DOCUMENTO DE TRABAJO. E2010/ 04

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ÓSCAR MARCENARO
ANNA VIGNOLES

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Oscar Marcenaro-Gutierrez[§] and Anna Vignoles[∂]

Resumen

Existe gran interés, tanto desde la perspectiva social como política, por conocer en qué medida la inversión en capital humano puede afectar a la facilidad de los jóvenes para encontrar un trabajo de 'calidad. En esta aportación se analizan los factores que condicionan la probabilidad, y retardo en el tiempo, de encontrar trabajo y el salario diferencial que obtienen los jóvenes procedentes de diferentes ramas de la formación profesional. A tal fin se emplean diferentes métodos cuantitativos de estimación de modelos que se aplican sobre la primera base de datos diseñada específicamente para llevar a cabo este tipo de análisis (ETEFIL, 2005).

[§] Department of Statistics and Econometrics, University of Malaga (El Ejido s/n, 29071, Malaga (Spain)), and Fundación Centro de Estudios Andaluces. Corresponding author: E-mail: odmarcenaro@uma.es. Fax: +34952137262.
This author is grateful to the Department of Quantitative Social Science in the Faculty of Policy and Social Studies (IOE, University of London) for its hospitality and support. He also acknowledges the financial support granted by the Fundación Centro de Estudios Andaluces under research contract PRY066/09.
[∂] Centre for the Economics of Education at the Institute of Education. E-mail: a.vignoles@ioe.ac.uk.

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Abstract:

There is particular policy interest in the extent to which education and training can affect the length of time take by young people to find a job and the quality of the job that the person can secure. We analyze the time taken by Spanish graduates from the different vocational tracks available to find a job and also estimate the wage differential earned by young people graduating from these different vocational tracks. To do this we use various quantitative models and make use of the first survey specifically designed to conduct this type of analysis (ETEFIL, 2005).

JEL Classification: J64, J24, I21, J31.

Keywords: Vocational education, vocational track, job search, interval earnings regression.

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1. Introduction.

There is widespread concern in many countries, including Spain, about the difficulties faced by young people in securing a good quality job and fears that young people lack the appropriate mix of skills required for the labour market. Given the high cost of the education investments made by families, firms and the government, there is particular policy interest in the extent to which different types of education and training can affect the length of time take by young people to find a job and the quality of the job that the person can secure. Commentators in Spain have been particularly concerned about whether the vocational supply of skills adequately matches demand. This is particularly relevant if we bear in mind that vocational training in Spain has not functioned as a genuine option for students who had completed primary education. As highlighted by Pérez-Díaz (2003), the option of the professional path was during a long period of time "…a stronghold for those students that failed in primary education and had less economic resources …The discredit derived from this implied that in time less and less students followed the professional path, choosing instead the academic path".

To address this apparent deficiency in the Spanish labour market recent policy developments have focused on making more appealing the vocational pathways available to Spanish youth, with the aim of increasing the supply of workers with vocational skills. For example, the Vocational Education Act of 2002[1] aimed to improve the match between the supply of and demand for vocational qualifications and also strengthen apprenticeship and training initiatives. Yet despite various policy efforts, enrolment in vocational education remains low in Spain in recent years, as discussed below. In this paper we aim to shed light on this issue by investigating the labour market value of different vocational pathways, assessing first, the extent to which the different vocational paths available to young people are associated with more or less rapid exit from unemployment, and particularly with more or less rapid transition into permanent employment, and second, analysing the earnings differentials earned by graduates from the different vocational tracks (see Appendix A for a brief description of the Spanish educational system).

The policy background to this work is the fact that youth unemployment specifically is a major problem in the Spanish labour market. By the second quarter of 2001, 26.34% of women under the age of 25 were unemployed and roughly one in six men of that age. On average one in five young people were unemployed at any one point in time between 2001 and 2005. Very young women (aged 16-19) faced a particularly high unemployment rate, of approximately 40% between 2001 and 2005, despite the decline in the size of younger cohorts and the increase in

[1] National System of Professional Qualifications (Organic Law 5/2002 from 19th June) and Professional Certificates RD 1506/2003).

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the overall employment rate[2]. Even if young people do secure employment, their jobs are often short term[3] and insecure. In Spain, the incidence of temporary employment is the highest in Europe (amongst those aged 16-24), with 2 out of 3 jobs deemed to be temporary by 2005 (double the average for OECD and EU countries). Clearly the Spanish youth labour market is particularly difficult for young people to navigate, and there is a need for empirical evidence on the extent to which different education and training interventions facilitate, or otherwise, transitions into work.

If we believe skills are the key to improved labour market prospects, an equally worrying trend in Spain is the high rate of school drop-out which stood at 27.9% for young people aged 16-24 by the end of 2005 (MEC, 2007), clearly above the average for EU and OECD countries (14.4% and 17.4%, respectively). In addition to a high drop out rate from education, the OECD's Thematic Review of the Transition from Initial Education to Working Life has suggested that in Spain, as in many Southern European countries, there are particular problems with the transition into employment, linked to the fact that school-based vocational pathways dominate (likewise Italy and Greece). The implication being that such school based provision does not effectively grant the skills needed in the labour market. Certainly the numbers taking vocational routes has remained low in recent years. Figure 1a shows the trend in participation in intermediate and higher vocational programmes for the period 2000-2005. Figure B1 (Appendix B) shows the proportion of young people enrolled in vocational programmes in Spain as compared to some other European countries. Participation of women and men in intermediate vocational programmes has increased slightly (especially for males), with 250,000 students enrolled by the academic year 2004/05. In the case of higher vocational training, there is a downward trend; only around 10% of the aged 18-19 population was engaged in this kind of learning by 2005. This compares to the proportion of students enrolled in academic programmes, which was 25% for males and over 31% for females (trends in participation in other vocational programmes are showed in Figure B2, Appendix B). The population enrolled at University also declined somewhat over this period but has stabilised at a much higher number of students, around 1.5 million (Figure 1b).

[2] The employment rate for young women increased from 26.21% to 41.35% between 1995 and 2005 (second quarters).

[3] As stated by D'Addio and Rosholm (2005) "very short contracts provide higher chances of labour market exclusion".

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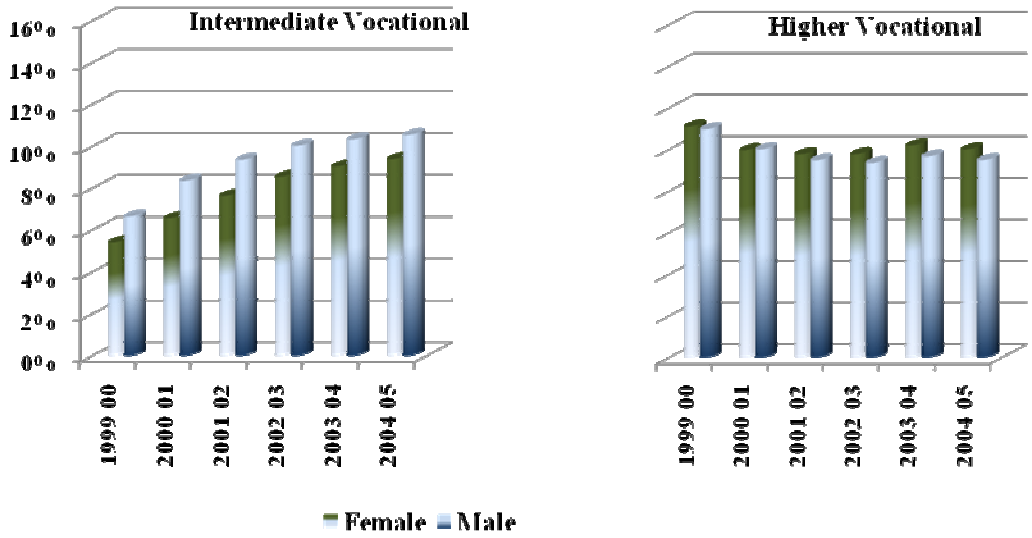
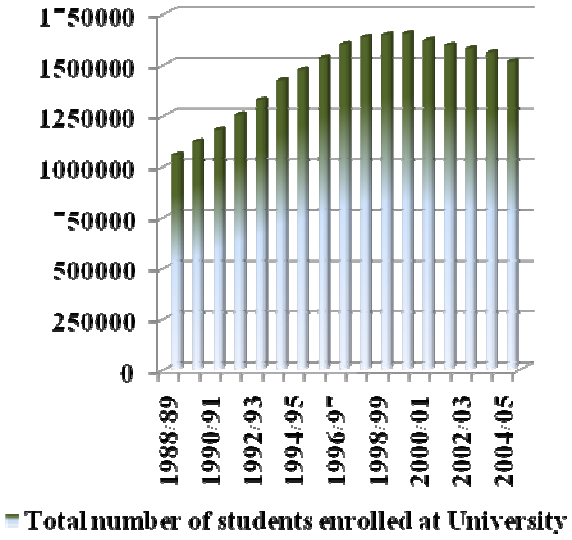
Figure 1a. Trend in the proportion of students enrolled in vocational education 1995-2005.



Source: Based on the data from the Spanish Ministry of Education and Science (MEC, 2007).

Figure 1b. Trend in the total number of students enrolled at University 1988-2005



Source: Based on the data from the Spanish Ministry of Education and Science (MEC, 2007).

Concerns about the provision of vocational skills and skill mismatch are not limited to Spain, however. More generally, the European Centre for the Development of Vocational Training (see CEDEFOP, 2008) in its integrated guidelines for growth and jobs 2005-08 (as well as 2008-10), calls for all European countries to improve their anticipation of skill needs, skill shortages and skill bottlenecks to better meet the needs of the labour market. This is part of the relaunched Lisbon agenda (2005), which emphasises human capital and related investments in education and training as important policy levers to foster growth. Partially in response to this European agenda, the Spanish central government and the regional authorities (autonomous

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communities) have promoted different ways to enhance young people's human capital, in terms of both vocational and academic qualifications. The Spanish government have attempted this mainly by increasing the funding to education generally[4] and regulating curricula[5]. Vocational training has also been embedded in labour market policies as a way to promote vocational education. However despite the increased emphasis on vocational education in Spain, our knowledge of the success, or otherwise, of the students enrolled in the vocational pathways is limited.

As well as providing empirical evidence on transitions into work in the Spanish labour market, this paper aims to contribute to the substantial literature on transitions from education to employment. Most of the previous literature on the Spanish labour market has focused on the effect of young people's socio-economic background on their unemployment hazard rate, and on the impact of the amount and entitlement duration of the benefit system on unemployment duration (see Cebrián *et al*., 1996; Alba-Ramírez, 1999; Bover *et al*., 2002; Jenkins & García-Serrano, 2004; Arranz & Muro, 2004 and 2007, Davia & Marcenaro, 2008). Several Spanish researchers have recently analysed the transition from school to work in Spain, trying to explain the poor performance of the Spanish youth labour market over the last two decades (see, e.g., Ahn & Ugidos (1995), Dolado *et al*. (2000), Mora *et al*. (2000), Lassibille *et al*. (2001), Blazquez (2005) and Albert *et al*. (2008)). Summarizing these contributions, Dolado *et al.* (2000) and Mora *et al.* (2000) focus on the transitions of university graduates. Ahn & Ugidos (1995), conducted a more general survival analysis using data from the *Encuesta de Condiciones de Vida y Trabajo* (ECVT, 1985); they found significant differences by gender in terms of unemployment duration (see also Lassibille *et al*. 2001) but, at least in the case of men, education level achieved was not a significant determinant of the likelihood of employment. Similarly, Blazquez (2005) analyses the transition into work for a 90s cohort using the Spanish LFS but does not focus specifically on vocational students. Likewise Blazquez (2005), the paper by Albert *et al*. (2008) uses the Spanish section of the European Union Labour Force Survey, and take also into account, as we do, the distinction between "significant" and "non-significant"

[4] The total funding on education increased by 14.8%, from 2000 to 2005 (author's own calculations from MEC, 2008) in real terms (41.1% in constant terms), and by 21.4% from 1995 to 2005, however funding remained the same as a proportion of GDP (in the region of 4.5% during the period 2000-2005).

[5] Spanish education has changed considerably over the last two decades particularly since the Organic Act on General Management of the Education System (L.O.G.S.E., 1990), which extended the compulsory school leaving age to 16 (was 14 previously), recently modified by the Organic Act on Quality of Education (Ley Organica de Calidad, 2002) and the Organic Act on Qualifications and Vocational Education (Ley Organica de Cualificaciones y de Formacion Profesional, 2002). The latter two acts were introduced to reduce drop out from education; these acts suppressed the automatic promotion of students, introduced more curricula flexibility (both, for the academic and vocational track) and promoted better teacher career progression opportunities. More recently, April 2006, the Organic Law on Education (*La Ley Orgánica de Educación, LOE*) was passed, aimed at improving standards and paying special attention to the pedagogic support for children with learning adaptation difficulties.

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jobs[6]; their evidence shows that educational investment enhances access to a first significant job, specially in the case of women. Nevertheless neither Blazquez (2005) nor Albert *et al.* (2008) focus on vocational qualification or analyse the quality of the job matching in terms of wage levels (the Spanish LFS does not contain information on earnings). Additionally we control for unobserved heterogeneity by using the Heckman-Singer procedure (semi-parametric distribution for heterogeneity), rather than in the parametric[7] (less flexible) way undertaken by Albert *et al.* (2008).

With regard to the international literature on the transition from school to work, a useful summary is presented by Ryan (2001), who points out the need to develop nationally appropriate institutions in order to improve school to work transitions. Kogan & Müller (2002) provides cross-country analyses using the European Union Labour Force Survey (EULFS) 2000 *ad hoc* module on transitions from school-to-work. More precisely, these papers evaluate the effects of social background on educational and occupational careers, the relationship between field of education and gender inequality in the labor market, the incidence and consequences of job mismatches, job search and mobility behavior in the early work career, and ethnic inequalities in the transition process.

