

DO UNEMPLOYMENT BENEFIT LEGISLATIVE CHANGES AFFECT JOB FINDING? EVIDENCE FROM THE SPANISH 1992 UI REFORM ACT*

José María Arranz[♦]
josem.arranz@uah.es

Fernando Muñoz-Bullón[♦]
fernando.munoz@uc3m.es

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Abstract

We analyse the impact on the duration of UI receipt of legislative changes implemented in the unemployment compensation system (UCS) through the Spanish 1992 Reform Act. In particular, we examine how a cut in the level of unemployment insurance (UI) benefits and in entitlement duration affected the job-finding rates among unemployed workers. We make use of a rich longitudinal administrative dataset with information on the length of individual unemployment spells as well as a host of characteristics pertaining to the individual, the household and the labour market, in order to compare UI exit rates for two large groups of UI benefit recipients: the first group started receiving UI benefits in 1991 (the pre-reform sub-sample), while the second one did so during 1993 (the post-reform sub-sample). The empirical analysis is undertaken through a discrete time duration model to estimate the hazard rate by controlling for observed and unobserved heterogeneity. Our results show that the 1992 changes in the UI system had a positive (though modest) effect on the exit rate from unemployment to employment. In particular, we find that a 10 percent reduction in the UI benefit level increased the transition rate out of unemployment by 5 percent. We also obtain that a reduction of the potential duration of UI benefits after 1992 implied an increase in the hazard rate out of unemployment of around 2 percent.

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♦ Author for correspondence: Universidad de Alcalá, Departamento de Estadística, Estructura Económica y OEI. Plaza de la Victoria 2, Alcalá de Henares 28802, Madrid, SPAIN. Fax: +34+918854201; Phone number: +34+918854271.

♦ Universidad Carlos III de Madrid. Sección de Organización de Empresas. C/Madrid, 126. 28903 Getafe (Madrid). SPAIN.

1. Introduction

Unemployment insurance (UI) provides a disincentive effect for job-seeking, which is affected by the level of benefits (relative to the expected wage) and by the potential benefit duration. The duration of an unemployment spell increases with the level of unemployment benefits because the cost of rejecting a job offer decreases. Thus, the greater the level of benefits, the less intensely workers tend to search for jobs: they will remain unemployed for longer. Establishing a limit to the duration of benefits tends to speed up the job search. As the date approaches when benefits will expire, the reservation wage decreases, unemployed workers tend to increase the intensity of their job search and the rate of job finding increases. A number of contributions have offered empirical support for the first of these two hypotheses: the connection between benefit level and unemployment duration¹. For instance, Abbring et. al. (2003) and Van den Berg et al. (1998) report strong incentive effects arising from benefit cuts for the Netherlands. Similarly, Carling et. al. (2001) study a cut in the replacement rate for UI benefits from 80% to 75% in 1996 for Sweden, and conclude that this change caused a 10-percent increase in the transition rate out of unemployment. As regards the second prediction—the relationship between the maximum duration of benefits and the length of an individual's spell of unemployment benefits—although it has been less researched, literature has found incentive effects arising from a fixed UI period. Meyer (1990) and Katz and Meyer (1990) find that spikes in the hazard out of unemployment may be explained by the end of benefits approaching. In particular, Moffitt (1985) and Katz and Meyer (1990) estimate that a 1-week increase in potential benefit duration increased the average duration of unemployment by about 0.1-0.2 weeks for UI recipients (similar, but somewhat smaller, effects are found by Hunt, 1995, for Germany). In the U.S., Card and Levine (2000) report a disincentive effect of about 0.5 day per additional week of potential benefit duration, Moffitt and Nicholson (1982) report that a 26-week extension in maximum UI durations added approximately 2.5 weeks to the mean unemployment spell, while Lalive and Zweimüller (2004) find a disincentive effect of about 0.4 day for Austrian benefit recipients. Finally, Van Ours and Vodopivec (2006) find that shortening the potential duration of UI benefits in Slovenia has a positive effect on the exit rate from unemployment².

The present paper adds to the knowledge of the potential disincentive effects arising from unemployment benefits, by focusing on legislative UI changes implemented through the Spanish 22/1992 Reform Act. In 1992, the Spanish government decided to implement a significant reform of the unemployment protection system. The government was convinced that the possibility of linking short-term employment contracts with unemployment benefit periods was one reason for the financial strains experienced by the system, along with the idea that the latter was too generous, and that this explained the resistance of the unemployment rate—the unemployment rate was less than 5% in 1973, but it had already reached levels above 15% after the 1992 crisis—against any downturn despite employment growth. In fact, the maximum replacement rate among workers eligible for UI amounted to 80% of previous earnings. This figure was among the most generous replacement rates in Europe (only behind that of Sweden, with a 90% replacement rate in the early nineties). Figure 1 shows annual mean coverage rates of the UI system and unemployment rates from 1990 to 2006. As can be observed, from 1990 to

¹ For surveys on this issue, see Atkinson (1987), Atkinson and Micklewright (1991) or Layard et. al. (1991) (different results have been found as to the magnitude of the effect).

² On the contrary, Fallick (1991) and Narendranathan and Stewart (1993) find that the effect of benefits decreases over time. Micklewright and Nagy (1996), using Hungarian post-transition data, find no rise in the hazard rate near the time of benefit exhaustion. Winter-Ebmer (1998), using Austria data, finds that males react to extended benefits duration but females do not. Bratberg et al. (2000) using Norwegian data from a natural experiment find no clear evidence that the hazard into employment increase when the end of the benefits approaches in the group affected by a reform that extended the length of unemployment benefits to more than 3 years.

1993, the coverage rate experienced a substantial increase, which is noticeably larger than the increase in unemployment rates for such a 3-year period³.

[FIGURE 1]

In this context, the government decided to make UI less expensive and, in April 1992, it reduced entitlement duration, and lengthened the minimum contribution period. The minimum contribution period was to be 12 months over the previous 6 years —the new reference period⁴. Each successive period of 6 months' contributions was to provide 2 additional months of benefit, instead of 3. The maximum entitlement period remained at 2 years. Before the reform, for example, workers with 25 to 30 months of work experience were eligible for benefits for up to 12 months. After the reform, this group of workers was eligible either for 8 months (if work experience was below 30 months) or for 10 months (for those with 30 months of experience). In addition, the reform reduced the replacement rate from 80% to 70% during the first six months of benefits receipt, and from 70% to 60% from the seventh to the twelfth month of benefit receipt).

What have been the labour market effects of this reform? In principle, one would expect it to have increased the outflow from unemployment, or, more precisely, to have increased the exit probability of unemployment beneficiaries compared with those not enjoying such benefits. There are very few studies, however, on the influence of the unemployment system on the exit rate, and none on the influence of the reform. In this paper, we concentrate on the effect of this reform on job finding. Thus, ours is the first work to address the 1992 UI Reform Act. Some previous works on the disincentive effects of the Spanish unemployment compensation are Alba-Ramirez (1999) and Bover et al. (2002). With the Spanish Labour Force Survey (EPA), they find a negative impact arising from benefit receipt on the probability of leaving from unemployment. Other studies, such as Cebrián et al. (1996) and Arranz and Muro (2004), use data from the Spanish Public Employment agency, and find that the benefits level does not exert a clear negative influence on the job search behaviour of the unemployed. Finally, Jenkins and Garcia-Serrano (2004) with the same dataset find a small disincentive effect on the re-employment hazard on average.

In the present paper, and based on this change in the Spanish UI benefit law, we analyse UI spell durations before and after these legislative changes. In particular, we compare the conditional probability of exiting from UI to employment for two large groups of individuals who registered as unemployed in 1991 and 1993. The last group was affected by the 1992 rule change that implemented both a cut in UI benefits and a reduction in the potential duration of benefits. We make use of data from the Spanish Public Employment Agency (INEM, *Instituto Nacional de Empleo*) with information on the length of individual unemployment spells, level and potential duration of benefits, and labour market and individual characteristics in order to estimate a discrete proportional hazard model to identify the determinants of exits from unemployment under benefits. Our results show that the 1992 changes in the UI system had a positive effect on the exit rate from unemployment. In particular, we find that a 10 percent reduction in the UI benefit level increased the transition rate out of unemployment by 5 per cent. We also find that the reduction of the potential duration of UI benefits had a positive effect on the exit rate from

³ Government's own calculations indicated coverage rates over 100 per cent in early 1993. As this rate is defined as the proportion of UI beneficiaries over registered unemployment, this finding may be due to the fact that some unemployment beneficiaries were not counted as registered unemployed. However, it provides an indication that the coverage of the system was high, certainly higher than it had been a few years earlier (Toharia et. al., 2000).

⁴ Those contributing for less than 12 months, might obtain unemployment assistance benefits (see Appendix A).

unemployment. These results are in line with many others in the literature (above-referred) regarding the changes in survival and hazard rates associated with changes in the UI system.

In the next section of this article we describe the change in the Spanish UI system. In Section 3, we describe our data set, the definition of variables and the descriptive analysis. The econometric model is presented in Section 4. Section 5 shows the results and the last section concludes.

2. The change in the Spanish UI system: the 1992 UI Reform Act

As in most OECD countries, Spain provides income support to the unemployed via a social insurance program consisting of a combination of UI and UA. Eligible for UI are workers whose unemployment situation is recognized according to law by the labour authority; i.e., the job was lost involuntarily, including end of a fixed-term contract. The UI is financed with a payroll tax of about 7 percent, of which approximately 80 percent is charged on the employer and 20 percent on the employee; and it is not experienced rated. In April 1992, Spain reformed its unemployment benefit system by tightening eligibility to UI benefits in order to encourage UI recipients to leave from unemployment⁵.

[TABLE 1]

Whereas before the reform, eligibility required Social Security contributions for a minimum of six months during the four years preceding unemployment, under the new rules, eligibility requires Social Security contributions for a minimum of twelve months during the six years preceding unemployment. Moreover, after the reform, UI entitlement periods were shortened for all groups of recipients. Before the reform workers who made contributions for 6-12 months were eligible for 3 months; a contribution of 13-18 months entailed 6 months, and so on to a maximum of 24 months for those who contributed to Social Security for more than 48 months (Table 1). In contrast, after the amendments, workers who made contributions for 12-17 months are eligible for 4 months; a contribution of 18-23 months entails 6 months, and so on to a maximum of 24 months for those who contributed to Social Security for 72 months or longer (Table 2).

[TABLE 2]

The amount of UI is determined as a fraction of the average “regulatory base” during a determined period of time preceding unemployment, where the regulatory base is the gross earnings used to calculate contributions to UI. Apart from enlarging the period for which such average wage is computed (6 months before the reform and 12 months after the reform), a second notable feature of the reform is a reduction in the level of UI benefits during the first 12 months of UI receipt (see Figure 2). Before the reform, it was 80 percent during the first six months of unemployment, 70 percent from the seventh to the twelfth month of unemployment, and 60 percent from the thirteenth month onwards. After the reform, on the contrary, the amount of UI is 70 percent during the first six months of unemployment, and 60 percent the remaining period of eligibility.

