

# Continuing full-time education beyond compulsory schooling<sup>1</sup>

## Continuar estudiando más allá de la escolarización obligatoria

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### **Abstract**

In this article, we analyse the phenomenon of dropping out of school as soon as the minimum legal age (16 years old) is reached, its evolution over time and whether it affects specific social groups, using microdata from the Encuesta de Población Activa (Labour Force Survey), a quarterly source in which the same household is followed for up to six consecutive waves. Analysis was performed using the logistic regression technique (for dichotomous dependent variables) at four levels involving observations of individuals within their household context from 52 regions of Spain. Our analysis points to a steady increase in the proportion of pupils who continue in full-time education after the age of 16 and before reaching the legal age of majority (18). This only slowed down during school years that coincided with an improvement in the labour market. We also observed that the regions that are most favourable to low-skilled employment are those with the highest drop-out rates. Furthermore, we found that the migration status of individuals (in particular the age they arrive in Spain) is a key variable in the probability of them continuing in full-time education, whereas neither the person's home situation nor the concentration of migrants in the

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region are significant. In short, neither gender nor social class were significant discriminating factors in school enrolment rates of 16 to 17-year-olds. However, the probability of this leading to successful completion of an intermediate level of education (baccalaureate or vocational training) has not yet been analysed.

**Keywords:** school enrolment rate, post-compulsory education, multilevel model, Spain, gender, generation, immigration.

### **Resumen**

Nos preguntamos por el fenómeno de abandonar la escuela en cuanto se cumple la edad mínima legal en que se permite hacerlo (los 16 años), su evolución en el tiempo y si afecta a determinados grupos sociales. Se utilizan los microdatos de la Encuesta de Población Activa, una fuente trimestral en que se sigue a un mismo hogar hasta un máximo de seis ciclos consecutivos. Se emplea la técnica de la regresión logística (para variables dependientes dicotómicas) con cuatro niveles de análisis: observaciones protagonizadas por individuos, enmarcados en hogares y residentes en 52 unidades territoriales. Se apunta a un sostenido incremento en la proporción de alumnado que continúa estudiando habiendo cumplido ya 16 años y antes de alcanzar la mayoría de edad, que solo se ha detenido durante los cursos escolares que han coincidido con una mejora en la situación del mercado de trabajo. También se observa que las regiones más favorables al empleo poco cualificado son las que presentan mayores tasas de abandono escolar. Además, se constata que la situación migratoria personal (en particular la edad de llegada a España) es clave en la probabilidad de continuar estudiando, pero no así el estado del hogar en relación a este factor ni la concentración migratoria en el contexto espacial de residencia. De hecho, la única variable familiar que se muestra significativa es el no convivir ni con la madre ni con el padre, que se encuentra asociada a una substancialmente menor probabilidad de continuar en el sistema escolar formal. En definitiva, ni el género ni la clase social presentan en la actualidad una fuerza discriminante significativa en las tasas de escolarización a los 16-17 años, aunque no se ha llegado a analizar la probabilidad de que ello conduzca a finalizar exitosamente un nivel medio de educación (bachillerato o ciclos formativos).

*Palabras clave:* tasa de escolarización, enseñanza postobligatoria, modelo multinivel, España, género, generación, inmigración.

## Introduction

The current legislation in Spain allows individuals to leave school at the age of 16, subject to the consent of their legal guardian or guardians; from the age of 18, the age of majority, they can do so without having to ask for permission. Many international organizations agree that leaving school before the age of 18 is premature and that measures should be taken to reduce and, if possible, eliminate this phenomenon, as it hampers young people's employment prospects and is associated with poverty and social vulnerability (European Commission, 2011). The indicator usually used as an estimator of early school leaving is the percentage of the population aged 18 to 24 who do not have a sixth form leaving certificate and are not in full-time education. The European Union (EU), for example, set itself the target of reducing this indicator to less than 10% by 2020. This goal was just about achieved; according to data from Eurostat (the statistical office of the EU), that year, 2020, the early school dropout rate in the EU-27 was 9.9%. However, despite enormous improvement in recent years, Spain continues to be the country with the highest dropout rate: 16% in 2020 (although, to the country's credit, it should be noted that a decade earlier the level was ten percentage points higher). What are the reasons for this entrenched position? Will the downward trend in early school leaving continue in the coming years? Can we glimpse a convergence with European levels?

