The Role of Part-Time Employment among Young People with a Non-University Education in Spain

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For some people, a part-time job is merely an intermediate state that serves as a *stepping stone* to further employment and makes labour market integration easier. Yet, part-time work also appears in highly unstable careers. The present research aims to determine the role of part-time employment for young people with non-university studies. Using the Survey on Transition from Education/Training and Labour Market Integration (ETEFIL-2005), we build the monthly sequence of labour states for young people from when they finish their non-university studies until the time of the survey. The analysis allows us to conclude that part-time work is fairly atypical in the early stages of a career but that those who have part-time jobs spend quite a long time in them. In addition, we identify several patterns in the use of part-time work, the 'integrative' pattern proving to be the most prevalent. Factors such as education and early preferences are seen to have a major impact on career paths.

Keywords: part-time work, non-university studies, young people, sequence analysis, cluster analysis, nested logit model

JEL Classification: J24, I20, C23

Introduction

In the current economic context many governments argue that part-time contracts provide a useful alternative for young people. As in most European countries, part-time employment has gained importance in Spain, although the rate of part-time work remains relatively low compared to other countries (Buddelmeyer, Mourre, and Ward 2005a; OECD 2010).[1] According to the Spanish Labour Force Survey (EPA), 7.9% of the total Spanish workforce worked in part-time jobs in 2000. At the time of the present study, 2010, the part-time employment rate had risen to 13.3%. This increase mainly occurred in a favourable economic and social situation. Several reasons have been posited to explain the growing importance of this kind of employment (Bolle 1997). First, employers perceive part-time jobs as a tool for more efficient management of the workforce, facilitating adjustments to temporary and short-term fluctuations in activity and cutting labour costs. Second, part-time employment has also been seen as a tool to increase the labour participation rate of those with family

[1] In contrast to other European countries, part-time employment remains fairly uncommon in Spain, despite several legal reforms that have sought to promote it as an alternative to the more widespread fixed-term employment contracts.

responsibilities or those who have not completed their education. Finally, policymakers consider part-time jobs to be a useful instrument for sharing existing employment during recessions, thereby reducing unemployment.

Nonetheless, part-time jobs are not homogeneously distributed. One key feature of part-time employment is that it is concentrated among females and youngsters (in 2010, 77.4% of part-time jobs were occupied by females, and 27.1% of part-time workers were under 30 years of age).[2] Given that the literature has mainly focused on females, there is little information concerning the relevance of part-time jobs among the young. Young people frequently hold part-time jobs while in formal education, yet our study goes beyond this role of part-time employment. According to the Spanish Labour Force Survey (EPA), another important reason why young people engage in part-time work is because they fail to secure a full-time job. In such instances, jobs with flexible hours (such as part-time jobs) mark the difference between being out of the labour market and being employed. Such jobs also increase workers' skills with a view to securing full-time positions in the future. As young workers are for some reason becoming more marginalized, this explains why part-time employment has become increasingly appealing to them.

Certain studies have explored the effects of part-time work during formal education on subsequent labour market careers and have shown that the experience of part-time work while at school has a positive effect on initial labour market outcomes (Lamb 2001; Marks 2005; Vickers, Lamb, and Hinkley 2003). Among other factors, part-time jobs are seen to complement education, thus making the transition from school to work smoother (Singh 1998). In this sense, part-time work may act as a stepping stone towards gaining a full-time position. Despite the benefits it provides for the young, authors have also explored the disadvantages of working part-time, specifically for women (Blank 1998; Connolly and Gregory 2005, 2010). There is evidence that many part-time jobs are poorly paid and offer few opportunities for professional progression, with people continually moving between unemployment and low status and poorly paid full-time jobs (Connolly and Gregory 2010; Manning and Petrongolo 2008). This leads to part-time work being seen as a dead end or a trap.

By focusing on one specific and well-defined stage in the life of young people, namely when they leave compulsory secondary education, the present analysis seeks to ascertain to what extent part-time work is used as an intermediate state (a stepping stone) to full-time

[2] The part-time rate is even greater for those aged 16-19 years (40.6% in 2010).

positions. As emphasized in the literature, this is a crucial moment in young people's lives since they can choose between going on to further education or entering the labour market (Bernardi and Requena 2010). The latter route is expected to be more common among students with vocational rather than general education, as it is geared towards providing specific qualifications that enable direct labour market entry. For those who decide to pursue their education, part-time work might prove a rational choice for aligning preferences (O'Reilly and Bothfeld 2002), yet for those entering the labour market it might be perceived as partial unemployment if it is not a voluntary decision. At this respect, the differences among countries are large. For example, in Netherlands only 5.6% of part-time workers in 2005 declared that they were in an involuntary situation, whereas in Spain that percentage rose to 31.3%. Those figures were, in 2012, 9.2% and 56.2%, respectively.

Our analysis helps gain further insight into the extent to which part-time work offers the opportunity for professional progression as opposed to the risk of stagnation, and how it facilitates labour market flexibility, thereby contributing to research on the transition from education to work (OECD 1996, 1998; Ryan 2001). In particular, the article makes the following contributions: first, the paper fills a gap in the literature on part-time work, addressing the importance of this atypical employment status among the young; second, the article contributes to existing sequence analysis literature, and finally, we draw on a rich and invaluable data set that allows us to build up a more detailed and comprehensive picture of young people's working careers.

To carry out our research, both sequence analysis and cluster analysis techniques are applied in order to categorize career paths into several groups. A nested logit model is then estimated to quantify the degree to which certain personal characteristics such as gender, age, educational attainment and so on might influence such paths. One key contribution is that, when explaining career paths, we pay particular attention to the role of the early preferences and aspirations reported by young people in the survey. Having data available on job aspirations or preferences in cross-sectional data or even in longitudinal data is by no means common (Gash 2008). In general, the role of part-time work for young people aspiring to a job is expected to differ significantly from that of those seeking to improve their level of education.

Results indicate that it is not possible to assign any single role to part-time work, and that the latter serves a number of different functions depending on a person's attachment to the education system. In particular, those who decide to further their education use part-time work occasionally, particularly during their summer holiday period. In addition, part-time

work is a way to facilitate integration into the labour market for many young people. Finally, only a tiny proportion of young part-time workers do not progress in their professional career and return to education or combine part-time work with spells of unemployment. The nested logit model also underpins the strong influence of educational factors and the fact that attitudinal measures also have a major influence on the early part of a person's career.

The paper is organized as follows. Section 2 describes the theoretical framework for explaining transitions in and out of part-time employment and presents a brief literature review. This is followed in section 3 by a presentation of the data used in the analysis. The following section outlines our estimation methodology, and section 5 presents the results. Finally, the last section includes conclusions and some final remarks.

Literature Review

In this section, we review certain theories explaining transitions to/from part-time work and also review the main empirical contributions on the topic. This section will help us to understand the results of our empirical analysis.

Firstly, the human capital theory suggests that better qualifications facilitate integration into the labour market. In this sense, the role of part-time work as a stepping-stone is more likely to be found among highly-qualified workers. For its part, the segmentation of labour market theory suggests a division of the labour market into core and periphery markets, which may have a significant effect on the integrative or exclusionary transitions between different labour states. Following this theory, part-time employment may respond to a labour segmentation strategy, such that access to part-time work becomes a trap which curtails professional progression. The core segment offers long-term stable employment with structured and predictable career opportunities, whereas jobs on the periphery have lower skill requirements, offer lower wages and afford fewer career prospects, as well as entailing a greater risk of job loss. The opposite theory posits that part-time employment plays an integrative role for certain people who would not otherwise participate in the labour market and keeps them in it. Some relevant factors that may act as integrating elements related to dual training systems and social protection mechanisms for part-time employment (Schmid 1998). At this respect, some authors consider that part time employment can be of interest of both firms and workers and that if it is chosen freely and protected by law, part time offers a good way of striking a balance between time to earn a living and time to devote to other activities (Bolle 1997, Euwals and Hogerbrugge 2006). This is the case of Netherlands, Denmark and Norway where the rate of involuntary part time has always been very low. In

these countries workers are usually happy with their part-time job because they regard them as the result of personal choices rather than as a failure to get a full time job.

