

Vocational high school or Vocational college? Comparing the Transitions from School to Work

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Abstract

Using a specific microdataset with information on working histories, we analyse the labor market entry of Spanish youths who have completed vocational education. According to the education system, young people can enter the labor market with vocational high school (upper secondary education) or with vocational college (tertiary education).

We start by considering whether there are differences in duration until finding the first significant job depending on the initial vocational level. A job is significant if it lasted, at least, six consecutive months. Those who complete vocational college has spent more years in education. Thus, we would expect they were more likely to find a significant job or to find it more quickly. Surprisingly, preliminary results do not confirm this hypothesis. The probability to find a significant job is some higher in vocational college but empirical hazards show very similar patterns between the two vocational levels. We find evidence that parents' education, female, age when finishing education, labor market conditions, workplace experience and attending a private school play a role in determining durations.

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1 Introduction

The transition from initial education to the labor market is a very important event in the life of young people. In general, they leave education and enter the labor market having a lack of work experience. In consequence, this transition is an uncertain process and its success will depend greatly on the labor market context and on the type of education pathway (general, school-based vocational or apprenticeship) followed by an individual. It is also very important the connection between the education path and the labor market (OECD, 2000). Regarding this, school-based vocational and apprenticeship paths present better connections with the labor market by providing an initial work experience that can be valued by employers.

According to the Lisbon strategy, European countries have to increase the competitiveness of their economies. This requires that governments restructure their education systems to meet the needs of the modern labor markets. In this context, a better understanding of the transitions from existing education systems to work is an important policy issue¹. In addition, from an individual perspective, improving the transition from education to work is also a relevant policy concern because bad outcomes in early working life can have negative consequences on later outcomes (see, for instance, Heckman and Borjas, 1980, Gregg, 2001, or Stewart, 2007).

In Spain, the education system presents general and school-based vocational paths. Vocational education is oriented to provide people a specific qualification to access the labor market. This path makes less sharp the transition between the classroom and the labor market through school-organised workplace experience programs. Workplace experience combined with education can improve transitions in several ways: it aids matching between employers and young people; it develops work-related knowledge and skills; and it makes learning more applied and relevant (OECD, 2000).

In the Spanish system, general and vocational paths are available both in upper secondary and tertiary education although they are not the tracks followed by most young people. The percentages of individuals who choose the vocational path are 15% and 26% of the total who attend upper secondary and tertiary education, respectively². As we explain in more detail in Section 2, the main differences between vocational high school (upper secondary level) and vocational college (tertiary level) are the range of programs available and the entry

¹Ryan (2001) provides a cross-national analysis of school-to-work transitions.

²We obtained these figures from representative samples of individuals who completed compulsory schooling or general upper secondary education in 2001. These are two samples additionally provided by the survey we use in this paper, *Encuesta de Transición Educativo-Formativa e Inserción Laboral*.

requirements. Enrollment in vocational high school requires having the compulsory schooling diploma while enrollment in vocational college requires the certificate corresponding to the general upper secondary track.

The purpose of this paper is to analyze whether individuals with a vocational college degree have better school-to-work transitions than those individuals with vocational high school. Or put differently, we are interested in answering the following questions: Are there differences in these transitions? Do young people with more years in vocational education make better transitions than people with less years of vocational education? What are the factors that affect those transitions?

One important aspect in this type of analysis is how to measure the quality of the transition. There are different possibilities: duration until finding a job, length of time the person remains in the first job or other job characteristics (wage, contract, required qualification,...). We start by considering the duration until finding the first “significant” job as a measure of quality. A job is defined as significant if it lasted, at least, six consecutive months³. A first look to the data we use shows that, on average, there are not differences across vocational education levels in the duration to find the first significant job (7.65 and 7.67 months for vocational college and vocational high school, respectively).

Several studies analyze the school-to-work transitions in Spain. Dolado et al. (2000) find that individuals with a university degree have higher employment rates than individuals with a high school diploma. Bover and Gomez (2004) show that university education increases the probability of exit to a permanent job while it reduces the exit probability to a temporary one. Blazquez-Cuesta and Garcia-Perez (2007) put the attention on the unemployment and employment hazard rates of youths and the effect of decentralization of education expenditure. They find that public expenditure increases the probability to find a job and this effect is higher in regions where spending has not been decentralized. Albert-Verdu et al. (2008) look at the duration to find the first significant job by using the *ad hoc* module of the Labor Force Survey in 2000. They find that women have poorer labor market outcomes than men but this is related to differences in the fields of study.

It seems, therefore, that the analysis of school-to-work transitions in Spain has been studied in many papers. However, we do not find any study that examines those transitions by distinguishing the type of vocational education completed. Thus, our research is intended to

³We consider that this measure is a better indicator of the quality of the transition than just using the duration until the first job. However, our analysis will also take into account whether there are differences in these durations, in job characteristics or in the number of employment and unemployment spells in the beginning of the working career.

contribute to a better understanding of the determinants and differences in the transitions starting from different levels of vocational education.

