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RESUMEN

Título: Education and Household decision-making in Spanish Families in the late 19th and early 20th century

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Resumen: In this paper, I use a database of 219,253 individuals distributed in 20 municipalities in Asturias, the Basque Country and Murcia to explore households' decision regarding the education of their children from 1877 to 1920. To have a precise analysis of this decision-making process, I focus on children older than 12 years old, the age at which boys and girls no longer had to attend school. Having literacy information at the individual level, I will explore the different factors behind parents' decision regarding education such as parents' literacy, job, or town of birth. Thus, this a path-breaking study as there are scarce explorations on the education decision process of Spanish families at individual from a historical perspective.

Palabras Clave: *Education, households, individual data, 19th-century*
Clasificación JEL: N33, I21, D13

Education and Household decision-making in Spanish Mining Communities, 1877-1920

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1. Introduction

In economic theory, Human Capital is framed as one of the main factors that explain economic development (Romer 1989; Barro 1991 and 2001; and Mankiw et al. 1992).[1] This argument is reinforced with studies at household and individual level, where education has been positively linked with socioeconomic status and income levels (Becker 1993; de Janvry and Sadoulet 2001; and Turčínková and Stávková, 2012).[2] From a historical perspective, this relationship has been also found for Western European families during the 19th- and early 20th-century (Long 2006; Clark and Gray 2014; Saaritsa and Kaihovaara 2016; and Beltrán-Tapia and de Miguel Salanova 2021).[3]

Despite this positive relationship between education and socioeconomic status, during the 19th-century, the expansion of mass education was still a work in progress (Mitch 1992; Vicent 2003; Ciccarelli and Weisdorf 2019; Beltrán-Tapia et al. 2019; Westberg et al. 2019; and Cappelli and Vasta 2020). Therefore, there were periods when the demand for education was not met by the supply of it. Consequently, the potential benefits of Human Capital accumulation were not widespread and equally distributed among the population (Rauscher 2016).

Thus, as mass education started to expand in Europe, especially in the last quarter of the 19th-century, parents had to decide their children's education. This decision-making process was influenced by the internal characteristics of the households. For instance, during the first stages Industrial Revolution, child labour was an important income source for working-class families (Kirby 2003; and Borras Llop, 2005).[4] Thereupon, lower socioeconomic status households had to choose between child labour's extra income or

[1] See also, Lewis (1955) and Solow (1956).

[2] See also, Mincer (1958).

[3] Likewise, Álvarez and Ramos Palencia (2018) find a positive relation between literacy and higher earning for 18th-century Castile (Spain).

[4] For a detailed analysis of child labour in Spain from the late 18th century to the early 20th century see (Borras Llop J. M., 2013)

schooling. Furthermore, other factors such as the number of siblings were affecting children's education. For instance, Fernihough (2017) and Klemp and Weisdorf (2019), find that children in households with low fertility had higher probabilities of being literate and being employed in higher shilled professions. Moreover, this decision-making process was influenced by external factors, such as the provision of schools, or the socioeconomic prospects of being educated.

Despite the relevance of this process of Human Capital accumulation during the 19th- and early 20th centuries, the scarcity of micro-level data has limited the possibilities of studying it.[5] Accordingly, this decision-making process has been more widely analysed for post-WWII developing countries when household data is more available. Among the internal characteristics, this literature has identified how the number of siblings, birth order, and gender affect children's education. Ejrnæ and Pörtner (2004) argue that birth order plays a major role in completing education and time spent at school in the Philippines between 1975 and 1998. However, studying Brazilian households in 1998, Emerson and Portela Souza (2008) find the opposite result. They obtain that firstborn children are less likely to attend school because they can work earlier than younger siblings. Similarly, De Haan et al. 2014, find the same negative effect for firstborn children in Ecuador between 2001 and 2006. Furthermore, Zapata et al. (2011) stress that gender is an important factor in education decision making within the household. Analysing Bolivian families in 2001, they stress how girls are more likely to be out of school, working in domestic activities. However, one of the most important effects comes from parents' educational and occupational backgrounds (Haddad 2017). For instance, mother's literacy is highly significant in the schooling of children (Maertens and Verhofstadt 2013). Among external factors, Hannum (2003) and Haile and Haile (2012) argue that rural areas have a negative impact on schooling, as children are more engaged in farm and domestic work, preventing them to attend school.