This paper adds to the above literature in a number of ways. Firstly, we examine the outcomes and transitions from vocational educational pathways specifically. Secondly, we distinguish between the time taken for a young person to secure his or her *First Significant Job* (FSJ), and other job types, rather than simply unemployment durations. We do this because when young people attempt to enter the Spanish labour market for the first time, a high proportion of jobs potentially available to them are likely to be temporary and low quality (generally poorly paid). Likewise, moving jobs in early career and taking short periods of inactivity may not be unusual and in essence may represent a hidden form of unemployment (Layard & Nickell, 1999). If we simply analyse unemployment durations, we may well get a misleading picture of how long it takes a young person to really obtain a more stable longer term job. Consequently we use two different definitions of the transition time. On the one hand, a broader definition of the time taken to secure a FSJ, which includes periods of inactivity, unemployment and time spent in very short term poor quality jobs. On the other hand we will distinguish between time taken to find a FSJ, a 'full time job' (more than 20 hours per week week) non-significant and a part-time job. To define a FSJ we use a definition adopted by the Spanish Office for National Statistics (INE) which is the time taken to FSJ, defined as a job of at least 20 working hours (or more) per week lasting 6 months (or more) in the same firm.

[6] Due to data constraints they are not able to run competing duration models distinguishing between access to significant and non-significant jobs. They use information on those who left education between 1991 and 1999.

[7] This may suffer from estimation bias as the choice of the shape of the distribution is unknown.

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Obviously this is just one of the possible indicators we can use for job quality, and we complement this measure with other indicators of job quality, namely wage levels and whether the individual is over qualified for their job (see Dolton & Marcenaro, 2008, for a review of the most recent literature on this topic). We undertake the analysis on a sample of vocational graduates who finished their studies in 2001.

The rest of the paper is organized as follows. The data, definitions of the variables analysed and some descriptive statistics are presented in Section 2. In Section 3, we show a very brief description of the econometric approaches used and, in section four, we report the main results. Section 5 concludes and discusses the main implications of our results from a policy perspective.

2. Data and variables.

The data used in this paper come largely from the Spanish Survey on the Transition from Education/Training to the Labour Market ("*Encuesta de Transición Educativo Formativa e Inserción Laboral*"), ETEFIL (2005)[8]. This is a nationally representative survey of Spanish youth, designed to shed light on the mechanisms that young people use to find a job. It is also the first major survey that specifically addresses the problematic transitions into work faced by Spanish vocational graduates. The sample includes individuals who finished their studies during the academic year 2000-2001, and respondents were interviewed in mid 2005. The full sample includes individuals who left secondary education with academic or vocational qualifications, as well as those who left without any qualifications at all (they may have continued studying in a different type of education though) and those who finished any "special" vocational training programmes (i.e. programmes that exceed 100 hours in duration and are not taken along side a university degree). Although it is not a panel survey, the data contain a rich set of information on students' pathways.

The survey was conducted during the period April-July 2005, and the sample comprises 45620 observations. Only people under 25 by the end of 2001 (31st December) were surveyed, which means that the oldest respondent in 2005 was 29. The observations are stratified by educational routes.

We restrict the sample to those completing a vocational programme, either a school-based vocational programme[9] or an apprenticeship-type vocational programme. Within the former there are two main subgroups of individuals: intermediate vocational students and higher

[8] Commisioned by the Ministries of Education and Science, Work and Social Affairs and INE.

[9] These occupationally oriented vocational programmes include practical work experience as part of a student's programme of study. However, this traning often occurs at the person's place of study, rather than a workplace.

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vocational students. Within the apprenticeship pathways, which are funded by the Spanish Department of Employment (INEM) and the European Social Fund we may distinguish between those programmes included in the National Plan for Vocational Training and Integration (FIP) and those in the so called *Escuelas Taller* and *Casas de Oficios* (ETCO) programme[10]. Both programmes are aimed at easing the transition of young people and particularly the unemployed into a job; however, the latter is specifically designed to help very low skilled workers.

When we restrict the sample to young people following a vocational pathway, we are left with a total sample of 27794 youths. We further restrict the sample, excluding from the group of intermediate and higher vocational graduates those who then also undertook a FIP or an ETCO programme between 2002 and 2005. This latter restriction is necessary since we cannot determine the time since completing education to finding a FSJ for these individuals as they essentially return to full time education. It is also likely that individuals who enrol in a FIP or an ETCO programme having already completed an intermediate or higher level vocational qualification do so because they face difficulties in the labour market or because they feel that they lack particular skills. If we are eliminating a lower productivity group from our sample, and if these individuals are unevenly distributed across the different vocational pathways, we may generate some biases in our estimates of the differential effectiveness of different vocational pathways. After this restriction, our final sample comprises 24481 respondents.

In general, we also need to add a word of caution about interpreting the results in this paper. We are able to explore the labour market experiences of graduates from the different vocational pathways. The analysis is necessarily descriptive however, since individuals' choice of pathway is likely to be endogenous. In the absence of experimental data or a natural experiment that produces exogenous differences in the vocational pathway chosen, we are unable to undertake a causal analysis. Despite this, our work can usefully inform policy-makers of the current situation in the labour market *vis a vis* the labour market success of different types of vocational graduate.

The key advantage of the data we use is that it contains detailed information on labour market events and job search activities that have occurred since the individual left full-time education, as well as information on the individual's current and previous job characteristics. Tables C1 and C2 (Appendix C) provide the main descriptive statistics for the variables used in the estimation of the models. Thus we have information on the incidence of job search periods, job search duration, duration of first job, occupation of first job and whether the person considers themselves over qualified for their job and earnings. The data also includes full information on the level and type of education obtained by the individual before leaving full time education and the particular field of study of the individual's vocational programme. The

[10] This may be translated as Apprentice and Craft schools.

vocational track has been sub-divided into 26 different fields of study which, to make them manageable, we have grouped into thirteen categories (see Table B1 for a description of the grouping carried out).

We estimate three different sets of models. Firstly, following the literature described earlier, we estimate a duration model of job search to explore the time taken to get into stable employment by individuals following different vocational pathways. Our distinctive contribution here is not only that we focus on vocational graduates, but also that we control in a flexible way for unobserved heterogeneity. The second estimated model goes further as it distinguishes FSJ from other 'permanent" jobs and part-time (less than 20 hours per week) jobs, i.e. we estimate a competing risk model. Our third model is a wage equation, where earnings (banded) in the person's FSJ are regressed against a number of individual characteristics, including their vocational field of study.

In the models we include a range of individual characteristics, namely gender, age at completion of education (in 2001), nationality and parental education level. Regional labour market characteristics are also taken into account in our estimates, via the inclusion of dummy variables for the seventeen Spanish Autonomous Communities, as well as a measure of the quarterly regional unemployment rate (by gender), which is included as a time varying covariate. These gender specific regional unemployment rates should be taken as a proxy for aggregate demand conditions.

In the first and second models, the time until the respondent found a FSJ (or other type of contract, in the second model case) may be right-censored due to the data sampling design, i.e. if the individual did not find a FSJ before mid 2005 we will treat the observation as right censored. Table B3 (Appendix B) presents the proportion of right censored observation in the sample, by educational level achieved. For these observations the contribution to the likelihood function is the probability of not finding a FSJ within observed sample period[11].

For the wage equation model, the dependent variable is the person's wage in their FSJ and we will make use of an additional set of controls: namely, nationality, the number of training courses undertaken after graduation but before entering FSJ, working hours, job tenure, whether the worker's contract is permanent or not, firm size and the way in which their job search was conducted as a proxy for the person's social capital (e.g. their networks, role of family etc.). Variables indicating whether the individual is over qualified are also included, based on a subjective measure of over/under qualification (i.e. the individual's opinion about whether their qualifications match or are above (below) what is required to do their job).

[11] It is assumed that this censoring is independent of the hazard rate, after controlling for other factors.

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3. FSJ and other labour market outcomes: econometric framework.

3.1. Hazard risks model: single and competing risk models.

Discrete time models have been chosen for our estimates because the data are available in discrete time intervals (monthly data)[12]. More precisely the main econometric tool that we rely on to estimate our job search model is a discrete time mixed proportional hazard model (mph), which is the most modern[13] setting for application of duration data models (see Heckman & Singer (1984a,b) and Lindsay, 1995). The advantage of Heckman and Singer (1984a) procedure is its flexibility, as they do not impose any parametric distribution for heterogeneity. This approach has been followed by recent papers (e.g. D'Addio & Rosholmn (2005), Lauer (2003) and Steiner (2001)), which conducted their analysis following in a discrete time competing risks model controlling non parametrically baseline risk and unobserved heterogeneity.

Our first model will focus on a discrete time single risk model, using a logit model to evaluate the duration till finding a FSJ. We follow Petersen (1995) and Jenkins (1995), among others, approach who proposes a discrete time formulation for single risk models which has the advantage of being estimable as a logit model.

It is important to highlight that unobservable characteristic, such as motivation, family pressure to find a job may influence duration into unemployment. So, by ignoring this potential unobserved heterogeneity we assume that all relevant covariates for explaining variation in the hazard rate have been observed and measured, what would be usually non realistic. This could take us to estimate *spurious* or misleading duration dependence due to the potentially biased parameter estimates (Lancaster, 1990; Flinn and Heckman, 1983; Heckman, 1991).

As a second stage we estimate the transitions into four possible destinations simultaneously, allowing each of them to have different time patterns and to be differently affected by covariates[14]. More precisely we present two different specifications, the first does not account for potential unobserved heterogeneity, so we use a multinomial logit where we estimate the probability of having a significant job, having experienced at least one 'full-time' non-significant job, having experienced a part-time job and no having any job experience; the second accounts for unobserved heterogeneity, which is assumed to follow a discrete probability distribution (Heckman and Singer, 1984b) with three points of support. In this way we avoid the

[12] The length of the unemployment spell is therefore assumed to be a discrete random variable (see Meyer, 1995).
[13] See, for example, Cleves *et al*. (2004) for a discussion.
[14] In other words, we assume the factors influencing the transition into one specific state might differ from those affecting the transition to another state

IIA (Independence of Irrelevant Alternatives) assumption implicit in the standard multinomial logit model[15].

This type of models enable us to analyse the likelihood or hazard probability of finding a FSJ job at a given point in time, conditional on the fact that the event has not occurred up to that point[16]. Consequently the time-to-event is the length of the episode until the individual finds their FSJ (in months). In other words we analyse the probability of exit from unemployment/inactivity conditional on the time elapsed since accomplishing education and a set of other variables. In terms of the duration models literature we refer to a hazard function, which is just an estimate of the *relative risk of the terminal event*: the probability of the terminal event per unit of time for a case that has survived up to that time. The greater the value of h(t) the greater the rate of the terminal event. So, the probability of finding a FSJ by time t+1, given the covariate value $\boldsymbol{x}$, assuming that it was still continuing by time t is of the form:

$$h(t) = Pr[T=t/T \geq t,\ x(t)] = F(\alpha + \beta(t)x(t) + \delta(t)) \qquad (1)$$

where $x(t)$ is a vector of exogenous variables; $\beta(t)$, and $\delta(t))$ represents the potential duration dependence, which is a function of the periods out of a FSJ. We treat the hazard rate as coming from a logit function. Analogously we can formulate the competing risk model, where the main difference is that the exit is to, in our case, three possible states.

These models are estimated by Maximum Likelihood (ML). As above highlighted we should control for unobserved heterogeneity to avoid spurious results. Plugging in the hazard rate function the effect of unobserved heterogeneity we face the following especification:

$$h(t, \mu) = Pr[T=t/T \geq t,\ x(t)] = F(\alpha + \beta(t)x(t) + \delta(t) + \mu) \qquad (2)$$

where μ represents unobserved heterogeneity.

3.2. Returns to vocational qualifications.

This third stage of our analysis consists of analysing the effects of the different vocational tracks on workers' earnings in their FSJ. This provides another indicator of the labour market value of different vocational tracks. A limitation of our data is that it reports the individual's net wage in levels only. Thus, although ideally we would like to use a linear regression model to compute wage differentials across different qualifications, we have to make use of a regression model for categorical dependent variables. Usually ordered probit (or logit) models are reported when the dependent variable is of discrete ordered type. However here we

[15] The IIA means that the odds ratio for a subset of alternatives is independent of the remaining alternatives.

[16] This is the major advantage of the duration model as compared to traditional econometric estimation techniques (OLS, Probit, etc), i.e. they treat differently events occurring at the beginning of the period from those occurring at the end, as conditions may have changed. In other words, they properly allow for both incidence and duration before the event occurs. Additionally they overcome some of the problems in dealing with right censored observations.

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are going to use an ordered probit slightly modified. Since our dependent variable (wages) are grouped into intervals, we only observe whether wages fall into a particular group (interval), thus, following Wooldridge (2002)[17], we estimate through an interval regression procedure. This is very similar to an ordered probit model but fixing the cut points and estimating by maximum likelihood. The main advantage as compared to ordered probits (logit) is that the coefficients estimated by interval regression are easier to interpret since they are the partial effect of the regressor expressed in terms of the dependent variable units (instead of an odd ratio).

4. Main results: empirical approach.

4.1. Duration models.

4.1.1. Non-parametric analysis:

We start by presenting a non-parametric unconditional analysis of duration (transition into FSJ). The median survival time before exit to a FSJ is 1.5 years (this figure is computed including those who find a FSJ immediately after finishing education, i.e. within the next month), however when we restrict the sample focusing only on those who obtained a vocational qualification (before the end of 2001), the median survival time is just 6 months. In other words, 50% of those graduating from the vocational route find a FSJ within 6 months.