⁵ At the same time, support to unemployed through the UA system was widened. Given that in the present paper we focus on the expected effects from the 1992 UI changes (as indicated in the introduction), we refer the reader to Appendix A for a description of the changes introduced in the UA benefit system through the 1992 reform.

[FIGURE 2]

UI receipts were exempt from income tax until 1994. However, in this year, UI was made liable to income tax. Moreover, the notion of family responsibility was tightened, and more restrictive instructions were given to unemployment benefit officers. The result of these changes was a severe drop in the system's coverage rate. As Figure 1 shows, by 1995, such a rate was almost back to its 1990 level, although it appears to have increased from then on. Finally, the minimum and maximum of UI benefits were changed; prior to 1994, UI were subject to a minimum equal to the statutory minimum wage (SMW, around 40% of the average wage) and a maximum equal to 170 percent of the SMW for those with no dependent children, which could be increased to 190 percent and 220 percent if the unemployed had one or more dependent children. From 1994, the minimum amount of UI was established at 75 percent of the statutory minimum wage (SMW) if the worker has no dependent children, unless the beneficiary had dependent children, in whose case a 100 percent of SMW remained.

As a general assessment, before 1992, the Spanish UI system was relatively generous in absolute terms (though such generosity was clearly falling with unemployment duration) and relative to other EU and OECD countries. This is suggested by the cross-country analysis by the OECD (1991) of gross replacement rates for 'average production worker levels of 1988 earnings' for a new entrant to UI. Of the countries considered, only Denmark, Sweden and the Netherlands had similar or higher rates to Spain (OECD, 1991, p. 201). Spanish UI coverage was also substantial from a cross-national perspective: Blanchard et al. (1995, pp. 135) report that 'along with France, Holland, Belgium and Germany, Spain had the highest gross coverage rate in the EU in 1992'. Another relevant factor is the relatively non-stringent requirements for job search during UI spells: signing-on to confirm unemployment status is required in person, but only every 3 months (OECD, 1991, p. 214). Blanchard et al. (1995, pp. 135) also state that 'individuals that repeatedly turn down [job] offers retain their rights to continue to continue claiming unemployment benefits, which clearly acts as a disincentive for leaving unemployment'.

3. Data, variable definitions and descriptive analysis

3.1. The data

The data have been extracted from the HSIPRE (*Histórico del Sistema Integrado de Prestaciones*), a Spanish administrative data set from the Spanish Public Employment Agency (INEM) that provides information on unemployment benefits received by each worker⁶. It registers claims of UI and UA by unemployed workers—including some individuals partially unemployed (i.e. on short time work). The dataset contains information on spells of benefit receipt for each individual—collected at the moment of entry into the UCS. Information refers not only to individual characteristics (age, gender, family burdens, and region where the benefit is paid) and benefit parameters (starting and end dates of registered unemployment, the number of days granted for benefits, the number of days of benefit receipt and the benefit level), but also to some important features of former employment relationships: the duration of the previous job, the reason for leaving the last job, the former job category (i.e., a proxy for the occupation held and the level of education), and the individual's former wage.

⁶ HSIPRE data have also been used to analyse the exit from unemployment by Cebrián et al. (1996), and García-Serrano (1997). However both studies focus on a single cohort of UI entrants in June 1990. Other works using the HSIPRE data for a larger period of time are Jenkins and García-Serrano (2004) for the period 1987-1993, and Arranz and Muro (2004) for the period 1987-1997.

The data we have is a 40-per cent representative random sample of all unemployed workers who started their UI spell either in February, June, or November along the period 1987-1997. We have only selected individuals fully unemployed, in the sense that those who entered unemployment due to either temporary layoffs or short-time work have been excluded from the analysis. Moreover, individuals included have an entitlement period consistent with the legal provisions, and non-missing data on regression covariates. Finally, we have excluded self-employment (so as to avoid problems associated with previous employment status).

From this dataset, given its large size and the object of our analysis, we extracted two random sub-samples by selecting individuals between 18 and 59 years-old⁷ who started receiving UI in 1991 (for the first sub-sample) and in 1993 (for the second sub-sample). Thus, we compare a group of unemployed who were affected by the UI rule change with another consisting of individuals who were not. The reason for excluding the year 1992 is to avoid a potential selection bias in choosing “before and after” comparison groups⁸. Thus, in order to avoid biased estimates, we do not consider data for the year 1992 (see, in this respect, van Ours and Vodopivec, 2006).

Therefore, the two final sub-samples include every spell of UI benefits receipt for two groups of individuals, one of which started receiving UI benefits in 1991 (amounting to 42,029 individuals), whereas the other one did so in 1993 (which includes 35,845 individuals)⁹. Due to its administrative nature, the dataset is free of problems common in survey data (such as non-response and interviewer bias). Thus, its quality is deemed to be high (Jenkins et al., 2004; Arranz and Muro, 2004). In addition, it is the only Spanish administrative dataset with information about UI level and current and entitlement UI duration, and previous earnings. One limitation, however, is that there is no information on the period after benefits are expired, but only on the period during which workers are receiving UI benefits. Thus, we follow individuals until they escape from covered unemployment or, at the most, exhaust UI. In addition, the dataset lacks information on marital status, industry and the size of the previous firm the worker was hired.

[TABLE 3]

Table 3 shows main descriptive statistics for both sub-samples (individual and spell characteristics). Individuals belonging to the post-1992 sub-sample (i.e., those making up the treatment group) are mainly men (55.8%) whereas in the pre-reform sub-sample the proportion of males is 49.8%. In addition, although the average age of individuals is rather similar across sub-samples (30.94 for the former versus 29.20 for the latter), the main difference lies on the distribution for the first and the last age intervals: in the post-reform sub-sample there exists a lower proportion of individuals in the 18-25 age interval (36.1% versus 42%) and a larger proportion among those beyond 50 years-old. As regards the former job category, individuals in the post-reform sub-sample are more likely to having been hired in skilled positions (i.e., in job categories 1, 2 and 5), while the opposite occurs for the pre-reform sub-sample. As a consequence, net wages earned in the last job are slightly larger for the former (20.88 € per day as opposed to 18.91 € per day). Finally, the level of UI benefits is rather similar across sub-

⁷ The reason for the age limit is to avoid complications associated with early retirement.

⁸ Arranz and Muro (2004) find that while an increase in inflows into unemployment occurred just before 1992, a substantial reduction in inflows was observed in such a year. This suggests that expectations of the law’s introduction affected flows from employment into unemployment.

⁹ As commented before, since our focus is on the expected effects from the UI changes in the 1992 reform, we leave out of our analysis the individuals entitled to UA.

samples, and both types of individuals enter into unemployment due to the end of the previous contract¹⁰.

As regards characteristics of UI spells, average elapsed unemployment duration (289.38 days) and entitlement duration (363.19 days) are larger for the post-1992 sub-sample. Moreover, UI entitlement spells are mainly shorter than 6 months for both samples, although this frequency is lower for the post-1992 sub-sample (35.7 per cent versus 48.2). As regards the exit from covered unemployment, the percentage of censored observations (for which exhaustion of UI takes place) is substantially high in both sub-samples: 77.5% for the pre-reform group versus 73% for the post-reform sub-sample.

3.3 Non-parametric analysis

Before turning to the regression analysis, and as a first approximation to the effect of the UI reform on unemployment duration, we use non-parametric estimation of the time profile of the empirical hazards. In particular, we compare the job-finding rates before and after the policy change in April, 1992. Our analysis focuses on exits from UI to a job, and treats spells which end because of exhaustion of entitlement as censored. Figure 3 shows the empirical hazard for the entire sample, separating pre-reform spells (beginning before the policy change) and post-reform spells (beginning after the policy change).

[FIGURE 3]

En Figuras 4 y 5, quitar el mes 24 (dado que también lo hemos quitado en Figura 3)

As Figure 2 shows, the policy change is associated with an increase in the hazard. Moreover, there are several periods where the empirical hazard is noticeably higher than surrounding periods in both figures. There is a high hazard in the first months, up to approximately 3-4 months, probably caused by the high concentration of short entitlement periods mentioned

¹⁰ The prevalence of temporary contracts is a notable feature of the Spanish labour market. These contracts were introduced in 1984 in order to increase labour market flexibility, and imply low firing costs (redundancy payments are lower than those for open-ended contracts). The use of fixed term contracts spread rapidly: “Between 1986 and 1990, 80% of all contracts registered at employment offices were fixed-term. By 1991, fixed-term and temporary employment accounted for nearly a third [...] of total employment” (Blanchard et al. 1995, p. 128). See also Alba-Ramírez (1998).

¹⁶ See Allison (1982) or Jenkins (1997) for a survey. This type of models is common in the analysis of exits from covered unemployment, see for example, Bratberg, et al. (2000), Carling et al. (2001), Jenkins and García-Serrano (2004), Arranz and Muro (2004,2007), Van Ours and Vodopivec (2006).

Eliminado: Although real net wages and benefits will be used (in log form) as separate regressors, (instead of the replacement rate), it is convenient to summarise the relative generosity of the UI system in terms of replacement rates. Appendix B shows the distribution of net replacement rates before and after 1992¹¹. As expected, replacement rates were substantially higher in the pre-reform sub-sample; while 87.16 percent of individuals enjoyed a net replacement rate above 85% in such sub-sample, this only occurred for 15.63 percent of individuals in the post-reform sub-sample.[¶]

Eliminado: 3.2. Variable definitions QUITAR PARA LA JEL[¶]

3.2.1. Benefit-related variables QUITAR PARA LA JEL[¶]
 In order to exploit information on the two sub-samples, we include in the hazard models one variable related to the year of inflow into unemployment. It is a dummy variable which indicates spells from the post-reform sub-sample (i.e., with 1993 as the inflow year into unemployment). Thus, the reference group refers to individuals becoming unemployed during the year 1991 (prior to the reform). This variable measures any differences in UI leaving rates between post-reform UI spells and those in the comparison sub-sample (prior to the reform), during all months of these spells. We refer to this variable as “*After change of law*”. Thus, this variable captures the effect of the law change. Note that since we also control for changes in business cycle/labour market conditions—see below—the “pure” effect of the 1992 Law Act on UI leaving behaviour will be measured by this dummy variable. And any unobserved factors that happened to shift UI leaving rates after the policy change was in place relative to the average rate in 1991 will be absorbed by the unobserved heterogeneity component.[¶]

[¶] Entitlement duration is likely to affect individuals’ job search effort and, therefore, their hazard rates from unemployment¹². First, as the worker has an interest in maintaining her living standard, the absence of unemployment benefits enhances incentives to search for and to accept jobs. Second, since the worker is no longer eligible, she has an additional interest in being ... [1]

Eliminado: Figure 4 displays hazard rates for males and females separately¹⁵.

above. Jumps in months which are multiple of three are observed for the pre-reform sub-sample. These hazards are likely to be driven by the risk of benefit exhaustion. After Law changes, instead, peaks in the empirical hazard are obtained in months which are multiple of 2 and 4 (probably due to the fact that entitlement periods are multiple of 2 in this case).