Following this literature, this study analyses the Spanish children's education process between 1877 and 1920. This period is of special interest because of the literacy backwardness of Spain, with levels far behind European rates (Beltrán-Tapia et al. 2019; Vicent 2003). Moreover, in these decades the mining sector experienced an important

[5] For instance, in the study of how fertility and the number of siblings is related with children's education, the literature usually focused on regional or town level analysis (Bengtsson and Dribe 2006; van Bavel and Kok 2010; de la Croix and Perrin 2018; or Cinnirella 2019).

boom, fostered by national and international demand for Spanish ores (Pérez de Perceval Verde and López-Morell 2006). Therefore, in order to analyse the children's education decision-making process, I analyse a unique micro-level dataset of 230,000 individuals in 10 Spanish mining towns.[6] This database is created from the population censuses of each municipality. These censuses contain information at individual data about literacy, age, occupation, the municipality where they were born, years of residence. Moreover, this data is gathered both for parents and children, together with household data such as the number of siblings or type of family (simple or extended). This information is used to disentangle the decision-making process within the household regarding children's education between 8 and 16 years old. Therefore, by focusing on this age group, I am able to explore how individual, parent and family factors, affected the decision to invest in their education. Thus, I study an important human capital process that has not been done before by the Spanish mining or industrial historiography in such detail or scope.

Thereupon, this paper contributes to the literature in three aspects. Firstly, it helps to shed light on how the allocation of resources was distributed among family members. Being literate or not between 8 and 16 years old tells how parents perceived education and its relationship with their children's future socioeconomic status. However, literacy in this age group also reflects the family's need for an extra income. For instance, working-class families might not send their offspring to school because the household needs an extra income or help with domestic work. Consequently, this paper contributes to understand the demand side of education, and what kind of factors were driving it. The second contribution, connected with the previous one, is regarding women's education. By exploring the education decision-making process in girls and boys, I am able to see how differently parents treated them. Therefore, the results show how both cultural perception and job prospects were for young women in this period. Furthermore, the paper tells how different the burden of the domestic work between boys and girls was. Thirdly, by focusing on mining towns, this paper helps to better understand the education and socioeconomic dynamics that were taking place in these Spanish municipalities. Although the literature has shown how the mining towns faced an important transformation during the late 19th- and early 20th- centuries, this paper further explores how the socioeconomic and living standards of miners were affecting their children's education.

[6] The location of the municipalities is provided in the Appendix, Map B.1.

The results confirm the need for an extra income or help with domestic work in working-class families (miners and unskilled fathers). Children in these families had the lowest probability of being literate. Moreover, girls in mining households presented an important difference with boys in those same families. This verifies what the literature argues that in mining towns young women and girls were extra-burdened with more housework, hampering school attendance (Pérez-Fuentes Hernández 2004). Similarly, living in an extended family, e.g. a household with family relatives, had a clearer positive effect on boys' education. This means that the presence of uncles, aunts, or grandparents, was not equally alleviating domestic or waged work for girls than for boys. However, the most important effect in children's education is mother's literacy. This confirms the important transformation role of women's literacy in human capital accumulation and henceforth economic growth. These findings verify what post-WWII studies have found about the effect of parents and family factors in children's literacy (Burki et al. 1999; Mukherjee and Das 2008; or Lindskog 2013). Additionally, migrating during the schooling age (between 6 and 10 years old) had special negative effects for girls. This was because they probably would not go back to school after arrival.

The structure of the paper is as follows: Section 2 gives the historical background, with a general framework of education in 19th century Spain and a brief description of the municipalities selected; In Section 3 is explained the data and the variables used for the analysis; Section 4 presents the methodology and the econometric results; Section 5 explores the migration variables; Section 6 will conclude.

2. Historical Context

During the 19th-century Spain was behind other European countries on the transition through the first stages of modern economic growth (Prados de la Escosura and Rosés 2010; and Díez-Miguela et al. 2016). One of the main factors of this delay was the turbulent first four decades of the century (Nadal Oller 1982; Pro 2019). Therefore, this conflictive period hampered the effective implementation of a nationwide education law until 1857 with the Moyano Law (Beltrán-Tapia et al. 2019).[7] Consequently, by the turn of the 20th-century Spain was far behind other European countries in educational

[7] Ley de Instrucción Pública, 1857. The political instability during the first half of the century made that were passed 7 educational laws in 1814, 1821, 1825, 1836, 1838, 1845 and 1855. For the idea of education and progress in the Spanish Enlightenment and liberalism see Ruiz Berrio (1988), Real Apolo (2012) and Araque Hontangas (2013).

achievements. In 1900, literacy rates were 57.1% and 33.3% for males and females respectively, rates that France and the United Kingdom had by the 1820s and 1830s (Vincent 2003).

This backwardness in education could be explained either by the supply or the demand side. Regarding education provision, the education law of 1857, established that primary schools and teachers' wages had to be paid by the municipality's budget. Although teachers' wage was centralized in 1902, upkeep and construction of new schools were funded by municipalities until 1920 (Ferrer y Rivero 1915, pp. 205-206; and López Martín 1997). For this reason, the provision of primary education was subject to the financial administration of town councils. This led to an uneven geographical distribution of teachers and schools in Spain, as Nuñez (1992) demonstrates.