In this study, we assessed the scale of early school leaving from the opposite side of the phenomenon, namely the school enrolment rate of 16 to 17-year-olds, when it is legally possible to have left school without having reached the age of majority. We assumed that if an individual in this age range continued their education, they did so voluntarily. We did not consider age directly, but the school year according to an individual's year of birth; in other words, we worked with cohorts. This means that those repeating a school year were not taken into account, since someone could still be studying compulsorily at this age without having obtained the corresponding qualification. The source of data for this paper was the Encuesta de Población Activa (EPA) (Labour Force Survey), a quarterly survey of households that was carried out from the 1987-88 school year (between the final quarter of 1987 and the second quarter of 1988) to the 2020-21 school year (from the final quarter of 2020 to the second quarter of 2021). Consequently, the cohorts observed ranged from those

born in 1971, who turned 16 in 1987, to those born in 2003, who turned 17 during 2020.

As the variable was dichotomous, we used the statistical technique of logistic regression. The EPA is a panel survey, so it was possible to observe each individual repeatedly for a maximum of one and a half years (six quarters). Two more levels were added to the observation of each individual, consisting of the household (or their parents' characteristics) and the place where they lived, corresponding to the characteristics of their province or autonomous city. We also made a distinction between fixed effects (variables that do not change over time, such as gender, the characteristics of the family core or the place where they lived) and random effects (which move with individuals' personal lifeline, such as age).

With all this in mind, we set ourselves the following research question: "What characteristics of the geographical, family and personal context favour young people extending their formal education beyond that legally stipulated as compulsory before they reach the age of majority and what hinders them from doing so?"

## Background

The so-called "Matthew effect" (Merton, 1968) - named after one of the Evangelists, from his telling of the Parable of the Talents (25: 14-30) - plays an important role in a professional career. Merton interpreted the parable as follows: the reward for achieving an objective after a major effort is not the same for everyone, but depends on the person's prior accomplishments, even if the task is collaborative. This maxim has been used in education to refer to the process, which is clearly identifiable from the earliest stages of schooling, whereby pupils receive different marks or comments for successfully completing the same objective depending on what they had previously achieved, in other words, depending on their "reputation". There is latent discrimination in a model in which, at the beginning of schooling, these educational expectations are strongly linked to pupils' social status (Rist, 1970), gender and migratory status. As a consequence, pupils from family cores with lower educational levels or from certain places of migration are pushed towards progress or stagnation in school according to variables of ascription that have

nothing to do with their own effort or dedication, but rather with the stereotypes perceived by those involved in their education. If this is the case, the characteristics of the family core (as an approximation of social class) would be associated with 16 to 17-year-olds dropping out or continuing full-time education, and the interpretation of these cross-cutting patterns would have to be sought in the early stages of pupils' school careers.

A lot of research has shown the importance of family resources in prolonging education among young people (for example: Huang, Guo, Kim and Sherraden, 2010; Lochner and Monge-Naranjo, 2011). In the case of Spain, Casquel and Uriel (2009) found that household income has a positive influence on the probability of staying in post-compulsory education. Bernardi and Cebolla (2014) also highlighted the unequal incidence of educational attainment in educational pathways according to social class in Spain.

Some research has postulated that this effect can be interpreted as being down to different levels of parental involvement in schooling. However, recent studies have shown that this kind of social inequality is not explained by differences in values but by differences in resources (see Martín Criado and Gómez Bueno, 2017 for a summary and a further test of this hypothesis). All this translates into those having parents with low educational levels being more likely to drop out of school early (Jimerson, Egeland, Sroufe and Carlson, 2000; Kiernan and Mensah, 2011) and to have lower basic skills (Salmieri and Giancola, 2021). In contrast to this hypothesis, the OECD (2019) found that socio-economic status explains only a very small part of the skills demonstrated by pupils in the last year of compulsory schooling.

Another variable that has a similar effect is gender, which explains why boys perform worse than girls throughout their school careers (Hannum and Buchmann, 2005). It has been suggested that contemporary schooling meets female needs better than male needs, and females are therefore better adjusted to school expectations (Hascher and Hagenauer, 2010). Other explanations point to a radical shift in girls' educational aspirations, in anticipation of greater opportunities in the labour market in relation to a higher investment in their education (Hadjar, Krolak-Schewerdt, Priem and Glock, 2014).

Unfortunately, we do not have the complete histories of individuals' school careers, which would have allowed us to confirm or disprove this

process of early classification by class and gender. We therefore used as an approximation individuals' gender and the characteristics of their family core at the time we observed them - that is, when the individual was already 16 but not yet 18 years old.

Social class and gender variables are modified by the historical context that a particular cohort lives through during a given school year. Casquel and Uriel (2009) argued that high unemployment (as a conjunctural variable) is associated with staying in school. The circumstances of the labour market affect less advantaged classes to a much greater extent than they do more affluent classes (Meschi, Swaffield and Vignoles, 2011). In the United Kingdom, households living in rented accommodation and, in particular, those living in social housing (used as an indicator of vulnerability) have been found to be the most affected by the vagaries of the labour market (Tumino and Taylor, 2015).