4. Econometric approach: a discrete-time duration analysis

The exit rates from unemployment (under UI) are analysed using discrete hazard model techniques¹⁶. The hazard rate out of unemployment into employment may be defined as the limit of the conditional probability of a transition taking place in a small interval dt after time t if no transition occurs until t , when that interval approaches to zero. Formally, let T_i be the length of individual i 's UI spell. Then the hazard for individual i at time t , $h_i(t)$, is defined by the equation

$$h_i(t_i, X_i(t), \theta_i) = \lim_{dt \rightarrow 0} \frac{\Pr(t + dt > T_i \geq t \mid T_i \geq t)}{dt} = \lambda_0(t) \exp\{X_i(t)' \beta\} \theta_i \quad (1)$$

where $\lambda_0(t)$ is the interval-specific baseline hazard rate at time t , which is unknown; $X_i(t)$ is a vector of time-invariant and time-varying covariates for individual i , β is the vector of unknown parameters to be estimated, $i=1 \dots N$ are individuals-month observations, and finally θ_i captures unobserved individual characteristics that affect the hazard in theory but are unobservable in the data, such as acquired skills, attitudes, motivation, inherent ability, and so on.

Now, we define the probability of surviving through any interval dt after having survived the preceding j interval as $(1-h_j)$. Therefore, the likelihood contribution of unemployed individuals who receive an UI and quit the system to work in the j th interval is¹⁷:

$$\Pr[T_i = t] = h_{ti} \prod_{j=1}^{t_i-1} (1-h_j) \quad (2)$$

and if we assume that censoring takes place in the beginning of intervals, the likelihood contribution of unemployed individuals who exhaust their UI at the start of the j th interval is:

$$\Pr[T_i > t] = \prod_{j=1}^{t_i} (1-h_j) \quad (3)$$

Then, defining $d_i=1$ if individual i 's spell ends in a transition to a job, 0 otherwise. The likelihood contribution of the i 's individual can be written as:

$$L_i = \left[\Pr(T_i = t_i) \right]^{d_i} \left[\Pr(T_i > t_i) \right]^{1-d_i} = \left\{ h_{ti} \prod_{j=1}^{t_i-1} (1-h_j) \right\}^{d_i} \left\{ \prod_{j=1}^{t_i} (1-h_j) \right\}^{1-d_i} \quad (4)$$

where the discrete time hazard in the j th interval for each individual is:

$$h_j = 1 - \exp[-\exp(\beta X_i(t) + \gamma_t(t) + \theta_i)].$$

This specification allows for a fully non-parametric baseline hazard with a parameter for each duration interval, capturing duration dependence. The specification of the baseline hazard is very important. A common but restrictive approach consists of specifying a parametric form for the baseline hazard. This approach is very strong because the assumptions over the form are difficult to justify from an economic point of view, and provokes a misspecification problem. Instead, we

¹⁷ We omit t , X and θ to simplify notation.

Eliminado: In addition (Figure 4), males always present higher hazard rates than females independently of the time period under consideration. Therefore, as a first impression, the changes implemented in 1992 are associated with individuals increasing their escape route out of unemployment.

Eliminado: QUITAR PARA LA JEL [FIGURE 4]

Table 4 shows the "old" and "new" benefit entitlement periods, as well as the mean durations of UI for individuals belonging to each contribution period. Thus, it shows how reform affected the duration of unemployment under benefits —except for the first contribution period (from 6 to 11 months), given that individuals in this interval lose entitlement to benefits after the rule change. After the reform, the mean duration of unemployment is shorter than before for any contribution period considered. Moreover (as expected), the longer the size of the reduction in UI entitlement, the longer the size of the reduction in mean UI duration. Similar information is obtained in Table 5. This table shows the cumulative probability of outflow from UI after 3, 6, 9, 12, 15, 18 and 21 months of unemployment, before and after the change in the unemployment benefits law. The cumulative probability of having found a job within 3 and 6 months is slightly lower after the reform. However, it exponentially increases after the change of the Law for the remainder period of unemployment considered (both for men and for women).

QUITAR PARA LA JEL [TABLE 4]

When interpreting these figures it is important to recognise that we compare two time periods with somewhat different labour market conditions for two different groups of individuals. The period 1987-1991 was characterised by an economic expansion, during which the number of salaried workers considerably increased in absolute terms (almost 1.5 millions in four years); whereas between 1992 and 1994, a brief though intense recession took place (the total number of salaried workers reduced by almost half a million). In fact, regional unemployment rates in Spain subsequently fell from 1987 to 1991, to the extent that in most regions they were 5 percentage points lower in 1991 than in 1987. However, unemployment rates then in ... [2]

choose a semi-parametric approach (piecewise constant hazard) by specifying monthly dummies $\gamma(t)$ which coefficients for transitions from UI to employment. This method presents the advantage of being flexible and it is very common in the literature (see Bratberg *et al.*, 2000; Carling *et al.*, 2001; Alba-Ramirez *et al.*, 2007). Finally, we assume a finite-mixture unobserved heterogeneity distribution with unknown support points¹⁸. Then, the likelihood function for an individual may be obtained by integrating the following conditional likelihood distribution:

$$L_i(\beta, \gamma, \varepsilon, \pi) = \prod_{s=1}^S L(\beta, \gamma | \theta = s) \pi(s) \quad (6)$$

Where θ are the location points, π the probability associated to them, and s the number of support points.

5. Estimation results

In this section, we present the empirical results from the estimations of the model outlined in Section 4. Our objective is to assess whether the impact of the determinants of the probability of exiting from covered unemployment have changed after the 1992 law was passed by a comparison of the job finding rates between the pre-reform and the post-reform UI entrants¹⁹. The reference individual in our estimations is a male, blue collar unskilled worker, aged between 26 and 35 years-old, without family burdens and who enters unemployment reasons different from the end of his previous contract. The baseline hazard rate is estimated non-parametrically including a dummy variable for each month. Estimations have been obtained based on the likelihood function (6) by the maximum likelihood estimator. For simplicity, we discuss only the estimates of the entire sample in Table 6.

We have experimented with different specifications in order to investigate the sensitivity of the parameter estimates (Table 6). Specifications in columns 3 (model 3) and 4 (model 4) allow us to assess the impact of the changes in potential duration and levels of benefits. They include variables that collect the effects of reducing the potential duration of benefits (*UI Entitlement Difference*After change of law*) and the effects of cutting UI benefit levels (*UI Benefit Difference*After change of law*). Those parameters representing incentive effects are significantly different from zero. Therefore, as would be expected, they are important in explaining the probability an unemployed receiving UI benefits find a job. The estimated coefficients for *UI Benefit Difference*After change of law* vary between 0.041 and 0.054 with and without regional dummies and dummies for the quarter of inflow, respectively; the estimated effect of the benefit cut on the job finding rate is, thus, roughly 5.54% percent. Analogously, the reductions in potential entitlement duration after 1992 are associated with an increase of 0.025

Eliminado: The pattern of duration dependence for job finding rates is shown in Appendix C, and Appendix D collects estimation results separately for the pre-reform and the post-reform sub-samples²⁰

¹⁸ A common procedure is to specify a parametric distribution for the unobserved heterogeneity such as a normal, gamma distribution, etc. However, given that the unobserved heterogeneity distribution is unknown, Heckman and Singer (1984) have criticised this approach, showing that parametric form assumptions for unobserved heterogeneity might be biased when the chosen distribution for the unobservable term is incorrect. For this reason, they resolve this problem by assuming that unobserved heterogeneity is discretely distributed with unknown support points.

¹⁹ A similar methodology in studies analysing changes in UI policies can be found in Hunt (1995), Bratberg *et al.* (2000) or Carling *et al.* (2001).

²¹ If the effect of the level of benefits in the hazard rate before the 1992 law changes is: $h_{pre-reform} = (80\% \text{ benefits}) * d_1 + (70\% \text{ benefits}) * d_2 + (60\% \text{ benefits}) * d_3$, and after the 1992 law changes is: $h_{post-reform} = (70\% \text{ benefits}) * d_1 + (60\% \text{ benefits}) * d_2 + (60\% \text{ benefits}) * d_3$, (where d_1 is a variable that indicates a period from 1 to 6 months, d_2 between 7 and 12 months, and d_3 indicates a period lasting above 12 months), then, the reduction of the benefits can be measured as the subtraction between the level of benefits after and before the law changes: $Bimp92 = (h_{pre-reform} - h_{post-reform}) * \text{After change of law}$, where *After change of law* takes value 1 when the unemployed entered to the UCS in 1993, 0 otherwise.

and 0.019 (models 3 and 4) in job finding rates. Estimates, thus, suggest that reducing the UI level and/or potential UI duration increased the outflow from unemployment (*ceteris paribus*).

[TABLE 6]

In the specification in columns (1) and (2), the effect of the policy change is not presupposed to lie on *changes* in UI levels and potential entitlement. Instead, controls for the time until exhaustion and for UI benefits are included, and the effect of the reform is then given by the coefficient of the dummy variable *After change of law*. As regards time until exhaustion dummy variables, since the worker's reservation wage declines as she approaches the date at which benefits expire, the exit rate is expected to increase over the spell of (insured) unemployment. This expectation is confirmed in results from the model in column (2): the job-finding rate decreases monotonically up to the moment when six months remain for exhaustion, and slightly increases thereafter. Thus, individuals for whom the potential duration of benefits is long are more likely to remain unemployed, and a significant increase in the exit rate from unemployment at the time of benefit exhaustion cut is obtained.

As models 1 and 2 in Table 6 show, the variable *After change of law* —which is the main variable of interest— has a positive effect on the probability of workers leaving unemployment. Its estimated coefficient ranges from 0.138 to 0.234 (models 2 and 1, respectively). Specifically, the positive coefficient for 1993 spells suggests that prior to passage of the UCS Law Act, UI-leaving rates in 1991 were lower than those in the 1993 sub-samples, and unemployed after 1992 present a higher exit rate from covered unemployment when compared to covered unemployed before the reform. Thus, overall, the rise in job-finding rates associated with the reform changes (both UI levels and entitlement duration) amounts to roughly 14.79 percent. This coefficient confirms the picture given already by the raw hazards in Figure 3 (after Spain's UI law changed, the unemployed tended to leave unemployment more quickly). That is, if an unemployed worker receives a benefit under the new system but not under the old, there is an incentive to find a job quickly because both benefit levels and potential entitlement expire sooner.

Note that these overall effects from policy changes (i.e., the estimated coefficients in front of the variables: *UI Benefit Difference*After change of law*, *UI Entitlement Difference*After change of law*, and *After change of law*)²¹ are net from the macroeconomic conditions, since the evolution of labour market is explicitly taken into account by the inclusion of the regional unemployment rate, the GDP growth rate and the regional dummies. In fact, changing conditions in the labour market also affect the job-finding rate. The quarterly regional unemployment rate presents a negative effect on the probability of finding a job. As expected, therefore, in regions with higher unemployment rates workers suffer larger durations in covered unemployment, as they might be receiving less job offers. And the GDP growth rate exerts a positive effect on the probability of exiting from UI to employment. That is, during seasons with high GDP rates, since firms may create new vacancies and may be able to offer better wages, an increase in the exit from unemployment is observed.