For our analysis, we use a microdataset on schooling and labor histories elaborated by the Spanish Statistics Institute in 2005 called *Encuesta de Transición Educativo-Formativa e Inserción Laboral*. It contains representative samples of individuals who completed vocational high school or vocational college in the school year 2000/2001. This dataset is very adequate for the purpose of our study for two main reasons. First, people is observed during four years: since completion of the corresponding vocational level until the interview in 2005. So, data allow us to assess early labor outcomes. Second, individuals were sampled in the same year. Thus, independently of their vocational level, they face the same economic conditions during the beginning of their working life (between 2001 and 2005). This increases the comparability of the quality of the transitions across vocational schooling levels.

Preliminary results show that the patterns of the empirical hazards to the first significant job are more or less the same in the two groups of vocational education: they fall monotonically and more quickly in the first six months after leaving education. We also find that women have lower hazards to the first significant job. We, then, estimate Weibull and Cox models to analyze the determinants of the duration in the transitions from vocational high school and vocational college to the first significant job. The two models give similar results. Among those who hold a vocational college degree we find that the hazard rate is lower for women and for those who attended a private college and that the unemployment rate has a big and negative impact on the exit rate. Among those who completed vocational high school, the results show that the unemployment rate also has a big impact in decreasing the exit to a significant job. In addition, we also find that if the apprenticeship period was the first work experience, the hazard rate is lower.

The rest of the paper is organized as follows. Next Section provides an overview of the Spanish education system. Section 3 describes the dataset we use. Section 4 presents the empirical approach and the results. Section 5 concludes.

2 Spanish Education System

In Spain compulsory schooling covers ten years, up to the age of sixteen. Then, young people can proceed to post-compulsory education (high school) or they can enter the labor market (see Figure 1). In the high school level, an individual can choose between attending academic high school and vocational high school. After completing upper secondary education, an

individual can decide to attend university or vocational college (tertiary education). Access to university requires the academic high school diploma and to pass a general (not university-specific) test. Access to vocational college is direct from the academic track but not from the vocational track. From the latter, it is required to pass an admission test. The schooling system allows to attend academic high school after completing the vocational track and it also permits to attend university after graduating from vocational college.

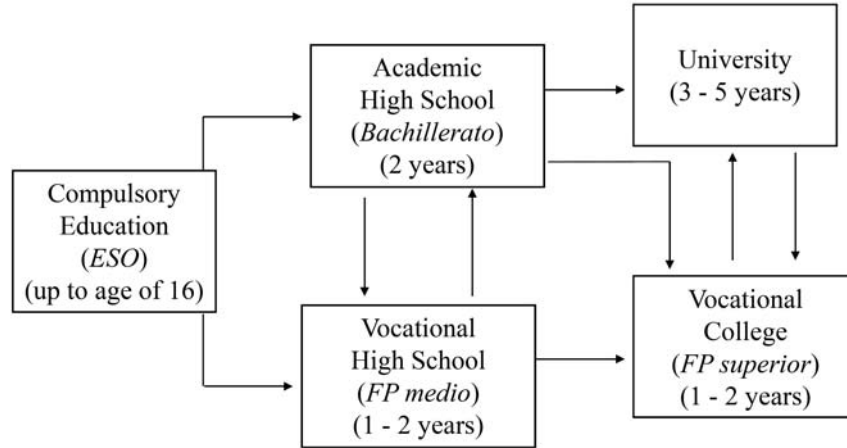


Figure 1: Schooling levels in post-compulsory education

Education received both in vocational high school and vocational college is a schooling-based training with apprenticeship in firms. This education is oriented to give individuals a specific qualification to enter the labor market. In particular, most vocational programs provide a blue-collar qualification (such as manufacturing and building; electronic and computing; agriculture, forestry and fishery;...) although some of them provide a white-collar qualification (such as clerical support and marketing). The duration of the programs ranges between one and two years and apprenticeship in firms supposes up to a twenty-five percent of that time. In some cases, the apprenticeship period can be waived with previous work experience. The two main differences between vocational high school and vocational college are the explained requirements to access each level and the specific range of programs available.

3 Data description

The data we use come from a survey produced by the Spanish Statistics Institute in 2005, *Encuesta de Transición Educativo-Formativa e Inserción Laboral* (ETEFIL). The objective of this survey is to know the education and labor decisions of individuals who completed any

non-university education level in the school year 2000/2001. Specifically, the sampled groups are individuals who completed compulsory schooling, academic high school, vocational high school or vocational college in that school year. For the purpose of the paper we use the last two samples.