In the specific case of Spain, Petrongolo and San Segundo (2002) showed that demand for post-compulsory education reacts positively to increases in youth unemployment (by influencing the opportunity cost of continuing education) and negatively to changes in adult unemployment (by lowering employment expectations as a result of investment in education).

When it comes to gender, the research shows that employment opportunities are better for boys, which is why they leave school earlier (Borgna and Struffolino, 2017).

According to this theoretical literature, schooling should be seen as an alternative, affordable activity in times of recession, while waiting for better times; on the contrary, in periods of growth, young people should prefer to find a, by necessity low-skilled, job that allows them to earn money and gain work experience to the option of continuing full-time education in a formal school institution. Operationally, and specifically in the case of Spain, we expected to see that the economic improvement at the beginning of the 21st century was associated with a fall in school enrolment among 16 to 17-year-olds and, on the contrary, that the economic crisis from 2008 onwards saw a parallel increase. We expected this, in conjunction with the above factors, to be much more common in lower-educated parental groups and among boys.

If pupils' social class and gender affect their whole school career from the beginning, and bearing in mind that we are looking at the population of 16 to 17-year-olds, confirmation or otherwise of this hypothesis should

come from the association between the educational and migratory characteristics of their family core, their gender, and school enrolment rates at that age.

Several studies have shown that migration increases the probability of academic failure (Levels, Dronkers and Kraaykamp, 2008; Calero, Choi and Waisgrais, 2010) and of pupils dropping out of school at the end of compulsory education (Mora, 2010; Fernández-Macías et al., 2013; Serrano and Soler, 2014). With regards to migration, it should be borne in mind that ethnicity may hide distances in socio-economic origin (Hauser, Simmons and Pager, 2004). The lower proportion of young immigrants who continue to study is particularly evident among those who arrived in their current country when they were over 10 years of age, and these individuals are also found to react more intensely to economic cycles, especially males, who are less sensitive to the effects of the educational resources of the family core (Miyar-Busto, 2017).

International migration is not the only factor affecting the relationship between mobility and schooling in the early stages of post-compulsory education. Recent research has shown that mobility in Spain is now no longer characterized by young people with a low level of education, as it was in the past, but by highly educated people in search of job opportunities that match their training, as has been shown in Galicia (González-Laxe, Martín-Bermúdez and Martín-Palmero, 2013) or in Castilla y León (González Leonardo and López Gay, 2019). In view of these regional disparities, it should be noted that the labour market is closely related to the unequal distribution of educational attainment, a fact that serves as justification for different levels of investment in education depending on the region and would explain individual decisions about migrating between regions (López Bazo and Motellón, 2013).

The variables relating to migration or mobility were constructed by comparing place of birth and place of residence.

## **Schooling: number and pattern**

Spain has recently experienced a demographic bonus, as classrooms emptied due to there being fewer 16 to 17-year-olds than in previous cohorts, which has not been compensated for by immigration. While between 1987-1988 and 1993-1994 the population of this age group was

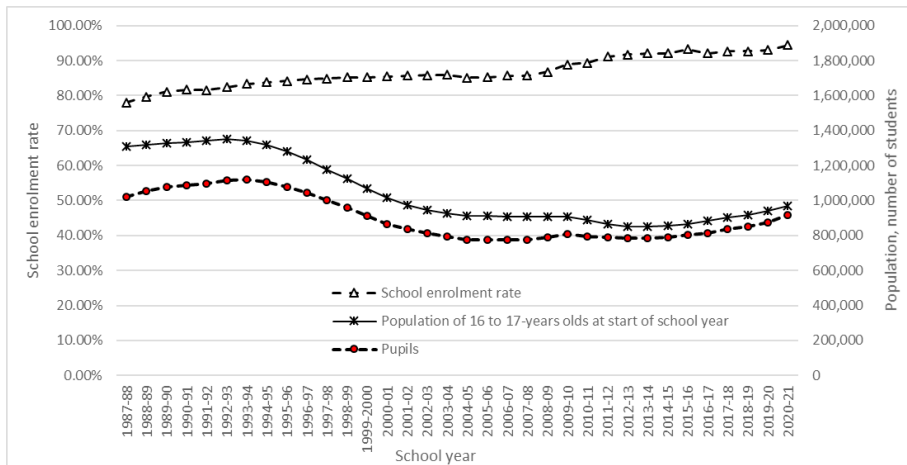
around 1.34 million, between 2005-2006 and 2009-2010 it was around 900,000 (see Figure I). In the first period, the number of students increased, because the school enrolment rate was also rising (from 78% to 83%), but thereafter, the fact that the rate continued to rise (to 86% in the 2003-2004 school year) did not compensate for the fall in the population of 16 to 17-year-olds, with the result that the number of students plummeted to almost 800,000.

