# University education and transition into the labour market during the financial crisis. Spanish evidence

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***PRELIMINAR VERSION***

**Abstract**
This research is aimed at analysing which factors determine the time it took Spanish university graduates to find their first job during the 2009–2015 period, a time framework where the Spanish economy underwent the worst effects of the financial crisis. A discrete time survival model shall be used for such purpose. As far as training is concerned, both the type of degree (in favour of Bachelor's degree) and the field of knowledge (versus Arts and Humanities) decisively influence the employability process as expected. Other factors also contribute to significantly reduce the time to obtain the first job. Among these we may mention, studying at a private university, taking a university master degree and studying abroad, as well as speaking some languages and having been awarded any grant. Gender does not seem to exercise any influence whatsoever, as it does not in analyses carried out in other countries.

**Key Words**: higher education; employability; economic cycle; survival models.
**Classification JEL**: I21, I23, J24

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## Introduction

A high youth unemployment rate has been one of the main problems of the Spanish labour market for decades. Youth unemployment rate in Spain was remarkably reduced during the period starting when Spain joined the European Union (EU) until the beginning of the financial crisis. In other words, from 40% in 1987 to 15.6% in 2007, which placed Spain at the average level of Eurozone countries. However, the beginning of the recent financial crisis also meant the beginning of a fast destruction of jobs among young people, reaching an unemployment rate up of 55.5% in 2013. This means that youth unemployment rate grew around 200% in seven years, thus driving substantially away from both the average of EU reference countries as well as the United States and Japan.

Besides, the persistence of high youth unemployment rates occurs within a context of a remarkable growth in demand for education (Albert *et al*., 2008). Indeed, the education level of young employed people has undergone a deep transformation since the 1980s, evolving from a basic education scenario to the current situation where university graduates account for 45% of the labour force under the age of 40. Therefore, Spain has witnessed an increase in both young people participation in the labour market and in their higher education. Meanwhile, constant high unemployment rates reveal that there was, and still there is, a clear mismatch between the education required by labour markets and the qualifications obtained by the youngest labour force.

This inefficient employability process turns particularly worrying in the case of university graduates, as they should be given key job positions to trigger the economic recovery. A great amount of research papers done in Spain were based on databases which did not specifically refer to university graduates. They analyse factors playing a part in youth employability, being the education level among these (Lassibille *et al.* (2001); Albert *et al*., 2008; Pastor & Peraita, 2014; Rodríguez *et al*., 2018). A common outcome for all of them is the advantage of having a university degree, both as increasing the likelihood of finding a job, as well as reducing the time needed to get their first job position. Nevertheless, following García-Montalvo (2007), university graduate employability process is a long and complex one. Therefore, it requires carrying out specialised surveys on university graduates to analyse their labour situation several years after finishing their studies, instead of using current labour statistics. The lack of databases in Spain

containing this type of information explains the inexistence of prior research similar to the one contained in this paper. In the Spanish case, the information used is provided by the 1998 Project Cheers and by two surveys carried out by the National Agency for Quality Assessment (ANECA) in 2003 and 2006, being the latter part of the European project Reflex. Salas (2007) analysed the length of time taken to first get a job after graduation, which he does by reference to the Cheers database, containing information related to graduates who finished their degrees in the 1994–1995 academic year, just one decade before the beginning of the financial crisis. Based on data related to nine European countries, Spain being among them, the author finds differences, between northern and southern countries, in how difficult it is for university students to find a job. Besides, and particularly in the Spanish and Italian cases, these countries present the highest youth unemployment rates and the longest transition periods to employment. Kivinen & Nurmi (2014) analysed the employability process in 12 European countries based on data from a survey conducted in 2005 by the Reflex project, in relation to graduates' educational and labour market experiences during the first five years after graduation. Therefore, as in Salas paper (2007), the economic context of the analysis is prior to the financial crisis and, therefore, more favourable for graduates' transition to the labour market. They found out that Spain was the second country (after Switzerland) in which university students needed the longest periods to find a job. Particularly, Italy, Spain, and Switzerland seemed to need from 8 to 10 years to reach 90% of professional employment (Professional employment' refers to the estimated point where 90% of employed graduates in a given country are in jobs that are considered as professional by standard occupational classification). The authors consider that the average job search length after graduation greatly depends on the current economic trend and, the overall poor employment situation in national labour markets, which will explain the comparative disadvantage of Spanish graduates against the rest from other European countries. Generally speaking, the authors state that European countries have divergent 'transition systems': young graduates who need more time to find their place in working life, or older graduates showing a smoother transition to employment. These divergent models create a barrier for mobility and optimal EU-wide human resource allocation. Would it be a proper transition model for the European single market? The authors believe that it might not be possible to develop a unique model for all EU countries.