Moreover, the provision of schooling, although mandatory for towns, was subject to the willingness of its supply by the elites who controlled the town council. As it was happening in other countries during the 19th-century, the Spanish local elites did not fully support mass education (Cvrcek and Zajicek 2013; Cappelli, 2016; Goñi 2021; and Beltrán-Tapia and Martinez-Galarraga 2018). In addition, town councils or private institutions had a gender bias that favoured boys' education over girls. For instance, in the late 1840s, half of the Spanish municipalities only had schools for boys (Sarasúa García 2002).

Likewise, although town councils wanted to promote education, unexpected changes in the municipality could lead to an under-provision of education. For instance, a surge in population meant that the municipality was not able to provide schools at the same level as the demand was rising, which could lead to overcrowded schools (Pérez-Fuentes Hernández 2004, pp. 119-120).[8] Consequently, although mass primary education was established nationwide in 1857, families were subject to the willingness and capabilities of town councils to fund primary schools.

This uneven provision of education was coupled with the families' factors affecting the demand side of education. One of the main determinants was parents' attitudes if literacy could improve their offspring' job market options. Indifference towards education was common among day labourers, as there were no economic incentives to be literate (Nuñez 2005). However, in regions like Old Castile, smallholding

[8] Similarly with what has been found for the United States (Rauscher 2016).

agriculture incentives families to educate their sons as a skill that could enhance their job prospects (Nuñez 1992).

Furthermore, family's economic resources were the other key element that determined children's education. Although schooling was mandatory from 6 to 9 years old, family's need for their children's help within the household could prevent attendance. This made that truancy was rampant in some regions (Pérez-Fuentes Hernández 2004; and Borras Llop 2013).[9] For instance, during months of intensive agricultural activity, school attendance was felt in rural municipalities, whilst it raised during winter months (Borras Llop 2005). This need for children's income or help was especially acute in poor and working-class households because of their low living standards.

In this regard, Spanish miners were among the group with lower wages and living conditions (Escudero and Pérez Castroviejo 2010; and Pérez de Perceval Verde et al. 2016).[10] This was reflected in an important presence of child labour at the mines, accounting for 15% of total employment between 1877 and 1920 (Pérez de Perceval Verde et al. 2013). Consequently, as miner's wage was not enough for mining families, children were required to bring an extra-income, preventing them to attend school. Although using offspring's help was also common in rural towns, the continuous work at the mines, despite winter months, eliminated that seasonal relief in mining towns.

Moreover, an important factor of the demand for education was migration. During the late 19th-century mining towns received an important migration flow (González Portilla 2001; González Portilla et al. 2007; and Martínez Soto et al. 2008). Therefore, as migrants were arriving to work at the mines, both attitudes towards education and different living conditions might affect differently the demand for education. For instance, Pérez-Fuentes Hernández (2004) argues that Castilian migrants in the Biscay mining towns had a different attitude towards girls' and boys' education than natives. In the mining borough where migrants settled, the gender literacy gap increased after the years of mass migration.

[9] In 1873 the first child labour law was implemented in Spain (Gaceta de Madrid, no. 209, p. 1193 (1873)). However, this regulation was not really implemented. For instance, in the social-labour questionnaire carried out by the State between 1889 and 1893, one of the questions regarded child labour and the effects of the 1873's law. (Información oral y escrita practicada por la Comisión de Reformas Sociales en las Provincias de La Coruña, Jaén, Navarra, Oviedo, Palencia y Vizcaya. Publicada 1893 (1985)).

[10] Despite the mining sector flourished during the late 19th-century, it was not until the late 1910s and early 1920s that wages and working conditions started to improve. See Pérez de Perceval Verde and López-Morell (2006) for the evolution of the Spanish mining industry.

The insights into the evolution of the family's demand for education in mining towns can be seen in the minutes of the Local Committees of Primary Education (*Junta local de Primera Enseñanza*).[11] Perez-Fuentes Hernández (2004) shows how during the last third of the 19th-century in San Salvador del Valle (Biscay) the surge in mining employment led to an increase in school absenteeism. Teachers complained to the committee that in the mining boroughs, one-third of the students assisted irregularly. This was because children had to help their miner fathers with minor tasks like take them to the open pits for their lunch. However, in the rural-agrarian part of the municipality, it was not different. Here, children had to act as shepherds or rear their younger siblings (Pérez-Fuentes Hernández 2004, pp. 122-124).