This division between the potential student population and school enrolment rates is fundamental if we are to be able to predict the demand for education at this stage of schooling. In the short term, little can be done to change the total number of pupils aged 16 to 17, as this depends on the birth rate over 15 years ago and recent immigration, but effective public policies can have an impact on reducing early school dropout rates. To this end, highlighting the positive forces that bring the number of potential students and the number of actual students closer together, as well as the negative forces that drive them apart, is essential. In short, if early school leaving is to be significantly reduced, then resources and means must be made available to make schooling attractive to young people, at least until they reach the age of majority.

With this objective in mind, we sought to explain the stagnation in the school enrolment rates of 16 to 17-year-olds that occurred between the 1995-1996 and 2007-2008 school years, with a rate of around 85%, and how after increasing steadily it reached a maximum of 93% in the 2012-2013 school year and plateaued until the 2020-2021 school year, when it grew to 94.5%. This new stagnation in the enrolment rate did not prevent the total number of pupils from continuing to grow, as a result of the small demographic boom that had taken place between 1998 and 2008, caused by both natural and migratory growth.



FIGURE I. Population, number of students and school enrolment rate by school year.



Source: authors' own work

The most plausible hypothesis to explain this evolution is that school enrolment follows the labour market, since in the face of an employment crisis, the proportion of young people who remain in the education system increases and, on the contrary, a recovery in the labour market means a greater dropout rate, with pupils leaving school as soon as the law allows them to and taking up paid work which - inevitably, given their short school career - will be in jobs that require low qualifications, at most the school leaving certificate.

The COVID-19 pandemic and the resulting employment crisis led to a further increase in school enrolment rates of 16 to 17-year-olds, at least in the 2020-2021 school year (the latest for which we have data), and most probably also in the following school year, acting as leverage that will keep the rates close to an unprecedented 95%.

On the basis of this information, and before going further into the analysis of enrolment patterns, we believe it is very likely that the rate will continue to increase, at least in the coming years. From a pedagogical point of view, this is an opportunity to boost young people's interest in post-compulsory education, particularly vocational education. It will be necessary to fight against increases in classroom ratios, given that the population at this age will most likely continue to rise until the 2025-2026 school year, after which the cohorts of 16 to 17-year-olds will be

steadily smaller, as a result of the fall in the birth rate that occurred in parallel with the economic crisis of 2009, provided that there is no increase in immigration to compensate for it. But we must also look at geographical patterns, as it seems that regional heterogeneity is another characteristic of Spain: for this reason, another of the aims of this research is to determine what this variability is associated with.

In research on the evolution of school enrolment rates of 16 to 17-year-olds by school year, simple age and gender data contain very valuable information. The school enrolment rate at age 17 was four percentage points lower than at 16 throughout the period studied. This can be interpreted as the drop-out rate between the two ages (although it could also be that at 16 pupils were still in Compulsory Secondary Education). The enrolment rate of girls is on average slightly more than two percentage points higher than that of boys. While the difference between the ages stayed stable throughout the period, the variable sex becomes gender when it is shown that it is related to the state of the economy: when the economy is growing, the enrolment of men in higher education tends to be curtailed to a greater extent, as they do not resist the siren song of an abundance of low-skilled jobs as well as women.

In the interests of lowering the early school leaving rate, it would be helpful to reduce as much as possible the almost four-point gap in enrolment between 16 and 17 years of age: in recent years, while the enrolment rate at 16 has stayed at 95%, at 17 years of age it has remained stable at 91%. Such high enrolment rates suggest that early school leaving rates will remain stable for the foreseeable future, especially as economic recovery usually reaches young people last.

Another way of combatting drop-out from the education system at this age would be to ensure that studying is not seen as being in opposition to a tempting paid job, but rather as a professional investment for the future. It should be noted that in the latest school year we analysed, the gaps between the genders and ages narrowed considerably, to 1.7 percentage points for both variables. It is difficult to predict whether these differences will be maintained after the health crisis.

## The migration situation

An additional factor that appears to be extraordinarily important in the prolongation of schooling is place of birth, a variable that we will go into more detail about in this section. The EPA began to record this variable in 1992 as a dichotomy (whether the person was born in Spain or in a different country), fortunately coinciding with the start of an unusual increase in international immigration. Consequently, the first year that information about this variable is available for is 1992-93. From then until the 1999-2000 school year, the proportion of the foreign-born population aged 16 to 17 remained at around 1.5%, rising thereafter to just over 8% between the 2008-2009 and 2010-2011 school years, and reaching a peak of 10.5% in the 2012-13 school year, after which the proportion declined slightly. In the final school years of the study, this indicator returned to 8%.