Based on these theories, part-time work may have both a positive and a negative effect on the probability of getting a full-time job. In this sense, it is vital to determine to what extent young people use part-time employment as a means to enter the labour market on their way to securing a full-time position or whether, by contrast, it may lead to a clear risk of professional stagnation. As a starting point, the key role played by the segmentation theory in the Spanish labour market (Fernandez-Kranz and Rodriguez-Planas 2011), where allocation relies mainly on experience, should particularly be borne in mind.

Empirical literature on the role of part-time employment in the labour market is relatively new, in line with the increasing importance such contracts are gaining. The bulk of this literature focuses on the role of part-time work among females. The limited available evidence fails to support the natural view of part-time work as a stepping stone to full-time employment for females (Blank 1998; O'Reilly and Bothfeld 2002; Buddelmeyer, Mourre, and Ward 2005b; Connolly and Gregory 2005, 2010; Mansson and Ottosson 2011).

In particular, Blank (1998) reports that only on very few occasions does a spell of part-time work lead to full-time employment in the US. Contrastingly, women use part-time employment as an alternative to full-time employment which they then return to (maintenance function), or enter part-time work from outside the labour market, before leaving again (exclusionary function). Using the British Household Panel Survey (BHPS), O'Reilly and Bothfeld (2002) find that during the 1990s only a tiny number of women used part-time work as a bridge back into a full-time job after a spell of non-employment. Their main evidence is part-time work as an exclusionary pattern interspersed with spells of non-employment. The infrequent integrative function is more common among males still in education. Buddelmeyer, Mourre, and Ward (2005b) also conclude that part-time employment does not fulfil the *stepping-stone* role in Europe, except for a very small number of workers, in addition to which it largely depends on the country, and is more widespread among women than men. Compared to their European counterparts, Spanish part-time workers face greater mobility and spend less time in this position. For Mansson and Ottosson (2011), it is impossible to state categorically that part-time work offers access to the core labour market. Among the part-time unemployed, there are enormous variations in the degree to which they are likely to leave part-time unemployment. Finally, Connolly and Gregory (2005, 2010) conclude that attempting to allocate any single role to part-time employment is

a mistake, since it depends on the level of attachment to the labour market. For women who are strongly attached to employment, part-time work is an intermediate state that allows partial contact to be maintained with the labour market in certain specific situations (caring for children and so on). For other women, spells of part-time employment alternate with periods of inactivity.

To the best of our knowledge, the only research focusing on young people is Marks (2006). This author highlights that part-time employment is not a dead end for young people, but does in fact lead to professional progression in the working life of both men and women. A part-time job in the first year of a person's working life is not as effective as experiencing a full-time job, but does prove more effective than unemployment or inactivity. An explanation to this result could be that part-time wage penalty do not arise for young school leavers, but it develops over time as the effects of foregone promotion due to spells of part-time employment accumulate (Hassink and Russo, 2008). As a final question, one advantage of part-time work is that it can be combined with other activities such as leisure, family, or training. In the case of young people, many students work part-time to support themselves while studying. Labour experience prior to completing education has been shown to be positive for labour market entry as it provides skills and useful knowledge, and acts as a signal to employers regarding a person's attitudes towards employment (Vickers, Lamb, and Hinkley 2003; Marks 2006). This influence appears to be stronger in the case of young people who have completed secondary education and for whom the labour market is the immediate future (Marks 2006).

Data

The data used in this paper are taken from the survey on Transition from Education-Training and Labour Market Integration (ETEFIL-2005), the main survey in Spain addressing the issue of school-to-work transition. This survey was promoted as a result of concerns over youth unemployment in Spain, the need to gather information on the transition between education and employment, and in an effort to gain insight into the mechanisms for embarking on a career. It provides relevant information for a joint study on the paths followed by young people, both in education and in the transition from education to work.

The population analysed in the survey are people who finished their non-university studies in the 2000-01 academic year or who left compulsory secondary education without gaining a qualification in the same academic year, as well as people who finished vocational training programmes in 2000. Only people under 25 years of age at 31st December 2001 are

considered. Respondents were interviewed, only once, in mid-2005, such that the oldest respondent in 2005 was aged 29. More precisely, the full sample includes individuals who completed compulsory schooling, upper secondary education, vocational lower-secondary education, vocational upper-secondary education, or vocational training programmes[3] as well as those dropping out of compulsory secondary education in that academic year (see Table 1). As can be seen in Figure 1, where the basic structure of the Spanish education system is shown, individuals may follow diverse educational paths after compulsory secondary education (opting for either an academic or a vocational track) or may enter the labour market. The major trend in recent years is for most students who complete compulsory education to attend upper secondary education (baccalaureate), which enables them to gain entry to university, while only a few choose vocational training. A large number opt to drop out of the education system once they reach the age of 16 without having completed compulsory secondary education.

The longitudinal structure of the survey is taken from a calendar file spanning the month when youngsters finish education up to the month of the interview (the fieldwork was conducted between April and July 2005). Interviewees reported on a monthly basis whether they were in education, training, seeking employment, or were working more or fewer than 20 hours a week. The observed paths differ in length for each individual due to differences in both the month they entered the calendar file and the month the interview was conducted. In order to set an equal-length observation window for all interviewees, the window was restricted to the first 36 months after education finished, since all interviewees reported information for at least 36 months in the calendar file.

A word of caution is needed, since the survey is based on retrospective information provided by youngsters about their monthly situation from 2001 up to mid-2005, and potential recall bias may therefore be present. Nevertheless, given that the individual only has to remember the sequence of states rather than any specific dates or events, any potential bias should not prove too large.

[Table 1 about here]

In an effort to construct pathways, we needed to determine which labour situations should be considered. In our case, labour market states have been defined following information available in the calendar file. Firstly, we distinguish the three common labour

[3] There are two special vocational training programme plans (the FIP Plan, and ETCS). These programmes are job oriented and are designed to help those youngsters who face the greatest difficulties, by making it make easier for them to join the labour market. They are mainly devised for those who drop out of education without having completed secondary studies or who find it more difficult to finish higher levels.

states: employment (part-time and full-time), unemployment, and inactivity. Further, because the sample consists of individuals in the early years of their working lives, we decided to separate different states of inactivity depending on the connection to education: studying in formal education, studying in non-formal education, and total inactivity (neither studying nor working nor seeking employment).[4] One advantage of the ETEFIL worth noting is that it is one of the few databases that allow distinctions to be drawn between different labour states for those outside the labour force. In short, the six labour market states used as the basic elements to construct the pathways are shown in Table 2.[5]

[Figure 1 about here]

Another important issue in this study is the definition of part-time employment. Our definition, subject to data, is based on the actual number of working hours individuals state they have worked rather than on any subjective measure. Although there is no universally agreed definition of part-time work, our measure differs significantly from the conventional definition. In the context of the European Union, a part-time worker is an employee whose normal hours of work are less than those of a comparable full-time worker.[6] Yet, the number of hours per week considered normal for full-time employees may vary from one profession or activity to another. The most important survey for analysing the labour market in Europe, the Labour Force Survey, states that part-time work should seldom exceed 35 hours a week, and that full-time work usually starts at about 30 hours. However, the threshold between part-time and full-time jobs in the ETEFIL survey is set at 20 hours. Taking into account the distinction between marginal part-time jobs (fewer than 20 hours) and substantial part-time jobs (20 to 34 hours per week), our data only capture the former (Bielinski, Bosch, and Wagner 2002; Sirvent and Ferreiro 2006).