As regards the impact of variables related to the UI system, the elasticity of the hazard rate with respect to UI benefit is around -0.117 (column 2 in Table 6). So an increase of the UI level in 1% reduces the probability of finding a job by 0.12%. This figure is of the expected sign, but it is smaller than the estimates found in the US (Meyer, 1990) and British studies (Narendranathan

and Nickell, 1989, Narendranathan and Stewart, 1993), whereas it is similar to the ones found by Jenkins and García-Serrano (2004) or Bover et. al. (2002)²².

Turning to the rest of the covariates, the effects are very much as one would expect. Although the dataset lacks variables related to the individual's educational attainment and occupation, there is a variable collecting the workers' job category with his former employer, which allows us to distinguish (in a broad sense) between non-manual and manual occupations (skilled or unskilled workers). As can be observed, highly educated worker —white collar skilled ones— enjoy a roughly 56 percent higher probability of exiting from unemployment than the remainder of individuals. On the contrary, blue collar unskilled workers are relatively less likely to exit from unemployment under benefits.

Finally, the demographic variables have, in general, significant coefficients. The hazard rate is decreasing in age: younger workers enjoy the largest job-finding rates, while individuals above 50 years-old suffer the greatest difficulties in exiting from unemployment. In particular, when compared to individuals in the interval 26-35, among unemployed between 18 to 25 years-old, the job finding hazard rate increases by roughly 27 per cent, whereas it decreases by 34 (66) percent for unemployed between 36-50 (50 and beyond) years old.

6. Conclusions.

In this paper we analyse to what extent the 22/1992 UI Reform Act in Spain —through reductions in the level and entitlement of UI benefits—had any significant influence on the job finding rates by UI recipients. This reform restricted access to UI benefits at the same time that reduced entitlement duration and the level of benefits by a 10 percent. For this purpose, we use two random sub-samples of workers who get unemployed and receive UI benefits, one of them before and the other after the 1992 changes in the UCS. The analysis was performed within the framework of a discrete proportional hazard model with a flexible baseline hazard rate controlling for both observables and unobservable individual characteristics.

Our results confirm expectations on the incentive effects arising from the Law changes. We have found that that the unemployed after the 1992 law present a higher exit rate from unemployment when compared to unemployed before the reform. Hence, if an unemployed worker receives a benefit under the new system but not under the old, there is an incentive to find a job quickly because both benefit levels and potential entitlement expire sooner. The overall rise in job-finding rates associated with the reform changes (both UI levels and entitlement duration) amounts to roughly 14.79 percent.

In addition, we have found that the outflow from unemployment is stimulated both through reductions in benefit levels and in entitlement periods. On the one hand, shortening the duration of UI benefits provides the unemployed with sufficient time to find a job more quickly, as this reduction in benefit entitlement periods have a significant (though modest) impact on the job-finding rate (a 2 percent increase in the hazard rate out of unemployment is associated with such a reduction). On the other hand, the 10-percent reduction in UI benefit levels exerts a 5-percent positive impact on the job-finding rate. Finally, we have found additional significant disincentive effects associated to the UI system. Not only does the probability of finding a job increase whenever benefit levels or entitlement periods are shortened, but also the rate of job finding

²² One possible explanation to reduced elasticities estimated for Spain (as opposed to the US) may lie on the fact that many Spaniards exhausting UI receive a different form of benefit —unemployment assistance, which usually pays less than UI. Hence, their sensitivity to changes in UI duration may be lower than that of Americans (who receive nothing when UI is exhausted).

Eliminado: QUITAR PARA

LA JEL

[TABLE 7]

¶

Women have substantially lower escape rates than men. Thus, either females are less likely to receive job offers, or they are being discriminated by employers, or they may be more restrictive as regards job acceptance than males. The difference is around 50 percent. The fact that women appear to have much lower exit rates than men has motivated us to estimate separate models for men and women (Table 7). The reform effects are then, significantly different between men and women: the reduction in benefit levels means a roughly 9 percent higher exit rate for men (while being non-significant for women). And the reduction in entitlement periods implies a 5.44 percent higher exit rate for women, but it is non-significant for men.¶

¶

The remainder coefficients in Table 7 are qualitatively similar to Table 6, except for the effects (in magnitude) of family conditions and previous wages. The effect of family conditions differs for males and females. Males who have dependent family members have a lower job-finding rate than males who do not and the same happens for females with dependent family members (as compared to the job-finding rates of other females). However, in the latter case, this negative effect is much stronger: having family burdens means a 35 percent lower hazard rate for women, but only a roughly 14 percent lower rate for men. Apparently, having dependent family members is particularly an important handicap for women to leave unemployment. Finally, other results reported in Table 7, we note that the wage in the last job has a positive effect, whose magnitude is particularly large for women (when compared to men). Finally,¶

QUITAR PARA LA JEL

Duration dependence: comentar tablas de apéndice C o gráficos de dependencia de duración.¶

¶

[FIGURE 5]

Finally, to indicate the effects of reform, we calculated the difference in exit rates before and after the law changed for a mean unemployed worker (i.e., at means of covariates used in specification 2, Table 6; see Figure 5). As can be observed, before the law changed, that individual had a 2.98 percent probability of finding a job within 4 months of becoming unemployed (which is the ... [3]

when benefit expiration approaches is higher than at the beginning of the unemployment spell. These results conform to previous research, though the incentive effects found are lower than the ones in US studies (both as regards the expected law effects and the increase in exit rates into employment out of benefits expiration).

As an overall assessment, the evidence provided indicates that the analyzed Reform had a modest effect on the exit rate from unemployment to employment. Many issues remain open for future research, however. In particular, the estimated positive impacts must be weighted against the likely additional precariousness of the recipients in terms of job stability in their post-unemployment periods, due to the shortening of both UI levels and entitlement periods. This constitutes a promising avenue for future research in this respect, and will allow a more thorough assessment of future legislative changes.

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Appendix A. Changes introduced in the Unemployment Assistance (UA) benefit system through the 1992 reform.

UA is financed through transfers from the public budget and it is granted to unemployed persons whose total income does not exceed the minimum wage and are in one of the following situations: (1) exhausted UI and have family dependents; (2) aged 45 years or older and received UI for at least 12 months; (3) did not meet the minimum contribution period for eligibility; (4) returned from foreign migration; (5) was released from prison; (6) an invalidity spell ended by the labour authority declaring the worker able to take a job; (7) aged 52 or older²³. The amount of UA has no relation with the previous monthly wages. A family income criterion is also used whereby per capita family income could not exceed the SMW. A flat rate equal to 75 percent of the SMW is paid to all beneficiaries, except for workers aged 45 or older who received UI for 24 months. Their benefits vary with the number of family dependents: 75 percent of the SMW if one or no family dependents, 100 percent if two family dependents and 125 percent if three or more family dependents.

UA is time limited and it is conditioned on which of the above indicated situations the worker is, of being 45 or older, and on having or not family dependents (see Table 2). As regards unemployed who had exhausted their UI entitlement, before the 1992 reform, those with family burdens had the right to receive UA benefits for a period ranging from 18 to 24 months or between 24 and 36 months, in case they were below 45 years-old or above 45 years old, respectively. The non-existence of family burdens implied that only those aged above 45 who had exhausted a UI entitlement period longer than 24 months were entitled to receiving UA benefits for a period between 6 and 12 months. After the reform, there has been no change in UA entitlement period for unemployed who exhaust their UI benefits.

As regards unemployed who receive UA because they have not met the minimum contribution period for UI eligibility, before the reform only those with family burdens and who have contributed for 3 to 5 months were entitled to 3 to 5 months of UA benefits. After the reform, these individuals were eligible for these same periods of UA receipt. The only change introduced refers to those with family burdens, who have contributed for 6 to 11 months, for whom UA entitlement actually amounts to 21 months (in case of having family burdens) or to 6 months (in case of not having family burdens).

Eliminado: Appendix B. The distribution of net UI replacement rates before and after 1992¶

... [4]

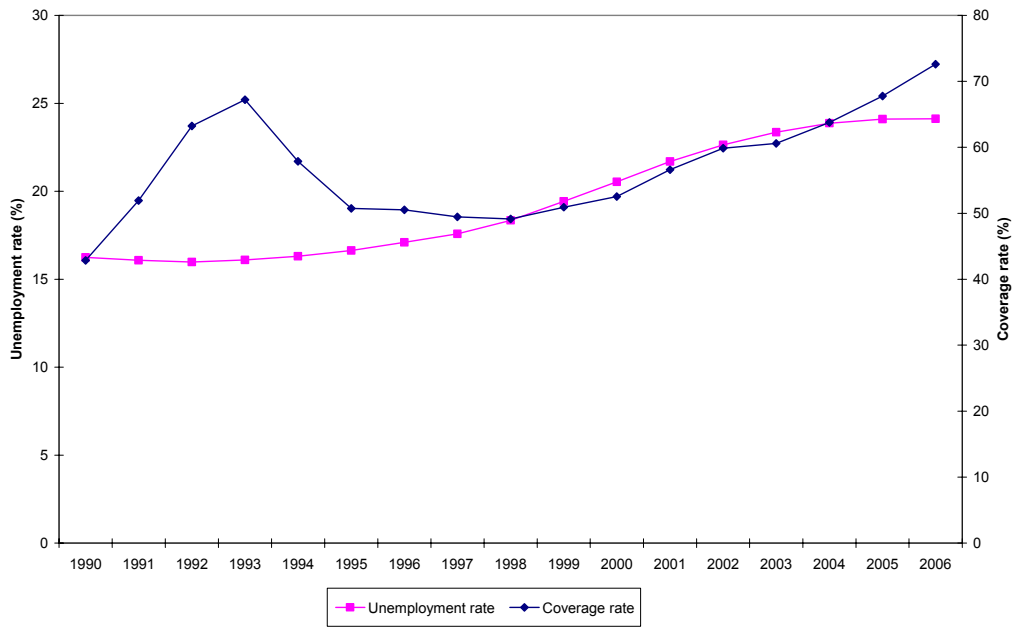
²³ Also, special UA is available to workers of the agricultural sector who have residence in the autonomous communities of Andalusia and Extremadura.

Eliminado: ## Appendix C.
Estimates of the baseline hazard. ¶
¶
Primera opción: poner gráficos sólo de modelo 2 y modelo 4. Problema: evaluado en valor medio de características (mezclados individuos antes y después de la reforma). Para evitarlo, poner gráficos pos separado para indiv93=1, indiv93=0 (de la estimación por submuestras) ¶
¶
Segunda opción: dejar tablas de las 4 especificaciones. Pero con especificación sin constante. ¶
¶
Spell month ... [5]

Eliminado: Appendix D. Hazard rates from UI receipt, by sub-samples.¶

... [6]

Figure 1. Unemployment rate and unemployment insurance coverage rate (annual means)



Source: Labour Force Survey (EPA), *Boletín de Estadísticas Laborales*, and authors' own elaboration.