Therefore, no research has analysed so far which factors may have an impact on the duration of the employability process for the specific case of Spanish university graduates from a specialised survey on university graduates. In this sense, this article is meant to contribute with new empirical evidence on this matter based on the data provided by the '2014 University Graduate Employability Survey'. A discrete survival model to estimate the probability to find a job (of any type) will be used, which will control the possible presence of unobservable heterogeneity.

The article is structured as follows. Section 2 presents the main labour market features for Spanish university graduates. Section 3 is devoted to describing the database, whereas Section 4 explains the econometric model. On the other hand, Section 5 shows estimation outcomes; while finally, the paper will end summing up the main conclusions.

**Labour market for Spanish university graduates**

The Spanish higher education system underwent deep and quick changes during the 1980s and 1990s. As Perotti (2007) stated, the explanatory causes are related to higher education supply and demand as well as demographic changes and political decisions. The democratic transition reoriented the University Access policy in order to do away with its élitist nature at that time. Therefore, when the University Reform Act (Ley de Reforma Universitaria, LRU) of 1983 came into force, a new educational policy was put into practice to make access to the university easier; selection criteria were relaxed, and training costs for students were reduced thanks to fees reduction and the incorporation of short-cycle degrees, which meant lowering university training costs. This low-cost structure could only be supported by a massive entry of students, in order to take advantage of the economies of scale (Perotti, 2007).

Nowadays, higher education offer in Spain comprises 48 public universities and 36 private ones. Since 1985, university education in Spain has fallen in the public sector, although private universities have been increasing their participation share in higher education offer. This way, while private universities represented 3.5% of enrolments in the 1985–86 academic year, it has risen to 13% in 2018–19.

To be able to assess to what extent the increase in qualified labour force has been absorbed by the demand, Table 1 shows total unemployment rates and those for individuals with a

university degree, for Spain and for a series of reference European Union countries. In the Spanish case, as well as in the case of other European countries, university graduate unemployment rates follow the economic cycle, regardless of the impact of other qualitative aspects (education level achieved by students), demand factors (skills and abilities required by companies) and supply factors (number of enrolments, total and by fields of knowledge). Cardoso & Ferreira (2002) show a deep revision of the literature related to the dynamics that rule the creation and destruction of university graduate job positions. The figures presented in Table 1 allow us to conclude that Spanish university graduates have historically undergone greater difficulties to join the labour market than their European peers (Mora *et al.*, 2000).

**Table 1. Unemployment rates: total and higher education, 1995–2015**

| | 1995 | 2000 | 2005 | 2007 | 2010 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| **Germany** | | | | | | | | |
| Total | 8.2 | 8.0 | 11.3 | 8.8 | 7.1 | 5.3 | 5.1 | 4.7 |
| Higher education | 5.0 | 4.3 | 5.6 | 3.9 | 3.1 | 2.4 | 2.5 | 2.4 |
| **Spain** | | | | | | | | |
| Total | 22.8 | 13.9 | 9.2 | 8.3 | 20.0 | 26.2 | 24.6 | 22.2 |
| Higher education | 17.9 | 10.9 | 6.8 | 5.3 | 11.2 | 16.1 | 14.8 | 13.3 |
| **France** | | | | | | | | |
| Total | 11.9 | 10.3 | 8.5 | 7.7 | 8.9 | 10.0 | 10.4 | 10.4 |
| Higher education | 7.4 | 5.6 | 5.9 | 5.2 | 5.3 | 6.0 | 6.4 | 6.4 |
| **Italy** | | | | | | | | |
| Total | 11.8 | 11.0 | 7.8 | 6.2 | 8.5 | 12.3 | 12.9 | 12.1 |
| Higher education | 7.6 | 6.2 | 6.2 | 4.5 | 5.8 | 7.3 | 8.0 | 7.2 |
| **Portugal** | | | | | | | | |
| Total | 7.4 | 4.0 | 8.0 | 8.5 | 11.4 | 17.0 | 14.5 | 12.9 |
| Higher education | 4.1 | 2.8 | 6.3 | 7.5 | 7.1 | 12.8 | 10.1 | 9.3 |
| **United Kingdom** | | | | | | | | |
| Total | 8.8 | 5.6 | 4.8 | 5.3 | 7.9 | 7.7 | 6.3 | 5.4 |
| Higher education | 4.4 | 2.5 | 2.6 | 2.6 | 4.1 | 4.0 | 3.2 | 3.0 |

Source: Eurostat. Labour Force Survey. Tertiary education: Tertiary education (levels 5-8, ISCED-11).