[Table 2 about here]

We restrict the sample to youngsters with part-time experience during the reference period. Applying this restriction, our study sample comprises 5,860 individuals. The distribution of the sample by level of education is included in the second column of Table 1. Extensive information has been collected on a wide range of personal characteristics such as gender and age, as well as level and field of education. A summary in terms of mean and standard deviations is provided later on.

[4] In 2011 the average proportion of 15-29 years-old neither in employment nor in education or training (NEET) across OECD countries was 16% (OCDE 2013).
[5] Since individuals might combine several activities (for instance, studying and working), we make the usual assumption that employment is the dominant state.
[6] A similar definition is used by the International Labour Organization (ILO).

Methodology

Sequence and Cluster Analysis

The final objective is to classify career paths into groups, such that any career~~s~~ belonging to the same group will be very similar and will, at the same time, differ greatly from paths in other groups. For this purpose, Optimal Matching Analysis (OMA) is used to compare the labour paths of young people with part time experience.[7]

OMA was first introduced into social sciences by Abbott and Forrest (1986) and was originally devised to align sequences in biological sciences.[8] In the context of social sciences, researchers have focused on individual sequences, such as class careers (Halpin and Chan 1998), employment biographies (Blair-Loy 1999; Pollock, Antcliff, and Ralphs 2002), and school-to-work transitions (Scherer 2001; Schoon et al. 2001; McVicar and Anyadike-Danes 2002; Brzinsky-Fay 2007; Corrales-Herrero and Rodriguez-Prado 2012).

The basic idea of sequence analysis is to calculate distances either (1) between each sequence and a benchmark sequence, or (2) between all the sequences pairwise. These distances represent a measure of dissimilarity between each two sequences under consideration and are estimated as the minimum cost of transforming one sequence into another using a set of three different operations (substitution, insertion, and deletion). An insertion means that a state is being added to the sequence in a specific position. Similarly, it is possible to eliminate a state by deleting. As these two operations are the reverse of each other, they are treated together and are called *indel* operations. A third operation involves replacing (substituting) one state for another.[9] Each type of operation is assigned a cost. OMA seeks the least "expensive" combination of operations required to transform one sequence into another and considers this cost as the distance separating the two sequences (the similarity distance). Thus, a pair of sequences with a small distance between them means they are similar, while pairs with a large distance are more distinct. In our case, such a comparison is repeated for all sequence pairs in the sample so as to obtain a distance matrix measuring how much sequences resemble one another. This distance matrix is used in cluster

[7] In the literature, two approaches are capable of systematically describing the sequence of events and their duration: Qualitative Harmonic Analysis (QHA), a factor analysis method developed by French statisticians in the 1980s which takes account of time (Robette and Thibault 2008), and Optimal Matching Analysis (OMA), a set of algorithmic techniques imported from life sciences by American sociologists in the late 1980s, and which also emphasizes the order of events.

[8] For a review, see Abbott and Tsay (2000).

[9] Substitutions emphasize the order of events whereas *indel* operations stress the occurrence of events (Lesnard 2010).

analysis to identify representative pathways by grouping together sequences that are similar to each other, i.e. that have the smallest distance between them.

The first step in sequence analysis is thus to assign costs to each operation. However, prior to explaining how to assign costs to each operation, we focus on another question: the length of trajectories. As explained in the data section, the survey allows us to collect information about labour states between two dates: the date when the level of education was completed and the survey date. Yet, the month when the level of education is completed and the month the interview was conducted are not always the same for all individuals. Consequently, the length of sequences is not the same. However, the measure we use here, the dynamic Hamming dissimilarity measure (Lesnard 2006), can only handle sequences of equal length. For this reason, youth labour pathways have been truncated and only contain the states occupied after the educational level is finished for a further three years. In this way, sequence length is 36 months.

With respect to assignment costs, it is important to note that this step is critical, since different costs influence the resulting distance matrix.[10] Ideally, setting values to operations costs should be based on theoretical grounds. Yet, there is not always a theory to support this. Given that in our context there are no accepted measures of quantitative differences between states to guide us when assigning costs, we follow the criteria established by the dynamic Hamming dissimilarity measure (Lesnard 2006, 2010), where substitution costs are derived from data itself and are time dependent.

Hence, the cost of substituting one state (for example, unemployment) for another (employment) is assumed to be related to the transition frequencies between those states. More specifically, substitution costs are inversely proportional to frequencies. In other words, the less frequent a transition between two states, the greater the cost of substituting one state for another. In addition, we accept that substitution costs also vary with time, meaning that the probability of remaining in one state, for instance employment, two years after completing education is not the same as getting a job immediately after finishing. In this sense, the transition matrix containing the transition frequencies between the six states is not fixed, but is time dependent. Summing up, substitution costs are calculated by means of the monthly transition frequencies derived from data using the formula suggested by Rohwer and Potter (2005),

[10] Assigning substitution costs has been one focus of criticism levelled at OMA (see e.g., Wu 2000; for answers, see Abbott 2000; Halpin 2003, 2010).

$$\text{Cost}_t\ (a,b) = \begin{cases} 4 - [p(X_t = a \,/\, X_{t-1} = b) + p(X_t = b \,/\, X_{t-1} = a) + \\ p(X_{t+1} = a \,/\, X_t = b) + p(X_{t+1} = b \,/\, X_t = a)] & a \neq b \\ 0 & a = b \end{cases}$$

where $p(X_t = b \,/\, X_{t-1} = a)$ is the probability of reaching state *b* at time *t*, conditional to being in state *a* at time *t-1*. The higher the transitions between states *a* and *b* and between $t - 1$ and *t*, and between *t* and $t + 1$ (with an upper bound of 4), the lower the substitution cost between the two episodes, *a* and *b* at *t* (with a lower bound of 0). Indeed, high transitions mean that many individuals have just changed from *a* to *b* or from *b* to *a*, or that they are about to do so. In statistical terms, the probability at *t* that *a* and *b* belong to the same trajectory is high. By contrast, low transitions mean that these two states are not connected around *t*, such that, from a probabilistic viewpoint, they belong to two different types of trajectories. Substitution costs thus depend on time and derive from the transitions observed in the sample studied. As transition rates imply two consecutive dates while dissimilarity is only required for a single date, it seems better to smooth substitution costs a little by taking into account the two transitions immediately before and after the date of interest rather than only the one before or after (Lesnard 2011).

Regarding the other two editing operations, since *indels* warp time, and hence the timing of sequences, it is suggested that only substitution operations with time-dependent costs inversely proportional to transition frequencies be used whenever the timing of sequences is central (Lesnard 2011). This strategy has also been applied to studies of the string of adulthood (Aassve Billari, and Piccarreta 2007; Aisenbrey and Fasang 2010).

The dynamic algorithm evaluates all possible solutions (combinations of operations to transform one sequence into another) and returns the "cheapest".[11] As a result, a symmetric matrix with a size equal to the number of sequences containing the similarity between each pair of sequences is obtained. The matrix is called a distance matrix since each cell (a_{ij}) contains the distance between individual sequence *i* and individual sequence *j*. The cells on the diagonal of the matrix contain only zeros as they represent the distance between one sequence and itself.

We then apply a cluster analysis to this distance matrix to group unique sequences into an undetermined number of clusters which identify representative pathways. Cluster analysis is a well-known technique that requires taking certain decisions concerning the various

[11] We use a Stata program created by Lesnard (2006). The program generates several files containing the series of monthly transition matrices, substitution cost matrices, and the distance matrix.

clustering algorithms and identifying the appropriate number of clusters. With respect to the cluster algorithm, numerous methods for grouping exist and there is no clear criterion when deciding among them. We have chosen an agglomerative hierarchical method, the Ward method, since it detects more homogeneous clusters and is the most popular among similar studies (Scherer 2001; Brzinsky-Fay 2007; Martin, Schoon, and Ross 2008). Moreover, it seemed to provide the most reasonable results when we compared the performance of various cluster algorithms.