What is more, from the 1999-2000 academic year onwards, data are available on the continent where 16 to 17-year-olds were born (see Figure II). The proportion of 16 to 17-year-olds born in Spain decreased from 98.5% for the 1999-2000 academic year to a low of 89.5% in the 2012-13 academic year, rising again to 92% in the last two years of the study. The main foreign origin of 16 to 17-year-olds is the American continents (mainly from Latin America, although differentiation is not possible due to the low presence of other Americans), a percentage that reached 6% (academic year 2012-13) and is currently 3.6% (academic year 2020-21). The next largest group is of European origin, which has remained at 2% since the 2005-6 academic year. There are also people of African origin, the percentage of whom reached 2%, and from Asia or Oceania, with a maximum of 1% of 16 to 17-year-olds in the latest academic year of the study.

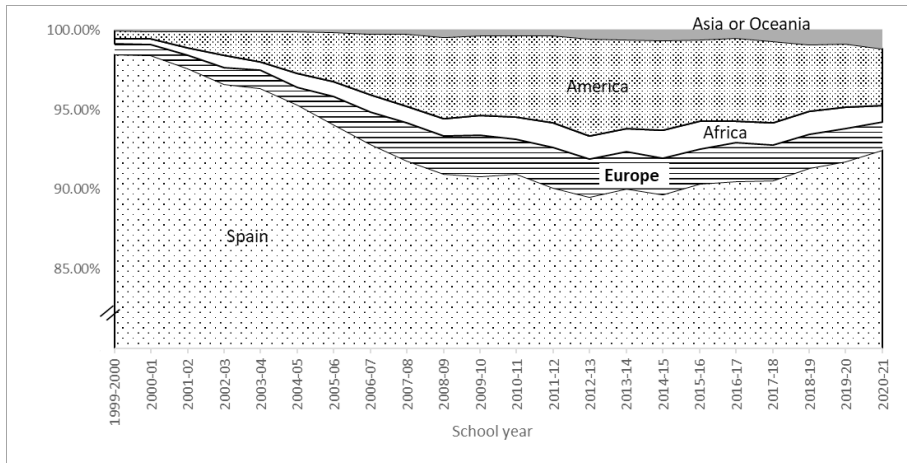
With regard to school enrolment rate by continent of birth, and bearing in mind that - statistically speaking - the smaller the sample volume, the wider the confidence interval, we observed that the school enrolment rate of those born in Spain was significantly higher than that of the rest of the groups (specifically, 91%), particularly compared to those born in Africa (79%), who were in turn not statistically different from those born in Asia or Oceania. From now on, these last two groups will therefore be considered in the same category. In contrast, those born in Europe (84%) and in the Americas (89%) were far enough away to be considered

individually in terms of their school enrolment rates, the latter group most closely resembling those born in Spain.

In conclusion, place of birth, along with gender and the state of the economy, is a key variable when considering the probability of whether an individual will continue in education after the end of compulsory schooling by law. Another variable that is recorded by the EPA, the age at which the person arrived in Spain, further helps discern the effect of this important factor.

The next point to be discussed is therefore whether the age of arrival in Spain, as well as the continent where the person was born, may be a factor, as is suggested in some of the research discussed in the theoretical background. From our exploratory analysis, we agree that taking into consideration the individual's stage of schooling on arrival is essential. Those born in Spain had the highest probability of continuing their education at this age (91%); we found that they were followed by those who arrived before the compulsory schooling age of 6 (88%), and then those who arrived during primary education, between 6 and 11 years of age (86%). From this point of their life onwards, the older the age of arrival, the lower the probability of continuing in full-time education after finishing compulsory schooling: from 83% if they arrived at the age of 12 to 78% if they arrived at the age of 15. If the immigration was recent and beyond the age of compulsory schooling, the percentages were much lower: 72% if they had arrived at the age of 16 and 61% if they had arrived at the age of 17. Consequently, there is an interaction between place of birth and age of arrival, as Figure III shows.

FIGURE II. Population aged 16 to 17 by place of birth



Source: authors' own work

The lowest probability of continuing in full-time education was found among those born in Europe, Africa, Asia or Oceania who had arrived in Spain at the age of 16 or 17 (around 55% were continuing in education); in other words, those who had just arrived from these regions. The likelihood of those from the same geographical origins but who had arrived a little earlier, specifically during the age of compulsory secondary education (12 to 15 years of age), continuing in full-time education was considerably higher (i.e. they were 20 percentage points more likely), with a school enrolment rate of around 75% at 16 to 17 years of age, very close to those who were born in the American continents and who had just arrived in Spain. Some 80% of those born in Africa, Asia or Oceania who arrived during primary education (7 to 11 years of age) were still in school at 16 to 17 years of age.