However, during the rising cycle phase prior to the crisis, unemployment rates among university graduates tended to converge to the European average. However such tendency shifted radically from the beginning of the financial crisis. This way, while German graduate unemployment rate was 1.4% lower than the Spanish one in 2007, it became -10.9% lower in 2015. Compared to France, although both unemployment rates were

similar in 2007, the Spanish rate was double the French one in 2015. Only Greece worsened its unemployment rate differential in relation to Spain after the crisis.

The worsening of such unemployment rate differential may be caused by the specific features of the Spanish productive system and its labour regulations. However, it can also be the result of a mismatch between the university training demanded by the labour market and the one obtained by university graduates. Enrolment figures by fields of knowledge since the beginning of the crisis have altered (Table 2). At the beginning of the crisis, almost half of Spanish university graduates enrolled in Social and Legal Sciences (51%), and 20% in Engineering and Architecture. Eight years later, only two fields increased the number of enrolled students: Arts and Humanities (6.5%) but above all, Health Sciences (93.3%), which had outstanding figures. On the contrary, it must be highlighted the slump of enrolments in Engineering and Architecture (-19%) and in Sciences (-12%), and to a lesser extent in Social and Legal Sciences (-10%). This means that except for the case of Health Sciences, Spanish university is currently training fewer engineers, scientists and architects than before the crisis.

**Table 2. Students enrolled by field of knowledge, Spain. 2007–2015**

| | *2007/08* | | *2014/15* | |
|---|---|---|---|---|
| Social and Legal Sciences | 704,103 | (50.7%) | 633,668 | (46.5%) |
| Engineering and Architecture | 347,681 | (25.0%) | 281,818 | (20.7%) |
| Arts and Humanities | 124,401 | (9.0%) | 132,436 | (9.7%) |
| Health Sciences | 122,044 | (8.8%) | 235,953 | (17.3%) |
| Sciences | 91,020 | (0.7%) | 80,148 | (5.9%) |
| Total | 1,389,249 | | 1,364,023 | |

Source: Ministry of Education, Culture, and Sports (www.mecd.gob.es).

In short, the massive enrolment of students to Spanish universities since mid-1980s allowed companies based in Spain to have qualified labour force available and ready to face the period of economic growth that had started by mid-1990s. Even though the current economic crisis has not destroyed graduate employment as much as those at other education levels, it has led to much greater job insecurity in the case of Spanish university graduates compared to their European peers.

Within the current economic framework, where Spain is still far from consolidating a solid economic recovery, it is interesting to know which factors may influence a fast labour force employability, taking into account that a robust economic recovery shall

require a labour market ready to offer as much high-qualified labour force as possible to meet the demand of high value added industries in order to replace those low value added ones (Construction and Basic Services) which boosted Spanish economic growth during the last two decades (Mulet, 2019). Having this aim in mind, the following section presents the database on which the econometric model will be estimated.

**Database features**

The database used is the *2014 University Graduate Employability Survey* carried out by the National Statistics Institute based on the data gathered between September 2014 and February 2015. The main objective was to know the labour situation of university graduates, as well as other different aspects related to their employability process. The survey does not distinguish among employment types, that is, it does not take into account whether employment is specific for university graduates or, for example, whether it is a full-time or part-time job. The population scope of the survey is made up of former university short degrees (Diploma and Teaching Degree) and long degrees (Bachelor, Engineer and Architect), and graduate degrees (Bologna Plan), according to the Spanish university education system at that time. The 2010 university reform known as Bologna Plan eliminated traditional Spanish university degrees, characterised by two cycles depending on the number of years necessary to complete the studies (three years for short degrees, and five or six years for long degrees). Both types of degrees were replaced by the graduate degree (three or four years), which can be complemented with a master degree (one or two more years of university studies). As the survey refers to the 2009–10 academic year, the master courses done by the participants are before the Bologna Plan. It should be borne in mind that the survey refers to a moment in which the majority of students had completed their studies before the implementation of the Bologna Plan, whereas only a small part of them (3%) had followed the Bologna Plan.

To determine the time framework, the National Statistics Institute understands that three years must pass after finishing the studies in order to stabilise the relationship with the labour market. Therefore, the survey should be carried out at least three years after having completed the studies. Taking this into account, the 2009–2010 academic year was determined as the reference period. The initial sample included 40,754 individuals, who eventually led to a sample of 30,379 individuals.

Regarding the most relevant characteristics of the database, we see that half of those surveyed are women (almost 60%), being almost all of them Spanish people, within the age range of 'under 30s' (the women subsample were remarkably younger than men).