This is supported by Figure 2 which shows the path of the Kaplan-Meier survivor function and Nelson-Aalen cumulative hazard function for the period (and plots 99% confidence intervals at each point estimate; the Greenwood-type confidence intervals are very close to the survivor function which makes them difficult to observe).

The left hand panel of Figure 2 illustrates the probability of remaining not in a FSJ through time (t); in this context, continued survival implies a negative situation where the individual remains unable to secure a FSJ. The right hand panel of Figure 2 shows the cumulative likelihood of a worker finding a FSJ given that he/she has not found one up to time (t) [18]. The hazard shows a peak just after graduation (left hand panel; see Table B2, Appendix B, for descriptive statistics on this for the whole sample), which is consistent with findings in the previous literature that the hazard of finding a job is very high during the first few periods after leaving the educational system. This implies that the value of the cumulative *survival* function falls rapidly during the first months after leaving vocational education (left panel), reflecting the fact that many graduates find jobs immediately. Subsequently, the cumulative *hazard* increases at a decreasing rate up to approximately three and half years after leaving school (convex shape of the curve), holding constant from than point onwards.

[17] Pages 508-509.
[18] Risks sum up to time (t).

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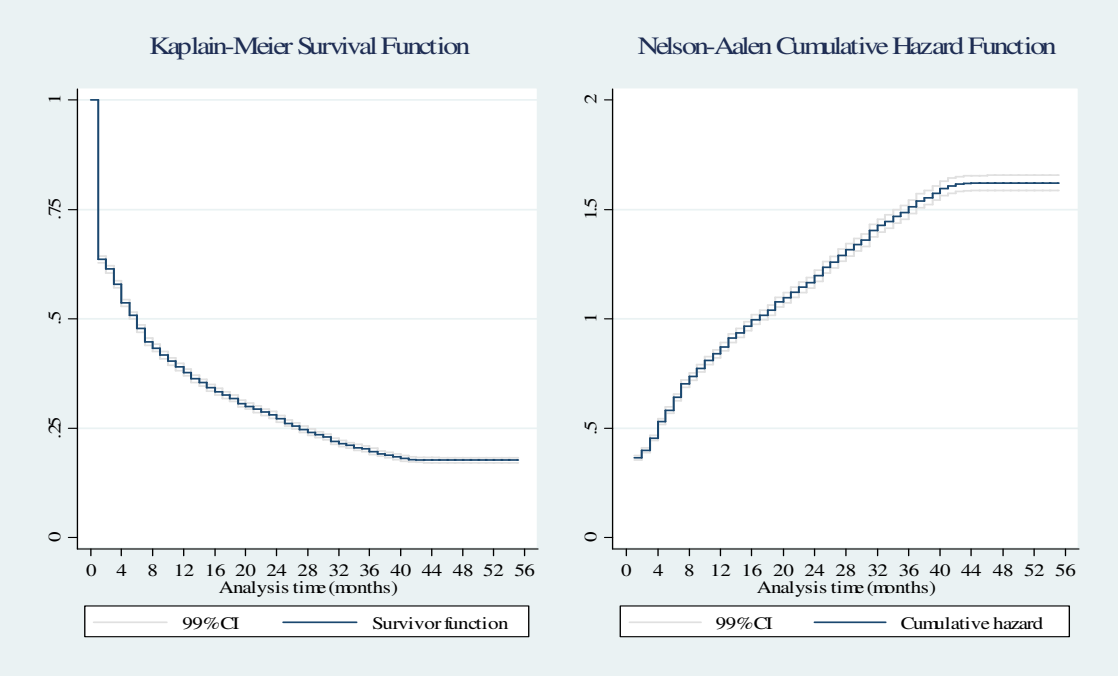
Figure 2. Estimated non-parametric survivor and (cumulative) hazard function.



Source: Authors' own calculations from ETEFIL (2005).

A priori we expect some differences in the duration to FSJ by gender, particularly given the large gap in the unemployment rates for female and male young adults. We also anticipate potential differences in the duration to FSJ by type of vocational programme completed. In Figure 3, we show the (Kernel-smoothed) hazard function by gender and by vocational track.

Figure 3 suggests that men progress more rapidly into a FSJ than women: in particular, men have a much higher probability of securing a FSJ in their first year after graduation. Nevertheless men and women's hazard rates converge by the end of the period, particularly from the third year onwards. The hazard rate for both genders is non-linear and does not exceed 6% at any time. This indicates that, at the peak of the hazard, there is a 6% chance of the youth exiting to a FSJ in any particular month, which is consistent with the results for other OECD countries (Serneels, 2001, suggested it stays mostly below 7%)[19].

The right hand panel of Figure 3 suggests that youths graduating from the intermediate vocational programme have the highest probability of finding a FSJ. By contrast, higher vocational graduates and those who completed ETCO-apprenticeship programmes have a somewhat lower risk of exiting to a FSJ. Young adults who have completed a FIP-training programme have the lowest probability of exit to a FSJ at any point in time. Although these results are purely descriptive, it is of note that the FIP programme graduates do not exit quickly to a FSJ (partly reflecting issues around the selectivity of this group of young people).

[19] Nonetheless comparisons are constrained as our definition of FSJ is more restrictive that the commonly used definition of employment (namely finding any job).

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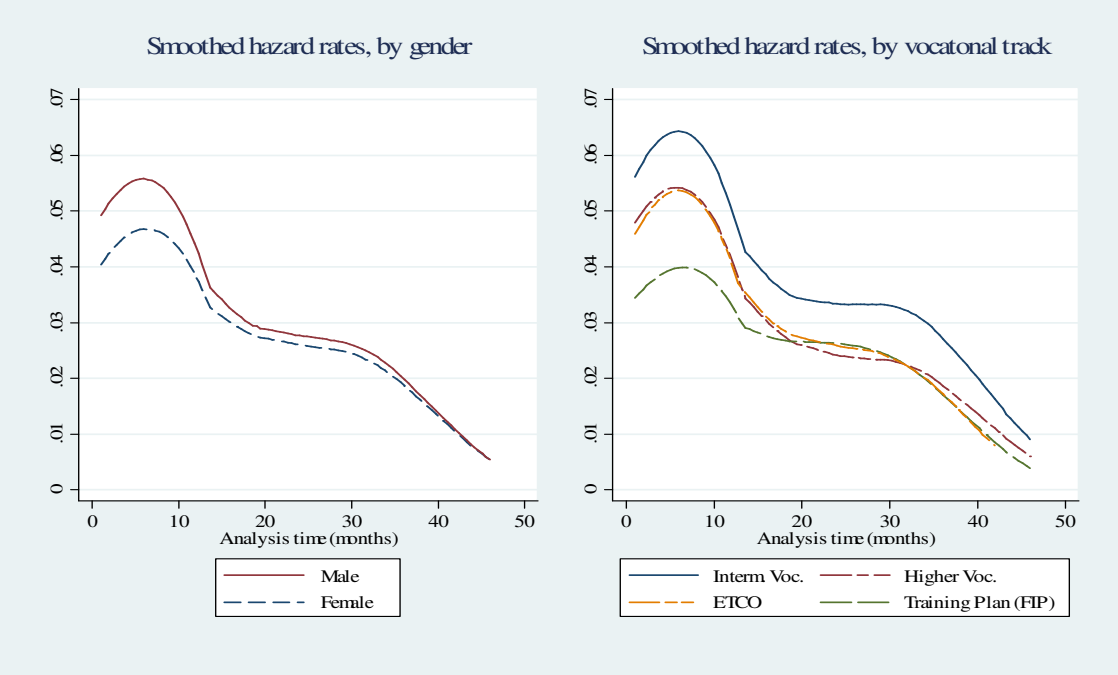
Figure 3. Kernel smoothed hazard rates, by gender and vocational track.



Source: Authors' own calculations from ETEFIL (2005).

Table 1 provides tests of whether the survival functions are equal for men and women, and across the different vocational tracks. Not surprisingly the tests suggest that we can reject the null hypothesis of equality. The Wilcoxon-Breslow test presented in Table 2 indicates that the survival functions are statistically significantly different across gender stratified by the vocational track followed. The log-rank, Tarone-Ware and Peto-Peto tests show virtually the same results.

Table 1. Tests for equality of survivor functions[20].

	Tests for equality of survivor functions			
	Log-rank	**Wilcoxon-Breslow**	**Tarone-Ware**	**Peto-Peto**
Gender	χ^2 (1)=162.56***	χ^2 (1)= 211.16***	χ^2 (1)=199.13***	χ^2 (1)=203.44***
	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000
Vocational tracks	χ^2 (3)=630.42***	χ^2 (3)=664.90***	χ^2 (3)=678.89***	χ^2 (3)=672.28***
	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000

Note: *** differences in survivor functions are significant at 1%
Source: Authors' own calculations from ETEFIL (2005).

[20] We also computed tests (log-rank, Wilcoxon-Breslow, Tarone-Ware and Peto-Peto) for the trend of the survivor function across the four vocational programmes, all of them rejecting the hypothesis of equality of the survivor function over the period.

Table 2. Tests for equality of survivor functions by gender (stratified).

	Strata			
	Intermediate Vocational	**Higher Vocational**	**ETCO-programme**	**FIP-programme**
Gender	$\chi^2(1)= 68.97$***	$\chi^2(1)= 12.76$***	$\chi^2(1)= 68.02$***	$\chi^2(1)=117.92$***
	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000	Prob.> χ^2 =0.000

Note: *** differences in survivor functions are significant at 1%
Source: Authors' own calculations from ETEFIL (2005).

Third, there is some evidence of negative duration dependence. The non-stratified kernel smoothed hazard rates show the same overall pattern as Figure 3. This is not presented for space reasons. This negative duration dependence is especially relevant between months 6-12. It might be a sign that individuals who have not found a FSJ within 6 months may suffer from the stigma of not having exited to a FSJ. Alternatively, this could be capturing a negative selection effect with respect to unobserved characteristics (e.g. unobserved skills), that is, the negative duration dependence may be bogus, see Lancaster (1990). There is substantial evidence of negative duration dependence in the transition to employment (see for example, Abbring *et al*. (2001), for USA, Arumpalan *et al*. (1995 and Andrews *et al*. (2002), for UK, Alba-Ramirez (1998)[21], Cañada *et al*. (1998) and Gonzalez-Betancor *et al*. (2004), for Spain).

4.1.2. Semi-parametric analyses: single risk model.

In our semi-parametric analyses[22], we seek to take account of personal characteristics and duration dependence. Specifically, we use the mixed proportional hazard (mph) model[23], as briefly presented in section 3.1. In this subsection we will focus our attention on the probability of finding a FSJ as compared to any other exit. Next section will go further by analysing a competing risk model.

Table 3a displays the estimated coefficients[24] for two different specifications of the model[25], where we investigate the probability of finding a FSJ and how this depends on time elapsed to that exit (towards a FSJ). The model controls for age at completion of education when left education, nationality, father and mother educational level, tenure in previous jobs

[21] He reports negative duration dependence for young men, but not for women.
[22] In a previous version of this paper we undertook parametric estimates relying on Cox-proportional hazard models. However due to the restrictive assumptions of the Cox models we turned to the more flexible semi-parametric estimates. The results are available from the authors upon request.
[23] Van den Berg (2001) stressed the risk of obtaining bias estimates if wrong parametric assumptions are imposed to estímate duration models. Nevertheless we run different parametric models that may be obtained from the authors on request. The results of these parametric models do not vary substantially from the ones reported here.
[24] The odds ratios may be obtained from the following identities:

$$\log\left(\frac{P(y=j)}{P(y=i)}\right) = x(\beta_j - \beta_j) = \left(\frac{P(y=j)}{P(y=i)}\right) = e^{(x(\beta_j-\beta_j))}$$

[25] Several alternative specifications were undertaken before choosing the presented estimates. They are not shown to conserve spacer but may be obtained from the authors upon request.

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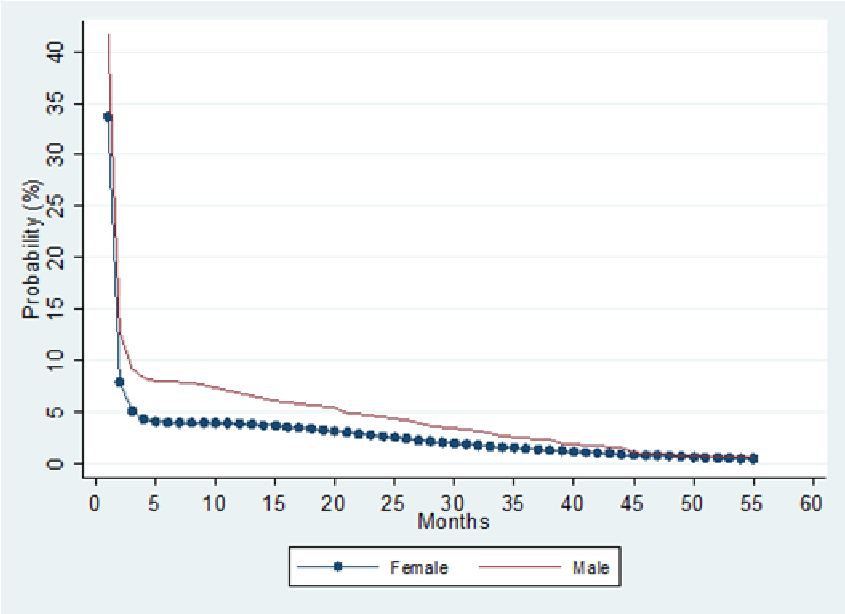
(working less than 20 hours/week or more than 20 hours but at a non-significant job) and qualification completed by 2001. Although we also present estimates separately by gender, we start with a combined male/female sample, which allows us to look at the relationship between gender and probability of getting a FSJ. Gender is significantly related to the probability to secure a FSJ. Consistent with previous work, females has lower hazard of leaving unemployment (or any job different from a FSJ), and therefore to find their first significant job, than males (which is consistent with the results by Genda & Kurosawa, 2000, Lassibille *et al*. 2001 and Albert *et al*. 2008).