The survey collects information about education and labor activities since 2000/2001 until 2005 by using a retrospective interview. In consequence, individual decisions are observed along four years following graduation from vocational high school or vocational college. The dataset contains three types of information:

- **Personal characteristics.** Individuals have to report date of birth, gender, nationality, mother and father's education and province of residence.
- **Education.** Individuals report the age at which they completed the corresponding schooling level (vocational high school or vocational college), the type of qualification they obtained and the type of school (private, semi-private or public) they attended. As we explain above, vocational education includes apprenticeship in firms and the survey ask individuals whether this was their first work experience.

For the next four years and on a year basis, the survey asks whether the individual decided to leave or to continue in further education. Regarding the first decision, the individual reports the leaving-school date and the reason for leaving education. With respect to the decision of continuing in further education, the individual reports her schooling choice, the grade and the type of field she attended, the type of school and whether or not she graduated that year. The survey also provides information on whether an individual changed her schooling choice without completing the previous one.

- **Work.** On a monthly basis, all individuals are asked about their employment or unemployment status. If they work, they report whether the job is part-time or full-time. In addition, a questionnaire on the job or unemployment characteristics is asked to those individuals who are in some of the following situations:
 1. They work in a full-time job, or they are unemployed, in the moment of the interview.
 2. They worked in a full-time job in the same firm, or they were unemployed, for at least six consecutive months in the past.

Individuals have to fill in as many questionnaires as times they are in any of the previous situations.

The questions about the job refer to the activity of the firm, occupation, net monthly wage on an interval basis, type of contract, hours worked, necessary qualification for the job, starting and finishing dates, the means that the individual used to find the job and the reason why the individual quit (only for past jobs).

The questionnaire for the unemployment spell asks about the means that the individual used to search for a job, whether she received unemployment benefits, the starting and finishing dates of the unemployment spell and whether she received job offers.

Table 1 contains a description of the two samples we use in the analysis. The sample sizes are 7,615 and 11,244 individuals with vocational high school and vocational college, respectively⁴. As we can see, the percentage of females is higher among those who completed vocational college. Individuals who obtained a vocational high school diploma are younger, what is not surprising given that vocational college is tertiary education and it is required to hold an academic diploma before attending this level. Most individuals completed vocational education in a public school (the percentage is higher in the case of vocational college) while very few people obtained this education in a private school. With respect to the nationality, almost one hundred percent of the individuals have Spanish nationality. Parents' education is higher among those who obtained a vocational college degree. The distributions by region of residence are similar although there are some small differences. For example, Andalusia and Catalonia are the two first regions of residence among those who finished vocational high school. However, individuals who graduated from vocational college resided mainly in Andalusia and Madrid. Finally, the last rows of Table 1 show the distribution of the type of qualification obtained in each level of vocational education. More than fifty percent of individuals obtained "Clerical support and Marketing" or "Electronic and Computing" qualifications.

As we comment above, the survey contains information on the schooling decisions since 2001. However, in a first analysis of the differences in transitions across vocational levels, we decide to focus on the subsamples of individuals who do not attend further education. Thus, we drop 6,726 individuals and the final sample sizes we use are 5,725 and 6,408 for vocational high school and vocational college, respectively.

On the other hand, in Figure 2 we show the evolution of the employment rate of individuals

⁴These sample sizes are obtained after dropping 21 individuals who reported having completed vocational high school with less than seventeen years old or vocational college with less than eighteen years old. Both situations are not possible according to the schooling system explained previously. We consider these observations as measurement error and we decide to drop them.

aged fifteen to twenty-four years old since 2001 to 2008. We show this rate both for Spain and the European Union. The objective is to display the behavior of the Spanish labor market for young people during the years in which the transitions we analyse take place. As we can see, the evolution of the Spanish employment rate follows an inverted U shape between 2004 and 2008 while this does not happen in the European Union. In this way, the Spanish employment rate is below the European Union rate at the beginning of the period, then it surpasses it but in 2008 it is again below the European rate. The employment rate for males and females presents a similar behavior.

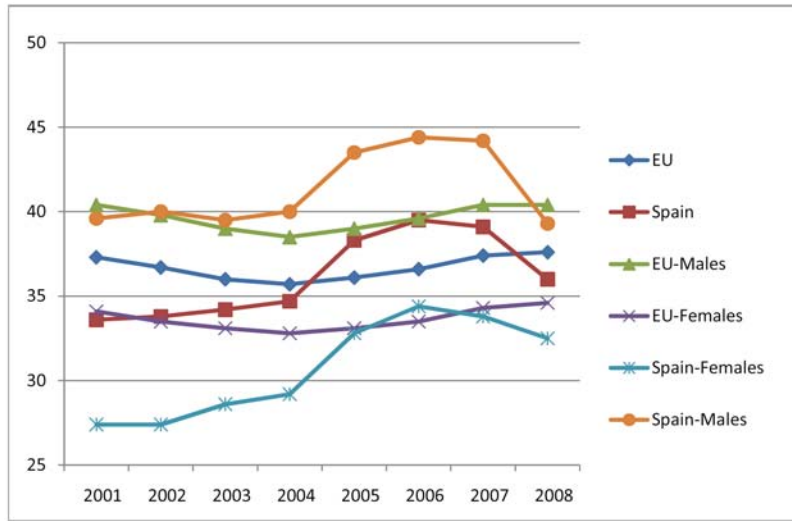


Figure 2: Youth employment rate (15-24 years old, Labor Force Survey)

4 Empirical Approach and Results

The database is very adequate to analyse differences in the transitions to labor market from different vocational education levels because we observe individuals in the beginning of their labor careers, just after completing vocational schooling.