The final question to be solved is to identify the appropriate number of clusters. There is no unanimously agreed procedure for choosing the appropriate number of clusters, although there are a number of widely used ‘‘stopping rules’’ (e.g., Calinski/Harabasz and Duda/Hart, which are implemented in Stata) based on relative variations in within-cluster and between-cluster variation as the agglomeration algorithm proceeds. At best, such rules are regarded as indicative (Piccarreta and Billiari 2007) and do not necessarily suggest the same number of clusters. Indeed, this proved to be the result in our case. We thus considered the change in the agglomeration coefficient represented in the dendrogram when taking this decision. Nevertheless, after comparing various results, the final solution (seven clusters) also took into account contextual arguments, an internal analysis of homogeneity, and the characteristics of clusters that help to understand what youngsters in each cluster have in common and whether each cluster proves analytically meaningful.[12]

Results

Types of Trajectories

Only 5,860 of the 45,620 youngsters who answered the survey experienced at least one spell in part-time employment, meaning that around one in ten worked in a part-time job for some time over the three years after either completing (or dropping out of) their studies in the 2000-2001 academic year. On average, they worked part-time for about 13 months, approximately one third of the time period. This means that part-time work is not a common state for young people in the early years of their career although the time spent in part-time jobs is relatively high for those engaging in it.[13]

As our main interest is the role played by part-time work in pathways, the key population consists of youngsters who worked part-time at some point. Our data show a great diversity

[12] To evaluate the robustness of the cluster analysis, we investigated the presence of more or fewer clusters, although the identification described in the paper with seven clusters was the clearest.
[13] It should be remembered that only marginal part-time work is measured (less than 20 hours).

in trajectories, as can be seen in Table 3 where we include the ten most frequent trajectories (all together, accounting for only 13.5% of total sequences).[14] The most frequent trajectory corresponds to a situation in which individuals begin and remain in part-time employment during the first three years. Again, the second essentially comprises one state, namely inactivity, indicating that individuals following this type of trajectory preferred to stay on in full-time education rather than entering the labour market. An overall evaluation of trajectories in Table 3 allows us to confirm that the transition from part-time employment to full-time employment is more common than vice-versa. Taking into account all the sequences, the distribution of states in terms of time is homogeneous. Young people were in part-time work for about 13 of the 36 months, with almost another third continuing in education, and around 21.8% occupying a full-time job. The other states are nearly insignificant.

[Table 3 about here]

As a following step to analyze the role of part-time work, we apply cluster analysis to establish different pathways. The dissimilarity matrix, built following the particularities commented on in the methodological section, was used as input in the cluster analysis. Analysis allows us to identify several groups with varying degrees of attachment to the labour market (see dendrogram in Figure 2). In order to gain a better understanding of the differences between clusters in terms of composition, location, and order of states, both Table 4 and Figure 3 are considered. Table 4 includes several indicators such as the mean duration in each state, the average number of spells, or the total number of unique sequences. The mean duration is the sum of the total number of months spent in one state, regardless of whether months run consecutively or not. Hence, this measure reflects the overall frequency of each particular state. Figure 3 represents the monthly state distribution for each cluster, that is, in the vertical axis the number of youngsters in each of the seven states retained in the analysis for each month (horizontal axis).

At an aggregate level, we initially distinguish three different groups. In the first, the dominant state is “inactivity but studying formal education”. Contrasting with this group, is a second cluster where states related to the labour market appear more frequently than those related to education. The third group mainly comprises part-time work. This initial classification fails to reveal certain relevant differences in terms of the degree of part-time work and location. After taking into account some statistical criteria described in the

[14] This diversity makes analysis difficult if sequence and cluster analysis techniques are not available.

methodology, our final alternative solution involves disaggregating the clusters into seven groups (a seven-cluster solution).

[Figure 2 about here]

The first group in the three-cluster solution, the one showing a weaker labour attachment, is split into three different groups. The relevant difference between these groups is not the time spent on the different states but rather when this took place in the pathway. The first consists of individuals who have not yet left the education system (they spent an average of 26 months in INESE) and occasionally use part-time work when on vacation (see Figure 3). The second comprises individuals who experience part-time jobs at the beginning of the trajectory (spending an average of 10 months in PT) and then return to education. Finally, a third group consists of individuals who experienced spells of part-time work after having engaged in further education and gradually enter the labour market. Similarly, the second cluster in the three-cluster solution is also divided into three groups. In the first cluster (cluster 4), movements between part-time and full-time work are observed in reverse order. The fifth cluster could be described as the most problematic; subjects in this group are in extended periods of unemployment and part-time work. Finally, part-time work acts as a stepping-stone to full-time employment in cluster 6, facilitating transition to the labour market.

[Table 4 about here]

In sum, our results clearly reflect the idea that part-time work serves a number of varying functions depending on the attachment to the education system. A clear stepping stone pattern is identified in clusters 3 and 6, to which around a third of the selected population belongs. Part-time work is used as a complement to support education and gain some experience while on holidays for a similar percentage of people (28%). A relatively high number of youths are in part-time work over the three years (20%). For these people, the stepping-stone effect might be in the longer run. Approximately 12% of young people, those belonging to clusters 2 and 4, take a step down in their career. Fortunately, the exclusionary pattern, where part-time work might be considered as partial unemployment, is characteristic of only 6% of individuals.

[Figure 3 about here]

Nested Logit Model

Once the pathways related to the use of part-time work are described, we try to model how a pathway is chosen among a discrete set of alternatives (following McVicar and

Anyadike-Danes 2002). This analysis seeks to identify certain characteristics affecting the probability of following each possible pathway. Our dependent variable is the pathway choice that includes the paths in the seven-cluster solution as alternatives. Together with the impact of standard variables such as gender, age, or educational level, we explicitly explore the influence of several subjective aspects such as the priority that young people declared in relation to the early years after finishing compulsory education and the main concern in their life.[15] Priority is elicited through a question in which individuals must choose between: getting a job, getting a suitable job, getting a stable job, organising their life, education, and others. Youths were also asked about how important various issues (family, employment, social participation, leisure, or education) were for them and were asked to order them allocating 10 points. Summary statistics on these explanatory variables are shown in Table 5.

[Table 5 about here]

We initially estimated a multinomial logit model.[16] In order to check whether the model is correctly specified and whether it makes sense to combine certain categories of the dependent variable, the model was subjected to several tests, such as a likelihood-ratio test for irrelevant variables. In addition, we use several tests to determine whether the independence of irrelevant alternatives (IIA) assumption is valid to justify the use of the multinomial logit model. This assumption suggests that if a subset of the choice set is irrelevant, then omitting it from the model altogether will prove inefficient but will not lead to inconsistency. However, if the remaining odds ratios are not truly independent of these alternatives, then the parameter estimates obtained when eliminating these choices will indeed prove inconsistent. Table 6 includes the results from the IIA assumption using the Small-Hsiao test.[17] It should be noted that the *p*-values indicate that the null hypothesis is strongly rejected in most cases.

[Table 6 about here]

Since a clear conclusion regarding the IIA property using the Small-Hsiao test emerged, we estimate a nested logit model.[18] The idea underlying the nested logit model is that some alternatives (pathways) are very similar in an unobserved way and may be grouped in the

[15] Data also contain information about the initial (or final) date of pathways. Initially, we contemplate dummies to take account of time. Nevertheless, all pathways begin at approximately the same date (any month of 2001), individuals thus facing the same favourable economic conditions.
[16] The results are not presented here for reasons of space, but are available upon request from the authors.
[17] In addition, the Hausman test was implemented, although this test produces negative values in contradiction with the limiting chi-square distribution of the test statistic. Vijverberg (2011) evidences that the traditional implementation of the Hausman test deviates greatly from the asymptotic chi-square distribution and violations of IIA may in fact yield large negative test values.
[18] The nested logit model was estimated using the nlogit command in Stata.

same nest in order to accommodate correlation between them. By clustering related alternatives into groups, the IIA assumption is relaxed between alternatives within a nest while it is maintained between alternatives in different nests. Moreover, the nested specification seems to be appropriate if there are some unobservable factors that have influenced the decision either to continue in education or enter the labour market. Following on from this idea, we classify alternatives into nests in terms of their similarities. Our final tree structure is shown in Figure 4.[19]

[Figure 4 about here]

The tree corresponds to a two-level nested logit model with two alternatives at the upper level (m=2) and with a total of seven alternatives at the lower level (j=7). At the first level, alternatives are separated depending on the degree of attachment to the labour market: weak or strong attachment. In this way, we assume that, compared to those who enter the labour market, individuals who enrol in education differ in characteristics affecting the utilities.