The second group or regressors (log time, [log time]^2 and [log time]^3) capture duration dependence, by using a polynomial shape (of third order)[26] on the log duration. The main conclusion we can withdraw from the coefficients of this set of regressors is the existence of duration dependence (the three coefficients are statistically significant), which is clearly non-monotonic. What is more this dependence holds regardless of the specification we look at (as will be highlighted when we analyse table 3b). This non-monotonic duration dependence may be well observed in Figure 4 (which distinguish between women and men), where the predicted hazards have been drawn[27]. This figure states how the probability of finding a job is slightly higher for men than for women till approximately the 24th month and becomes akin from that period onwards. As an example to interpret this figure, we observe that the probability to find a FSJ after 6 months is almost 8% for men and 4% for women.

Figure 4. Predicted hazards for women and men.



[26] We also estimate a fifth order polynomial (estimates available from the authors upon request), finally deciding to present a more parsimonious specification.
[27] We use the mean value of all the variables included in table 3a to obtain the predicted hazards.

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Turning to the individual characteristics, older youth find 'easily' a FSJ, this could be related to higher preferences of employers for slightly more mature workers or higher search intensity. Nationality is insignificantly related to the hazard of finding a FSJ for female youngsters, however male immigrants seems to face higher difficulties to find a significant job than natives[28]. The influence of family background is somewhat perverse: youth with more highly educated parents take longer to exit into a FSJ as compared to parents with less than primary school education (the previous literature on this has not been conclusive, see Dolton *et al*. 1994, Nielsen *et al*. 2001, Andrews *et al*. 2002, and Corrales, 2005). This could be because greater parental wealth enables young people to take longer to enter their FSJ (they may undertake more protracted searches to maximise the quality of their job match, for example), although we are unable to verify this. Certainly young people in Spain (as in other Southern European countries) are now leaving the parental home at a later age than was previously the case (Aassve *et al*, 2002, and Chiuri & Del Boca, 2007). In fact by 2005 more than 70% of the population aged 15-29 was living at their parents' home. Lastly, the results indicate that region of domicile is also significantly related to to the probability of getting into a FSJ, as expected given the difference in regional labour markets. More precisely young people from Andalusia (the reference region) face more difficulties to find a FSJ than richer (in terms of GDP/head) autonomous communities like Madrid, Catalunya or Basque Country.

Our main focus however is on the relationship between the type of vocational education acquired and the probability of finding a FSJ[29]. Those who completed higher vocational training (the reference group) show lower probability, holding everything else constant, to find a FSJ than those who graduate with an intermediate vocational qualification. This is of course counter-intuitive given that the latter requires (at least) two fewer years of education and training. Graduates with a higher vocational training qualification do however have an advantage over those who complete an ETCO-apprenticeship programme: the latter take significantly longer to secure a FSJ. Males and females who take the FIP training route present the same probability to find a FSJ.

[28] Despite the fact that by 2001 the immigration rate was still very low in Spain as compared to other EU countries.

[29] The relationship between the vocational qualification acquired and time to a FSJ could be blurred if significant numbers of youth return to do further study or training in the intervening period. To control for this, we limited the sample to those who did not increase their education level over the period. Results did not change substantially.

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Table 3a. Estimates for logit hazard single risk model (finding FSJ vs non-finding FSJ); controlling for unobserved heterogeneity (Heckman-Singer).

	Specification I		
	All	**Female**	**Male**
Gender (Male=1)	0.074***		
	(0.029)		
Log (time elapsed)	-3.796***	-3.696***	-3.902***
	(0.055)	(0.079)	(0.077)
[Log (time elapsed)]^2	1.881***	1.833***	1.937***
	(0.040)	(0.057)	(0.057)
[Log (time elapsed)]^3	-0.319***	-0.308***	-0.334***
	(0.008)	(0.011)	(0.011)
Age at completion of education	0.043***	0.058***	0.035***
	(0.005)	(0.007)	(0.007)
Nationality (Non-Spanish=1)	-0.396***	0.058	-0.595***
	(0.136)	(0.208)	(0.180)
Cumulative tenure (jobs less 20 hours/week)	0.007	-0.010	0.029***
	(0.005)	(0.007)	(0.007)
Cumulative tenure (jobs more 20 hours/week)	0.096***	0.096***	0.099***
	(0.002)	(0.003)	(0.003)
Mother highest level of education:			
Primary	0.065**	0.065	0.069
	(0.031)	(0.045)	(0.044)
Secondary (academic track)	-0.018	0.034	-0.061
	(0.042)	(0.061)	(0.058)
Vocational Intermediate	0.029	0.015	0.045
	(0.053)	(0.077)	(0.074)
Vocational Higher	-0.074	0.005	-0.150
	(0.074)	(0.105)	(0.104)
University degree (short)	-0.293***	-0.206	-0.367***
	(0.093)	(0.145)	(0.123)
University degree (long/PH/Master)	-0.539***	-0.696***	-0.487***
	(0.106)	(0.186)	(0.131)
*University degree (short) *Log (time)*	0.066	0.007	0.113*
	(0.043)	(0.067)	(0.058)
*University degree (long/PH/Master) *Log (time)*	0.088*	0.128	0.092
	(0.047)	(0.079)	(0.060)
Father highest level of education:			
Primary	-0.037	0.008	-0.081*
	(0.033)	(0.046)	(0.046)
Secondary (academic track)	-0.121***	0.034	-0.238***
	(0.042)	(0.060)	(0.058)
Vocational Intermediate	-0.100*	-0.007	-0.177**
	(0.052)	(0.076)	(0.073)
Vocational Higher	-0.069	0.039	-0.142**
	(0.053)	(0.081)	(0.071)
University degree (short)	-0.168**	-0.111	-0.246**
	(0.086)	(0.137)	(0.110)
University degree (long/PH/Master)	-0.248***	-0.241*	-0.302***
	(0.076)	(0.124)	(0.097)
*University degree (short) *Log (time)*	-0.082**	-0.039	-0.090*
	(0.040)	(0.063)	(0.052)
*University degree (long/PH/Master) *Log (time)*	0.017	0.031	0.028
	(0.034)	(0.054)	(0.044)
Qualification completed in 2001:			
Intermediate Voc	0.349***	0.281***	0.403***
	(0.032)	(0.046)	(0.044)
FIP – training programme	0.003	0.009	0.005
	(0.016)	(0.023)	(0.023)
ETCO-apprenticeship programmes	-0.154***	-0.198***	-0.131***
	(0.035)	(0.050)	(0.048)
Regional unemployment rate (by gender)	-0.012***	-0.003	0.011
	(0.002)	(0.005)	(0.009)
Regions (Autonomous Communities):			
Aragon	0.110	0.351**	0.415***
	(0.074)	(0.163)	(0.147)
Asturias	√	√	√
Balearics Islands	0.069	0.365*	0.386**
	(0.100)	(0.197)	(0.189)
Canary Islands	√	√	√
Cantabria	0.009	0.142	0.267*
	(0.080)	(0.134)	(0.144)
Castilla Leon	0.048	0.114*	0.126*

	(0.044)	(0.065)	(0.077)
Castilla Mancha	0.078	0.193*	0.327***
	(0.057)	(0.100)	(0.121)
Catalunya	0.070	0.320**	0.221**
	(0.052)	(0.137)	(0.091)
Valencia	-0.019	0.203*	0.135
	(0.049)	(0.106)	(0.101)
Extremadura	-0.116**	-0.046	0.005
	(0.058)	(0.084)	(0.100)
Galicia	√	√	√
Madrid	0.121***	0.355***	0.285***
	(0.045)	(0.117)	(0.092)
Murcia	0.098	0.160	0.369***
	(0.066)	(0.100)	(0.137)
Navarra	0.225***	0.255	0.682***
	(0.085)	(0.168)	(0.160)
Basque Country	0.123**	0.230*	0.274***
	(0.050)	(0.119)	(0.074)
La Rioja	-0.011	0.353*	0.120
	(0.119)	(0.197)	(0.202)
Ceuta	√	√	√
Melilla	√	√	√
Constant	-1.404***	-2.190***	-1.512***
	(0.138)	(0.262)	(0.245)
Observations	314481	170735	143746
Log-likelihood	-56514.36	-28600.30	-27791.90

Data source: ETEFIL (2005). Dependent variable: takes value 1 when a significant job was found and 0 when a significant job was not found. Only regions with significant coefficients are reported (to conserve space). Logit estimates (maximum likelihood estimates).
Baseline case: Spanish woman, mother and father lower than Primary education, with Higher Vocational completed in 2001, living in Andalusia. Standard errors in brackets. *** significant at 1%, ** significant at 5%, * significant at 10%.

The fact that intermediate vocational qualifications appear to be associated with higher probability of transition into a FSJ than higher vocational qualifications, might suggest some problem with the nature of higher vocational training in Spain. However, it is possible that higher vocational qualifications simply include a different mix of fields of study as compared to intermediate qualifications. If higher vocational training tends to be in subject areas that are less in demand in the labour market, this may explain why individuals with higher vocational qualifications take longer to integrate properly into the labour market. We therefore investigate further the relationship between field of study and time to a FSJ, allowing for the level of qualification acquired (Table 3b).

Table 3b compares the hazard of finding a FSJ for each combination of field of study and level of qualification by gender, with the base case being a worker with a higher level vocational qualification in the field of administration. Table 3b indicates that there are large significant differences across subject areas and qualification levels, in terms of the hazard to secure a FSJ. Almost without exception, males with intermediate qualifications present higher hazards of finding a FSJ regardless of field of study as compared to males with higher level vocational qualifications in administration (the coefficient on arts and entertainment is insignificant, thus is not reported). Females with intermediate qualifications in wholesale and retail trade also find easier to secure a FSJ compared to those with higher vocational

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qualifications in administration. By contrast females with intermediate qualifications in agriculture, forestry and fishing have higher difficulties to secure a FSJ.

Table 3b. Estimates for logit hazard single risk model (finding FSJ vs non-finding FSJ); controlling for unobserved heterogeneity (Heckman-Singer).

	Specification II		Specification III	
	Female	**Male**	**Female**	**Male**
Log (time elapsed)	-3.745***	-3.876***	-3.747***	-3.876***
	(0.084)	(0.081)	(0.084)	(0.081)
[Log (time elapsed)]^2	1.896***	1.940***	1.899***	1.940***
	(0.062)	(0.061)	(0.062)	(0.061)
[Log (time elapsed)]^3	-0.323***	-0.337***	-0.324***	-0.336***
	(0.012)	(0.012)	(0.012)	(0.012)
Age at completion of education	0.061***	0.042***	0.063***	0.044***
	(0.008)	(0.007)	(0.008)	(0.007)
Nationality (Non-Spanish=1)	-0.046	-0.651***	-0.039	-0.651***
	(0.222)	(0.190)	(0.223)	(0.190)
Cumulative tenure (jobs less 20 hours/week)	-0.009	0.039***	-0.010	0.039***
	(0.007)	(0.007)	(0.007)	(0.007)
Cumulative tenure (jobs more 20 hours/week)	0.097***	0.099***	0.097***	0.099***
	(0.003)	(0.003)	(0.003)	(0.003)
Mother highest level of education:				
Primary	0.079	0.095**	0.085*	0.093**
	(0.048)	(0.047)	(0.048)	(0.047)
Secondary (academic track)	0.092	-0.001	0.112*	-0.002
	(0.066)	(0.062)	(0.066)	(0.062)
Vocational Intermediate	√	√	√	√
Vocational Higher	√	√	√	√
University degree (short)	-0.191	-0.306**	-0.154	-0.304**
	(0.155)	(0.131)	(0.155)	(0.131)
University degree (long/PH/Master)	-0.723***	-0.459***	-0.709***	-0.451***
	(0.196)	(0.139)	(0.197)	(0.139)
*University degree (short) *Log (time)*	0.007	0.136**	0.009	0.134**
	(0.073)	(0.062)	(0.073)	(0.062)
*University degree (long/PH/Master) *Log (time)*	0.161*	0.104	0.171**	0.108*
	(0.083)	(0.064)	(0.083)	(0.064)
Father highest level of education:				
Primary	0.004	-0.090*	0.002	-0.083*
	(0.049)	(0.049)	(0.049)	(0.049)
Secondary (academic track)	0.009	-0.249***	0.017	-0.241***
	(0.065)	(0.061)	(0.065)	(0.061)
Vocational Intermediate	-0.030	-0.218***	-0.024	-0.214***
	(0.083)	(0.078)	(0.083)	(0.078)
Vocational Higher	-0.014	-0.203***	-0.022	-0.190**
	(0.089)	(0.077)	(0.089)	(0.077)
University degree (short)	√	√	√	√
University degree (long/PH/Master)	-0.207	-0.295***	-0.199	-0.277***
	(0.132)	(0.103)	(0.132)	(0.103)
*University degree (short) *Log (time)*	-0.001	-0.107*	-0.004	-0.108*
	(0.068)	(0.057)	(0.067)	(0.057)
*University degree (long/PH/Master) *Log (time)*	0.037	0.012	0.037	0.014
	(0.058)	(0.047)	(0.058)	(0.047)
Access via for those with FIP:				
Primary or Lower Secondary			√	√
Upper Secondary			-0.393***	-0.306***
			(0.068)	(0.086)
Intermediate Vocational			√	√
Higher Vocational			-0.219*	0.056
			(0.113)	(0.124)
Access via for those with ETCO:				
Primary or Lower Secondary			√	√
Upper Secondary			√	√
Intermediate Vocational			0.374**	0.014
			(0.159)	(0.177)
Higher Vocational			√	√
Vocational fields:				
Intermediate Voc.:				
Accommodation and food service activities	0.193*	0.475***	0.114	0.435***