This pattern can also be seen in the minutes of the local committee of Abanto, the adjacent mining municipality of San Salvador.[12] The committee was for in 1878, and during the first two years, it points to the good results of the students. However, schools were in a deficient condition, both in space, teaching materials and hygiene. In 1880, the committee argued that in the mining borough of Gallarta there was irregular school attendance. It was also argued that the rural district of Ciervana had the same problem, although here the main cause was the bad condition of the school. In 1882, the committee proposed that 5-years-old children should be admitted. This was because as children were needed in the household, there were early dropouts before the legal age of 9. Moreover, as there was a rampant low attendance, the committee asked the Governor of the Biscay province to establish a fine for parents that did not send their children to school. These problems of attendance and early dropouts were linked with the surging mining industry in the municipality that was taking place during these years. From the late 1880s onwards, primary education in Abanto started to improve as better teachers were hired, and new schools were built parallel to the increasing population. For instance, the number of teachers in municipalities' payroll increased from 5 in 1887 to 9 in 1889, as the population had increased 3 times between 1877 and 1887. Furthermore, in 1902 the regional government of Biscay and Abanto's town council built a technical secondary school (*Escuela de Artes y Oficios*).[13]

[11] These local committees oversaw the correct implementation and development of primary education in the municipality (Ferrer y Rivero 1915, pp. 858-859).

[12] Archivo Foral de Vizcaya, Archivos Municipales, Abanto y Ciervana, 0594/002.

[13] This data comes from the Annual Account of Abanto y Ciervana (Archivo Foral de Vizcaya, Archivo Administrativo, 100/007, 102/004 and 283/003).

3. Data

In order to disentangle which factors were behind the demand for education and the decision-making process within the households, this study uses individual-level data from the population census records at the municipality level between 1877 and 1920. During the late 19th and early 20th century, to create the nationwide population censuses, information was firstly gathered at town level. Thus, local authorities had to fill the standard municipality-level census, which, later on, was merged at the provincial level with the statistics of the other municipalities, forming the population census.[14] Although these general and nationwide censuses allow for a variety of analyses, they do not have information at individual level. Therefore, to have access to this microdata, the town-level census is the option that allows for a richer analysis. These local censuses provide individual information of every person that was in the municipality when the census was filled. This data contains the birthplace, years of residence in the municipality, age, gender, marital status, literacy, and occupation of every person. Moreover, all this information was gathered for all the members of the household. Consequently, data about the family is also available. Therefore, all this microdata allows for a detailed analysis at individual level, combined with information of other members of the family.

With the intention to analyse the decision-making process in mining towns, 10 different municipalities across Spain have been selected. These towns depict the different mining municipalities in the peninsula as a variety of minerals, or mining patterns are represented in the sample. In the North, Mieres (Asturias) represents the underground coal mining sector, although farming activities were still predominant in some rural boroughs (Vega Álvarez 2017).[15] Also in the North, Castro-Urdiales (Cantabria), and Abanto, Galdames and Santurce, in Biscay provicne, represent the northern open pit iron mining industry. These towns had several of their districts where the only possible job was in the mining industry. For instance, Setares in Castro-Urdiales or Sauco in Galdames, boroughs that today have disappeared. On the other hand, in Carranza and Lanestosa, also in Biscay, although there were lead mines, the mining sector was relatively a minor activity for their inhabitants, engaged in agrarian-related jobs. Similarly, in Irun (Gipuzkoa) the mining industry was not as important as in Mieres or

[14] See Figure A.1 in Appendix for an example of one of this population censuses at municipality level.

[15] For the role of the Asturian coal in the Spanish mining industry see Coll Martín and Sudrià i Triay (1987).

Abanto. This Basque town is in the boundary with France, and hence it was an important hub for trade, and other service-sector occupations (Larrinaga 2002). All of these northern municipalities received during the late 19th-century a massive flow of migrants coming from Northern Old Castile, Alava, La Rioja, Navarre or Aragon (González Portilla et al. 2007).

Moreover, in the south, Mazarron and Cartagena (Murcia) represent the underground lead mining that was so important in the southeast of Spain. In these municipalities, like in Mieres, different town districts were engaged in different economic sectors. In Mazarron, rural boroughs such as Ifre were mainly engaged in agrarian activities. However, in Downtown Mazarron, the majority of adult males above 14 years old worked as miners (57.4%). Moreover, both in Mazarron and Cartagena, migration came from Almeria and Alicante, the two adjacent provinces to Murcia. From Almeria, former miners migrated from the depleted lead mines of the province to the new ones in Murcia (Martínez Soto et al. 2008). Finally, Vera (Almeria) represents the final step of the lead mining industry of the south, as the mines in this region were almost exhausted by the late 19th-century. Furthermore, this municipality was the only one in the sample that lost population. This depopulation process can be seen from the great number of inhabitants born in Vera that were living in Mazarron in 1887.