Figure 2. Benefit level before and after the reform

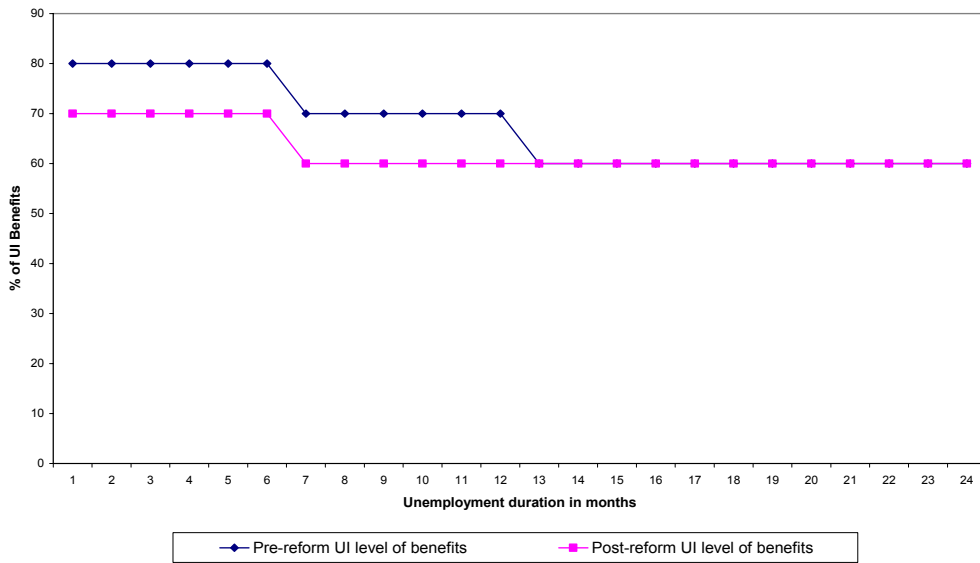


Figure 3. Empirical hazard out of unemployment (Kaplan-Meier estimates) by sub-samples.

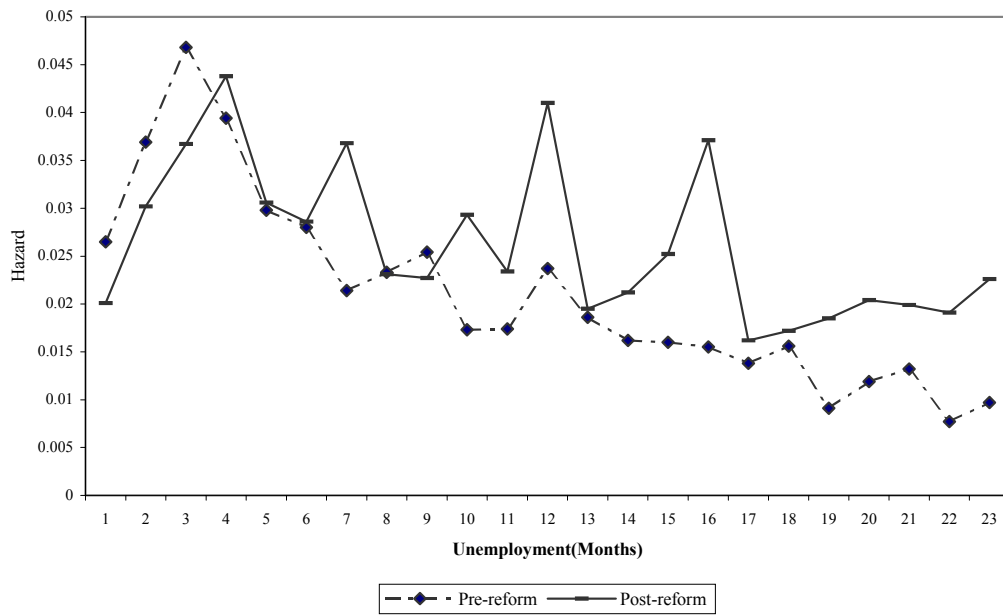


Table 1. The UCS in Spain before 1992

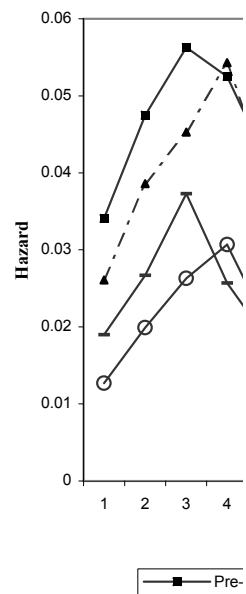
Contribution period (C). (Over the last 4 years)	Entitlement UI (2 × integer (C/3))	UA after UI exhaustion			
		With family burdens		Without family burdens	
		< 45 years	≥ 45 years	<45 years	≥45 years
3 months	-	3 months	3 months		
4 months	-	4 months	4 months		
5 months	-	5 months	5 months		
From 6 to 11 months	3 months	18 months	24 months	-	-
From 12 to 17 months	6 months	24 months	30 months	-	-
From 18 to 23 months	9 months	24 months	30 months	-	-
From 24 to 29 months	12 months	24 months	30 months	-	6 months
From 30 to 35 months	15 months	24 months	30 months	-	6 months
From 36 to 41 months	18 months	24 months	30 months	-	6 months
From 42 to 47 months	21 months	24 months	30 months	-	6 months
More than 48 months	24 months	24 months	6+30 months	-	6+6 months

Note: Eligibility to UI requires Social Security contributions for a minimum of six months during the four years preceding unemployment. UI entitlement duration was the result of dividing by 2 the number of months of contribution, with the constraint that the result has to be an integer multiple of 3 (ranging from 3 to 24 months).

Table 2. The UCS in Spain after 1992

Contribution period (C) (over the last 6 years).	Entitlement UI (2 × integer (C/6))	Unemployment assistance after exhausted UI			
		With family burdens.		Without family burdens	
		< 45 years	≥45 years	<45 years	≥45 years
3 months	-	3 months	3 months	-	-
4 months	-	4 months	4 months	-	-
5 months	-	5 months	5 months	-	-
From 6 to 11 months	-	21 months	21 months	6 months	6 months

Eliminado: Figure 4. Empirical hazard out of unemployment (Kaplan-Meier estimates) by sub-samples and gender.¶



¶ Salto de página
Figure 5. Estimated hazard rate from unemployment after controlling for observed and unobserved heterogeneity. Predicted values are obtained at the means of covariates (#specification 2 in Table 7).
 Quitar mes 24?¶

From 12 to 17 months	4 months	18 months	24 months	-	-
From 18 to 23 months.	6 months	24 months	30 months	-	-
From 24 to 29 months.	8 months	24 months	30 months	-	-
From 30 to 35 months.	10 months	24 months	30 months	-	-
From 36 to 41 months.	12 months	24 months	30 months	-	6 months
From 42 to 47 months.	14 months	24 months	30 months	-	6 months
From 48 to 53 months.	16 months	24 months	30 months	-	6 months
From 54 to 59 months.	18 months	24 months	30 months	-	6 months
From 60 to 65 months.	20 months	24 months	30 months	-	6 months
From 66 to 71 month.	22 months	24 months	30 months	-	6 months
72 months or longer	24 months	24 months	6+30 months	-	6+6 months

Note: Eligibility to UI required Social Security contributions for a minimum of twelve months during the six years preceding unemployment. UI entitlement duration was the result of dividing by 3 the number of months of contribution. The result was constrained to be an integer multiple of 2 (ranging from 4 to 24 months).

Table 3. Main descriptive statistics, by sub-samples.

SAMPLE CHARACTERISTICS	Pre-reform			Post-reform		
	Mean	Std	Sample (%)	Mean	Std	Sample (%)
Sex						
Male			49.8			55.8
Female			50.2			44.2
Job Category						
1. High levels & associate professional technicians, foremen & supervisors			6.9			8.9
2. Technical assistants and skilled clerical workers			10.9			13.7
3. Semi skilled clerical workers			3.4			3.2
4. Unskilled clerical workers			17.2			16.1
5. Skilled production workers			13.2			15.7
6. Semi skilled production workers			17.5			16.7
7. Unskilled production workers			30.9			25.6
Family burdens						
With			2.9			0.8
Without			97.1			99.2
Reason for leaving the last job						
End of contract			96.4			91.2
Other reasons			3.6			8.8
Age	29.20	10.12		30.94	10.89	
Age by groups						
≥18 & ≤25 years			42			36.1
>25 & ≤35 years			33.8			33.0
>35 & ≤50 years			17.4			21.8
>51 years			6.8			9.1
Benefits (euros per day, 1990 prices)	16.59	3.88		16.06	5.07	
Net wage (euros per day, 1990 prices)	18.91	6.84		20.88	8.70	
Gross wage (euros per day, 1990 prices)	22.06	9.73		25.33	12.69	
Economic variables						
GDP quarterly rate	1.17	1.31	100	0.96	1.64	100
Unemployment regional rate	17.77	5.84	100	22.43	5.45	100
SPELL CHARACTERISTICS						
Type of observation						
Censored duration			77.5			73
Completed duration			22.5			27
Duration (days)						
Elapsed unemployment duration	262.27	215.03	100	289.38	209.82	100
Duration until exhaustion	56.57	143.15	100	73.80	163.53	100
(Duration until exhaustion /10) ²	236.94	779.82	100	321.90	918.14	100
Entitlement Period						
Average duration (days)	318.84	227.92	100	363.19	225.70	100
> 0 & ≤ 6 months	4.08	1.44	48.2	4.73	0.96	35.7
> 6 & ≤ 15 months	11.50	2.38	25.4	10.43	2.08	32.7
> 15 & ≤ 24 months	21.74	2.62	26.4	22.19	2.75	31.5
Number of individuals			42,029			35,845

Eliminado: Table 4. How changes in the UI entitlement duration affect the current UI duration.[¶]

Contribution period ... [8]

Eliminado: Table 5. Cumulative probability of exiting from UI, before and after the 1992 change in Spain's Unemployment Benefits Law (as a percentage, by duration of unemployment)[¶]

Duration of Unemployment ... [9]

Table 6. Hazard rates from UI receipt. Entire sample.