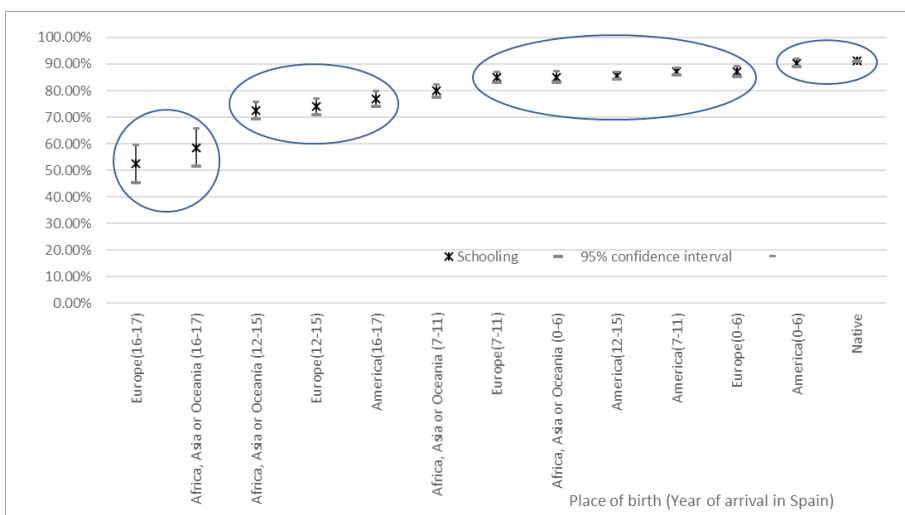
These differences depending on place of origin and age of arrival were reflected in a heterogeneous group of immigrants with similar behaviour (85% school enrolment) made up of those born in Europe who arrived before the age of 12, those born in Africa, Asia or Oceania who arrived during the age of (non-compulsory) infant education, or those born in the Americas who arrived before the age of 16. Finally, those from the American continents who arrived before the age of starting compulsory

schooling and those born in Spain were five percentage points more likely to continue in full-time education – with no statistically significant differences found (Figure III).

As a final observation, it should be noted that we evaluated this variable not only for individuals (as we have just described) but also by family core (incorporating the migratory status of the father and mother) and by geography (analysing the effect of the concentration of international immigration by province). These results are reported below.

In fact, immigration status is the final variable we only analysed with panel data, in other words, by analysing observations nested in individuals. From this point onwards, we added a new level, namely that of the cohabiting household.

FIGURE III. Pattern of schooling by place of birth and age of arrival



Source: authors' own work

Note: values with no significant difference among them, with a 95% confidence interval, are circled.

## The characteristics of the family core: education and migration

From 1999 onwards, the EPA makes it easier to add the parents' characteristics to the interpretative model of the probability of 16 to 17-year-olds being in full-time education. We therefore continued to work with the cohorts and school years from the previous section, having studied individuals' continent of origin and stage of life when they arrived. The first cohort for which we have this complete, new information is of those born in 1983, who turned 16 during 1999 (the 1999-2000 school year). In this second phase of the research, we therefore combined information about individuals with information about households (the latter does not change over time, since in the EPA an individual is always part of the same household unit while they remain under observation). The household is a hierarchical level above that of individuals and observations, since several siblings (or young people who are not necessarily brothers and sisters) can live together under the same roof, and thus enjoy or endure similar family core characteristics. The sample we were now working with consisted of 227,532 observations, involving 169,201 individuals in 87,579 households.

The first variable to be investigated at the third level was the household cohabitation situation, defined as living with at least one parent. The description of the categories of the variable is accompanied by the probability of being in formal education, once the effects of age, gender, school year and migration status have been isolated. In almost 2% of the households, the young person did not live with either their father or mother, and in these households the probability of continuing in full-time education at the age of 16 to 17 was significantly lower than in the rest of the households (specifically, ten percentage points lower). Outside this category, no significant differences were detected for this indicator; in other words, whether the individual lived in a two-parent household (as 80% of the sample did) or in a single-parent household (3% with the father and 15% with the mother) did not make any difference to the probability of them remaining at school. We therefore concluded that living outside of the family core is associated with a lower probability of staying at school, but whether the core is one or two parents is not significantly important.

At this point, we added the migration factor at household level, based on the mother or father's place of birth, and combined this information

with the individual's immigration status. Here we were able to distinguish sufficiently reliably and validly between: 1) those households in which both parents, or one parent in the case of single-parent families, were born in Spain; 2) households where both parents, or one parent in the case of single-parent families, were not born in Spain; or, 3) mixed households, with one parent born in Spain and one not. Again, we found that only living outside any sort of family core was associated with a lower probability of continuing in formal education, while all the other categories of the household's migration status made no difference.