In all, 86% chose a public university (similar figures for men and women). Taking into account that the survey refers to degrees obtained during the academic year 2009–10, the low percentage of graduates degrees (3.9% of men and 2.2% of women) is understandable, due to Bologna Plan's low implementation rate at Spanish universities at that time. Besides, the graduate degree could be considered as complementary training given that 98% of them already held another university degree. For the sample, as a whole, the most frequent degree is bachelor (five-year degree) for any field of knowledge, followed by Engineering and Architecture (six-year bachelor degree), and Diploma (three-year degree). However, there are clear differences by gender in some cases. More men (34.7%) than women (10%) obtained an engineering or architect degree. On the other hand, 24.7% of women obtained the bachelor's degree (five years) and 14.5% the teaching certification, compared to 12.6% and 5.7% of men respectively.

Regarding the field of knowledge, 'letters' (social sciences, arts and humanities) and 'sciences' (sciences, health sciences, and engineering and architecture) education are distributed equally for the whole sample. However, 'letters' are predominantly women and 'sciences' are mainly men.

Regarding the question '*How long did it take from your graduation date until you started to work?',* the individuals answered based on different time intervals proposed by the questionnaire. The answers showed that around 50% of graduates moved towards the labour market in less than 3 months. However, half of these respondents are people who were working when they finished their studies. From three months onwards, rates clearly slowed down, as only around 20% admitted to have found a job in the following nine months. As evidence of such difficulties when it comes to find a job, it is quite significant that during the period lasting from the graduation date (second half of 2010) until the interview (end of 2014 or beginning of 2015), 6% had not found a job, and at the time of the interview 18.6% of the individuals admitted to be unemployed and 6.7% were not active.

As Gartella (2012) pointed out, the time it takes to find a job is highly determined by the economic cycle. This research uses a database where individuals enter the labour market during a recessive period, which may contribute to slow down the outflow from unemployment. This is both because of a reduction of university employment demand and the oversupply generated by the accumulation of university graduates seeking jobs since the beginning of the long recession.

In order to identify which factors may be delaying their transition from university to work, the following section will propose a duration model based on the available information related to their personal features, education and the characteristics of the first job, in order to explain what determines the time to obtain the first job.

**The likelihood of getting a job: an approximation using duration models**

The traditional approach to analysing the probability of finding a job (against being unemployed or inactive) is based on the study of a probability function (hazard function), which depends on how long the individual has been unemployed. This probability includes two components that cannot be empirically studied separately: the probability of finding a job offer and the likelihood of accepting it (Mortensen, 1977). Most published papers used duration models that normally do not distinguish between the aforementioned components (Lancaster, 1979). For a given individual, the transition rate to employment, $\theta(t)$, can be expressed as the result of the likelihood of receiving a job offer, $\xi(t)$, and the probability of accepting it, $A(t)$. Therefore:

$$\theta(t) = \xi(t)A(t) \tag{1}$$

Both probabilities may be affected by several potential influencing factors, which may even imply reverse effects, so that the observed transition rate will reflect the combination of those effects. For that reason, the empirical research is quite likely to proceed by specifying a reduced model where the transition rate is generally expressed as (Jenkins, 2005):

$$\theta(t) = \theta\big(X(t,s),t\big) \tag{2}$$

where *X* is a vector of personal characteristics (among many others) that may vary with unemployment duration (t) or with calendar time (s).

Since we can only observe time at intervals, the most suitable procedure would be to estimate a discrete-time duration model. That is, exact survival times are not known, we just know that they fall within some interval of time. In order to disentangle the explanatory power of those variables included in *X* during the transition to the first job obtained by the graduate, we have performed a discrete time (grouped data) proportional hazards regression model.

The survivor function at time $a_j$, the date marking the end of the interval $(a_{j-1}, a_j)$, is given by:

$$S(a_j, X) = exp\left[-\int_0^{a_j} \theta(u, X)du\right]$$

If we also suppose that the hazard rate satisfies the proportional hazard assumption,

$$\theta(t, X) = \theta_0(t)e^{\beta' X} = \theta_0(t)\lambda$$

then

$$H_j = H(a_j)\left[\int_0^{a_j} \theta_0(u, X)du\right]$$

$H_j$ is the integrated baseline hazard evaluated at the end of the interval. Hence, the baseline survivor function at $a_j$ is:

$$S_0(a_j) = exp(-H_j)$$

The discrete time (interval) hazard function is defined by:

$$h_j = 1 - exp\left[\lambda(H_{j-1} - H_j)\right]$$

which implies that

$$log\left(-log\left[1 - h_j(X)\right]\right) = \beta' X + log(H_j - H_{j-1})$$

Similarly, the discrete time (interval) baseline hazard for the interval $(a_{j-1}, a_j)$, is

$$1 - h_{0j} = exp\left(H_{j-1} - H_j\right)$$

and hence

$$log\left[-log\left(1 - h_{0j}\right)\right] = \gamma_j$$

where $\gamma_j$ is the log of the difference between the integrated baseline hazard $\theta_0(t)$ evaluated at the end of the interval $(a_{j-1}, a_j]$ and the beginning of the interval. We can substitute this expression back into that for $h(a_j, X)$ and derive an expression for the interval hazard rate:

$$h(a_j, X) = 1 - exp\left[-exp\left(\beta' X + \gamma_j\right)\right]$$

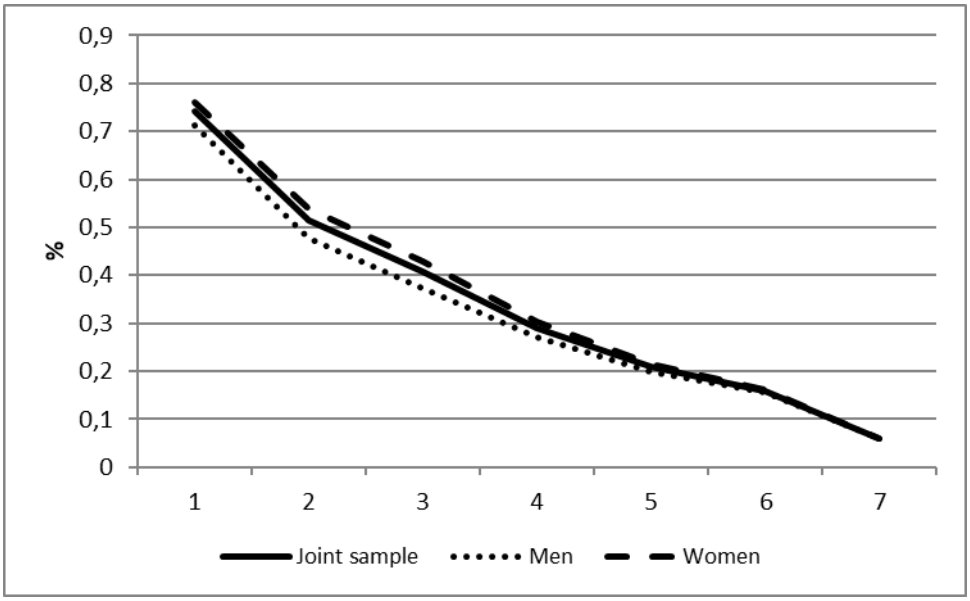
The *log(-log(.))* transformation is known as the complementary log-log transformation, the model that is the discrete time representation of the continuous-time proportional hazards model. What we do here is derive an estimate of parameters describing the continuous time hazard, but taking into account the nature of the banded survival time data that is available to us. When estimated using interval-censored survival data, one derives estimates of the regression coefficients $\beta$ and of the parameters $\gamma_j$. The coefficients are the same ones as those characterizing the continuous time hazard rate. However, the parameters characterizing the baseline hazard function cannot be identified without further assumptions: the $\gamma_j$ summarize the pattern of duration dependence in the interval hazard, but one cannot identify the precise pattern of duration dependence in the continuous time hazard without further assumptions (see Jenkins, 2005).

STATA *pgmhaz8* application has been used to estimate two models by maximum probability (Jenkins, 2005): the first is a Prentice-Gloeker (1978) model, and the second is a Prentice-Gloeker model incorporating a Gamma mixture distribution to summarise unobserved individual heterogeneity, following Meyer (1990). Control over unobserved heterogeneity improves model quality as parameters indicating duration dependence or estimating the transition rates are often biased by omitted relevant variable(s) in the specification.

A set of variables that measure personal features has been included as explanatory variables, among which we may mention the type of university degree obtained, and both additional university and non-university education. On the other hand, and due to the different working behaviour of men and women, generally observed, we have proceeded to estimate man and woman subsample models separately, together with the joint sample.

Before turning to estimate the duration model, we observe the transition to the labour market in a descriptive way through a set of Kaplan-Meier survival functions, thanks to which we can see the percentage of unemployed individuals (unemployment survivors) in each period, discounting those who found a job in one of the previous periods.