Consequently, and although important mining towns such as Linares (Jaen), Minas de Riotinto (Huelva) or Peñarroya (Cordoba) are not in the database, this sample represents an important part of the Spanish mining sector. For instance, during the period under study, Cantabria and Biscay represented more than 80% of the iron ore production in Spain (Escudero Gutierrez 2006). Similarly, Mazarron and Cartagena accounted for one-third of the lead miners in Spain in 1886, a figure maintained until the 1920s.

Table 1 depicts the distribution of the data, both by year and municipality. Most of the data is from the early 20th-century as the censuses were better recorded and preserved for this period. Moreover, for Biscay the censuses for these towns are online, thus facilitating their digitalization.[16] Therefore, this accessibility has permitted to have a continuous input of individuals from 1877 to 1920, although concentrated in 1887 and 1910. For Cartagena, the only source was the population census of 1920, as for the other available population census (1889), the literacy data is not recorded for some families.

[16] The censuses can be found in: http://apps.bizkaia.net/ARIT

Additionally, some of the rural northern municipalities are not represented as their volume is lost. For Vera and Mazarrón the availability of censuses in the late 19th and early 20th century permits to complement the information to have a balanced north-south sample.

Table 1. Distribution of data by Year and Municipality

Municipality	1877	1887	1900	1910	1920
Mieres (Asturias)				28,082	
Castro Urdiales (Cantabria)		9,490		12,115	
Abanto y Ciervana (Biscay)	2,025	7,079		10,117	
Carranza (Biscay)				4,876	
Galdames (Biscay)			3,308		
Lanestosa (Biscay)	692	675	879		
Santurce (Biscay)		2,689			
Irun (Gipuzkoa)				11,994	
Cartagena (Murcia)					82,027
Mazarrón (Murcia)		16,180			18,297
Vera (Almería)		8,915		8,586	
Total	2,717	45,028	4,187	75,770	100,324

Source: Own elaboration from Population Censuses.

3.1. Variables and Descriptive Statistics

The variables used in the analysis can be grouped into three groups: individual, parents, and family. The individual variables are literacy, gender, age (and squared), and migrating during school age.[17] For this last variable, as I am analysing children between 8 and 16 years old, the schooling age is taken from 6 to 10 years old. Consequently, this dummy variable takes 1 if a girl or boy was born in another municipality, and she/he arrived during her/his 6s to 10s. A dummy variable is created with the reported literacy in the census.[18] Together with age, the literacy variable allows for assesing the real literacy rate of municipalities during the period. Table 2 shows literacy rates for females and males above 10 years old. According to the Education law of 1857, at this age, children already left school, and hence if they were not literate, they probably would not be. In northern municipalities, both for females (Panel A) and males (Panel B), literacy slowly increased through the period. Moreover, the rates were above the Spanish mean

[17] Gender is used to divide the analysis between females and males, as variables might not impact equally

[18] Only those who know how to read and write were classified as literate.

throughout the period. Nonetheless, in Mazarron and Vera education was far behind the national mean, being Cartagena slightly below the national average. These figures confirm the uneven geographical distribution of education in Spain until the first third of the 20th-century argued by the literature.

Table 2. Literacy rates (%) by Year and Municipality (> 10 years old)

Municipality	1877	1887	1900	1910	1920
PANEL A Females					
Mieres (Asturias)				54.6	
Castro Urdiales (Cantabria)		44.4		63.8	
Abanto y Ciervana (Biscay)	19.3	30.6		52.1	
Carranza (Biscay)				60.4	
Galdames (Biscay)			41		
Lanestosa (Biscay)	53.2	59.1	68.2		
Santurce (Biscay)		42.1			
Irun (Gipuzkoa)				69.8	
Cartagena (Murcia)					47.1
Mazarrón (Murcia)		9.7			24.5
Vera (Almería)		16.1		21.5	
Spain	19.3	24.9	33.3	42.3	52.9
PANEL B Males					
Mieres (Asturias)				79.1	
Castro Urdiales (Cantabria)		67.5		75.7	
Abanto y Ciervana (Biscay)	51.6	65.7		71.8	
Carranza (Biscay)				83.7	
Galdames (Biscay)			65.6		
Lanestosa (Biscay)	79.6	80.7	91		
Santurce (Biscay)		68.2			
Irun (Gipuzkoa)				78.9	
Cartagena (Murcia)					63.1
Mazarrón (Murcia)		20.3			43.9
Vera (Almería)		33		38.1	
Spain	46.7	52.1	57.1	62.9	70.1

Source: Own elaboration from Municipality Population Censuses and for Spain Beltrán-Tapia et al. (2019).