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	(0.111)	(0.122)	(0.113)	(0.124)
Administrative and support service activities	0.297***	0.392***	0.218***	0.353***
	(0.058)	(0.097)	(0.062)	(0.099)
Agriculture, forestry and fishing	-0.555*	0.519***	-0.637**	0.476***
	(0.284)	(0.127)	(0.285)	(0.129)
Human health and social work activities	0.141**	0.541***	0.062	0.500***
	(0.060)	(0.164)	(0.063)	(0.166)
Information and communication	0.170	0.512***	0.091	0.471***
	(0.124)	(0.118)	(0.126)	(0.121)
Manufacturing	0.086	0.662***	0.000	0.624***
	(0.111)	(0.075)	(0.112)	(0.078)
Other service activities	0.315***	1.318**	0.235***	1.272**
	(0.078)	(0.532)	(0.081)	(0.532)
Professional, scientific and techn. act..	0.491***	0.563***	0.403***	0.520***
	(0.151)	(0.179)	(0.152)	(0.181)
Water and energy supply	0.039	0.689***	-0.041	0.652***
	(0.496)	(0.078)	(0.496)	(0.082)
Wholesale and retail trade; repair of vehic.	0.303***	0.787***	0.223**	0.749***
	(0.087)	(0.080)	(0.089)	(0.083)
Higher Voc.:				
Accommodation and food service activities	0.003	0.285**	-0.080	0.243*
	(0.082)	(0.127)	(0.085)	(0.129)
Agriculture, forestry and fishing	-0.461*	-0.298**	-0.556**	-0.345***
	(0.239)	(0.132)	(0.240)	(0.134)
Arts, entertainment and recreation	-0.464***	-0.589***	-0.548***	-0.631***
	(0.147)	(0.118)	(0.149)	(0.121)
Construction	-0.324***	-0.145	-0.408***	-0.188*
	(0.122)	(0.103)	(0.123)	(0.106)
Human health and social work activities	-0.213***	-0.276**	-0.295***	-0.319**
	(0.050)	(0.124)	(0.054)	(0.127)
Information and communication	-0.031	0.154**	-0.114	0.111
	(0.072)	(0.070)	(0.075)	(0.074)
Manufacturing	-0.096	0.352***	-0.185**	0.309***
	(0.081)	(0.075)	(0.084)	(0.079)
Water and energy supply	-0.211	0.220***	-0.286	0.178**
	(0.318)	(0.076)	(0.318)	(0.079)
Wholesale and retail trade; repair of vehic.	-0.237***	0.356***	-0.319***	0.314***
	(0.087)	(0.081)	(0.089)	(0.084)
FIP :				
Accommodation and food service activities	-0.257**	-0.064	-0.155	-0.065
	(0.105)	(0.153)	(0.111)	(0.160)
Agriculture, forestry and fishing	-0.358**	-0.025	-0.314*	-0.049
	(0.180)	(0.140)	(0.182)	(0.145)
Arts, entertainment and recreation	-0.443**	-0.453***	-0.292	-0.376**
	(0.202)	(0.171)	(0.205)	(0.179)
Construction	-1.239***	0.035	-1.196***	-0.011
	(0.364)	(0.104)	(0.364)	(0.113)
Human health and social work activities	-0.293***	-0.124	-0.242***	-0.094
	(0.078)	(0.160)	(0.086)	(0.167)
Information and communication	-0.410***	-0.249***	-0.254***	-0.196**
	(0.070)	(0.080)	(0.078)	(0.094)
Manufacturing	-0.234***	0.234***	-0.202**	0.191**
	(0.077)	(0.077)	(0.083)	(0.088)
Professional, scientific and techn. act..	-0.337*	0.646***	-0.150	0.717***
	(0.183)	(0.194)	(0.188)	(0.204)
Water and energy supply	-0.633	0.257***	-0.506	0.240**
	(0.399)	(0.096)	(0.401)	(0.106)
Wholesale and retail trade; repair of vehicles	-0.142*	0.362***	-0.070	0.334***
	(0.086)	(0.089)	(0.092)	(0.099)
ETCO :				
Accommodation and food service activities	-0.213	-0.493	-0.482**	-0.613
	(0.149)	(0.379)	(0.190)	(0.388)
Agriculture, forestry and fishing	-0.226**	0.050	-0.428***	-0.039
	(0.104)	(0.127)	(0.144)	(0.140)
Construction	-0.293**	0.210**	-0.486***	0.121
	(0.116)	(0.082)	(0.151)	(0.103)
Human health and social work activities	-0.301***	0.248	-0.557***	0.108
	(0.091)	(0.235)	(0.143)	(0.252)
Information and communication	0.036	0.354**	-0.238	0.241
	(0.172)	(0.172)	(0.210)	(0.194)
Manufacturing	-0.255***	0.352***	-0.449***	0.262**
	(0.096)	(0.085)	(0.139)	(0.105)
Other service activities	-0.166	0.508***	-0.401**	0.398*
	(0.139)	(0.188)	(0.178)	(0.205)
Professional, scientific and techn. act..	-0.865	1.605**	-1.147**	1.472**
	(0.528)	(0.644)	(0.548)	(0.655)

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Water and energy supply	-0.244	0.451***	-0.450	0.354**
	(0.262)	(0.132)	(0.282)	(0.152)
Regional unemployment rate (by gender)	√	√	√	√
Regions (Autonomous Communities):				
Aragon	0.351*	0.431***	0.319*	0.433***
	(0.180)	(0.157)	(0.181)	(0.157)
Balearics Islands	0.292	0.495**	0.278	0.492**
	(0.213)	(0.200)	(0.214)	(0.200)
Castilla Mancha	0.227**	0.341***	0.235**	0.333***
	(0.110)	(0.128)	(0.110)	(0.128)
Catalunya	0.287*	0.205**	0.257*	0.202**
	(0.150)	(0.097)	(0.151)	(0.097)
Valencia	0.199*	0.146	0.180	0.146
	(0.116)	(0.107)	(0.116)	(0.108)
Madrid	0.367***	0.281***	0.336***	0.272***
	(0.129)	(0.099)	(0.130)	(0.099)
Murcia	0.118	0.355**	0.135	0.353**
	(0.108)	(0.145)	(0.108)	(0.146)
Navarra	0.219	0.645***	0.196	0.645***
	(0.185)	(0.171)	(0.186)	(0.171)
Basque Country	0.259**	0.171**	0.218*	0.160**
	(0.131)	(0.081)	(0.132)	(0.081)
Constant	-2.134***	-1.837***	-2.056***	-1.851***
	(0.283)	(0.266)	(0.288)	(0.269)
Observations	145658	127658	145658	127658
Log-likelihood	-24460.41	-24393.70	-24434.34	-24374.79

Data source: ETEFIL (2005). Dependent variable: takes value 1 when a significant job was found and 0 when a significant job was not found. Only fields and regions with significant coefficients are reported (to conserve space). Logit estimates (maximum likelihood estimates).
Baseline case: Spanish woman, mother and father lower than Primary education, with Higher Vocational completed in 2001, living in Andalusia. Standard errors in brackets. *** significant at 1%, ** significant at 5%, * significant at 10%.

For females, those with higher level vocational qualifications in most fields (other than accommodation and food service, other services or water and energy) face lower probabilities to secure a FSJ, as compared to those with higher level vocational qualifications in administration. For males, the pattern is more mixed. Males with higher level vocational qualifications in accommodation and food, manufacturing, water and energy, and wholesale and retail trade, present lower hazard to secure a FSJ than males with higher level qualifications in administration.

Moving down the table, we consider those with FIP training. For females, FIP training in all fields is associated with harder transitions to a FSJ, with the exception of the field of water and energy supply (for which the coefficients are insignificant, largely due to the very few females who take this type of training). Broadly, females who undertake FIP get more difficulties to match into FSJ, regardless of their field of study. The pattern is again more mixed for males. In many fields, such as arts, and information, FIP training is associated with higher complications to find a suitable FSJ. Unlike males with FIP training in manufacturing, professional and scientific fields, water and energy supply and wholesale and retail trades.

Generally, for women, undertaking an ETCO apprenticeship is associated with lower FSJ prospects, particularly in the fields of agriculture, construction and health. For males, usually ETCO apprenticeships appear to be associated with higher probabilities of finding a

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FSJ, at least in construction, information, manufacturing, other services, professional and scientific and the energy and water fields.

Additionally we do some research on the access via for those with FIP or ETCO programmes. Those who take FIP training or ETCO training can also have other types of vocational and academic training. In the final two columns in Table 3b we split out the FIP and ETCO workers according to their previous level of education and training, namely below primary, primary, upper secondary, intermediate vocational or higher vocational. This allows for the fact that someone with ETCO training may also have an intermediate or higher level vocational qualification. The results suggest that FIP students with intermediate vocational qualifications have the same 'risk' of finding a FSJ as compared to the base case of workers with higher vocational qualifications. Interestingly however, FIP female students who already have a higher vocational (or upper secondary) qualification find more difficult to get access to a FSJ as compared to those with just a higher vocational qualification. We suspect this is caused by the negative selection process into FIP specially affecting women, i.e. individuals with higher level vocational qualifications who then enrol in FIP have probably experienced problems integrating into the labour market already.

4.1.3. Semi-parametric analyses: competing risks model.

Further to our previous results, we decided to estimate a competing risks model, to reflect possible alternatives after completing a vocational education level by 2001. To be sure about the need of this type of models, we ran Wald tests (Judge et al. 1985) which help to check whether the outcome categories should be (or not) combined; the results rejected the equality of the outcomes, i.e. the parameter estimates differ significantly across them, thus it is worthy to estimate a competing risk model.

Further, allowing for correlation between the three destinations, the specification with unobservables no longer imposes the IIA property, which is implicit in the standard multinomial logit model. This is the reason why we focus our attention only on the model accounting for unobserved heterogeneity[30].

In table 4 we present the results of the estimates of the multinomial logit model, where the dependent variable takes value '0' if the young remains unemployed/inactive, '1' if the person enter a part-time job (less than 20 hours a week), '2' for a full-time (more than 20 hours) non-significant job, and '3' if the young enter into a significant job. The first result that brings our attention is the difference in patterns followed by the duration dependence parameters depending on the exit evaluated, especially for young females who present a significative and non-monotonic duration dependence particularly high when finding a job of less than 20

[30] The validity of the IIA assumption has been tested using the Hausman test (Hausman and McFadden, 1984) and the Small-Hsiao test (Small and Hsiao, 1985).

hours/week. Similarly to the results observed in table 3b, we find that higher parental education level make not easier to leave unemployment/inactivity regardless of the destination.

The most interesting result stemming from table 4 relates to the influence of the qualification obtained by 2001. Similarly to the results shown for the single risk model, those young individuals taking a special (training or apprenticeship) programme has lower hazard of leaving unemployment/inactivity than those others with a higher vocational qualification. However for men the impact of ETCO programmes is positive with regard to the probability of finding a non significant job (either 'part or full-time'), and also positive for FIP programmes although just for those finding a job of less than 20 hours a week. So, it seems that the negative impact on the probability of finding a FSJ for those with FIP or ETCO programmes hold regardless of the model we estimate (single or competing).

Table 4. Estimates for multinomial logit competing risks model.

