	581	21.86	7.24	627
Semi-skilled production workers	18.85	5.47	453	19.89	5.64	447	20.85	7.01	431	20.29	7.75	398
Unskilled production workers	17.76	5.02	750	18.27	4.91	692	19.21	5.68	604	19.12	6.25	501
Missing	11.35	0.23	149	11.23	0.16	27	11.10	0.17	30	11.01	0.15	98
Current tenure (months)												
≤ 6	18.77	6.51	1493	20.18	6.74	1552	20.81	7.64	1130	21.05	9.04	453
> 6 and ≤ 12	18.50	5.74	377	20.09	6.63	464	20.62	8.50	706	19.46	8.57	1062
> 12 and ≤ 24	18.79	5.55	260	22.49	8.21	250	24.59	9.43	373	23.62	7.98	536
> 24 and ≤ 36	17.09	5.80	132	20.38	7.84	68	25.62	10.47	124	25.61	9.67	222
> 36	22.95	9.10	94	25.73	13.13	22	27.00	11.78	23	26.73	9.34	83
Past unemployment (months)												
≤ 6	—	—	—	20.41	7.13	1989	21.74	8.65	2013	21.86	9.14	1835
> 6 and ≤ 12	—	—	—	21.29	7.43	217	22.32	8.49	210	21.73	8.57	308
> 12 and ≤ 24	—	—	—	20.08	5.15	145	19.78	7.56	126	18.89	7.62	194
> 24 and ≤ 36	—	—	—	17.76	2.48	4	14.12	5.61	7	15.56	7.02	17
> 36	—	—	—	18.34	0.00	1				19.86	1.85	2
Past non-employment (months)												
≤ 6	—	—	—	20.66	7.35	1324	21.85	8.81	1302	22.64	9.82	1048
> 6 and ≤ 12	—	—	—	20.19	6.56	589	21.81	8.31	658	21.53	8.04	629
> 12 and ≤ 24	—	—	—	20.22	6.54	367	21.28	8.28	332	20.24	8.51	501
> 24 and ≤ 36	—	—	—	20.46	7.75	66	18.78	8.53	54	19.10	7.01	139
> 36	—	—	—	20.00	8.77	10	16.76	5.11	10	17.94	7.00	39
Children												
Yes	18.79	6.95	379	20.27	7.11	505	21.58	8.82	589	21.44	9.45	721
No	18.81	6.34	1977	20.52	7.04	1851	21.69	8.52	1767	21.59	8.76	1635
Reason for job termination												
End of contract	18.70	6.36	2165	20.44	6.95	2229	21.54	8.44	2231	21.44	8.90	2166
Collective layoff	19.92	7.28	179	20.52	8.27	115	23.59	10.57	115	22.41	9.63	175
Individual layoff	21.45	6.23	10	27.09	11.79	10	28.26	13.48	8	26.73	8.17	13
Others	18.13	2.41	2	18.64	0.63	2	22.33	7.72	2	32.37	21.80	2
Sample	2,356											

Table A.8

DAILY WAGES (€ IN 1990) FOR WORKERS WITH AT LEAST FIVE EMPLOYMENT SPELLS

Variables	1st employment			2nd employment			3rd employment			4th employment			5th employment		
	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.	Mean	Std.	Freq.
Gender															
Women	18.03	5.28	443	19.06	6.06	443	19.07	6.62	443	18.66	7.38	443	17.88	8.82	443
Men	18.27	6.08	598	20.24	6.38	598	21.09	7.29	598	22.02	8.75	598	21.04	9.08	598
Age (years old)															
> 20 and ≤ 25	18.08	5.20	496	19.28	5.61	423	20.28	6.64	332	19.53	7.50	229	16.75	6.71	95
> 25 and ≤ 30	18.94	6.19	201	20.46	6.78	235	20.45	7.00	293	21.06	8.01	344	20.13	9.24	373
> 30 and ≤ 35	18.32	7.24	114	20.95	8.05	135	21.10	9.03	134	21.82	9.50	158	20.93	9.37	230
> 35 and ≤ 40	17.72	6.28	95	19.25	6.05	91	19.62	7.44	106	21.31	11.20	113	18.61	9.19	120
> 40 and ≤ 45	17.45	5.39	69	19.79	5.69	81	19.99	5.90	85	20.25	6.98	85	21.18	10.94	88
> 45	17.54	4.87	66	18.41	4.85	76	19.04	6.15	91	19.08	6.41	112	18.44	7.62	135
Job category															
High level/associated professional technicians and supervisors	28.02	9.01	36	32.20	11.90	43	31.33	13.51	50	32.89	15.08	50	32.96	17.52	51
Technical assistants and skilled clerical workers	21.19	8.81	62	20.83	5.95	78	21.05	8.03	83	22.18	9.69	98	19.80	9.13	90
Semi-skilled clerical workers	18.60	5.58	31	21.24	8.60	30	21.56	7.04	29	21.69	7.28	33	20.11	7.22	30
Unskilled clerical workers	19.84	6.17	76	19.02	5.93	77	19.36	5.29	81	18.71	6.91	76	18.68	6.66	88
Skilled production workers	17.83	4.37	231	19.63	4.45	255	19.88	5.74	280	19.82	6.36	308	19.65	7.77	305
Semi-skilled production workers	17.58	4.63	267	18.46	4.50	265	19.28	6.05	272	19.68	7.37	247	19.34	8.32	235
Unskilled production workers	17.51	4.72	301	18.92	5.71	292	19.35	5.82	244	20.01	7.38	221	18.87	7.47	202
Missing	11.35	0.27	37	11.34	0.00	1	11.26	0.14	2	11.04	0.11	8	11.04	0.17	40