Following Heiss (2002), in the nested logit model, the probability of individual i choosing alternative j is decomposed as the product of the conditional probability for alternative j within nest m ($p_{j|m}$) and the marginal probability of choosing some alternative in nest m (p_m). Both the conditional and the marginal probability have the form of standard logit models and their product results in

$$p_i(\text{alternative } j, \text{nest } m) = P_{ij/m} \cdot p_{im} = \frac{e^{V_{ij}/\tau_m}}{\sum_{k=1}^{J} e^{V_{ik}/\tau_m}} \cdot \frac{e^{IV_m \cdot \tau_m}}{\sum_{m=1}^{2} e^{IV_m \cdot \tau_m}} \ ,$$

where the deterministic component V_{ij} may consist of different types of determinants ($V_{ij} = \alpha_j + X'_{ij}\beta + Z'_i\delta_j$): alternative-specific variables that vary both over individuals i and alternatives j (X_{ij}), individual-specific variables that describe individuals' characteristics (Z_i) and/or alternative-specific constants. One measure of the attractiveness of each nest is the inclusive value, IV_m, that coincides with the logarithm of the denominator in the conditional probability ($IV_m = ln \sum_{k=1}^{J} e^{\frac{v_{ik}}{\tau_m}}$). The coefficients (or dissimilarity parameters) τ_m provide information concerning the degree of independence among all the alternatives in each nest. If τ_m is equal to 1, then we have complete independence and the nested logit reduces to a standard multinomial logit model. An LR test to see whether this is the case is reported at the

[19] To test the robustness of our results, we chose our preferred tree structure after evaluating the results obtained from other potential candidate trees. We decided to estimate those that seemed more appropriate to the context taking into account the previous results in the cluster analysis. In particular, one is a three-nested solution where only part-time work is isolated in a third branch, and the second is also a three-nested structure with three types of labour attachment (weak, medium, and strong). The weak branch remains the same, the medium attachment includes only part-time work and joblessness pathways, and the other two pathways are in the strong attachment. The final results correspond to the model with the lowest log-likelihood.

bottom of Table 7, the null hypothesis being that $\tau_m = 1, \forall m$. We find that we can reject the hypothesis that dissimilarity parameters are 1. This reinforces the decision that a nested logit is, in fact, more appropriate than the multinomial logit model.

[Table 7 about here]

Next, we therefore concentrate on the results estimated from the nested logit model. In our case, only alternative-specific constants and individual-specific variables - those describing characteristics of individuals - are included. The results of the nested logit model are shown in Table 7 in terms of the coefficients.[20] As Heiss (2002) noted, the specific constants for each alternative capture the average effect on probability of all factors not included in the model relative to the reference alternative. From the first row of this table, it can be seen that the coefficients of the constant are statistically significant except for the "return to education" alternative. The greater value (in absolute value) corresponds to the "delayed" alternative, for which the average impact of unobserved factors is the highest compared to our alternative reference ("only pt").

As the magnitude of coefficient estimates is not directly interpretable, we derive marginal effects from the nested logit model and use them to interpret the role of certain relevant characteristics on the individual choice pathway. The marginal effects on the probability of choosing a pathway appear in Table 8. It should be noted that the marginal effects measure the impact of a change in a covariate on the probability of following a pathway. For dummy variables, marginal effects measure the discrete first difference from the base category; that is the difference between the predicted probabilities when the variable takes value 1 minus its value at 0. Only those marginal effects which are of interest are reported here and we focus our comments on the marginal effects on the probability of following a pathway.

[Table 8 about here]

The most significant result is related to the priority that young people declared prior to answering the survey. This variable is highly significant, and the marginal effects take the highest values. If the priority was to get a job (any type of job) compared to the reference category (education), the probability of following any pathway more closely related to the labour market is greater, particularly the upward career (with an increase in the probability of approximately 11%). Contrastingly, the chances of occasionally using part-time work over short periods while on holiday are lower. It seems that what are really important to

[20] Since normalization is required to identify differences between coefficients, we set the coefficients of the "only part-time work" alternative to zero. That is our reference.

youngsters careers are their preferences, whereas personal and socio-demographic characteristics play a minor role. This result agrees with the notion that the job you are in is a result of individual preferences and labour market constraints (Dekker 2008). This result also support the idea of part time as a potential advantage rather than a trap for youngsters when is a result of a personal choices (Euwals and Hogerbrugge 2006). In this sense, our results agree with the idea that part-time work may be seen as a personal choice for some young people in their early careers.

Gender does not seem to be a relevant factor for the alternatives included in the weak branch. However, marginal effects for the alternatives in the strong branch reveal that females have fewer opportunities than males in the labour market. In particular, being female increases the probability of belonging to the joblessness pathway by about 2.4%. Our study suggests that women have the same career opportunities as men when the attachment to education is stronger, yet have different opportunities when they are more integrated into the labour market, since they are more exposed to combining part-time work with spells of unemployment and inactivity. Age reduces the probability of choosing any of the alternatives in the weak branch and increases the probability of choosing alternatives with a greater attachment to the labour market with the exception of the alternative identified as joblessness. Finally, a further relevant factor accounting for which pathway individuals follow is the level of educational attainment.[21] Marginal effects are negative for alternatives in the weak branch, whereas they are positive for alternatives in the other branch. Compared to being awarded a higher secondary education or Baccalaureate certificate (the reference group), having dropped out of basic education without qualifications reduces the probability of choosing an alternative in the weak branch. The same occurs when we take only the part-time pathway; i.e. the probability is lower. However, for the remaining pathways in the strong branch, the probability increases compared to the reference group.

In addition, estimated probabilities of choosing each and every alternative are computed on the basis of estimating the results presented above. Table 9 shows the predictive probabilities for each elemental alternative and the predictive probabilities given the level of attachment to the labour market. Conditional probabilities inform us as on the proportion of individuals who follow a specific pathway within a branch. Around 60% of individuals continue in education using part-time work occasionally, whereas only 11% of those entering

[21] Due to the large number of fields included in the estimated model, we only concentrate on the level rather than on the field of education.

the labour market directly are exposed to a joblessness career, thus confirming the relevance of education.

[Table 9 about here]

Finally, the fact that dissimilarity parameters are above 1 means that our data do not support the utility maximization theory, although this is not a major cause for concern here (McFadden 1981) since our model is not based on random utility maximization.[22] However, it can be interpreted in RUM terms, since our model does not include generic variables. The higher value of the dissimilarity parameter for pathways with a weak attachment to labour market indicates they are less similar than those with a strong attachment.

Discussion and Conclusions

In the current economic context, part-time employment has become more prominent and now plays an increasingly important role for young people. Moreover, atypical jobs, such as part-time jobs, appear more frequently in the transition from school to work.