	Female			Male		
	Findind a job (<20 hours/week)	**Findind a job (>=20 hours/week) non-signif.**	**Findind a significant job**	**Findind a job (<20 hours/week)**	**Findind a job (>=20 hours/week) non-signif.**	**Findind a significant job**
Log (time elapsed)	-4.133***	-2.174***	-3.380***	-3.412***	-3.010***	-3.895***
	(0.669)	(0.162)	(0.131)	(0.845)	(0.181)	(0.142)
[Log (time elapsed)]^2	1.938***	0.383***	1.319***	0.612	0.795***	1.658***
	(0.670)	(0.141)	(0.111)	(0.732)	(0.163)	(0.129)
[Log (time elapsed)]^3	-0.314*	0.020	-0.165***	0.046	-0.041	-0.240***
	(0.161)	(0.029)	(0.023)	(0.150)	(0.034)	(0.028)
Age at completion of education	0.065	0.000	0.063***	0.095**	0.026*	0.039***
	(0.040)	(0.015)	(0.011)	(0.041)	(0.014)	(0.011)
Nationality (Non-Spanish=1)	0.652	-0.348	0.089	-30.309***	-0.269	-0.089
	(0.718)	(0.473)	(0.280)	(0.345)	(0.440)	(0.307)
Mother highest level of education:						
Primary	-0.011	-0.032	0.011	0.041	0.026	-0.020
	(0.279)	(0.092)	(0.071)	(0.377)	(0.098)	(0.076)
Secondary (academic track)	0.065	-0.137	-0.010	0.128	-0.240*	-0.145
	(0.380)	(0.135)	(0.097)	(0.444)	(0.131)	(0.102)
Vocational Intermediate	-0.156	-0.228	-0.007	-1.487	-0.021	-0.018
	(0.496)	(0.170)	(0.125)	(1.042)	(0.163)	(0.121)
Vocational Higher	0.765	0.211	0.034	-0.788	0.221	-0.141
	(0.550)	(0.234)	(0.183)	(1.046)	(0.228)	(0.182)
University degree (short)	0.205	0.009	-0.158	0.834	0.118	-0.212
	(0.650)	(0.213)	(0.174)	(0.551)	(0.178)	(0.150)
University degree (long/PH/Master)	-0.063	0.006	-0.650***	-1.603	-0.136	-0.514***
	(0.761)	(0.217)	(0.199)	(1.153)	(0.174)	(0.147)
*University degree (short) *Log (time)*	√	√	√	√	√	√
*University degree (long/PH/Master) *Log (time)*	√	√	√	√	√	√
Father highest level of education:						
Primary	√	√	√	√	√	√
Secondary (academic track)	0.175	-0.178	0.047	0.232	0.041	-0.304***
	(0.356)	(0.131)	(0.096)	(0.459)	(0.127)	(0.101)
Vocational Intermediate	-0.259	-0.037	-0.227*	-0.651	-0.134	-0.195
	(0.476)	(0.157)	(0.131)	(0.803)	(0.162)	(0.124)
Vocational Higher	-0.417	-0.424**	-0.135	0.396	-0.120	-0.247**
	(0.533)	(0.180)	(0.131)	(0.517)	(0.158)	(0.121)
University degree (short)	-0.692	-0.320	-0.141	-0.361	-0.199	-0.432***
	(0.704)	(0.205)	(0.156)	(0.659)	(0.168)	(0.140)
University degree (long/PH/Master)	-1.529*	-0.366**	-0.236*	0.266	-0.268*	-0.382***
	(0.840)	(0.183)	(0.138)	(0.589)	(0.155)	(0.124)
*University degree (short) *Log (time)*	√	√	√	√	√	√
*University degree (long/PH/Master) *Log (time)*	√	√	√	√	√	√
Qualification completed in 2001:						
Intermediate Voc	0.522**	0.072	0.199***	0.615**	0.245***	0.447***

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	(0.229)	(0.071)	(0.053)	(0.299)	(0.072)	(0.057)
FIP – training programme	0.742***	-0.311***	-0.411***	1.089***	-0.190***	-0.272***
	(0.202)	(0.066)	(0.051)	(0.254)	(0.066)	(0.052)
ETCO-apprenticeship programmes	0.861***	-0.274***	-0.413***	0.983***	0.246***	-0.040
	(0.257)	(0.087)	(0.071)	(0.326)	(0.087)	(0.071)
Regional unemployment rate (by gender)	0.031	0.012	-0.003	-0.145*	0.007	0.040**
	(0.027)	(0.010)	(0.008)	(0.080)	(0.020)	(0.016)
Regions (Autonomous Communities):						
Aragon	1.239	0.811**	0.545**	-2.495*	0.390	1.199***
	(0.933)	(0.338)	(0.269)	(1.333)	(0.328)	(0.263)
Asturias	0.401	0.219	0.026	-1.820*	-0.040	0.465**
	(0.598)	(0.218)	(0.169)	(1.028)	(0.265)	(0.215)
Balearics Islands	2.017**	1.202***	1.223***	-33.566***	0.504	1.273***
	(0.944)	(0.406)	(0.303)	(1.357)	(0.448)	(0.355)
Canary Islands	0.041	0.372*	0.263	-2.077**	-0.241	0.386**
	(0.609)	(0.205)	(0.161)	(0.882)	(0.228)	(0.180)
Cantabria	-32.081***	0.272	0.103	-32.491***	-0.103	0.489**
	(0.504)	(0.276)	(0.215)	(0.920)	(0.316)	(0.240)
Castilla Leon	0.021	0.076	0.108	-0.761	0.255	0.474***
	(0.407)	(0.137)	(0.102)	(0.573)	(0.160)	(0.131)
Castilla Mancha	0.661	-0.088	0.243	-2.378**	0.067	0.710***
	(0.519)	(0.206)	(0.153)	(1.046)	(0.261)	(0.210)
Catalunya	0.742	0.685**	0.552**	-1.075	0.286	0.751***
	(0.745)	(0.275)	(0.215)	(0.755)	(0.197)	(0.159)
Valencia	0.940*	0.392*	0.312*	-1.512*	0.285	0.630***
	(0.557)	(0.213)	(0.167)	(0.842)	(0.212)	(0.173)
Extremadura	-0.220	-0.014	-0.233*	-1.718**	0.191	0.326**
	(0.445)	(0.148)	(0.126)	(0.810)	(0.192)	(0.162)
Galicia	-0.082	-0.043	0.132	-1.927***	-0.173	0.335***
	(0.461)	(0.165)	(0.119)	(0.731)	(0.164)	(0.130)
Madrid	0.803	0.839***	0.555***	-1.991**	0.440**	0.761***
	(0.637)	(0.235)	(0.187)	(0.778)	(0.195)	(0.161)
Murcia	0.710	0.026	0.402***	-1.474	0.113	0.825***
	(0.486)	(0.220)	(0.140)	(1.056)	(0.293)	(0.244)
Navarra	1.506*	0.786**	0.253	-2.461	0.650*	1.436***
	(0.838)	(0.335)	(0.287)	(1.650)	(0.385)	(0.325)
Basque Country	1.756***	0.652***	0.235	-0.203	0.275*	0.733***
	(0.624)	(0.246)	(0.195)	(0.569)	(0.166)	(0.136)
La Rioja	2.328**	0.685	0.170	-0.857	0.264	0.843**
	(0.967)	(0.502)	(0.406)	(1.303)	(0.475)	(0.364)
Ceuta	0.747	-0.187	0.133	-32.110***	-0.912	0.431
	(1.090)	(0.552)	(0.305)	(1.412)	(0.572)	(0.736)
Melilla	-32.571***	-0.318	0.186	-30.233***	-1.326	-0.073
	(0.373)	(0.519)	(0.319)	(1.312)	(1.106)	(0.507)
Constant	-6.050***	-1.371***	-1.381***	-2.394	-1.092**	-1.209***
	(1.443)	(0.525)	(0.403)	(1.950)	(0.526)	(0.435)
Observations		34578			29163	
Log-likelihood		-21247.67			-19375.88	

Data source: ETEFIL (2005). Dependent variable: finding a FSJ==3, find a job (more 20 hours/week) non significant=2, , find a job (less 20 hours/week) =1, staying unemployed/inactive=0.(baseline category) Multinomial logit estimates (maximum likelihood estimates).
Baseline case: Spanish woman, mother and father lower than Primary education, with Higher Vocational completed in 2001, living in Andalusia. Standard errors in brackets. *** significant at 1%, ** significant at 5%, * significant at 10%.

4.2. Job Quality.

Thus far we have focused on the time taken to secure a FSJ. In this section we consider two other measures of job quality, namely wages and skill match. Table 5 shows the wage differences across field of study/ qualification level combinations for the person's FSJ, estimated by interval regression. The dependent variable is net wage per calendar month in levels in the person's first significant job[31]. The bounds for these net wage levels are:

[31] As stated by Eckstein and Wolpin (1994) using the starting wage implies to assume that the present value of the starting wage is representative of the value of taking the first job when account is taken of wage growth and turnover.

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<433.55€, 433.55 - 749.99€, 750 - 999.99€, 1000 - 1249.99€, 1250 - 1499.99€, 1500 - 1999.99€, 2000 - 2499.99€, 2500 - 2999.99€ and >=3000€. The first specification shows wage differences across the different levels of qualifications. As we move from left to right across the table, Specification II disaggregates the effect of completing different fields of study. Specification III separates out those with FIP or ETCO training according to prior educational achievement. Finally, in specification IV, we allow for skill mismatch, i.e. whether the qualifications required for the job exceed the individual's own level of qualification or whether s/he is over qualified.

Briefly, the results from table 5 indicate that, unsurprisingly, men earn significantly more than women. As above highlighted the main advantage from using interval regression, as compared to ordered probits (logits), is that the coefficients estimated by the former procedure are easier to interpret since they are the partial effect of the regressor expressed in terms of the dependent variable units. So, we find the men earn approximately over 180 € more, per calendar month, than women. Likewise, workers earn more when working more hours that agreed, as do those in larger firms and those who undertake more training. Particularly relevant appears that each language course accomplished seems to increase, on average, 16-22 € per month the net wage, giving support to the idea of significant positive returns to human capital accumulation Parental education is largely positively related to the individual's monthly wage, although only maternal education is significant. However, our interest is primarily in the coefficients on the qualification variables.

The coefficients from table 5 suggest that individuals with intermediate vocational qualifications earn less than those with higher vocational qualifications. This is perhaps reassuring. Even if individuals with higher vocational qualifications take longer to secure a FSJ (as suggested by the previous duration analysis), the value of higher vocational qualifications exceeds intermediate level qualifications. The results also suggest that workers taking FIP or ETCO training earn significantly less (48 and 91 €, respectively) than workers with higher level qualifications. We are not claiming this is causal[32] however, due to the negative selection into these programmes discussed earlier. Indeed this is obvious from Specification III, which allows for the previous qualification level of workers taking FIP and ETCO programmes. Specification III suggests that FIP workers earn less even if they had other vocational qualifications previously. This might confirm that there is a selection process here, whereby individuals with previously high levels of vocational qualification then have difficulties in the labour market and enrol in FIP (or ETCO.) These individuals then go on to earn less in the labour market.

Our final specification includes controls for whether or not the person is over qualified for his or her job. Of course the quality of the job match achieved by a worker is in fact an

[32] Note that our specification is a purely reduced form model and although we are able to identify correlations, we are not necessarily able to identify causal relations between variables.

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outcome from that person's education investments, including their choice of subject area. So we might view whether or not the person is overeducated and any impact on wages arising from this as part of the negative or positive return to a given qualification and endogenous. In other words, we can take the potential mismatch as a measure of the distance between workers and their jobs (Jovanovic, 1979). In which case, specification III would be preferable. However, it is nonetheless of interest to investigate the impact of being overeducated on workers' wages and on the wage differences across qualification/ subject combinations. The variable signifying whether someone is over qualified in their job is highly negatively significant, i.e. overeducated workers earn significantly less than adequately matched workers. Undereducated workers earn significantly more than adequately matched workers[33]. This is consistent with a range of empirical evidence for Spain and other countries (see, e.g., Alba-Ramirez, 1994, or Dolton and Marcenaro, 2008).

For example, workers with intermediate qualifications in construction appear to be very highly paid compared to the base case of a worker with a higher vocational qualification in administration. After we control for whether a worker is overqualified, this possitive wage premium remains. Equally workers with higher vocational or intermediate vocational qualifications in professional, scientific and technical activities earn significantly more than workers with a higher vocational qualification in administration. This gap virtually triple once we consider workers with FIP in mining and quarrying; although we have to be cautious on this as the sample of individuals in this field is extremely reduced (only 9 observations).

The reader may find interesting to look at the earnings progression between jobs as an alternative measure of opportunities provided by different vocational tracks. Unfortunately, although for part of the sample we observe transitions between jobs, due to the short span period we have information for and the fact that we have wage in levels makes 'progression estimates' a very imprecise econometric exercise[34].

[33] The proportion of skill-mismatched workers in our sample (23.6% are overqualified, and 3.60% are under-educated) is similar to that reported by Blazquez (2005) at LFS.

[34] We estimated several models to show if they youngsters experience significant wage mobility. The results are not reported due to lack of representativeness (only few individuals moved to a job with a lower or higher wage during the observed period).

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Table 5. Returns to vocational qualifications.

	Specification I	Specification II	Specification III	Specification IV
Gender (male=1)	210.218***	185.293***	185.437***	181.906***
	(5.640)	(6.729)	(6.734)	(6.679)
Age at completion of education	10.032***	9.556***	7.733***	7.592***
	(1.660)	(1.665)	(1.731)	(1.716)
Working hours:				
Agreed working hours	5.696***	5.442***	5.482***	5.371***
	(0.456)	(0.456)	(0.455)	(0.452)
Surplus working hours	3.591***	3.367***	3.411***	3.679***
	(0.570))	(0.570)	(0.569)	(0.565)
Firm size:				
11-49 employees	25.655***	23.550***	23.612***	24.265***
	(6.769))	(6.768)	(6.759)	(6.700)
50 or plus employees	68.459***	63.779***	63.175***	64.760***
	(6.603)	(6.639)	(6.632)	(6.576)
Training courses:				
Number of IT courses	10.115*	9.381*	9.210*	8.016
	(5.192)	(5.209)	(5.202)	(5.158)
Number of language courses	21.818***	19.865***	18.077**	16.462**
	(7.033)	(7.060)	(7.062)	(7.001)
Number of other (no regulated) courses	18.055***	20.569***	20.343***	18.661***
	(3.904)	(3.925)	(3.921)	(3.888)
Mother highest level of education:				
Certificated Primary	18.650*	20.544**	19.802*	19.282*
	(10.351)	(10.302)	(10.293)	(10.203)
Secondary (academic track)	45.507***	46.384***	43.619***	43.201***
	(10.351)	(13.675)	(13.675)	(13.555)
University Degree (long/PhD/Master)	56.463**	58.700**	57.877**	58.762**
	(25.576)	(25.576)	(25.553)	(25.331)
Qualification completed in 2001:				
Intermediate Voc	-24.577***			
	(7.012)			
FIP – training programme	-48.040**			
	(7.012)			
ETCO	-91.320***			
	(10.621)			
Access via for those with FIP:				
Below Primary			-103.549***	-106.704***
			(29.424)	(29.168)
Primary of Lower Secondary			-74.965***	-80.425***
			(19.409)	(19.244)
Intermediate Vocational			-39.716*	-40.261*
			(23.160)	(22.958)
Required qualifications:				
Overqualified				-82.173***
				(6.455)
Underqualified				40.273***
				(14.188)
Vocational fields:				
Intermediate:				
Accommodation and food service		60.282**	45.019*	43.156*
		(23.485)	(24.063)	(23.850)
Construction		264.616***	250.428***	246.281***
		(84.208)	(84.206)	(83.461)
Information and communication		-40.714*	-54.963**	-51.100**
		(24.568)	(25.089)	(24.872)
Manufacturing		49.477***	33.868**	28.056*
		(15.403)	(16.289)	(16.150)
Professional, scientific and technical		90.702***	76.753**	92.854***
		(34.562)	(34.916)	(34.636)
Higher:				
Accommodation and food service		61.807***	50.124**	55.505**
		(21.175)	(21.778)	(21.592)
Agriculture		83.556**	70.591*	86.528**
		(36.714)	(37.035)	(36.733)
Arts, entertainment and recreation		-90.012***	-101.287***	-100.520***
		(31.662)	(32.036)	(31.753)
Construction		90.976***	79.171***	66.790***
		(22.585)	(23.138)	(22.953)
Information and communication		61.644***	50.057***	48.661***
		(13.661)	(14.565)	(14.438)