	Model 1			Model 2			Model 3			Model 4		
	Param.	S.E.	Sign.	Param.	S.E.	Sign.	Param.	S.E.	Sign.	Param.	S.E.	Sign.
Gender												
Women	-0.687	0.017	***	-0.698	0.017	***	-0.683	0.017	***	-0.693	0.017	***
Group of age												
18-25	0.235	0.019	***	0.239	0.019	***	0.232	0.019	***	0.237	0.019	***
26-35	-	-	-	-	-	-	-	-	-	-	-	-
36-50	-0.427	0.021	***	-0.421	0.021	***	-0.423	0.021	***	-0.416	0.022	***
51-59	-1.106	0.033	***	-1.104	0.033	***	-1.101	0.033	***	-1.097	0.033	***
Job category												
White collar skilled	0.442	0.030	***	0.444	0.030	***	0.445	0.030	***	0.448	0.030	***
White collar unskilled	0.146	0.019	***	0.150	0.019	***	0.146	0.019	***	0.151	0.019	***
Blue collar skilled	0.242	0.022	***	0.250	0.022	***	0.241	0.022	***	0.248	0.022	***
Blue collar unskilled	-	-	-	-	-	-	-	-	-	-	-	-
Family burdens (1=Yes)	-0.173	0.052	***	-0.244	0.053	***	-0.125	0.053	**	-0.195	0.054	***
End of contract (1=Yes)	-0.019	0.027		-0.011	0.028		-0.012	0.027		-0.006	0.028	
GDP growth rate (tvc)	0.089	0.005	***	0.106	0.006	***	0.084	0.007	***	0.102	0.007	***
Regional unemployment rate (tvc)	-0.023	0.001	***	-0.005	0.006		-0.023	0.001	***	-0.019	0.005	***
Time until exhaustion (months)												
UI 19 to 24	0.062	0.038	*	0.061	0.038		-	-	-	-	-	-
UI 13 to 18	-0.145	0.034	***	-0.147	0.034	***	-	-	-	-	-	-
UI 7 to 12	-0.185	0.031	***	-0.189	0.031	***	-	-	-	-	-	-
UI 4 to 6	-0.241	0.033	***	-0.243	0.033	***	-	-	-	-	-	-
UI 1 to 3	-0.135	0.031	***	-0.134	0.031	***	-	-	-	-	-	-
Log net wage	0.470	0.057	***	0.486	0.058	***	0.489	0.056	***	0.495	0.056	***
Log UI benefits (tvc)	-0.081	0.071		-0.117	0.072	*	-	-	-	-	-	-
Pre-reform UI benefit level	-	-	-	-	-	-	-0.010	0.004	**	-0.012	0.004	***
UI Benefit Difference* After change of law	-	-	-	-	-	-	0.041	0.014	***	0.054	0.016	***
Pre-reform entitlement duration	-	-	-	-	-	-	-0.001	0.002		0.000	0.002	
UI Entitlement Difference* After change of law	-	-	-	-	-	-	0.025	0.004	***	0.019	0.004	***
After change of law	0.234	0.019	***	0.138	0.037	***	-	-	-	-	-	-
Constant	-4.302	0.109	***	-4.695	0.144	***	-4.592	0.129	***	-4.845	0.152	***
Regional dummies		NO			YES			NO			YES	
Dummies for the quarter of inflow		NO			YES			NO			YES	
Observations (persons-spell)		721803			721803			721803			721803	
Log Likelihood function		-85174.874			-84992.376			-85202.907			-85026.671	

Notes:

- All variables derived from HISPRES database, except quarterly regional unemployment rate (source: Spanish Labour Force Survey, EPA), and tax liabilities on earnings to give net wages rather than gross earnings (authors' estimates).
- *** significant at 1% level, ** significant at 5 % level.

Eliminado: Table 7. Hazard rates from UI receipt, by gender.[¶]
¶
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3.2. Variable definitions **QUITAR PARA LA JEL**

3.2.1. Benefit-related variables **QUITAR PARA LA JEL**

In order to exploit information on the two sub-samples, we include in the hazard models one variable related to the year of inflow into unemployment. It is a dummy variable which indicates spells from the post-reform sub-sample (i.e., with 1993 as the inflow year into unemployment). Thus, the reference group refers to individuals becoming unemployed during the year 1991 (prior to the reform). This variable measures any differences in UI leaving rates between post-reform UI spells and those in the comparison sub-sample (prior to the reform), during all months of these spells. We refer to this variable as “*After change of law*”. Thus, this variable captures the effect of the law change. Note that since we also control for changes in business cycle/labour market conditions—see below—the “pure” effect of the 1992 Law Act on UI leaving behaviour will be measured by this dummy variable. And any unobserved factors that happened to shift UI leaving rates after the policy change was in place relative to the average rate in 1991 will be absorbed by the unobserved heterogeneity component.

Entitlement duration is likely to affect individuals’ job search effort and, therefore, their hazard rates from unemployment¹. First, as the worker has an interest in maintaining her living standard, the absence of unemployment benefits enhances incentives to search for and to accept jobs. Second, since the worker is no longer eligible, she has an additional interest in being hired and in remaining employed until she can re-qualify for unemployment benefits. Thirdly, since the moment at which one finds a job is not deterministic, workers will alter their behaviour well in advance of UI exhaustion: workers will anticipate future benefit exhaustion by starting to search for a job beforehand so as to preclude the income loss in the event that a job is not timely found. Thus, the likelihood of exiting from unemployment may be constant or decreasing during the earlier unemployment months, while substantially rising prior to the benefits exhaustion (see Meyer, 1990): i.e., anticipation will gradually increase the employment hazard as one approaches the expiration rate². Thus, a disincentive effect may occur at the beginning of the unemployment period, whereas an incentive effect may arise at the end of such a period. In order to capture these effects, we use functions of the time until benefits lapse (see Models 1 and 2 in Table 6). We include time until benefit exhaustion dummy variables for a number of intervals covering months before benefits are expired. These variables are designated as “UI 19 to 24” through “UI 1 to 3”. Each of these time-varying exhaustion dummies takes on the value one in its designated interval and takes on the value zero in any other period. For example, “UI 19 to 24” takes on the value one when the individual is 19 to 24 months until exhaustion.

¹ For a survey, see Mortensen (1977, 1990), van den Berg (1990) and Fredriksson and Holmlund (2003).

² Almost every study on these issue reports increases of the job finding rate as benefit exhaustion is approached. See, e.g., Ham and Rea (1987) for Canada, Wurzel (1990) for Germany, Lindeboom and Theeuwes (1993) for the Netherlands, Carling et. al. (1996) for Sweden, Bratberg and Vaage (2000) and Roed and Zhang (2003) for Norway, and Arranz and Muro (2007) for Spain. Nevertheless, other studies find that the tendency to leave unemployment increases at the end of unemployment benefit is inaccurate. For example, Fallick (1991) and Narendranathan and Stewart (1993) for UK find that the effect of unemployment benefits decreases over time or Micklewright and Nagy (1998) for Hungary and Jenkins and García-Serrano (2004) for Spain detect no rise in the hazard near the time of benefit exhaustion.

In another specifications of the model (see Models 3 and 4, in Table 6), instead of including these functions of the time until benefits lapse, we have included an interaction term between the dummy *After change of law* and a variable which has been worked out as the difference between the pre-reform UI entitlement period and the post-reform UI entitlement period. This variable is named as “*UI Entitlement Difference*”. This variable along with the estimated impact from a variable named as “*Pre-reform entitlement duration*” —which collects the potential entitlement duration according to the period before the Reform for both sub-samples— gives the impact on the hazard arising from a change in potential entitlement periods after the 1992 UCS Reform Act. In those specifications of the model, therefore, it is changes in entitlement duration that matter for UI recipients’ behaviour.

The income received while in unemployment is also expected to have some influence on individuals’ job search effort. On the one hand, search effort may decrease concomitantly with the familiar increase in reservation wages when UI benefits are raised. This is the conventional disincentive effect: UI weakens search incentives of the unemployed, and increases the utility of unemployment (assuming that consumption and leisure are complements; see Mortensen’s (1977) dynamic stationary search model). On the other hand an increase in UI benefits may lead to an increase in search efforts, since UI might encourage the unemployed worker to allocate greater market expenditure on search activities, and may also increase the value of future unemployment spells (see, for instance, Tannery, 1983, or Ben Horim and Zuckerman, 1987). This is the potential “entitlement effect”: a rise in the hazard for those with any current benefit entitlement or entitled workers close to exhaustion. Thus, a two-fold impact is to be expected (although the latter is expected to be of second-order magnitude, given discounting of the future). In the estimations, we have included the level of benefits as a time varying covariate³. For the unemployed in the control group, the benefit level has been calculated by applying UI rules before the 1992 Reform Act —i.e. 80 percentage of previous average wage during the first six months of unemployment, 70 percent from the sixth to twelfth month of unemployment, and 60 percent for the remaining period of eligibility. For the unemployed in the treatment group, benefit levels were calculated by applying the UI rules after the 1992 Reform Act —i.e., 70 percentage of the average wage during the first six months of unemployment, and 60 percent the remaining period of eligibility (see previous section 2). In both cases, the benefit level was converted to 1990 prices by using the retail price index (IPC, *Índice de Precios al Consumo*). Since the probability to accept a job depends on variables that affect reservation wages, we have included the net wage per month received in the last job. The use of this variable is common practice in studies based on administrative data (Meyer, 1990). Although it has some disadvantages (Narendranathan and Stewart, 1993, pp. 72), it is the only measure we have or could feasible derive. We calculate net wages from the gross wage (‘regulatory base’) information on the files by applying the tax rates applicable for a single person. (This is justifiable since Spain has an independent taxation system.) Figures were converted to

³ Identification of UI benefit level effects separately from wage effects is possible even though UI receipts are related to previous earnings (given the rules described earlier). There are two potential sources of variation providing identification in addition to the usual functional form ones. First the proportionate relationship between earnings and benefits does not apply below the UI payment floor or above the UI payment ceiling. These bounds are relatively wide, however, and so the number of workers outside the cut-offs is not large. We would therefore emphasise the separate time-series variation in each of the two series as a second source of identification.

prices by using the retail price index (IPC, *Índice de Precios al Consumo*). This variable reflects the incentive or disincentive effect on search and acceptance of job offers by the unemployed (see Lancaster, 1979; Hagen, 2003). The unemployed with a high (low) wage in the last job are expected to have a negative (positive) effect on the job finding rates, since they have a higher reservation wage (i.e., unemployed persons may prefer to wait for a suitable job). Hence, individuals with previous high-wage jobs may have longer unemployment duration and a reduced likelihood of re-entering into employment. In addition, previous high wages may also be associated to larger exit rates from UI: the reason being that previous income can be taken as a proxy for the cost of rejecting a job offer. Thus, a positive and significant effect from previous wages may be obtained, which would give support for the use of past wages as an opportunity cost proxy (see Bratberg and Vaage, 2000, pp.169).

Analogously to the expected effect from reform changes as regards entitlement duration, since changes in benefit levels are one of the key reform features, in another specifications of the model (see Models 3 and 4 in Table 6), we have included these changes (instead of the benefits level). This has been done through an interaction term between the dummy *After change of law* and a variable which has been worked out as the difference between the pre-reform level of benefits and the post-reform level of benefits. This variable —named as “*UI Benefit Difference*”— collects the 10-percent reduction in benefits level during the first twelve months of covered unemployment (see Figure 2). Thus, this variable along with the estimated impact from a variable named as “*Pre-reform UI Benefit level*” —which collects the level of benefit levels according to the period before the Reform for both sub-samples— gives the impact on the hazard arising from a change in benefit levels after the 1992 UCS Reform Act.