**Figure I. Survival in unemployment, by sex. Kaplan-Meier estimates*.**




* 1: The respondent remained at least 6 months in the job he had while he was studying; 2: It took the respondent at least 3 months to find a job; 3: It took the respondent from 3 to 6 months to find a job; 4: It took the respondent from 6 months to 1 year to find a job; 5: It took the respondent from 1 year to 1 year and a half to find a job; 6: It took the respondent from 1 year and a half to 2 years to find a job; 7: It took the respondent more than 2 years to find a job

On the one hand, Figure 1 shows that there is not a significant difference between men and women survival functions, which become equal between one year and one and a half years (time interval 4). On the other hand, the survival function presents a steady decreasing tendency without a fast unemployment exit rate, as 73% of men and 70% of women got out up to the first year. In fact, the percentage of those who found a job reached 84.4% for men and 84% for women after two years, whereas 6% of men and women admitted not having found a job during the referred period. Finally, it is important to point out that difficulties faced by university graduates to find a job are even smoothed as those who got a job within the period corresponding to interval 1 (those who are believed to spend 0 months to get a job), are the ones who were already working when they graduated. That means they did not have to plunge into the labour market searching for a job, as was mentioned above.

Table 3 shows the main outcomes of the estimated model. Given the gamma variance value in relation to its standard error, we may conclude that the unobservable heterogeneity is significant, both for all data, as for each subsample. Such a conclusion is also suggested by the likelihood ratio test of the model with unobservable heterogeneity in relation to the model without unobservable heterogeneity (for further questions on the

unobservable heterogeneity, please refer to Albert *et al.* (2008) and Jenkins (2005). Estimate coefficients' effect must be understood because of the sign. Given that a survival model is estimated (in this case, to survive means being unemployed), coefficient signs are understood just the opposite: a positive sign implies a negative effect on the likelihood of finding a job (it increases the likelihood of surviving, that is, of remaining unemployed). In order to know how much a variable increases or reduces percentage-wise the time it takes to find a job, you only need to calculate the coefficient value in exponentiated form.

First of all, it is observed that the outcomes of the total sample (pool data) suggest that neither gender nor nationality influences the time it takes to find a job (in line with Reimer & Steinmetz, 2007; Barrosa *et al.*, 2011). On the other hand, the older the graduate, the longer it takes them to find a job and this outcome matches the one obtained by Gartella (2012).

Relating to the university training covariates, first of all, we may conclude that those individuals who studied at a private university found a job more easily, regardless of gender, given estimate coefficient's positive and significant for the Public University variable.

**Table 3. Probability of finding a job. Duration model (discrete time proportional hazard model) with control for unobserved heterogeneity**

| | **Pool data** Coeff. (St dev.) | **Men** Coeff. (St dev.) | **Women** Coeff. (St dev.) |
|---|---|---|---|
| ***Personal features*** | | | |
| Men | 0.0216 | | |
| | (0.0192) | | |
| Age 30–34 years | 0.4808 * | 0.5549 * | 0.3727* |
| | (0.0238) | (0.0400) | (0.0350) |
| Age 35 years or older | 1.3038 * | 1.8189 * | 0.7826* |
| | (0.0455) | (0.0751) | (0.0790) |
| Spanish | 0.1971 | 0.3411 | 0.2195 |
| | (0.1330) | (0.2114) | (0.1538) |
| ***University education*** | | | |
| *Type of University* | | | |
| Public university | 0.2640 * | 0.2131 * | 0.2592* |
| | (0.0259) | (0.0464) | (0.0302) |
| *University degree obtained* | | | |
| Engineer or architect | 0.1396 * | 0.3865 * | 0.0088 |
| | (0.0777) | (0.1212) | (0.1111) |
| Graduate | 0.4441 * | 0.7380 * | 0.2633* |
| | (0.0696) | (0.1303) | (0.0760) |
| Diploma | 0.2427 * | 0.3180 * | 0.1946* |
| | (0.0264) | (0.0564) | (0.0297) |
| Teaching degree | 0.0045 | -0.1103 | 0.0663* |
| | (0.0327) | (0.0771) | (0.0322) |
| Other degree | -0.2721 | -0.2158 | -0.0379 |
| | (0.2166) | (0.3599) | (0.2940) |
| *Field of Knowledge* | | | |
| Sciences | -0.2442 * | -0.1147 | -0.3182* |
| | (0.0413) | (0.0854) | (0.0438) |
| Social Sciences | -0.2976 * | -0.2036 * | -0.3264* |
| | (0.0386) | (0.0811) | (0.0401) |
| Engineering and Architecture | -0.0736 * | 0.1877 * | -0.1999* |
| | (0.0293) | (0.0656) | (0.0300) |
| Health Sciences | -0.2094 * | -0.2496 * | -0.1984* |
| | (0.0774) | (0.1263) | (0.1081) |
| *Practical training while studying* | | | |
| As part of the curriculum | 0.0854 * | 0.1538 * | 0.0324 |
| | (0.0199) | (0.0346) | (0.0233) |
| Not part of the curriculum | -0.0901 * | -0.1171 * | -0.0496* |
| | (0.0191) | (0.0351) | (0.0216) |
| *Financing while studying* | | | |
| Respondent enjoyed a grant | -0.1207 * | -0.1057 * | -0.0968* |
| | (0.0185) | (0.0344) | (0.0210) |
| *International mobility while studying* | | | |
| Part of the studies abroad | 0.0528 | -0.0278 | 0.0623 |
| | (0.0466) | (0.0478) | (0.0604) |