After eliminating both the type of family core (unless the individual lived with neither their mother or their father) and the migratory situation of the family core from the explanatory model of the school enrolment rate of 16 to 17-year-olds, we then tested the effect of the family core's level of education (still at the household level). In the previous exploratory analysis, we identified six categories where the probability of individuals continuing in education was identical: 1) households in which one of the parents had a basic education (minimum compulsory education at the most); 2) two-parent households in which both parents had a basic education (minimum compulsory education at the most); 3) households where one or both parents had vocational or other training; 4) two-parent households in which one of them had the baccalaureate or, in the case of single-parent households, the one parent had the baccalaureate; 5) two-parent households in which one of them had a university education or, in the case of single-parent households, the one parent had a university education; and, finally, 6) two-parent households in which both of them had a university education. Our conclusion was that the parents' level of education was not significantly dissociated from the probability of their children continuing to be in full-time education. We therefore ruled out this hypothesis, which we described in the theoretical background.

None of the variables we analysed at the household level explained the probability of 16 to 17-year-olds continuing in full-time education, so, for the sake of the simplicity of the explanatory model, we were able to dispense with practically all of them. The only exception was individuals who lived with neither of their parents, whose rate of enrolment in school at these ages was significantly lower in relation to single- or two-parent households. These individuals represented 2% of the total. It was not possible to clarify the specific personal circumstances of this group with data from the EPA.

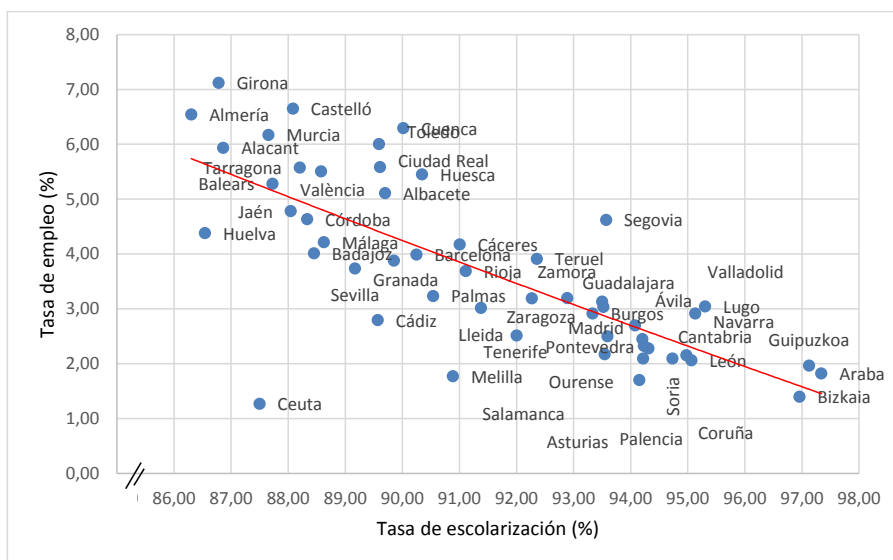


The introduction of the household to the explanatory model of the probability of 16 to 17-year-olds continuing in full-time education disrupted the interpretation of the variables we had been considering so far to a certain extent: when we applied the three-level hierarchical model, in which observations were of individuals and of these individuals within households, the probability of an individual aged 16 to 17 continuing in full-time education ceased to be significantly related to their age or their sex. Indeed, the enrolment rate increased in each school year, with the sole exception of the period of economic upswing (2004-2005 to 2007-2008), so only the latter deserved consideration in the final explanation. Thus, the full force of gender, age and almost all the periods of time were diluted in favour of the other variables in the explanatory model, namely - at this stage of the research - immigration and the fact of not living with any member of the family core. And so we come to the fourth level: the province where the individual lived.

## **Does where individuals live affect the probability of them continuing in education?**

Geographical differences depending on the province where individuals lived were evident in the school enrolment rates of 16 to 17-year-olds. At one extreme was the Basque Country, with an enrolment rate of 97%, and at the other, the provinces of Almería and Huelva, at 86%. The description of these patterns should be complemented with explanatory analysis that substitutes this ratio for one or more characteristics of each province, such as, based on the background information above, the employment rate of 16 to 17-year-olds (following the hypothesis that the higher the employment rate at this age, the lower the school enrolment rate), the unemployment rate for the same age group (the higher the unemployment rate, the higher the school enrolment rate), the proportion of working adults with secondary or higher education (the higher qualified the labour market is, the higher the level of post-compulsory schooling), or the proportion of the population born outside Spain (the higher the amount of immigration, the lower the level of post-compulsory schooling). While the first and third hypotheses were confirmed, the other two were disproved on analysis.