3.1.1. Parents' Variables

I include six variables that control for mother and father characteristics to measure the effect of parents in the decision-making process regarding children's education.

Firstly, mother's literacy tries to measure the different attitudes of literate and illiterate mothers towards their children's education.[19] Secondly, a dummy variable takes 1 if the father was not born in the municipality analysed. Thirdly, father's distance from birthplace is included to assess if close or distant migration was influencing the decision-making process.[20] Additionally, a dummy variable controls if the father was born in a mining municipality or 10km close to a mine.[21]

Finally, regarding parents' occupation, the occupation of mothers is only classified as being elite, having a paid work, or doing home labour. This classification for mothers' occupation has to be done as a more detailed distinction of mother's job lead to categories with few observations. For instance, only 8.7% of mothers reported a paid work, being agriculture the main activity for married women (74.3%). For widows, their occupations are more evenly distributed between farming, domestic service, and textile-related jobs.

Father's occupation is included using the HISCO scheme adapted to Catalonia and Spain from Camps et al. (2001). Within the sample, almost 400 different occupations have been codified with this classification. Therefore, to be capable of analysing the effect of father's occupation, these 400 have been grouped into 8 groups. Table B.2 in the appendix, shows the eight different groups and the HISCO codes for those groups. For this classification, a sector-skilled selection has been done, to address the socio-economic status of the individuals. In the first group (Higher Managers, professionals, and elite), occupations such as professors, traders, military, engineers, lawyers, managers, or landowners were selected. This group captures the higher socioeconomic status of a society and those who are expected to have higher literacy rates. The second group (service sector) gathers middle supervisors, shop assistants and clerks, and other white-collar occupations. The third and fourth groups (secondary sector) merged those jobs related to manual jobs, the transformation of products (artisans), and machinery operators (mechanics).

[19] Following Beltrán-Tapia and de Miguel Salanova (2021) only mother's literacy is included because of the high correlation between father's occupation and father's literacy

[20] Only father's distance is included because its correlation with mother's distance from birthplace although the use of the latter does not change the results.

[21] I have created a database of mining town in the 19th century with information from the Madoz Dictionary, the Mining Statistics and the Mining Cadastre of 1890.

The fifth and unskilled groups are the most problematic. The former group includes servants, construction workers, seaman and transport-related occupations. Within seaman, those individuals self-reported as fisherman are included as in some censuses there is not a clear difference between being a fisherman and a seaman. Thus, this group englobed low-skilled service occupations (e.g. domestic servants) and blue-collar jobs (e.g. construction workers). The unskilled jobs group presents a similar problem. In some censuses, the difference between day labourer, farmworkers and factory workers is not clear. The job definition *jornalero* (day labourer), which was reported for 22.3% of the individuals that indicated their job, could be linked with either being a day labourer in a factory, a farm, or a mine. Therefore, these unskilled jobs group tries to address this issue as it merged the potential jobs of a day labourer, being a factory or a farmworker. Finally, the two last groups account for the specific effects of miners and farmers. Miners are of special interest as an important share of the population was engaged in this sector. The variable farmers control for those individuals that were *labradores,* meaning that they work as farmers in a land that they lease or own.

Table 3 reports the distribution of mother' and father's occupations and their literacy levels. For father's categories, the differences across groups reflect the expected results. The two first groups present the highest literacy rates. In these father's jobs, literacy was in some cases a mandatory skill, and therefore education was perceived as both a requirement and of utility. In other groups, such as farmers or artisans, education might play a complementary role in these jobs, and thus the literacy rates were relatively low. The lowest levels are in unskilled and miner fathers. In these jobs, there were no literacy requirements, thus creating an absence of education incentives, reflected in those literacy rates. Regarding mother's occupations, as it has been said before, a non-reported job was the most common description for them. Therefore, a clear interpretation of the relation between mother's occupation and literacy cannot be made, as mother's job concealment would distort the argument.

Table 3. Parents' occupations and literacy levels

	Observations	%	Literacy (%)
Mother's Occupation			
1.Elite	1059	2.7	70.3
2.Wage labour	3438	8.7	60.1
3.Home labour	34959	88.6	48.1
Total	39456	100	49.8
Father's Occupation			
1.Higher Managers, professionals, and elite	4038	11.1	80

2.Service Sector	1981	5.4	82.1
3.Secondary Sector (Mechanics)	653	1.8	66.9
4.Secondary Sector (Artisans)	2656	7.3	65.1
5.Construction, transport, sea, and servants	4041	11.1	49.1
6.Unskilled	11665	32.1	37.9
7.Miners	6960	19.1	39.3
8.Farmers	4232	11.6	47.8
Total	36372	100	50