**Cont. Table 3**

| | | | |
|---|---|---|---|
| ***Other University education*** | | | |
| Other university studies in Spain | 0.0195 | -0.0490 | 0.0459 |
| | (0.0196) | (0.0360) | (0.0421) |
| Other university studies abroad | -0.1276 * | -0.1317 * | -0.0907* |
| | (0.0430) | (0.0743) | (0.0507) |
| A Master at a Spanish university | -0.1997 * | -0.2099 * | -0.1668* |
| | (0.0212) | (0.0382) | (0.0263) |
| ***Education outside University*** | | | |
| Number of languages spoken | -0.0237 * | -0.0486 * | 0.0142 |
| | (0.0102) | (0.0189) | (0.0126) |
| Computer Skill advanced level | 0.1828 * | 0.2754 * | 0.1270* |
| | (0.0222) | (0.0476) | (0.0230) |
| Computer Skill expert level | 0.4835 * | 0.6316 * | 0.3517* |
| | (0.0335) | (0.0572) | (0.0483) |
| Number of SEPE training courses after finishing studies | -0.4483 * | -0.5639 * | -0.2355* |
| | (0.0277 ) | (0.0493) | (0.0460) |
| ***Intercept*** | -1.5831 * | -2.0044 * | -1.4609* |
| | (0,1110) | (0.2271) | (0.1213) |
| Gamma variance | 0.5548 * | 0.8802 * | 0.2062* |
| | (0.0318) | (0.0549) | (0.0593) |
| ln_varg _constant | -0.5892 * | -0.1276 * | -1.5788* |
| | (0.0573) | (0.0624) | (0.2874) |
| LR test of Gamma var. = 0 | 393.914 | 393.914 | 12.897 |
| Prob. > = chibar2 | 0.000 | 0.000 | 0.001 |
| Nº of observations | 30,379 | 12,246 | 18,133 |

Reference: Under 30 years; Bachelor's degree; Arts and Humanities; Computer skill basic level.
* Significance at 5%; ** Significance at 10%

There are no analyses in Spain about the effect associated to the type of degree obtained (Engineer, 5-year graduate, 3-year graduate…). In previous Spanish analyses, and as a rule, when analysing the impact of educational levels on students' professional success, the procedure followed was to identify all university students under a unique variable; if the analysis focused on the group of university graduate employees, then researchers proceeded to differentiate them by fields of knowledge. On the other hand, this research has classified the individuals by the university degree obtained, and if taking the commonest degree as reference (Bachelor's degree which was traditionally a five-to-six year degree), it is observed, for both the joint simple and the subsamples by gender that the most frequent alternative degrees (Engineer or architect, Graduate and Diploma) delay the transition to work. This also includes the graduate degree, although its impact may be influenced by the peculiarities of such a degree, as explained in the previous section.

Reimer and Steinmetz (2007), in research on Germany and Spain, distinguished two groups of university degrees (higher and lower level) and did not find out any significant effect of the type of degree on the likelihood of being unemployed. Nevertheless, Gartella (2012) reached the conclusion that the longer the university degree, the higher the likelihood of being unemployed, probably because, according to the author, more highly educated individuals are possibly more selective in what jobs to accept, that is, their reserve wage is higher. During the Spanish financial crisis, the title of bachelor (long degree) seemed to have been linked to jobs whose labour market could have been less affected by the economic crisis or has allowed holders to work in jobs that traditionally had been for short-degree graduates.