At the moment, our analysis is concentrated on measuring the quality of the transition by considering the duration until finding the first “significant” job. A job is defined as significant if it lasted, at least, six consecutive months. We leave for further analysis the consideration of other possible measures of the quality of the transitions, such as duration until the first (non-significant) job, characteristics of the job or number of employment and unemployment spells during the beginning of the working career.

Of the sample we consider in the analysis, we observe that the percentage of individuals

who find a first significant job between 2001 and 2005 is very high: 94.42% and 94.17% for vocational high school and vocational college, respectively. In particular, in 2001, when individuals finished their studies, 60.67% find the first significant job (64.54% with vocational college and 56.81% with vocational high school). These percentages decrease during the following years, specially since 2003 (see Table 2). On average, there are almost no differences in the number of months needed to find the first significant job after leaving education: 7.65 and 7.67 for vocational college and vocational high school, respectively.

It is clear that the best way to analyse the determinants of the time until finding the first significant job is by estimating a duration model. But before turning to the estimation of these type of models, in the next Subsection we estimate a model of the probability of having found a first significant job.

4.1 The probability of getting a significant job

The empirical strategy adopted here is to estimate a probit model of the probability of having found a significant employment between 2001 and 2005. Thus, in this analysis, the dependent variable is dichotomous with a value of one when an individual got a significant job during the four years after leaving education and a value of zero otherwise.

The explanatory variables we consider refer to the human capital model. In particular, we include gender, age at the moment of leaving education, the field of qualification, type of vocational school (private, public or semi-private), educational attainment of both parents and region dummy variables. We also control for whether the apprenticeship period during vocational education was the first work experience. We do this with the variable *First experience* that takes the value one if apprenticeship was the first work experience and zero otherwise.

Table 3 shows the estimates of the probit model with different sets of control variables. We do not show the estimates corresponding to regions and fields of qualification but they are available upon request. We present separate results for vocational college and vocational high school. We find that being a female has a negative and significant effect on the probability of finding a significant job. This effect only becomes no significant among those with vocational college after controlling for first experience and qualification fields (see last column).

We also find that parents' education has not significant effect on the probability of getting a significant job in the group of individuals with vocational high school. However, when individuals have vocational college some levels of parental education are significant. In particular, having a mother with compulsory or secondary education affects the probability positively

while if a father has a university degree, the probability is lower. Only the effect of having a mother with compulsory schooling remains significant after including all the controls.

In the last two specifications, we control for the type of school where individuals attended vocational education. We find a positive effect of public schools but only for vocational high school. Finally, in third and last columns we include the variable *first experience*. As we can see, if the apprenticeship period was the first work experience, an individual has a lower probability of finding a first significant job. However, this negative effect only appears in vocational high school.

4.2 Duration models

Here, we study the hazard rate for the first significant job. Before turning to the estimation of the duration models, we have observed the process of getting a significant job in a descriptive way through a set of Kaplan-Meier survival functions. In the left panel of Figure 3, we show the empirical hazard of finding a significant job in the two groups of vocational education. As we can see, the patterns are more or less the same between them: the hazard falls very quickly from the first to the sixth month and, then, it falls slowly and monotonically. In the right panel, we present the survival functions by gender: women spend more time in unemployment.