3.2.2. Control variables

QUITAR PARA LA JEL

In addition, we control for demographic variables such as age at the start of the unemployment spell, using a non-linear specification distinguishing four age groups (18-25; 26-35; 36-50 and above 50 years-old). We also control for gender.

The reason for entering unemployment may be an important explanatory factor of the job finding rate, since individuals who become jobless because of a temporary contract termination may start searching for a new job before entering into unemployment (as the date of contract expiry is known in advance). Moreover, they may be more accustomed to move from jobs. For these reasons, they are expected to leave unemployment earlier. In addition, the level of education and the occupation held in the last job are captured through seven professional category levels of the National Insurance contribution group. These categories have been classified in four groups: white collar skilled workers —category 1, (WCHS); clerical workers —categories 2, 3 and 4 (WCLS); blue collar skilled workers —category 5 (BCHS); and blue collar unskilled workers —categories 6 and 7 (BCLS). Workers with higher qualification levels are expected to exit sooner from unemployment, since they may receive more job offers.

Household conditions are taken into account through the existence of family burdens, which may be relevant in so far as they also may affect reservation wages. The former are a rather broad concept, extending to include any relative “of the second degree” as long as total per capita household income (i.e., the ratio between household income and

the number of household members) is below the minimum wage. However, in 1993, this definition was restricted to only cover the individual's spouse and dependent children (and, therefore, for instance, beneficiary's parents were excluded). On the one hand, having family burdens may increase job search effort and the willingness to accept a job offer. On the contrary, given that individuals who have family burdens may be entitled to assistance benefits once UI benefits are exhausted (see Tables 1 and 2), the existence of family burdens is expected to exert a negative impact on the job finding rate, as long as unemployed are aware of this possibility in order to enlarge their unemployment compensation benefits.

Dummies for the seventeen Spanish Autonomous Communities reflect the impact from regional labour markets in Spain. Moreover, the influence of the business cycle is taken into account through the quarterly regional unemployment rate and the gross domestic product (GDP) growth rate, as time varying covariates. Workers in regions with lower regional unemployment rates (and therefore, a larger number of vacancies) are expected to enjoy a higher probability of finding a job; and a positive effect is expected from the influence of the GDP growth rate on the exit rate from unemployment. Seasonal effects are captured through a set of dummy variables indicating whether workers entered into unemployment in February, June and November. Finally, we control for the duration (in months) of the unemployment period by including dummy variables: i.e., the baseline hazard is estimated non-parametrically for each month (Appendix C presents estimates of the baseline hazard

QUITAR PARA LA JEL

[FIGURE 4]

Table 4 shows the “old” and “new” benefit entitlement periods, as well as the mean durations of UI for individuals belonging to each contribution period. Thus, it shows how reform affected the duration of unemployment under benefits —except for the first contribution period (from 6 to 11 months), given that individuals in this interval lose entitlement to benefits after the rule change. After the reform, the mean duration of unemployment is shorter than before for any contribution period considered. Moreover (as expected), the longer the size of the reduction in UI entitlement, the longer the size of the reduction in mean UI duration. Similar information is obtained in Table 5. This table shows the cumulative probability of outflow from UI after 3, 6, 9, 12, 15, 18 and 21 months of unemployment, before and after the change in the unemployment benefits law. The cumulative probability of having found a job within 3 and 6 months is slightly lower after the reform. However, it exponentially increases after the change of the Law for the remainder period of unemployment considered (both for men and for women).

QUITAR PARA LA JEL

[TABLE 4]

When interpreting these figures it is important to recognise that we compare two time periods with somewhat different labour market conditions for two different groups of individuals. The period 1987-1991 was characterised by an economic expansion, during which the number of salaried workers considerably increased in absolute terms (almost 1.5 millions in four years); whereas between 1992 and 1994, a brief though intense recession took place (the total number of salaried workers reduced by almost half a million). In fact, regional unemployment rates in Spain subsequently fell from 1987 to

1991, to the extent that in most regions they were 5 percentage points lower in 1991 than in 1987. However, unemployment rates then increased again and reached 1987 levels by April 1993 (Jenkins and García-Serrano, 2004). Given these macroeconomic conditions, some decline in job finding rates should be expected. In spite of this, the opposite is observed in the post-reform period: an increase in job-finding rates. Therefore, the evidence suggests that the policy change may have caused an increase in job-finding rates. This result should be tempered by stressing the importance of controlling for the observed and unobserved characteristics of UI claimants in each sub-sample. In particular, one cannot rule out the effect of changes in underlying conditions in the labour market.

[TABLE 5]

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QUITAR PARA LA JEL

[TABLE 7]

Women have substantially lower escape rates than men. Thus, either females are less likely to receive job offers, or they are being discriminated by employers, or they may be more restrictive as regards job acceptance than males. The difference is around 50 percent. The fact that women appear to have much lower exit rates than men has motivated us to estimate separate models for men and women (Table 7). The reform effects are then, significantly different between men and women: the reduction in benefit levels means a roughly 9 percent higher exit rate for men (while being non-significant for women). And the reduction in entitlement periods implies a 5.44 percent higher exit rate for women, but it is non-significant for men.

The remainder coefficients in Table 7 are qualitatively similar to Table 6, except for the effects (in magnitude) of family conditions and previous wages. The effect of family conditions differs for males and females. Males who have dependent family members have a lower job-finding rate than males who do not and the same happens for females with dependent family members (as compared to the job-finding rates of other females). However, in the latter case, this negative effect is much stronger: having family burdens means a 35 percent lower hazard rate for women, but only a roughly 14 percent lower rate for men. Apparently, having dependent family members is particularly an important handicap for women to leave unemployment. Finally, other results reported in Table 7, we note that the wage in the last job has a positive effect, whose magnitude is particularly large for women (when compared to men). Finally,

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Duration dependence: comentar tablas de apéndice C o gráficos de dependencia de duración.

[FIGURE 5]

Finally, to indicate the effects of reform, we calculated the difference in exit rates before and after the law changed for a mean unemployed worker (i.e., at means of covariates used in specification 2, Table 6; see Figure 5). As can be observed, before the law changed, that individual had a 2.98 percent probability of finding a job within 4 months of becoming unemployed (which is the maximum predicted pre-reform probability for

10	-0.022	0.056	*	-0.026	0.056		-0.032	0.056		-0.036	0.056	
11	-0.078	0.059	*	-0.095	0.059		-0.109	0.059	*	-0.119	0.059	**
12	0.264	0.055	***	0.247	0.055	***	0.250	0.054	***	0.241	0.054	***
13	-0.095	0.067	*	-0.111	0.067	*	-0.117	0.069	*	-0.108	0.070	
14	-0.148	0.069	**	-0.170	0.069	**	-0.162	0.070	**	-0.155	0.072	**
15	-0.068	0.069		-0.088	0.069		-0.076	0.071		-0.067	0.072	
16	0.228	0.066	***	0.204	0.066	***	0.206	0.068	***	0.214	0.070	***
17	-0.271	0.081	***	-0.291	0.081	***	-0.303	0.082	***	-0.294	0.084	***
18	-0.264	0.082	***	-0.286	0.082	***	-0.297	0.083	***	-0.289	0.084	***
19	-0.296	0.091	***	-0.321	0.092	***	-0.368	0.093	***	-0.360	0.094	***
20	-0.154	0.087	*	-0.182	0.088	**	-0.218	0.089	***	-0.210	0.090	**
21	-0.213	0.089	**	-0.242	0.090	***	-0.194	0.091	**	-0.185	0.092	**
22	-0.401	0.100	***	-0.428	0.101	***	-0.383	0.102	***	-0.375	0.103	***
23	-0.136	0.096		-0.168	0.096	*	-0.131	0.097		-0.121	0.099	
24	0.191	0.084	**	0.160	0.085	*	0.329	0.084	***	0.340	0.085	***

Note: This table shows estimation of duration-specific coefficients from specifications in Table 6.

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Appendix D. Hazard rates from UI receipt, by sub-samples.

	PRE-REFORM						POST-REFORM					
	Model 1			Model 2			Model 1			Model 2		
	Param.	S.E.	Sign.	Param.	S.E.	Sign.	Param.	S.E.	Sign.	Param.	S.E.	Sign.
Gender												
Women	-0.729	0.024	***	-0.733	0.024	***	-0.673	0.025	***	-0.680	0.025	***
Group of age												
18-25	0.262	0.026	***	0.264	0.026	***	0.211	0.030	***	0.231	0.030	***
26-35	-	-	-	-	-	-	-	-	-	-	-	-
36-50	-0.389	0.032	***	-0.377	0.032	***	-0.453	0.029	***	-0.427	0.029	***
51-59	-1.289	0.057	***	-1.268	0.057	***	-1.030	0.042	***	-0.999	0.042	***
Job category												
White collar skilled	0.429	0.045	***	0.426	0.045	***	0.445	0.042	***	0.441	0.042	***
White collar unskilled	0.167	0.026	***	0.169	0.026	***	0.128	0.028	***	0.128	0.028	***
Blue collar skilled	0.160	0.033	***	0.160	0.033	***	0.314	0.031	***	0.310	0.031	***
Blue collar unskilled	-	-	-	-	-	-	-	-	-	-	-	-
Family burdens (1=Yes)	-0.077	0.057		-0.070	0.057		-1.804	0.269	***	-1.793	0.269	***
End of contract (1=Yes)	-0.015	0.050		-0.023	0.050		-0.008	0.034		-0.016	0.034	
GDP growth rate (tvc)	0.057	0.032	*	0.057	0.032	*	0.018	0.020		0.017	0.020	
Regional unemployment rate (tvc)	-0.010	0.012		-0.008	0.012		0.034	0.011	***	0.037	0.011	***
Time until exhaustion (months)												
UI 19 to 24	-0.127	0.055	**	-0.165	0.056	***	0.214	0.058	***	0.136	0.059	0.021
UI 13 to 18	-0.195	0.048	***	-0.188	0.048	***	-0.142	0.053	***	-0.129	0.054	0.016
UI 7 to 12	-0.263	0.045	***	-0.252	0.045	***	-0.123	0.047	***	-0.101	0.047	0.033
UI 4 to 6	-0.326	0.047	***	-0.324	0.047	***	-0.174	0.048	***	-0.161	0.048	***
UI 1 to 3	-0.126	0.044	***	-0.127	0.044	***	-0.183	0.048	***	-0.180	0.048	***
Log net wage	0.467	0.084	***	0.471	0.084	***	0.559	0.085	***	0.587	0.085	***
Log benefits (tvc)	-0.108	0.116		-	-	-	-0.216	0.100	**			
Entitlement Duration * log(UI benefits)												
From 1 to 6 months	-	-	-	0.467	0.116	***	-	-	-	0.465	0.084	***
From 7 to 12 months	-	-	-	0.223	0.177		-	-	-	0.296	0.131	**
From 13 to 18 months	-	-	-	-0.622	0.182	***	-	-	-	-0.764	0.147	***
More than 18 months	-	-	-	-0.210	0.260		-	-	-	-0.628	0.174	***
Constant	-4.475	0.249	***	-3.728	0.342	***	-5.261	0.276	***	-4.756	0.315	***