Manufacturing		84.265***	72.498***	69.566***
		(14.959)	(15.799)	(15.661)
Other service activities		-42.446**	-55.043***	-54.660***
		(19.416)	(20.086)	(19.910)
Professional, scientific and		102.471***	91.352***	92.940***
		(24.640)	(25.141)	(24.920)
Wholesale and retail trade		57.396***	45.503***	45.095***
		(16.162)	(16.937)	(16.787)
Energy, electricity, gas and water supply		86.445***	74.282***	72.636***
		(17.128)	(17.860)	(17.701)
FIP:				
Agriculture		39.938	75.210*	69.691*
		(39.181)	(41.044)	(40.677)
Entertainment and recreation		51.033	81.074	86.349*
		(48.696)	(50.200)	(49.756)
Construction		52.254*	101.944***	92.948***
		(29.278)	(32.028)	(31.750)
Wholesale and retail trade		43.083**	84.339***	80.421***
		(18.296)	(22.214)	(22.021)
Mining and quarrying		235.618***	294.022***	292.114***
		(89.111)	(89.969)	(89.181)
ETCO:				
Agriculture		-50.666*	-449.282*	-424.060
		(27.487)	(268.839)	(266.458)
Other service activities		-58.406	-455.631*	-424.761
		(38.415)	(269.900)	(267.516)
Constant	302,740***	290.063***	346.883***	377.312***
	(41.644)	(41.822)	(43.614)	(43.307)
Observations	9892	9892	9892	9892
σ	255.218***	252.947***	252.525***	250.074***
	(1.997)	(1.981)	(1.979)	(1.961)
LR χ^2	2291.22***	2453.80***	2483.75***	2661.68***

Note: Only significant coefficients are reported.
Estimated by interval regression.
Base case: Spanish female, with mother and father with lower than Primary education, who has a Higher Vocational qualification in the administration field completed in 2001 and, for those with FIP, accessed to the qualification reported in 2001 via higher vocational; living in Andalusia and working for a firm with 10 or less employees. For the models that also control for skill mismatch, the base case is an individual in a job which matches their qualification level. All models also control for nationality, number of training courses taken since 2001, parental education, other qualifications acquired, the way in which their job search was conducted, tenure at FSJ and type of contract.
Standard errors in brackets. *** significant at 1%, ** significant at 5%, * significant at 10%.

5. Conclusions.

The purpose of this paper was to describe the early labour market experiences of Spanish youth entering the labour market with different types of vocational education. Specifically, we focused on the hazard of finding a good quality 'permanent' job, i.e. the probability of finding a First Significant Job (FSJ). This analysis suggested that in fact workers with higher level vocational qualifications face lower probability to integrate into the labour market than workers with lower level qualifications, such as intermediate vocational qualifications. Given that workers with more educated parents also show lower probability to secure a FSJ, we interpret these findings to mean that more advantaged youth (with more educated parents and taking higher vocational qualifications) may be taking longer to secure a FSJ perhaps because they are extending their job search to secure a higher quality job. In fact, our analysis of the impact of different types of vocational qualifications on workers' job quality (as measured by earnings) seems to confirm this. Although workers with higher vocational qualifications seem to have lower probability to secure a FSJ, they do earn significantly more

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than workers with intermediate vocational qualifications, for example. This finding illustrates the importance of analysing many dimensions of job quality, rather than simply focusing on the duration of unemployment or under-employment for example. Likewise we found that over qualified workers were paid substantially less than adequately matched workers.

Our single risk analysis also clearly indicated that workers taking the special vocational apprenticeship programmes, such as ETCO, fared poorly in the labour market: they do not guaranty higher probabilities of accessing to a FSJ and earned significantly less when they did find such a job. We do not however, suggest that the relationship between having an ETCO qualification and poor labour market prospects is causal, as we found evidence of negative selection into these special vocational training programmes. It is more likely that low productivity individuals who find integration into the labour market difficult, end up taking these special programmes. Such individuals would have fared poorly in the labour market anyway. Without rigorous programme evaluation, it is impossible to say whether such programmes are being effective and such evaluation is urgently needed in the Spanish labour market.

Using detailed data on the field of study taken by each worker, we were also able to look within categories of qualification (i.e. within a more homogenous sample of young people) and describe the different labour market experiences of workers with qualifications in different fields of study. We found substantial differences in both the probability to secure a FSJ and earnings, across different fields of study. In general, qualifications in booming industries (e.g. construction) were less valuable than qualifications in service sector jobs (e.g. administration); see Figure B3. It is perhaps of note that very few sectors of the labour market are occupationally regulated in Spain, and as a result the link between the qualifications awarded to those in school-based vocational programmes and particular occupations is relatively loose. This may explain why some fields of study in major industries (e.g. arts and entertainment) appear to give relatively low labour market returns.

Despite being descriptive, this information should be useful to both policy-makers and youths themselves in helping them understand the relative demand for different qualifications and fields of study. In general terms, given the ongoing difficulties faced by Spanish youngsters in integrating into the labour market, it will certainly be of interest to understand the fate of workers with different combinations of vocational qualifications. Whilst the analysis cannot provide easy solutions to improve the effectiveness of the Spanish vocational training system, it does illustrate the fact that special vocational programmes (ETCO), despite being relatively high cost, are not associated with good labour market outcomes. A priority for the Spanish government is obviously to design programmes that can shorten the length of time taken to secure a good job, and to help workers improve the quality of their job match.

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Appendix A

A brief description of the Spanish education system.

There are a variety of different qualifications that students can take and the educational system is divided into two different stages. First, Compulsory Education, which comprises Primary School (*Educación Primaria*) and the first level of Secondary School (*Educación Secundaria Obligatoria*). Second, Non-Compulsory Education, consisting of the second level of Secondary School (*Formación Profesional I or Bachillerato*), and Higher Education (University or Non-University).

Pupils attend Primary School from 6 to 12 years old. Students attend first level of Secondary School from 13 to 16 (which is the statutory leaving age). At age 16, pupils who satisfactory achieve the stipulated academic target are awarded the *Graduado de Educación Secundaria Obligatoria*. After age 16 students may choose to leave the education system completely (around 15% in the academic year 2000-2001) or stay on at school. Those who stay on at school follow one of the two distinct tracks: the vocational (*Ciclos Formativos de Formación Profesional de Grado Medio o Superior*) track or the academic track (*Bachillerato LOGSE*).

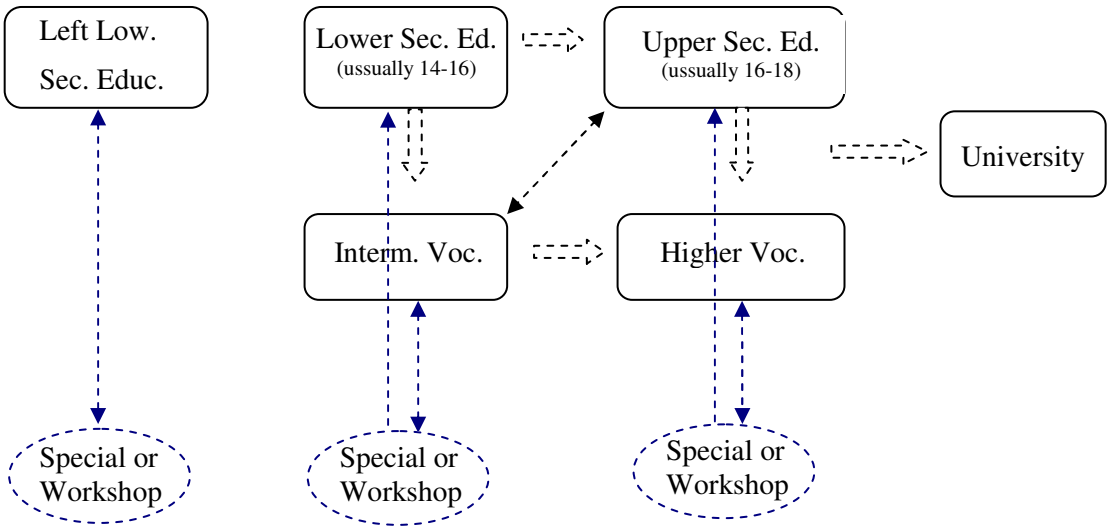
The vocational track is for the less academic students who can choose from a variety of vocational qualifications based upon practical subjects such as computing, hairdressing, office skills, etc. Students who succeed in the first two years of vocational education obtain a Certificate called *Ciclo Formativo de Formación Profesional de Grado Medio (intermediate level).* For those continuing beyond the *intermediate level* there is a wide range of higher vocational qualifications *Ciclo Formativo de Formación Profesional* (*higher level*), with more than hundred specialities.

There is also the possibility to take one of the courses of the "Special Vocational Plan" (*Plan Nacional de Formación e Inserción Profesional*, FIP) or the "Vocational Workshop" (Escuelas Taller y Casas de oficio) which are labour market orientated plans to help youngsters with bigger difficulties to make easier their insertion into the labour market.

The academic track is for the 'more academically able' students who study at Secondary for a further two years (*Bachillerato)* after completing compulsory education. Once this stage is successfully undertaken, they have the option to continue to higher education. Students can opt for either a 3 years (first-cycle) degree, which can be technical (*Escuelas Universitarias Técnicas*) or non-technical (*Escuelas Universitarias no Técnicas*), or a 4-5-6 years (first and second cycle) degree (*Facultades and Escuelas Superiores*). For both sorts of education, entrance is competitive, as places are limited.

To make clearer the basic structure of the Spanish Educational system we present Diagram A1.

Diagram A1. Basic structure of the Spanish Education system.



Note: Special Plan and Workshop is not a higher qualification level but special qualifications to gain experience in particular occupations.

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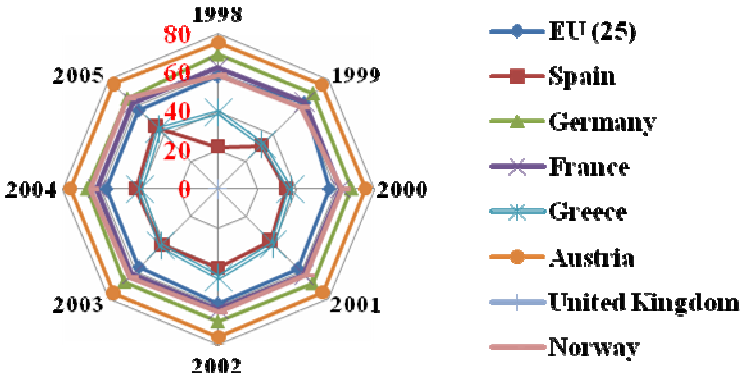
Appendix B

Figure B1. Trends in the proportion of young population (aged 15-24) enrolled in Vocational education from 1998-2005: selected European Countries.



Source: Authors' own figure based on data from Eurostar (http://epp.eurostat.ec.europa.eu).

Figure B2. Trends in the absolute number of population enrolled in Vocational education 1995-2005 (Spain).

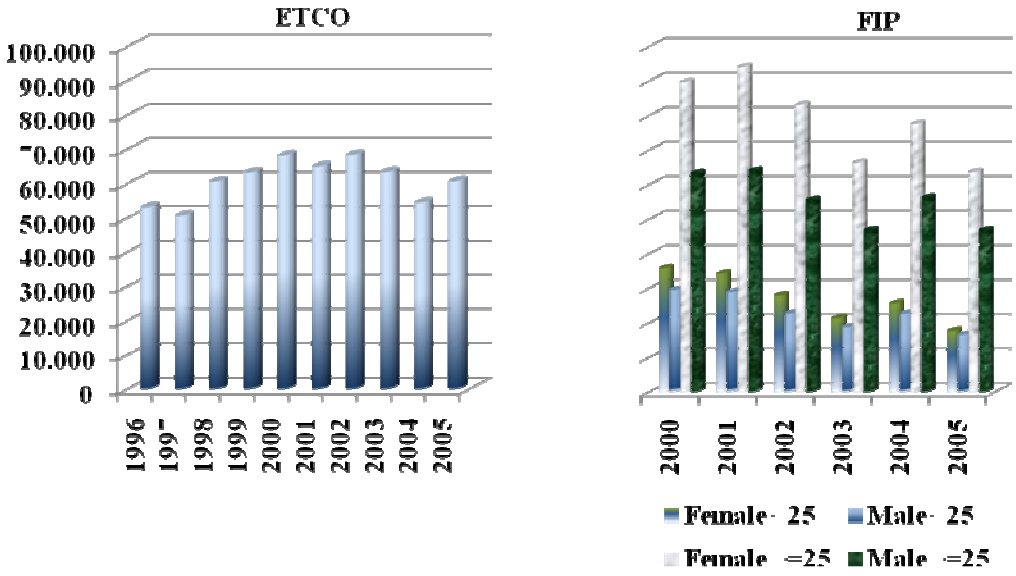


Table B1. Grouping of vocational qualification fields (based on NACE, Revision 2).