In an effort to gauge to what extent and how young people use part-time jobs in the early years of their careers, our study focuses on pathways followed by young Spanish people who completed compulsory secondary education during the period 2001-2005 (approximately). Although part-time work is not as common in our sample as it is in other countries, the analysis has shown numerous and varied pathways, which we have attempted to summarize in a comprehensive manner through seven clusters. Clusters basically differ in the intensity and position of spells of part-time work. Based on this cluster analysis, it is possible to recognize different functions depending on the attachment to education. For those who maintain a strong attachment to education, part-time work is mostly a complement to education. In this case, individuals frequently hold part-time jobs while on vacation and while pursuing formal education. When the attachment to education is weak, young people's careers are upward, and part-time jobs are followed by full-time jobs. Yet, there are also pathways in which part-time jobs seem the only available alternative to unemployment and others in which individuals do not progress as expected. Fortunately, the integrative pattern is the more prevalent. As in other studies (Marks 2006), our analysis thus reveals that for most young people there is evidence that part-time work is a stepping-stone towards full-time employment.

[22] Due to different normalizations, there are two different specifications for the nested logit model in the literature: the random utility maximization nested logit model (RUMNL), and the non-normalized nested logit model (NNNL) (Koppelman et al., 1998; Silberhorn et al., 2008).

After cluster analysis, we use a nested logit model with two alternatives at the upper level in line with the attachment to the labour market, and seven alternatives at the lower level. The results of the nested logit model reveal that factors such as education and early preferences strongly influence pathways. Young people who declare their priority to be finding a job are more likely to follow any pathway that is more related to the labour market. Aspirations therefore have a positive effect on careers, at least under favourable economic circumstances.

With respect to education, those who drop out without completing secondary school studies not only have less chance of following pathways that are more related to education but are also more likely to have a joblessness career (compared to the reference group, Baccalaureate). Early school leavers remain a major problem in Spain. Those who left school early were job-hungry and decided to enter a labour market that, at the time, was bursting with job opportunities for them. Our findings show that such people rarely returned to regular education. As a result, they remain poorly qualified in the long term. In this respect, the measure, implemented by the National Institute for Qualifications (*Instituto Nacional de las Cualificaciones*) since 2002 has proven relevant. This agency assesses and accredits workplace training so that young school leavers may at least gain some basic qualifications that will help them to find new jobs later on in their careers. This may help prospective employers to get a clearer idea of their human capital and potential.

Similarly, results indicate that those with vocational education are less likely to follow pathways that are more related to education. By contrast, the chances of following an upward career are greater. In fact, integration into the labour market for certain fields of vocational education proves easier and faster than in some university degrees (Corrales 2005).

To conclude, the results of our analysis show that no single role may be allocated to part-time work since the latter serves many differing functions depending on the attachment to the education system. For a number of young people, part-time work is a means of entering the labour market. Only a tiny proportion of young part-time workers do not progress in their professional career and return to education or combine part-time work with unemployment.

Finally, we should point out that our period of study proves relevant for analysing the role of part-time work among non-university graduates since it provides insights into the main trajectories followed when sufficient job opportunities are available. However, it fails to reveal anything about the educational and employment decisions taken in a very different economic context. Studying such pathways in this new scenario, characterised by a period of economic crisis, is a natural extension of the present work in the future.

The recent focus on the use of part-time work by governments has substantially increased the percentage of part-time employment in most countries. This trend has been more marked in countries such as Spain, Ireland, Italy, Portugal, and Greece that have been most hit by the economic crisis. Statistics also suggest that part-time work in these countries is really a second-best job for young people and therefore a form of hidden unemployment. Such changes clearly need to be put into the context of the large-scale liberalization of labour markets that has taken place all over the European Union since the early 1990s in an effort to adapt economies to the challenges arising from ever-increasing globalization and ever-more rapidly changing technological progress. In several cases, the strategy has been to increase labour market flexibility at the margin by widening the scope of atypical employment through temporary and part-time contracts. Together with high rates of trade-unionisation and coverage of collective bargain, this has resulted in increased labour market segmentation (Bentolila et al. 2012).

As many authors are pointing out, we may, in this sense, be witnessing a fundamental shift in the nature of employment if the measures implemented to combat youth unemployment lead to the disappearance of full-time career path employment.

In such a context, despite being descriptive, our findings should prove useful to policy-makers. While the analysis cannot provide any easy solutions for improving the effectiveness of the Spanish education system, it does illustrate the fact that vocational education should be more labour market oriented and that measures must be taken to reduce early school leaving. One priority for the Spanish government is obviously to devise programmes that can reduce the labour market segmentation that is so badly affecting young people. This would enhance their chances of embarking on full-time career path employment, reduce the time required to secure a good job, and help workers to improve the quality of their job match.

By way of a final comment, it should be noted that the study could be improved by further analysis which takes into account the nature of jobs considering elements such as salary or the mismatch between education and work.

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Table 1. Distribution by level of education completed in the academic year 2000/2001 (%).

	Total	With any part-time job between 2001-2005
Complete compulsory schooling	17.8	21.6
Academic high school (Baccalaureate)	11.9	18.0
Vocational lower-secondary education	16.7	11.0
Vocational upper-secondary education	24.7	20.9
Vocational apprenticeship	22.4	24.2
Drop-out without compulsory schooling	6.6	4.3
	45620	5860

Source: ETEFIL

Table 2. Classification and codes for the labour states.

Code	Description
1 (i)	Inactivity but studying in non-formal education (INEFSE)
2 (S)	Inactivity but studying in formal education (INESE)
3 (I)	Inactivity and not studying (INNE)
4 (U)	Unemployment (U)
5 (e)	Working in a part-time job, less than 20 hours per week (PT)
6 (E)	Working in a full-time job, more than 20 hours per week (FT)

Source: ETEFIL.

Table 3. Most frequent trajectories.

Sequence pattern	%
eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee	7,58
SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSe	1,09
SSSSSSSSSSSSSSSSSSSSSSSSeeeeeeeeee	0,85
SSSSSSSSSSSSSSSSSSSSSSSSSSSSeeeeee	0,75
eeeeeeEEEEEEEEEEEEEEEEEEEEEEEEEEEE	0,65
eeeEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	0,60
SSSSSSSSSSSSSSSSeeeeeeeeeeeeeeeee	0,56
eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeEEEEEE	0,49
eeeeeeeeeeeeeeeeeeEEEEEEEEEEEEEEEE	0,48
eeeeeEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	0,46
eeEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	0,44

Source: Own elaboration from ETEFIL.
Note: See Table 2 for states codes.

Table 4. Description of clusters.

		Mean duration in state …						Mean number of spells	Unique sequences	Total sequences	%
		INEFSE	INESE	INNE	U	PT	FT				
Weak labour attachment	1. Occasional part-time work	0.18	**26.72**	0.38	0.51	5.90	2.33	5.40	972	1649	28%
	2. Downward career (return to education)	1.21	**17.80**	1.02	1.32	9.98	4.67	5.39	282	325	6%
	3. Delayed entry into the labour market (stepping stone)	0.71	**14.88**	1.08	1.27	9.95	8.12	5.06	596	703	12%
Strong labour attachment	4. Reverse order in progression career	5.43	0.66	5.03	2.69	10.72	**11.47**	5.09	552	608	10%
	5. Joblessness career (millstone)	0.78	0.46	0.64	**18.80**	6.58	8.74	5.38	334	350	6%
	6.Upward career (stepping stone)	0.40	0.87	0.91	2.56	8.63	**22.63**	4.67	689	1079	18%
7. Only part-time work		0.52	2.56	0.84	1.78	**27.28**	3.02	4.63	461	1146	20%
	Total	0.83	11.26	0.94	2.16	12.28	7.85	5.08	3886	**5860**	100%

Source: Own elaboration from ETEFIL.

Note: INEFSE: Inactivity but studying non-formal education, INESE: Inactivity but studying formal education, INNE: Inactivity and not studying, U: Unemployment, PT: Working in a part-time job (less than 20 hours per week) and FT: Working in a full-time job (equal or greater than 20 hours per week).

Table 5. Descriptive statistics of the independent variables.