Source: Own elaboration from Population Censuses

3.1.2. Family Variables

Regarding family's variables, the data set allows for obtaining three household indicators. Following Hammel and Laslett (1974), I create a dummy variable that takes 1 if the household is simple, and 0 if it is extended or multiple. Being a simple family means that in that household only parents live with their children, whereas extended or multiple implies that there are other relatives such as grandparents, aunts, cousins, etc. This variable, being a simple family, tries to measure how relatives could help to family's economic, housework, or child-rearing, alleviating the reliance on children's help in the household. Moreover, following Emerson and Portela Souza (2008), and Klemp et al. (2013), a dummy variable is created if the children are the firstborn, or at least the eldest offspring reported in the household. Therefore, this variable controls for a potential education-decision bias towards the eldest children, as she/he would be the heir of parents' properties. Likewise, the last variable created is a measure of the number of siblings. This variable tries to control for the potential rearing demand from younger sisters and brothers, of the competition of resources within the household that could potentially affect school attendance.

Table 4 only displays the descriptive statistics for children between 8 and 16 years old, and the rest are in the Appendix, Table B.3. The difference in the number of observations is because children living with a widowed, single, or divorced mother or father are included. Therefore, although there were 44,129 girls and boys, only 36,395 had lived in a household where there was a father. Moreover, some variables like age or female, include those individuals that were between 8 and 16 years old but were nephews, granddaughters, or other relatives. Consequently, mother's occupation or being the eldest offspring have lower observations, as these variables are not included these relatives.

Table 4. Summary statistics. Children between 8 and 16 years old

	Observations	Mean	Std. Dev.	min	max
Literacy	43978	.503	.5	0	1
Female	44129	.496	.5	0	1
Age	44129	11.88	2.579	8	16
Age Squared	44129	147.773	61.91	64	256
Migration during school age	44129	.069	.254	0	1
Parents' Variables					
Mother's Literacy	39344	0.352	0.48	0	1
Father from mining town	36395	.18	.385	0	1
Father migration distance (ln)	36395	1.181	3.388	0	16.147
Father Migrant	36395	.406	.491	0	1
Mother's Occupation					
1.Elite	39456	.027	.162	0	1
2.Wage labour	39456	.087	.282	0	1
3.Home labour	39456	.886	.32	0	1
Father's Occupation					
1.Higher Managers, professionals, and elite	36372	.111	.314	0	1
2.Service Sector	36372	.054	.227	0	1
3.Secondary Sector (Mechanics)	36372	.018	.133	0	1
4.Secondary Sector (Artisans)	36372	.073	.26	0	1
5.Construction, transport, sea, and servants	36372	.111	.34	0	1
6.Unskilled	36372	.321	.467	0	1
7.Miners	36372	.191	.393	0	1
8.Farmers	36372	.116	.321	0	1
Family's Variables					
Simple Family	44129	.855	.352	0	1
Eldest Offspring	41212	.285	.451	0	1
Number Young siblings	41223	1.923	1.571	0	9

Source: Own elaboration from Population Censuses.

4. Methodology and Results

Using the data set described in the previous section, the results presented in this section try to disentangle the individual, parents, and family factors that within the household were affecting children's education. It is to be expected that miners' children presented a low literacy level because of miners' household reliance on children' help, either economic or with house tasks. Thus, the probability of being literate for girls and boys between 8 and 16 years old, whose father was a miner, should be the lowest, or among the lower together with *jornaleros* and other unskilled workers.

Therefore, I use a Logit model, using literacy by gender as the dependent variable. Hence, the Logit equation is:

$$Lit_i = \alpha + \beta_1 ind_i + \beta_2 parents_i + \beta_3 family_i + \beta_4 X + \epsilon \quad (1)$$

where Lit_i is the binary variable literacy for individual i. On the right side, ind_i, accounts for the individual variables, and $parents_i$ and $family_i$ include the variables for parents and families respectively. Moreover, the X variable refers to the municipality, year effects and municipality-time specific that are included to address for time and town fixed effect. Finally, the error term is clustered by municipality. In the model, the variables that control for migration are introduced in different models, due to their correlation.

4.1. Education decision-making process within the Household

Table C.1 in the Appendix reports the Logit regression models. The introduction of having a migrant father, or a father coming from a mining basin are not statistically significant and do not alter the coefficients. Nevertheless, migration in schooling age and father's distance are significant. Therefore, I use a model including individual's, parents' and family's variables including only migration in schooling age and father's distance, columns (11) and (12).