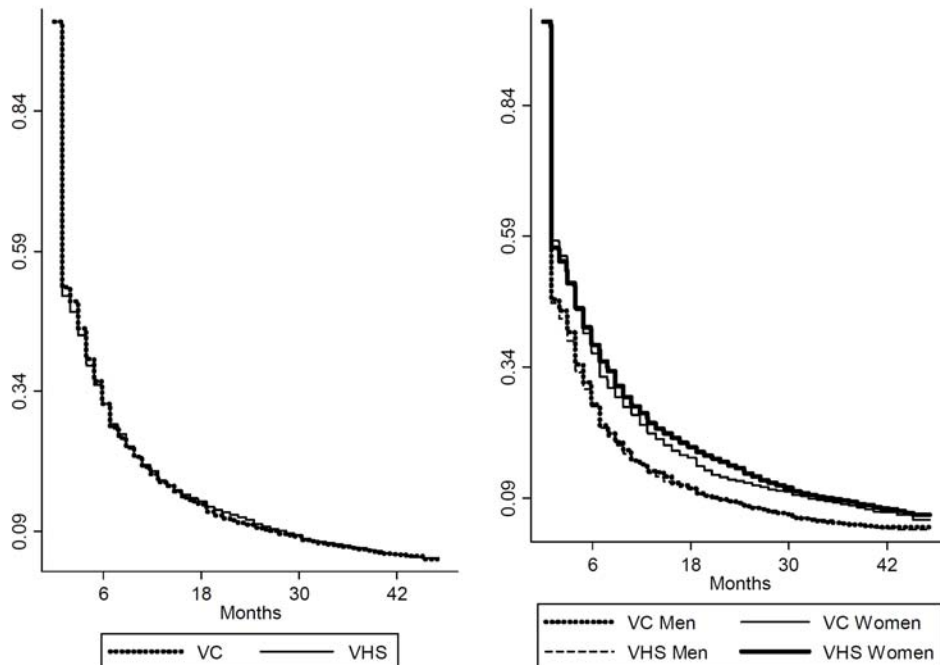


Figure 3: Kaplan-Meier Survival Analysis. (Note: VC refers to vocational college and VHS to vocational high school)

To analyze the hazard rate from school to the first significant job we use a discrete-time duration model, since we can observe time only at one-month intervals (see Lancaster, 1990, or Jenkins, 1995, for the basic features of such models).

Let T be a discrete duration random variable taking on values $\{1, 2, 3, \dots\}$ with *pmf*:

$$p(t) = Pr(T = t) \quad (t = 1, 2, \dots)$$

and *cdf*:

$$F(t) = Pr(T \leq t) = p(1) + p(2) + \dots + p(t)$$

The hazard function or exit rate from the state is

$$\begin{aligned} h(t) &= Pr(T = t \mid T \geq t) = \frac{Pr(T = t)}{Pr(T \geq t)} = \frac{Pr(T = t)}{1 - Pr(T \leq t - 1)} \\ &= \frac{p(t)}{1 - p(1) - \dots - p(t - 1)} = \frac{F(t) - F(t - 1)}{1 - F(t - 1)} \quad \text{for } t > 1 \end{aligned}$$

and $h(1) = p(1) = F(1)$.

That is, the hazard gives probabilities of exit defined over the surviving population at each time.

First we consider a parametric and semi-parametric model of duration; in particular, the Weibull model (Meyer, 1990) and the Cox model (Cox, 1972), respectively.

In the Weibull model, the hazard rate is characterized as:

$$h(t, X) = p\lambda^p t^{p-1}$$

where $\lambda = e^{x'\beta}$ and x is a set of explanatory variables.

The Cox model is a proportional hazard model and its basic specification can be written as:

$$h(t) = h_0(t)e^{x'\beta}$$

The Weibull model is more general and flexible than an exponential model and allows for hazard rates that are non-constant but monotonic. In this model, p is called the shape parameter because it determines whether the hazard is increasing ($p > 1$), decreasing ($p < 1$), or constant over time ($p = 1$). As we can see in Figure 3, there is descriptive evidence of a monotonic and decreasing hazard rate.

On the other hand, the Cox model allows us to estimate the slope parameters in the β vector irrespectively of what the baseline hazard ($h_0(t)$) looks like. In other words, the Cox model makes no assumptions about the distribution of the functional form of the baseline

hazard. The key to being able to estimate the slope parameters in the β vector is the use of partial likelihood function methods.

With respect to the covariates, in addition to the set of variables explained in the previous Subsection, we also control for the youth unemployment rate in the year when an individual finds a significant job. This variable captures the labor market conditions and it was constructed by using the Spanish Labor Force Survey for the period 2001-2005. By youth unemployment we mean unemployment of people aged between sixteen and twenty-five years old.

In Tables 4 and 5 we report the baseline hazard associated with a change in the value of one of the covariates using the Weibull and the Cox model, respectively. We present separate results for vocational college and vocational high school. Hazard ratios have the virtue of being relatively easy to interpret. Those greater than one indicate that a one unit increase in the covariate increases the baseline hazard (lower expected duration). While those less than one indicate a decrease in the hazard to find a significant job (greater expected duration).

The two models give similar results. In general, women are around 10 – 30% more likely than men to remain in the unemployment. When we control for regions, qualification fields and unemployment rate, the hazard ratio is only significant for vocational college and it is around 10 – 13% lower. The age when an individual finished vocational education reduces the hazard significantly only for vocational high school. However, the effect is small (2 – 3%, see third column of both Tables). Father’s education has negative effects while mother’s education has positive ones. After including all controls, in vocational college only father’s university education remains significant while in vocational high school, only mother’s high school education and the “don’t know parents’ education” answers are significant. Attending a private school in vocational college reduces the hazard to a significant job by around 15 – 19%. With respect to the apprenticeship period, as we can see in third and last columns, if it was the first work experience, an individual is more likely to remain in the unemployment. However, this negative effect only appears in vocational high school (it reduces the hazard rate by around 8 – 10%). Finally, we find significant effects of the unemployment rate, both in vocational college and vocational high school. The effects are big: a higher unemployment rate reduces the probability to find a significant job by around 90 – 93%.