Variable	Mean	Std. Dev.	Min	Max
Female	.602	.490	0	1
Age	22.656	2.375	19	29
Area geographic (ref: South)				
East	.259	.438	0	1
Center	.108	.310	0	1
Northeast	.145	.352	0	1
Northwest	.085	.279	0	1
Madrid	.181	.385	0	1
Priority (ref: Education)				
Getting a job	.068	.252	0	1
Getting a suitable job	.139	.346	0	1
Getting a stable job	.262	.440	0	1
Organize life	.050	.219	0	1
Others	.059	.236	0	1
Main concern in life				
Leisure	.335	.472	0	1
Social participation	.174	.379	0	1
Employment	.386	.487	0	1
Family	.650	.478	0	1
Education	.242	.428	0	1
Level of education (ref: Baccalaureate)				
Graduate ESO	.216	.412	0	1
Drop out ESO	.043	.203	0	1
Family1: AGR	.020	.141	0	1
Family2: IND	.077	.267	0	1
Family3: SER1	.108	.311	0	1
Family4: SER2	.127	.333	0	1
Family5: TRA	.0151	.122	0	1
Family6: ADM	.076	.265	0	1
Family7: ELE	.022	.145	0	1
Family8: QUI	.012	.111	0	1
Family9: SAN	.052	.223	0	1
Family10: INF	.050	.219	0	1

Table 6. Tests of IIA assumption for the multinomial logit model.

	Small-Hsiao test				
Outcome omitted	*lnL(full)*	*lnL(omitt)*	*chi2*	*p>chi2*	*evidence*
Occasional pt work	-3337.358	-3141.373	391.970	0	against H_0
Return to education	-4062.454	-3799.101	526,705	0	against H_0
Delayed entry	-3630.363	-3367.322	526.084	0	against H_0
Reverse order	-3711.095	-3455.065	512.061	0	against H_0
Joblessness career	-3904.267	-3834.453	139.629	0.717	for H_0
Upward career	-3496.069	-3241.919	508.301	0	against H_0
Only part-time work	-3186.535	-2932.031	509.008	0	against H_0

Note: Ho: Odds(Outcome-J vs Outcome-K) are independent of other alternatives. N=5847

Table 7. Nested logit model explaining the different pathways.

	Occasional PT Coef.	**Return to education** Coef.	**Delayed** Coef.	**Reverse order** Coef.	**Joblessness** Coef.	**Upward career** Coef.
Constant	7.204***	-19.41	-23.297*	-12.968*	-22.090**	-16.184*
Female	-0.201	0.969	0.085	0.323	2.190*	-0.305
Age	-0.356***	-0.081	0.263	0.058	-0.161	0.153
Area geographic (ref: South)						
East	-0.538*	-0.401	0.713	-1.102	-1.721	0.653
Center	0.830*	-0.047	-0.851	0.238	-0.422	-0.639
Northeast	0.899**	-2.121	1.428	-0.573	-2.126	1.764*
Northwest	1.076**	0.136	-0.296	-0.630	0.131	0.553
Madrid	-0.332	-0.906	0.767	-0.985	-1.761	0.845
Level of education (ref.: Baccalaureate)						
Graduate ESO	0.293	-7.408	1.688	0.431	1.362	1.087
Drop out ESO	-3.531*	7.928	5.607*	8.218**	10.967**	4.964**
Field of education						
Family1: AGR	-0.310	8.678	-0.171	5.396*	12.742**	2.596
Family2: IND	-3.335	15.206*	1.837	7.315**	12.761**	5.322***
Family3: SER1	-3.301	11.399*	0.602	3.810*	9.326*	3.392**
Family4: SER2	-2.271	10.489*	2.466	6.160**	11.086**	4.353**
Family5: TRA	-5.245	13.473	4.113	6.988*	12.399**	6.662**
Family6: ADM	-1.458	8.018*	3.979	6.293**	11.157**	5.327***
Family7: ELE	-0.495	6.495	3.957	7.080**	11.817**	5.998**
Family8: QUI	-2.952	8.169	1.630	2.678	8.714*	3.546
Family9: SAN	-2.200	12.191*	1.873	5.925**	12.063**	5.348**
Family10: INF	-1.635	10.814*	3.618	6.323**	10.520**	5.435**
Priority (ref: Education)						
Getting a job	-3.082*	1.220	11.065*	5.274**	13.196**	8.423**
Getting a suitable job	-1.437	0.038	11.626*	5.319**	10.978**	9.609**
Getting a stable job	-2.738	-3.099	13.467*	5.436**	12.445**	11.079**
Organize life	-0.701	3.215	11.462*	8.242**	12.362**	11.010**
Others	-1.558	1.903	9.893*	6.759**	7.710**	8.921
Main concern in life						
Leisure	0.103	-1.164	0.682	0.194	-0.160	0.459
Social participation	0.201	1.341	0.097	0.204	1.091	0.373
Employment	-0.543*	1.349	0.316	0.471	1.128	-0.117
Family	-0.086	0.233	-0.224	-0.430	-0.293	0.134
Education	-0.012	-1.113	0.000	-0.545	-1.218	-0.780
dissimilarity parameters						
weak_tau 9,690 4,408						
strong_tau 4,708 1,428						
LR test for IIA (tau = 1):	chi2(2) = 63.12	Prob > chi2 = 0.0000				

Reference alternative: onlypt

* Significance at the 10% level; ** Significance at the 5% level; *** Significance at the 1% level.

N=5847

Table 8. Selected (direct) marginal effects derived from the nested logit model.

	Occasional PT	Return to education	Delayed	Reverse order	Joblessness	Upward career	Only pt
Female	-0,008	0,005	-0,001	-0,019	0,024	-0,019	-0,004
Age	-0,019	-0,003	-0,001	0,008	-0,002	0,008	0,014
Level of education (ref.: Baccalaureate)							
Graduate ESO	-0,015	-0,038	0,014	0,022	0,011	0,022	0,004
Drop out ESO	-0,228	-0,027	-0,055	0,037	0,122	0,037	-0,005
Vocational education	-0,217	0,027	-0,118	0,138	0,079	0,138	0,000
Priority (ref: Education)							
Getting a job	-0,182	-0,038	0,044	0,003	0,139	0,106	-0,073
Getting a suitable job	-0,146	-0,039	0,079	-0,002	0,065	0,147	-0,106
Getting a stable job	-0,228	-0,073	0,060	0,016	0,082	0,231	-0,088
Organize life	-0,162	-0,035	0,007	0,038	0,076	0,191	-0,116
Others	-0,152	-0,031	0,028	0,045	0,022	0,170	-0,082
Main concern in life							
Leisure	-0,002	-0,010	0,005	0,011	-0,004	0,011	-0,003
Social participation	0,011	0,011	0,002	-0,002	0,009	-0,002	-0,026
Employment	-0,022	0,008	0,002	-0,011	0,011	-0,011	0,005
Family	-0,003	0,002	-0,003	0,009	-0,003	0,009	0,005
Education	0,014	-0,001	0,017	-0,020	-0,011	-0,020	0,008

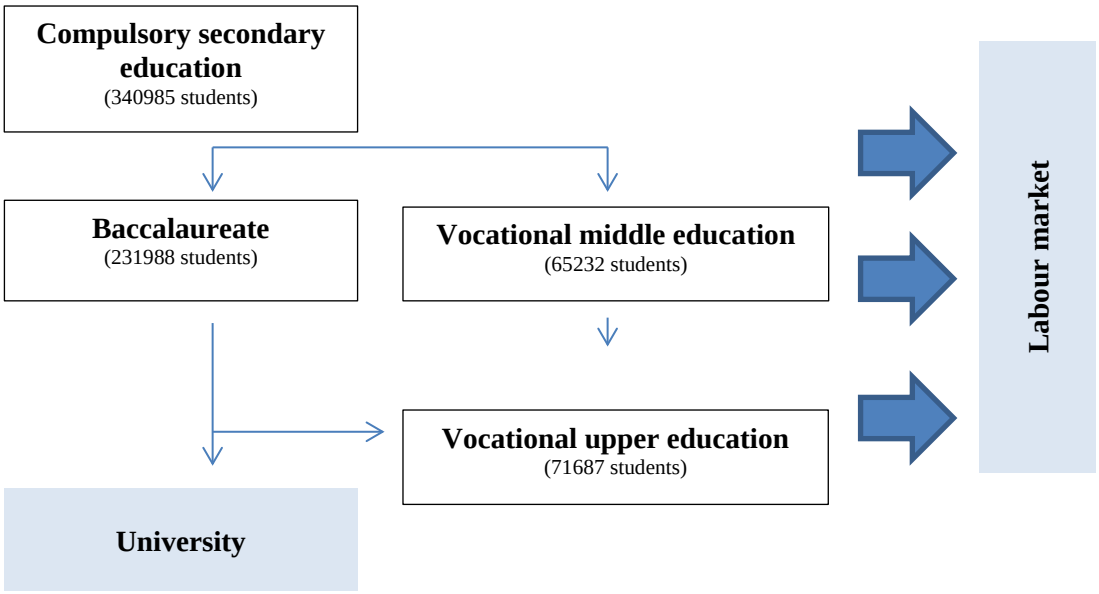
Note: Marginal effects are computed as explained in the text.