(*Keep*.)

(*Continuation*.)

Variables	**1st employment**			**2nd employment**			**3rd employment**			**4th employment**			**5th employment**		
	Mean	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**	**Mean**	**Std.**	**Freq.**
Current tenure (months)															
≤ 6	18.18	5.61	796	20.00	6.17	858	20.63	6.67	801	21.63	7.64	597	21.54	7.80	329
> 6 and ≤ 12	18.64	5.14	109	18.74	7.42	119	17.30	7.45	170	17.80	8.33	363	17.26	9.11	547
> 12 and ≤ 24	19.32	4.65	53	19.90	4.35	42	23.98	8.56	59	25.76	9.68	64	24.13	9.27	123
> 24 and ≤ 36	14.63	5.60	59	14.07	4.30	16	17.42	7.81	7	24.60	9.43	16	23.52	7.59	31
> 36	21.79	10.19	24	16.46	2.61	6	15.43	2.95	4	17.31	0.00	1	25.19	10.37	11
Past unemployment (months)															
≤ 6	—	—	—	19.82	6.43	958	20.27	7.10	980	20.67	8.44	970	19.73	9.22	949
> 6 and ≤ 12	—	—	—	18.91	3.80	39	20.34	7.47	44	21.35	5.99	44	21.10	8.12	55
> 12 and ≤ 24	—	—	—	19.08	4.12	41	17.75	3.92	17	16.72	7.70	26	16.71	6.45	37
> 24 and ≤ 36	—	—	—	14.13	3.57	2				10.96	0.00	1	0	0	0
> 36	—	—	—	11.54	0.00	1				0	0	0	0	0	0
Past non-employment (months)															
≤ 6	—	—	—	19.91	6.63	678	20.31	6.95	756	20.24	8.20	723	19.13	9.14	650
> 6 and ≤ 12	—	—	—	19.39	5.93	247	20.40	7.45	226	21.62	8.46	241	20.66	8.44	238
> 12 and ≤ 24	—	—	—	19.63	4.47	97	18.82	7.33	56	21.12	9.27	67	21.00	9.47	127
> 24 and ≤ 36	—	—	—	19.72	5.31	15	14.59	5.37	3	20.30	9.29	7	19.24	12.21	19
> 36	—	—	—	14.82	4.23	4				11.19	0.27	3	16.67	7.66	7
Children															
Yes	17.73	7.15	217	19.84	6.57	272	20.46	7.30	309	21.81	8.64	340	20.35	8.54	375
No	18.28	5.32	824	19.70	6.17	769	20.14	6.99	732	20.00	8.15	701	19.33	9.39	666
Reason for job termination															
End of contract	18.16	5.78	986	19.80	6.29	1000	20.27	7.11	1012	20.60	8.39	1010	19.69	9.17	996
Collective layoff	18.01	5.04	53	18.30	5.69	40	18.98	5.91	29	20.21	7.42	28	19.16	6.88	42
Individual layoff	24.71	3.65	2	18.76	0.00	1	0	0	0	19.20	3.88	2	18.98	0.00	1
Others	0	0	0	0	0	0	0	0	0	23.72	0.00	1	31.23	15.71	2
Sample	1,041														

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