4.3 Duration models and unobserved heterogeneity

One of the main issues concerning the estimation of hazard regressions is unobserved heterogeneity. Ignoring unobserved individual characteristics may bias the estimates of the effect of

observed explanatory variables in the hazard function. In this Subsection we consider the presence of unobserved heterogeneity in the previous models. In particular, following Heckman and Singer (1984), we assume that the unobserved heterogeneity follows a “mass point” distribution that takes on $\{\mu_1, \mu_2, \dots, \mu_M\}$ different values with probabilities $\{p_1, p_2, \dots, p_M\}$. As a result, we will maximize a finite-mixture likelihood function where the μ_j and $p_j, j = 1, \dots, M$, are additional parameters to be estimated. TO BE COMPLETED.

5 Conclusions

In this work we study whether there are differences in the patterns of the transitions from school to work if individuals start with different levels of vocational education. In particular, in the Spanish system, young people can enter the labor market with vocational high school (upper secondary education) or with vocational college (tertiary education). Entry requirements are compulsory schooling to access the first level and academic high school to access the second one. In other words, to obtain a vocational college degree is necessary to study two years more and to have a better background. On the other hand, both vocational levels include workplace experience to smooth the entry in the labor market. In principle, we would expect that youths with vocational college presented better transitions to work than those with just vocational high school.

To analyse whether these differences exist, we use two representative samples of individuals who completed vocational high school or vocational college in the school year 2000/2001. These data allow us to assess early labor outcomes because they contain information on working histories since the moment individuals leave education until four years later.

We start by analysing differences in the probability and in the duration to find a first significant job. A job is defined as significant if it lasted, at least, six consecutive months⁵. In the preliminary results we do not find important differences between vocational education levels: the probability to find a significant job is some higher in vocational college but empirical hazards show very similar patterns (although we do find that women have lower exit rates to significant employment than men). Estimates from different duration models show that:

- The hazard to a first significant job among those with vocational college is lower if they are women, have a father with university education, attended a private college or faced higher unemployment rates.

⁵We have in our working agenda to examine also differences in time to first (non-significant) job, in job characteristics (wage, type of contract,...). And also to include in the analysis the presence of unobserved heterogeneity.

- The hazard among those with vocational high school is lower if they were older when finishing education, they faced higher unemployment rates or if the apprenticeship period was their first work experience. On the other hand, having a mother with upper secondary education increases the exit to employment.

The results on the type of school and on the apprenticeship period are specially interesting from a policy perspective because they give evidence on the role of private schools and workplace training in smoothing transitions to labor market. However, further analysis and robustness checks are needed to see whether these preliminary results hold and, then, to address policies on those variables.

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TABLES:

Table 1: **Sample distributions (% , population weights)**

	Vocational high school	Vocational college
Female	47,57	53,82
Age when finished education:		
25 years old	0.03	0.22
24 years old	0.10	0.23
23 years old	5.42	20.49
22 years old	11.05	26.90
21 years old	18.22	26.86
20 years old	25.12	20.03
19 years old	24.75	5.09
18 years old	12.97	0.17
17 years old	2.33	0.00
Type of school:		
Public	67.18	70.56
Semi-private	30.79	22.37
Private	2.03	7.07
Spanish nationality	99.68	99.85
Father's education:		
Primary	12.64	9.55
Compulsory	52.78	54.44
Academic high school	6.97	10.56
Vocational high school	4.03	2.34
Vocational college	2.95	4.23
University	5.14	7.96
Don't know	15.49	8.92
Mother's education:		
Primary	13.85	11.24
Compulsory	58.54	60.46
Academic high school	6.55	10.3
Vocational high school	3.72	3.43
Vocational college	1.05	1.73
University	3.33	5.56
Don't know	12.96	7.29
Region:		
Andalusia	16.39	15.98
Aragon	2.99	2.86
Asturias	2.93	3.55
Balear Islands	2.07	0.99
Canary Islands	2.81	3.49
Cantabria	3.36	2.80
Castilla-La Mancha	3.94	2.77
Castilla-Leon	7.20	6.40
Catalonia	16.96	11.85