In relation to the fields of knowledge, the specialisation chosen by university students is one of the most influencing factors, as all variables that gather the effect of the fields of knowledge have a significant effect on the likelihood of finding a job. This agrees with studies by Diebolt & El Murr (2003), Barrosa *et al.* (2011) and Gartella (2012). Taking Arts and Humanities as reference, all fields of knowledge turn out to be significant variables (regardless gender), thus having a positive impact on the promptness to exit unemployment. Curriculum-related practical training is not valued by the labour market, as it delays the exit to the labour market for both the joint sample and male subsample, although it does not have a significant impact in the case of women (in this sense, Martinez (2003) states that there are some doubts about practical training efficiency within the curriculum). However, practical training outside the curriculum does have a positive effect when entering the labour market. On the other hand, having enjoyed any type of university study grant significantly reduces the time it takes to find a job, probably because grants are normally awarded to students with the best records. International mobility during university years does not seem to have a clear effect on employment, as doing part of the degree abroad does not have any impact. This outcome could be related to the fact that encouraging mobility among students (especially at international level, as for the case of the European Erasmus programme) pursues a series of training goals for the student, which are not purely academic. Regarding the effects of having completed another type of university education, to hold other university degrees in Spain (lower than master level) does not have a significant impact, whereas having completed other degrees abroad or a master in Spain is quite relevant. In both cases, the labour market understands it as an efficient means to improve the abilities and knowledge of the individual.

Finally, supplementary training outside university, such as languages or SEPE (State Employment Public Service) courses, is regarded as very significant in order to increase the probability of work. Table 3 outcomes indicate that the more languages people speak, the quicker they find a job (except for the female subsample, where the effect is not so relevant). However, the fact of having computer advanced or expert knowledge (against the reference category 'having basic knowledge') does not have the expected positive impact on employability. On the one hand, this may be because elementary computer knowledge is considered enough for most vacancies (those that are not specifically computer positions), and, on the other hand, because as the level of computer knowledge increases, the distribution of such knowledge is focused on a series of more specific degrees (particularly in the case of level expert), whose access to the labour market could be more restricted.

**Conclusions**

This research has tried to provide some empirical evidence on the time it takes Spanish university students to get their first job. In this sense, the paper can be considered unique, as there are hardly any published papers dealing with this topic at a national level, apart from some studies carried out for graduates from specific universities, or directed to university students from specific regions. It must be pointed out that the period covered in this study is particularly special. The great financial crisis undergone by Spain since 2008 has caused youth unemployment rates to be exceptionally high, which makes the transition from university to work very difficult, particularly if comparing such data to those of most European Union countries. Exit rate descriptive analysis seems to confirm how difficult it is for Spanish university students to find a job in the short-term. The results are in line with those obtained by Kivinen & Nurmi (2014), within an economic growth stage, who consider that the delayed university employment in Spain is linked to the general employment situation. Summing up, the financial crisis has deepened the difficulties Spanish university students already had when seeking a job, compared to their European peers. Any assessment on how much more difficult it is now, falls outside the scope of this paper, as the database information does not allow us to do it so.

The duration model estimate proposed in this article reaches some relevant conclusions on what determines the time it takes a university graduate to find a job. Some of which

confirm that what was observed in other European countries also applies to the Spanish case. Age seems to penalise university students when getting a job, while gender does not have significant effects. The type of degree and the field of knowledge are decisive indeed. It is particularly observed that the commonest previous degree, bachelor (47% of the individuals) as reference, the fact of having completed other most frequent alternative degrees (which, on some occasions, differs depending on the gender) seems to penalise the transition to work. As far as the field of knowledge is concerned, labour market seems to clearly penalize Arts and Humanities studies. Likewise, the fact of complementing the knowledge acquired in the degree with some specific training provided by a master degree in Spain, or by other university studies abroad, seems to be positively valued by the labour market. Having studied at a private university and having been awarded some type of grant during that period also contribute to speed up the exit from unemployment. As far as training outside the university is concerned, language command favours obtaining a job as expected, as well as having participating in SEPE training programmes.

Therefore, the implementation of the so-called Bologna Plan in Spain is facing more complex challenges than those faced by the majority of countries that form the European Higher Education Area (EHEA). One of the goals of the EHEA is to link universities to labour markets. The identification of the competencies to be acquired by university graduates does not guarantee their employability in itself, as it likewise depends on the economic cycle. The economic recession that Spain is going through, makes it enormously difficult for Spanish young people to find a job. This shall demand the Spanish university a twofold extra effort. On the one hand, it shall develop and improve its advisory role in terms of what type of studies better suit each student's needs, and how demanded they are in the labour market. In this sense, this research comprises a method to assess the efficiency of the training obtained in terms of how quick employability occurs. That is, the University should offer more information in relation to the labour success students should expect from their university studies On the other hand, given how difficult it is for students to get a job, the university should improve its advisory role for students during the employment process.

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