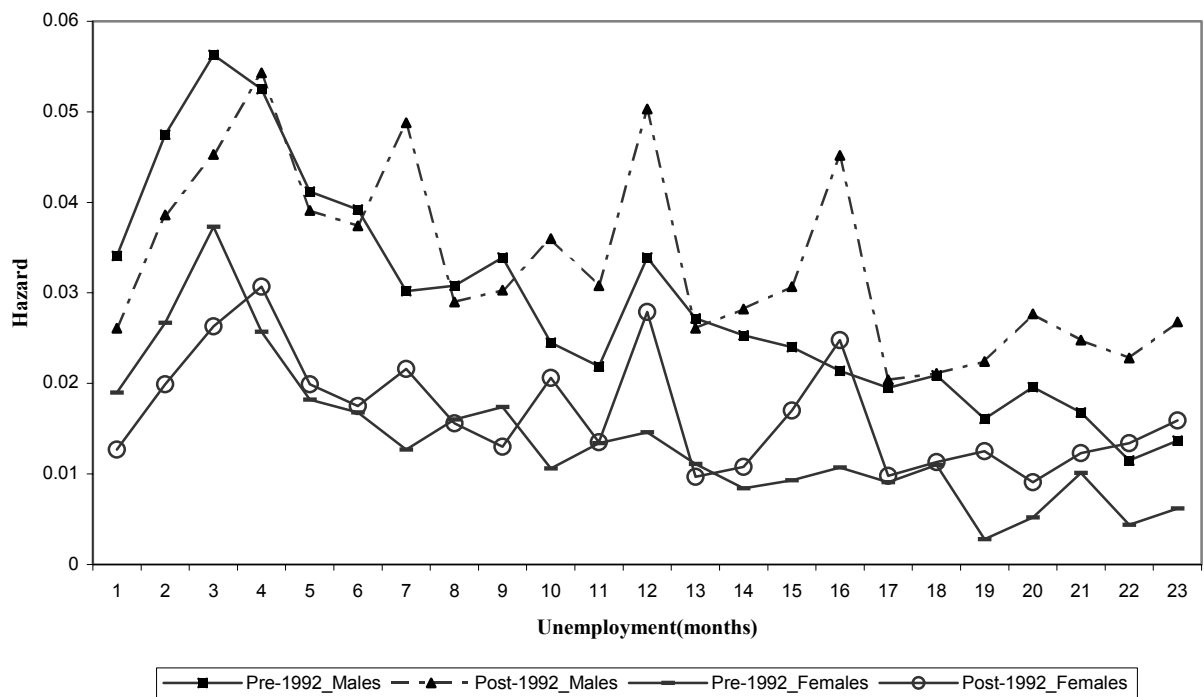
Regional dummies	YES	YES	YES	YES
Dummies for the quarter of inflow	YES	YES	YES	YES
Observations (indiv.-spell)	371751	371751	350052	350052
Log Likelihood function	-42047.695	-42032.831	-42707.958	-42677.22

Notes:

All variables derived from HISPRES database, except quarterly regional unemployment rate (source: Spanish Labour Force Survey, EPA), and tax liabilities on earnings to give net wages rather than gross earnings (authors' estimates).

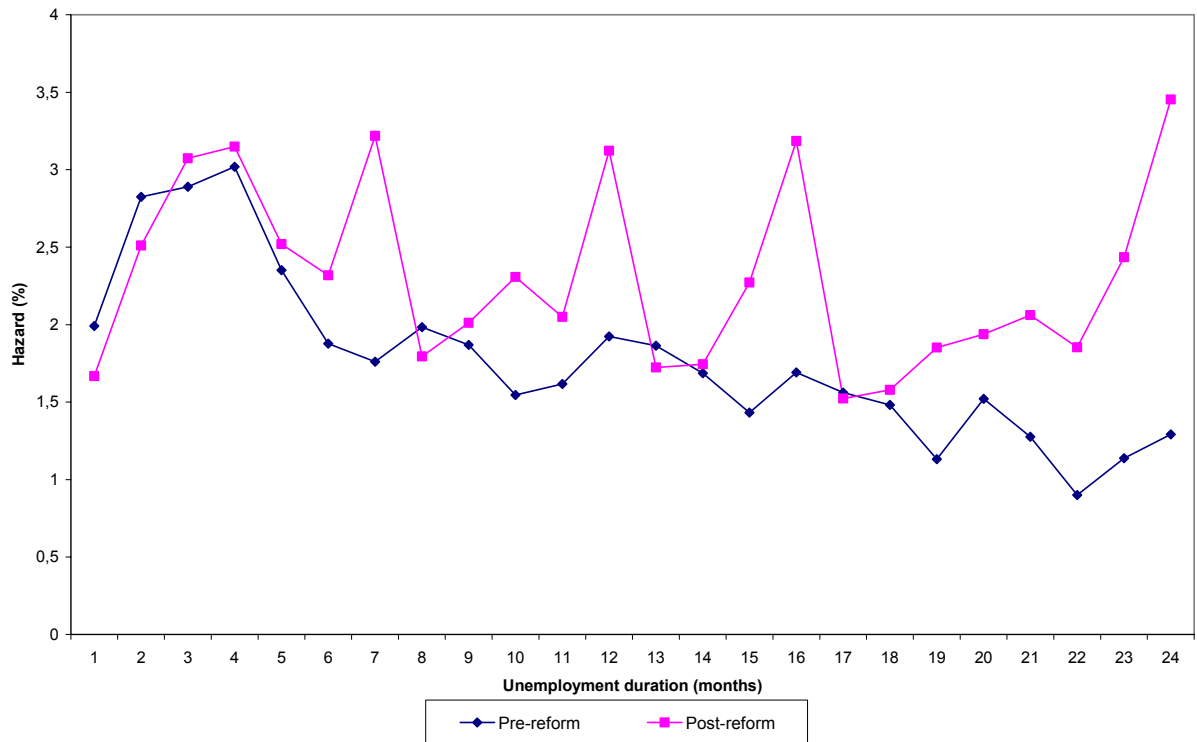
*** significant at 1% level, ** significant at 5 % level.

Figure 4. Empirical hazard out of unemployment (Kaplan-Meier estimates) by subsamples and gender.



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Figure 5. Estimated hazard rate from unemployment after controlling for observed and unobserved heterogeneity. Predicted values are obtained at the means of covariates (#specification 2 in Table 7). **Quitar mes 24?**



He sustituido el gráfico que había de los hazards predichos para la estimación conjunta por este que es para las dos submuestras (antes y después de la reforma, según estimación de apéndice D). Antes de reforma: picos en mes multiples de 3. Después de reforma: picos en mes multiples de 2 (como en Figure 1).

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Table 4. How changes in the UI entitlement duration affect the current UI duration.

Contribution period	UI Entitlement duration (months)		Mean duration of UI (months)		Difference (months)
	Pre-reform	Post-reform	Pre-reform	Post-reform	
From 6 to 11 months	3	-	2.88	-	-
From 12 to 17 months	6	4	5.46	3.86	-1.60
From 18 to 23 months.	9	6	7.88	5.57	-2.30
From 24 to 29 months.	12	8	10.10	7.22	-2.88
From 30 to 35 months.	15	10	12.12	8.95	-3.17
From 36 to 41 months.	18	12	13.60	9.83	-3.77
From 42 to 47 months.	21	14	14.97	11.24	-3.73
From 48 to 53 months.	24	16	19.20	11.83	-7.37
From 54 to 59 months.	24	18	19.20	13.49	-5.71
From 60 to 65 months.	24	20	19.20	14.46	-4.74
From 66 to 71 month.	24	22	19.20	14.74	-4.46
72 months or longer	24	24	19.20	17.73	-1.47

Source: HSIPRE and own authors' calculations

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Table 5. Cumulative probability of exiting from UI, before and after the 1992 change in Spain's Unemployment Benefits Law (as a percentage, by duration of unemployment)

Duration of Unemployment	Before change of Law	After Change of Law
--------------------------	----------------------	---------------------

TOTAL SAMPLE			
	<=3 months	10.44	8.34
	<=6 months	18.73	17.32
	<=9 months	24.23	23.87
	<=12 months	28.53	30.68
	<=15 months	32.08	35.10
	<=18 months	35.06	39.52
	<=21 months	37.24	42.98
	<=24 months	39.84	49.27
MEN			
	<=3 months	7.96	5.72
	<=6 months	13.38	11.93
	<=9 months	17.28	16.24
	<=12 months	20.41	21.28
	<=15 months	22.67	24.18
	<=18 months	25.02	27.58
	<=21 months	26.36	29.99
	<=24 months	27.97	35.60
WOMEN			
	<=3 months	12.89	10.42
	<=6 months	23.76	21.41
	<=9 months	30.63	29.46
	<=12 months	35.98	37.26
	<=15 months	40.70	42.38
	<=18 months	44.25	47.16
	<=21 months	47.10	50.98
	<=24 months	50.44	57.28

Source: HSIPRE and own authors' calculations

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Table 7. Hazard rates from UI receipt, by gender.

	MEN			WOMEN		
	Param.	S.E.	Sign.	Param.	S.E.	Sign.
Group of age						
18-25	0.126	0.025	***	0.443	0.032	***
26-35	-	-	-	-	-	-
36-50	-0.419	0.026	***	-0.425	0.039	***
51-59	-1.175	0.037	***	-0.950	0.086	***
Job category						
White collar skilled	0.290	0.036	***	0.742	0.055	***
White collar unskilled	0.058	0.025	**	0.242	0.032	***
Blue collar skilled	0.209	0.025	***	-0.001	0.058	
Blue collar unskilled	-	-	-	-	-	-
Family burdens (1=Yes)	-0.151	0.058	***	-0.434	0.137	***
End of contract (1=Yes)	-0.012	0.032		0.020	0.058	
GDP growth rate (tvc)	0.108	0.008	***	0.098	0.013	***
Regional unemployment rate (tvc)	-0.017	0.006	***	-0.021	0.010	**
Time until exhaustion (months)						
UI 19 to 24	-	-	-	-	-	-
UI 13 to 18	-	-	-	-	-	-
UI 7 to 12	-	-	-	-	-	-
UI 4 to 6	-	-	-	-	-	-
UI 1 to 3	-	-	-	-	-	-
Log net wage	0.371	0.067	***	0.804	0.105	***

Pre-reform UI benefit level	-0.016	0.005	***	-0.019	0.008	**
UI Benefit Difference* After change of law	0.084	0.020	***	0.043	0.031	
Pre-reform entitlement duration	0.019	0.002	***	-0.028	0.003	***
UI Entitlement Difference* After change of law	-0.009	0.005		0.053	0.008	***
After change of law	-	-	-	-	-	-
Constant	-4.634	0.183	***	-6.035	0.275	***
Regional dummies		YES			YES	
Dummies for the quarter of inflow		YES			YES	
Observations (persons-spell)		380032			341771	
Log Likelihood function		-55585.763			-29076.036	

Notes: See Table 6.