Extremadura	2.23	1.27
Galicia	6.10	8.56
La Rioja	0.91	0.71
Madrid	10.72	13.74
Murcia	2.58	1.82
Navarra	2.59	1.65
Basque Country	7.42	9.44
Valencia	8.52	11.85
Ceuta-Melilla	0.29	0.25
Qualification:		
Sports-fitness and Personal care	6.91	3.13
Clerical support and Marketing	32.48	33.35
Agriculture, Forestry and Fishery	4.17	4.13
Printing, Image and Sound	1.96	2.49
Manufacturing and Building	4.30	4.67
Electronic and Computing	20.44	27.50
Energy and Natural environment	0.00	1.95
Hotel management and Tourism	3.48	3.88
Food industry and Chemistry	2.10	1.95
Health	14.01	6.70
Social service	0.00	6.06
Transportation	10.14	4.18
Individuals	7,615	11,244

Table 2: **First significant job (% , population weights)**

Year	Vocational college	Vocational high school	Total
2001	64.54	56.81	60.67
2002	23.33	31.07	27.21
2003	7.56	7.62	7.59
2004	4.53	4.48	4.50
2005	0.05	0.02	0.04
N	6,095	5,430	11,525

Table 3: **Estimation results of the probit model**

	Vocational High School			Vocational College		
Female	-0.39***	-0.40***	-0.17*	-0.31***	-0.30***	-0.11
	(0.06)	(0.06)	(0.08)	(0.06)	(0.06)	(0.07)
Age when finished educ.	-0.02	-0.02	-0.03	0.02	0.02	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Compulsory Father educ.	0.01	0.00	0.01	-0.01	-0.06	-0.05
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
High school Father educ.	0.17	0.16	0.17	-0.05	-0.08	-0.06
	(0.14)	(0.15)	(0.15)	(0.13)	(0.14)	(0.14)
Voc. college Father educ.	-0.04	-0.05	-0.08	-0.06	-0.10	-0.09
	(0.21)	(0.21)	(0.21)	(0.18)	(0.18)	(0.19)
University Father educ.	-0.09	-0.12	-0.05	-0.31*	-0.36*	-0.32
	(0.17)	(0.18)	(0.18)	(0.15)	(0.16)	(0.16)
“Don’t know” Father educ.	-0.03	-0.05	-0.05	-0.08	-0.09	-0.06
	(0.17)	(0.17)	(0.17)	(0.18)	(0.18)	(0.19)
Compulsory Mother educ.	0.12	0.09	0.10	0.28**	0.23*	0.25*
	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)
High school Mother educ.	-0.02	-0.08	-0.06	0.30*	0.22	0.25
	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)
Voc. college Mother educ.	-0.29	-0.29	-0.27	0.29	0.17	0.18
	(0.24)	(0.25)	(0.25)	(0.24)	(0.25)	(0.25)
University Mother educ.	-0.10	-0.14	-0.15	0.13	0.08	0.12
	(0.20)	(0.20)	(0.21)	(0.17)	(0.17)	(0.18)
“Don’t know” Mother educ.	0.03	-0.01	0.01	0.33	0.22	0.25
	(0.17)	(0.17)	(0.18)	(0.18)	(0.19)	(0.19)
Private school		-0.17	-0.15		-0.24	-0.12
		(0.21)	(0.22)		(0.12)	(0.13)
Public school		0.14*	0.13*		0.05	0.06
		(0.07)	(0.07)		(0.08)	(0.08)
Apprenticeship 1 st work exp.			-0.24***			0.00
			(0.06)			(0.06)
Constant	2.17***	2.32***	2.84***	1.13*	1.01	1.21
	(0.41)	(0.62)	(0.65)	(0.50)	(0.59)	(0.63)
Regions	No	Yes	Yes	No	Yes	Yes
Qualification Fields	No	No	Yes	No	No	Yes
N	5725	5725	5725	6408	6374	6374

Dependent variable: probability of finding the first significant job after completing vocational education. Reference category: male, primary father education, primary mother education, semi-private school, previous work experience. Significance levels: *** 1%; ** 5%; * 10%. Standard errors in parenthesis.

Table 4: Hazard ratio estimates (Weibull duration model)