Table 9. Predicted probabilities.

	Marginal probability of choosing pathway	Probability of choosing pathway conditional on attachment	
1. Occasional part-time work	0.282	0.568	Weak attachment
2. Downward career (return to education)	0.055	0.152	
3. Delayed entry into the labour market	0.120	0.280	
4. Reverse order in progression career	0.104	0.187	Strong attachment
5. Joblessness career	0.060	0.105	
6. Upward career	0.184	0.324	
7. Only part-time work	0.196	0.384	

Source: Own elaboration from ETEFIL.

Figure 1. Spanish educational system



Note: Figures in brackets collects the number of students who completed each level of education during the 2000/01 academic year.

Figure 2. Dendrogram

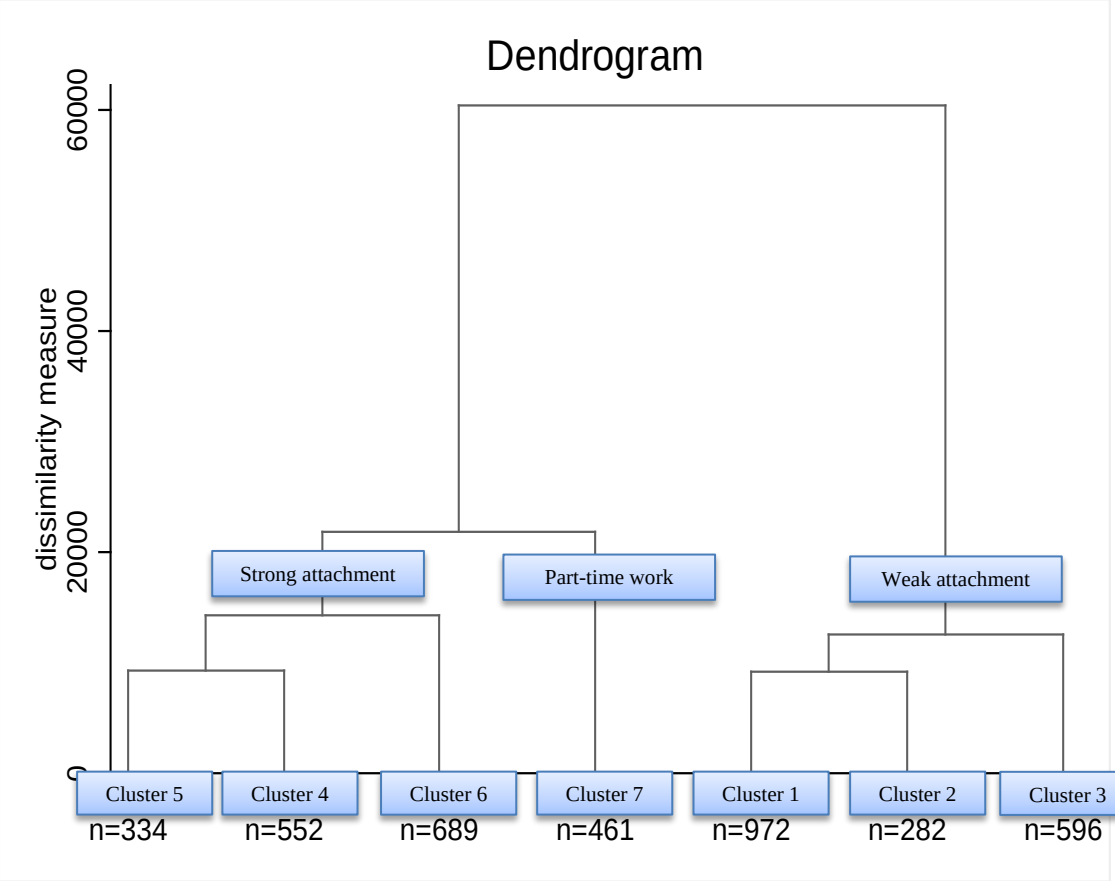
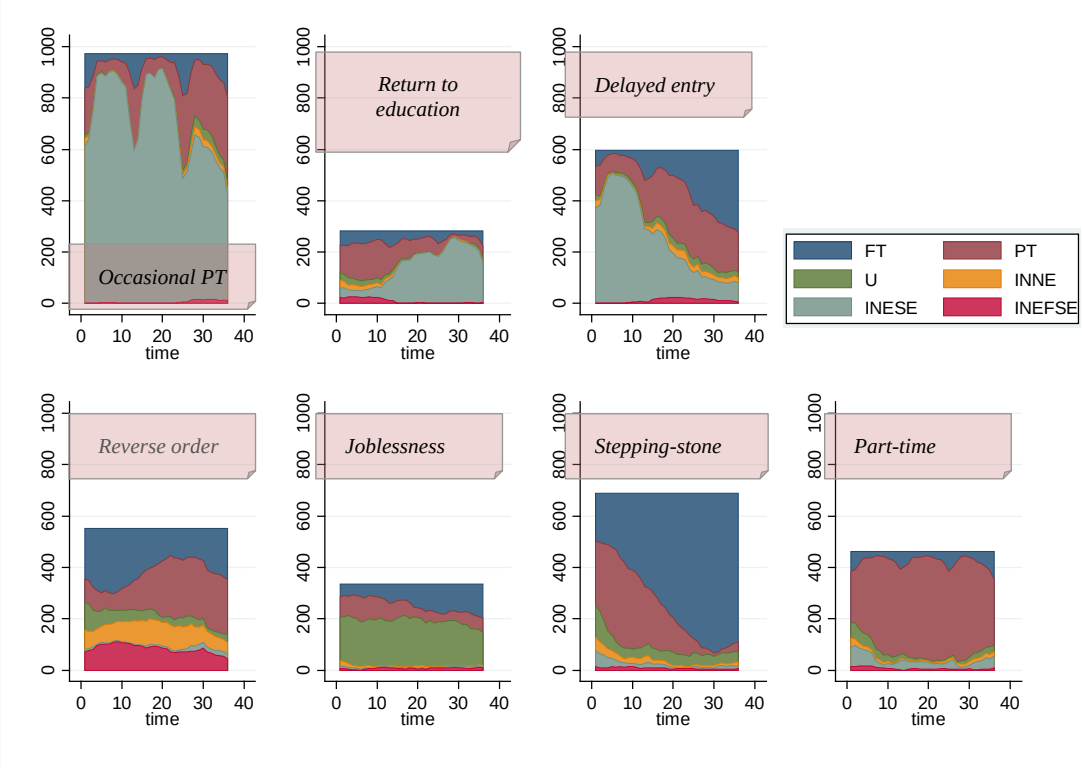


Figure 3. Monthly distribution of states by cluster



Source: Own elaboration from ETEFIL.

Figure 4. Nesting structure of the nested logit model