Vocational Fields	Activity group
Hotels and tourism	Accommodation and food service activities
Administrative and support service activities	Administrative and support service activities
Agriculture	Agriculture, forestry and fishing
Fishing	Agriculture, forestry and fishing
Sports	Arts, entertainment and recreation
Construction civil engineering	Construction
Human health	Human health and social work activities
Socio cultural activities	Human health and social work activities
Graphic art	Information and communication
Audio and video recording	Information and communication
Information and communications	Information and communication
Manufacturing	Manufacturing
Furniture	Manufacturing
Textil	Manufacturing
Glass and ceramic	Manufacturing
Artesans	Manufacturing
Food processing	Manufacturing
Maintenance engineer	Manufacturing
Mining and quarrying	Mining and quarrying
Personal services	Other service activities
Security and environmental protection	Other service activities
Chemical	Professional, scientific and technical activities
Electricity and electronics	Water and energy supply
Water and energy supply	Water and energy supply
Repair of motor vehicles	Wholesale and retail trade; repair of motor vehicles
Wholesale and retail trade	Wholesale and retail trade; repair of motor vehicles

Note *: Water and energy supply comprises water supply, sewerage, waste management and remediation activities plus electricity, gas, steam and air conditioning supply.

Table B2. Percentage of individuals who found a FSJ just after finishing education in 2001.

Highest qualification by the end of 2001	%	Observations
School leavers (age 16)	30.35	914
Left age 16 Lower Sec. Certificate	2.79	226
Left age 18 Upper Sec. Certificate	3.57	168
Intermediate Vocational	42.10	3206
Higher Vocational	37.04	3819
Vocational Special Plan	27.86	1912
Vocational Workshop	32.80	986
Average	***25.75***	***11231***

Source: Authors' own calculations from ETEFIL (2005).

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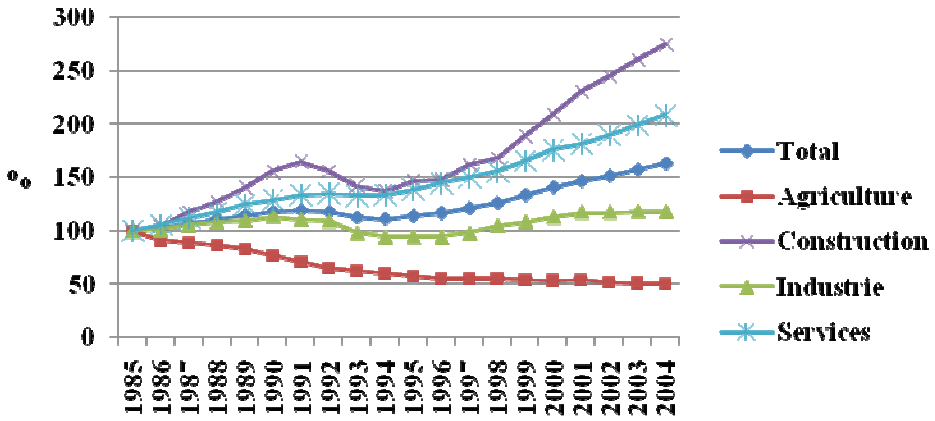
Table B3. Proportion of right censored observations by educational level attained.

	Whole sample		Restricted sample*	
Highest qualification by the end of 2001	**%**	**Observations**		
School leavers (age 16)	22.11	666	-	-
Left age 16 Lower Sec. Certificate	74.45	3398	-	-
Left age 18 Upper Sec. Certificate	72.21	6029	-	-
Intermediate Vocational	11.41	869	10.56	675
Higher Vocational	17.22	1775	17.31	1485
Vocational Special Plan	24.16	1658	24.16	1658
Vocational Workshop	19.06	573	19.06	573
Average	***34.32***	***14968***	***17.68***	***4391***

Source: Authors' own calculations from ETEFIL (2005).
* Sample of vocational graduates used in our estimates.

Figure B3. Trends on total employees by activity sector.



Source: Authors' own graphic based on Spanish LFS (INE, 2008).

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Appendix C

Table C1. Descriptive statistics for the variables included in the duration models.

	Int. Voc.		Higher Voc.		FIP		ETCO	
	Mean	**Stand. Dev.**	**Mean**	**Stand. Dev.**	**Mean**	**Stand. Dev.**	**Mean**	**Stand. Dev.**
Gender (Male=1)	0.546	0.498	0.509	0.500	0.502	0.500	0.544	0.498
Age at completion of education	20.074	14.657	21.348	12.311	20.816	22.454	20.677	23.629
Non-Spanish	0.003	0.058	0.002	0.041	0.006	0.079	0.006	0.075
Mother highest level of education (ref. Below prim.):								
Primary	0.672	0.469	0.649	0.477	0.614	0.487	0.575	0.494
Secondary (academic track)	0.085	0.279	0.123	0.328	0.099	0.298	0.048	0.214
Vocational Intermediate	0.042	0.202	0.036	0.186	0.038	0.191	0.023	0.149
Vocational Higher	0.015	0.123	0.020	0.139	0.019	0.136	0.008	0.088
University degree (short)	0.022	0.148	0.031	0.173	0.031	0.173	0.009	0.097
University degree (long/PH/Master)	0.019	0.137	0.031	0.174	0.025	0.157	0.008	0.090
Father highest level of education (ref. Below prim.):								
Primary	0.620	0.485	0.588	0.492	0.581	0.493	0.566	0.496
Secondary (academic track)	0.093	0.290	0.129	0.335	0.113	0.317	0.056	0.229
Vocational Intermediate	0.047	0.211	0.044	0.204	0.031	0.174	0.022	0.148
Vocational Higher	0.033	0.180	0.046	0.210	0.037	0.189	0.013	0.115
University degree (short)	0.026	0.159	0.036	0.187	0.033	0.178	0.012	0.107
University degree (long/PH/Master)	0.044	0.205	0.059	0.235	0.052	0.222	0.019	0.138
Regions (ref: Andalusia):								
Aragon	0.025	0.156	0.022	0.148	0.033	0.179	0.014	0.117
Asturias	0.023	0.151	0.027	0.162	0.038	0.191	0.024	0.154
Balearics Islands	0.014	0.116	0.007	0.081	0.016	0.127	0.007	0.085
Canary Islands	0.016	0.127	0.017	0.129	0.042	0.200	0.120	0.325
Cantabria	0.015	0.120	0.016	0.126	0.010	0.102	0.005	0.072
Castile Leon	0.051	0.220	0.043	0.202	0.061	0.239	0.038	0.191
Castile Mancha	0.035	0.184	0.020	0.139	0.058	0.233	0.040	0.195
Catalonia	0.155	0.362	0.092	0.289	0.093	0.290	0.020	0.141
Valencia	0.053	0.224	0.082	0.274	0.112	0.315	0.089	0.285
Extremadura	0.024	0.152	0.011	0.102	0.046	0.211	0.043	0.203
Galicia	0.034	0.181	0.051	0.220	0.067	0.250	0.070	0.256
Madrid	0.323	0.468	0.404	0.491	0.153	0.360	0.110	0.313
Murcia	0.018	0.133	0.015	0.120	0.035	0.185	0.016	0.127
Navarra	0.023	0.151	0.015	0.121	0.009	0.095	0.005	0.069
Basque Country	0.058	0.233	0.073	0.260	0.021	0.142	0.031	0.173
La Rioja	0.005	0.071	0.006	0.079	0.004	0.066	0.003	0.055
Ceuta	0.002	0.039	0.002	0.048	0.002	0.048	0.000	0.000
Melilla	0.005	0.067	0.001	0.036	0.006	0.076	0.000	0.000
Vocational fields:								
Accommodation and food service activities	0.051	0.220	0.047	0.212	0.050	0.217	0.043	0.202
Administrative and support service activities	0.182	0.386	reference		0.158	0.365	0.001	0.029
Agriculture, forestry and fishing	0.032	0.175	0.020	0.140	0.030	0.171	0.129	0.335
Arts, entertainment and recreation	0.020	0.141	0.032	0.176	0.024	0.154	0.004	0.062
Construction	0.006	0.075	0.046	0.209	0.042	0.200	0.251	0.434
Human health and social work activities	0.126	0.332	0.145	0.352	0.076	0.265	0.122	0.328
Information and communication	0.052	0.222	0.170	0.376	0.210	0.407	0.052	0.222
Manufacturing	0.178	0.383	0.118	0.322	0.171	0.376	0.267	0.442
Mining and quarrying	0.000	0.000	0.000	0.000	0.003	0.053	0.003	0.051
Other service activities	0.059	0.235	0.058	0.234	0.057	0.232	0.061	0.239
Professional, scientific and techn. activities	0.029	0.167	0.028	0.166	0.019	0.137	0.007	0.083
Water and energy supply	0.114	0.318	0.078	0.269	0.056	0.229	0.061	0.239
Wholesale and retail trade; repair of vehicles	0.152	0.359	0.089	0.285	0.106	0.307	0.000	0.000
Observations	5303		7739		5636		2319	

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Table C2. Descriptive statistics for the variables included in the earnings equation.

	All		Female		Male	
	Mean	**Stand. Dev.**	**Mean**	**Stand. Dev.**	**Mean**	**Stand. Dev.**
Gender (Male=1)	0.542	0.498	-	-	-	-
Net wage levels (ref: <433.55 €):	3.105	1.042	2.659	0.836	3.483	1.049
433.55 - 749.99 €	0.262	0.440	0.413	0.492	0.135	0.342
750 - 999.99 €	0.417	0.493	0.416	0.493	0.417	0.493
1000 - 1249.99 €	0.213	0.409	0.107	0.310	0.302	0.459
1250 - 1499.99 €	0.058	0.233	0.014	0.118	0.095	0.293
1500 - 1999.99 €	0.021	0.144	0.006	0.075	0.034	0.182
2000 - 2499.99 €	0.004	0.063	0.001	0.027	0.007	0.082
2500 - 2999.99 €	0.001	0.031	0.000	0.015	0.002	0.040
>=3000 €	0.000	0.021	0.000	0.000	0.001	0.028
Non-Spanish	0.003	0.057	0.002	0.049	0.004	0.063
Age at completion of education	20.807	1.765	20.934	1.700	20.700	1.811
Agreed working hours	38.220	6.097	37.171	6.817	39.108	5.254
Surplus working hours	2.103	4.833	1.699	4.403	2.446	5.145
Tenure	25.120	14.604	24.687	14.428	25.487	14.743
Type of contract (ref: other type):						
Permanent contract	0.474	0.499	0.482	0.500	0.467	0.499
Temporary contract	0.323	0.468	0.304	0.460	0.340	0.474
Found job though family or friends	0.336	0.472	0.321	0.467	0.349	0.477
Firm size (ref: <11 employees):						
11-49 employees	0.277	0.448	0.252	0.434	0.298	0.457
50 or plus emploees	0.323	0.468	0.273	0.446	0.365	0.482
Number of IT courses before FSJ	0.213	0.523	0.250	0.549	0.181	0.499
Number of language courses before FSJ	0.137	0.401	0.178	0.456	0.102	0.344
Number of other (no regulated) courses before FSJ	0.294	0.682	0.334	0.731	0.260	0.636
Mother highest level of education (ref. Below prim.):						
Primary	0.665	0.472	0.683	0.465	0.649	0.477
Secondary (academic track)	0.097	0.296	0.090	0.286	0.102	0.303
Vocational Intermediate	0.036	0.187	0.036	0.186	0.037	0.189
Vocational Higher	0.017	0.129	0.020	0.139	0.014	0.119
University degree (short)	0.020	0.138	0.016	0.127	0.022	0.147
University degree (long/PhD/Master)	0.015	0.122	0.012	0.110	0.018	0.132
Father highest level of education (ref. Below prim.):						
Primary	0.619	0.486	0.654	0.476	0.588	0.492
Secondary (academic track)	0.105	0.306	0.096	0.295	0.112	0.315
Vocational Intermediate	0.040	0.196	0.037	0.188	0.042	0.202
Vocational Higher	0.037	0.189	0.030	0.171	0.043	0.202
University degree (short)	0.023	0.149	0.019	0.136	0.026	0.158
University degree (long/PH/Master)	0.038	0.190	0.030	0.169	0.044	0.206
Access via for those with FIP:						
Below Primary	0.015	0.123	0.012	0.107	0.019	0.135
Primary or Lower Secondary	0.105	0.306	0.097	0.296	0.112	0.315
Upper Secondary	0.053	0.224	0.066	0.248	0.042	0.201
Intermediate Vocational	0.030	0.170	0.031	0.175	0.029	0.167
Higher Vocational	0.014	0.117	0.015	0.120	0.013	0.115
Access via for those with ETCO:						
Below Primary	0.020	0.138	0.008	0.089	0.029	0.168
Primary or Lower Secondary	0.055	0.228	0.038	0.191	0.070	0.255
Upper Secondary	0.007	0.083	0.008	0.087	0.006	0.080
Intermediate Vocational	0.009	0.093	0.011	0.104	0.007	0.082
Higher Vocational	0.004	0.061	0.006	0.078	0.002	0.040
Required qualifications (ref: match required qual.):						
Over-qualified	0.236	0.424	0.264	0.441	0.211	0.408
Under-qualified	0.036	0.186	0.033	0.179	0.038	0.192
Observations	9892		4531		5361	

Note: The descriptive statistics for vocational fields and regions are not reported for space reasons. Any interested reader may require them form the authors.