FIGURE IV. Employment rate and school enrolment rate by province



Source: authors' own work

The employment rate by province of the population that was legally able to be part of the labour market but had not yet reached the age of majority (18) was very low, ranging from the lowest in Ceuta (1.27%) to the highest in the province of Girona (7.12%). At the aggregate level (Figure IV), the correlation between school enrolment and employment rates of 16 to 17-year-olds in the provinces was -0.75, which confirmed the strong relationship between the two variables. This also suggested that part of the explanation for the low school enrolment rate of 16 to 17-year-olds was that it was relatively easy for young people of this age group to find work. Thus, for example, the provinces of Girona, Almería, Castelló, Murcia and Alacant combined the lowest school enrolment rates with the highest employment rates at these ages and, on the contrary, in the provinces of Gipuzkoa, Araba and Bizkaia, an employment rate below 2% was linked to a school enrolment rate of around 97%.

In contrast, the ratios of unemployed 16 to 17-year-olds and those born outside Spain did not correlate with school enrolment rates at the same

age, even at the aggregate level. In short, while reinforcing the hypothesis that the scope of post-compulsory education was symmetrical with that of employment, any association between high levels of immigration or unemployment pressure with low school enrolment rates was disproved.

In addition, we incorporated another factor that gave good results, namely the ratio of 26- to 30-year-olds with secondary or higher education in employment, which we used as an indicator of the degree of qualification required in a region's labour market, and which correlated with the school enrolment rate of 16 to 17-year-olds with an index of 0.81. By combining these two variables (employment and qualification for the labour market) we obtained a model that gave a much better estimation of school enrolment rates of 16 to 17-year-olds: if we substituted the place where individuals lived for these two indicators, the correlation coefficient between the rate by province and the estimated rates (in a multilevel model) rose to 0.84. In short, the higher the low-skilled youth employment, the higher the school dropout rate; youth unemployment and the amount of immigration were practically irrelevant.

## Conclusions

We have already noted that it was not possible to obtain information about infant and primary school years and other education prior to 16 using this data source and methodology, so we only associated variables once these stages had ended, once schooling ceased to be legally compulsory. In other words, we only ascertained or disproved whether the school enrolment rate of 16 to 17-year-olds was linked to certain variables of ascription (which do not change over time), such as gender, the characteristics of the family core or place of birth (together with the year of arrival in Spain) or context (school year or province), but we were not able to analyse school careers before the period of observation.

Indeed, compulsory schooling in Spain, as in the vast majority of European countries, runs from the school year during which children reach the age of 6 to the age of 15. Thus, at the age of 16, it is possible to leave school and enter the labour market. It can therefore be said that those who continue to study do so voluntarily. Hence the social significance of school enrolment rates among 16 to 17-year-olds.

The research led to a model with four levels of analysis, the variables significantly associated with the probability of school enrolment of 16 to 17-year-olds being selected for each. Focusing on the school years at the beginning of the 21st century in Spain, the sample was made up of 227,532 quarterly observations of 169,201 people in 87,579 households, living in 52 regions.

Extending full-time education beyond the compulsory school age is currently very similar for men and women. It would be desirable for the education system to meet this generally high demand and to promote success in achieving a secondary education qualification, thus reducing early school leaving as far as possible. Personally, we believe that there is enough information to define the most suitable school places, even if there are not enough resources (financial and human) to implement effective policies.

We have also shown that gender and class are not an impediment to prolonging schooling at this age, although this does not mean that both sexes or all social groups choose to study the same thing or have the same probability of success.

It has become clear that the type of labour market is a vitally important factor in the school enrolment rate of 16 to 17-year-olds in terms of both time and geography. Indeed, the periods and areas where low-skilled jobs were abundant coincided with the times and places where schooling at this age was lower.

In short, the two variables with the greatest sensitivity to school enrolment rate of 16 to 17-year-olds are: pupils living with at least one of their parents (with no significant difference between single and two-parent households) and migration status (with age of arrival). The probability of continuing in full-time education is greater the earlier the child enters the education system, and there is a greater disadvantage for immigrants born in Europe or Africa compared to those born in the Americas. Although the variables referring to the composition of the family core were not found to be significant in the school enrolment rate of 16 to 17-year-olds and there was no difference according to the level of education or origin of the family core, the probability of continuing in full-time education was lower for those who did not live with either their father or their mother. Once again, we interpret these results as a confirmation of the key importance of the family environment and the need for public policies that can alleviate deficits in this regard.

Also included, though to a lesser extent, are the employment context and qualifications, both in terms of time and geography. All the other variables studied are not significant in explaining the school enrolment rate of 16 to 17-year-olds.

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