	Vocational High School			Vocational College		
Female	0.70***	0.70***	0.96	0.75***	0.76***	0.87***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)
Age when finished educ.	0.97**	0.98*	0.97*	1.02	1.02	1.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Compulsory Father educ.	0.98	0.96	0.96	0.93	0.89	0.98
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
High school Father educ.	0.94	0.93	0.85*	0.90	0.88	0.92
	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Voc. college Father educ.	0.95	0.95	0.84	0.87	0.84*	0.91
	(0.10)	(0.10)	(0.09)	(0.07)	(0.07)	(0.08)
University Father educ.	0.86	0.83*	0.92	0.74***	0.72***	0.71***
	(0.08)	(0.07)	(0.08)	(0.06)	(0.06)	(0.06)
“Don’t know” Father educ.	0.83*	0.81**	0.73***	0.93	0.93	0.93
	(0.07)	(0.07)	(0.06)	(0.08)	(0.08)	(0.09)
Compulsory Mother educ.	1.07	1.06	1.03	1.19**	1.15*	0.95
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)
High school Mother educ.	1.03	0.99	1.24**	1.22**	1.15*	0.91
	(0.07)	(0.07)	(0.09)	(0.08)	(0.07)	(0.06)
Voc. college Mother educ.	0.79	0.80	0.88	1.19	1.10	1.10
	(0.11)	(0.12)	(0.13)	(0.14)	(0.13)	(0.13)
University Mother educ.	0.93	0.93	1.03	1.01	0.97	1.02
	(0.10)	(0.10)	(0.11)	(0.09)	(0.09)	(0.09)
“Don’t know” Mother educ.	1.18	1.15	1.35***	1.14	1.05	0.83
	(0.10)	(0.10)	(0.12)	(0.10)	(0.10)	(0.08)
Private school		0.81	0.86		0.80***	0.81**
		(0.09)	(0.10)		(0.05)	(0.05)
Public school		1.10**	0.98		0.99	0.95
		(0.04)	(0.03)		(0.03)	(0.03)
Apprenticeship 1 st work exp.			0.90***			0.96
			(0.03)			(0.03)
Unemployment rate			0.06***			0.07***
			(0.00)			(0.00)
Constant	0.53**	0.57*	2.08e+24***	0.18***	0.16***	5.04e+21***
	(0.11)	(0.16)	(3.31e+24)	(0.04)	(0.05)	(6.11e+21)
Regions	No	Yes	Yes	No	Yes	Yes
Qualification Fields	No	No	Yes	No	No	Yes
N	5725	5725	5430	6408	6408	6095

Duration variable: number of months to find the first significant job after completing vocational education. Reference category: male, primary father education, primary mother education, semi-private school, previous work experience. Significance levels: *** 1%; ** 5%; * 10%. Standard errors in parenthesis.

Table 5: Hazard ratio estimates (Cox duration model)

	Vocational High School			Vocational College		
Female	0.75*** (0.02)	0.74*** (0.02)	0.95 (0.03)	0.81*** (0.02)	0.81*** (0.02)	0.90** (0.03)
Age when finished educ.	0.98* (0.01)	0.98 (0.01)	0.98* (0.01)	1.02 (0.01)	1.02 (0.01)	1.01 (0.01)
Compulsory Father educ.	0.99 (0.06)	0.98 (0.06)	0.97 (0.06)	0.95 (0.06)	0.93 (0.05)	0.98 (0.06)
High school Father educ.	0.97 (0.07)	0.96 (0.07)	0.90 (0.06)	0.93 (0.06)	0.92 (0.06)	0.94 (0.06)
Voc. college Father educ.	0.96 (0.10)	0.97 (0.10)	0.87 (0.09)	0.90 (0.08)	0.88 (0.08)	0.93 (0.08)
University Father educ.	0.89 (0.08)	0.87 (0.08)	0.94 (0.08)	0.81** (0.07)	0.79** (0.06)	0.77** (0.06)
“Don’t know” Father educ.	0.87 (0.07)	0.85 (0.07)	0.77** (0.07)	0.95 (0.08)	0.95 (0.08)	0.96 (0.09)
Compulsory Mother educ.	1.05 (0.06)	1.04 (0.06)	1.02 (0.06)	1.14* (0.06)	1.11 (0.06)	0.96 (0.05)
High school Mother educ.	1.02 (0.07)	0.99 (0.07)	1.17* (0.08)	1.16* (0.07)	1.11 (0.07)	0.94 (0.06)
Voc. college Mother educ.	0.82 (0.12)	0.82 (0.12)	0.90 (0.13)	1.14 (0.13)	1.07 (0.12)	1.06 (0.12)
University Mother educ.	0.94 (0.10)	0.93 (0.10)	1.04 (0.11)	1.00 (0.09)	0.97 (0.09)	1.00 (0.09)
“Don’t know” Mother educ.	1.13 (0.10)	1.11 (0.09)	1.29** (0.11)	1.10 (0.10)	1.04 (0.10)	0.87 (0.08)
Private school		0.85 (0.10)	0.88 (0.10)		0.84** (0.05)	0.85* (0.06)
Public school		1.08* (0.03)	0.99 (0.03)		0.99 (0.03)	0.96 (0.03)
Apprenticeship 1 st work exp.			0.92** (0.03)			0.97 (0.03)
Unemployment rate			0.10*** (0.01)			0.11*** (0.01)
Regions	No	Yes	Yes	No	Yes	Yes
Qualification Fields	No	No	Yes	No	No	Yes
N	5725	5725	5430	6408	6408	6095

Duration variable: number of months to find the first significant job after completing vocational education. Reference category: male, primary father education, primary mother education, semi-private school, previous work experience. Significance levels: *** 1%; ** 5%; * 10%. Standard errors in parenthesis.