Table 5 displays the predicted probabilities of the variables that are statistically significant using columns (11) and (12) in Table C.1. As can be seen, mother's literacy had a significant role in children's education. Both for boys and girls, having a literate mother meant a probability around 30 percentage points higher than having an illiterate mother. Hence, literate mothers, knowing the potential advantages of being literate, both for their daughters and sons, fostered the decision of sending them to school. However, mother's occupation was not affecting the decision-making process of children's education. This could be related to the over-reported occupation of housewives, which was potentially concealing female labour, henceforth, preventing for testing a clear relationship between mother's real occupation and children's education.

Moreover, migration during schooling age negatively affected both boys and girls. This could reflect a disruption during the schooling process because of the migration, pointing that after the arrival, migrant children probably were not returning to school. For the distance migrated by the father, the results are only clear for boys, although the positive effect is negligible. Therefore, the migration process was clearly affecting children's education. Migrating during the schooling period, either from close towns or from afar, imposed a halt in the education process. This could be related to a supply

problem as in the arrival town there could be not enough schools for a massive migration flow. However, on the demand side, migrant families might need a period of adaptation, during which offspring would be required to help instead of attending school.

Regarding family's variables, being in a simple family, e.g. only living with their parents and siblings, also affected children's education. For instance, the absence of relatives that could help the household's economy could be translated into absenteeism for boys and girls, because the family need their incomes. Similarly, the number of younger siblings was affecting negatively both boys' and girls' education, although with a clearer effect on girls. This was probably because of a higher burden on young women towards rearing younger siblings, whilst their brothers might be attending school or working.

Regarding father's occupation, figure 1 displays the effect of father's occupation on children's education using equation (1) from Table C.1, columns (1) and (2). The graph shows an interesting picture, both for the differences among father's jobs and because of the gender gap. Firstly, there is a clear distinction between those children with fathers in the first four groups, and the rest, especially for those with fathers working in the higher socioeconomic groups. For instance, having a father working as a wholesale trader (1st category) meant having around 70% probability of being literate, while having a father working as a miner (7th category) led to a probability of 48.9 for boys and 38.8% for girls. Consequently, having a father working in one of the four last categories (low skilled, unskilled, miners and farmers), meant that those children had a literacy gap of 20 percentage points with the first two categories (high class and service sector). However, the distance is reduced to around 10 percentage points, comparing these four groups with the secondary sector (both mechanics and artisans).

Nevertheless, the distinction between genders raises the differentiated treatment towards girls' and boys' education within the household. In the first two categories, there is not a statistically significant difference, although girls tended to present a slightly low probability of being literate. This can be linked with a social preference for being educated among this higher social group, and the acknowledgement of the possibilities of being literate. The secondary sector presents the first interesting result. Whilst artisan fathers seemed to treat more equally their daughters and sons, mechanics present a clear preference for boys. This could be related to a positive attitude towards boys' education and better job opportunities, as this category is more linked with technical jobs. Therefore,

sons' literacy could be seen by these fathers as the first step towards a technical career. that could be later linked with technical jobs like their fathers. However, for girls mechanical and technical occupations were scarce during this period. Henceforth, an indifferent attitude towards daughters' education and a diversion of resources towards sons, could explain the highest gender gap in the graph, 12.7 percentage points.

Among the four last groups, low skilled and farmer fathers present the most equal treatment over their children's education, although with a preference over boys' schooling. For the low skilled, which were construction workers, house servants, or fishermen, a living standard slightly above the unskilled or miners could prevent them to rely on children's income, and hence allowing them to go to school. This is clearer for girls as for the low skilled they present a probability of being literate almost 10 percentage points above miners' daughters. Likewise, and as it has been argued by the literature, in agrarian households during winter months children, both girls and boys, could attend school. Therefore, and although the probability of being literate is relatively low due to demand for child labour in agricultural tasks, these farmer families present the lowest gender gap in the probability of being literate together with the first category.

Finally, both unskilled and miner fathers had a clear preference for boys' education. Boys with a father working as a miner or in other unskilled jobs had a similar probability of being literate, around 49%. Nonetheless, miner fathers had a lower preference for their daughters' education, 42% for unskilled fathers vs. 38.8% for miners, despite as Table 3 shows, miners were more literate on average than unskilled. In the case of miners, low living standards could lead them to send only boys to school as they might have better job opportunities if they were literate than girls. Furthermore, as the literature has stressed and as it has been shown with the education local committee's minutes, children in mining households were required to do minor tasks. Thus, this burden might fall more into girls' and young women's shoulders than into boys', preventing them to go to school.

In conclusion, both mother's literacy and father's occupation were shaping children's education, as the educational perception from the former, and the living standard limitations from the latter were determinant in the decision-making process. For instance, a girl with a miner father and an illiterate mother would have a probability of 25.9 of being literate, whilst the same girl but with her mother being literate, would more than double her probabilities of being literate to 59.5%. Thus, although at some point

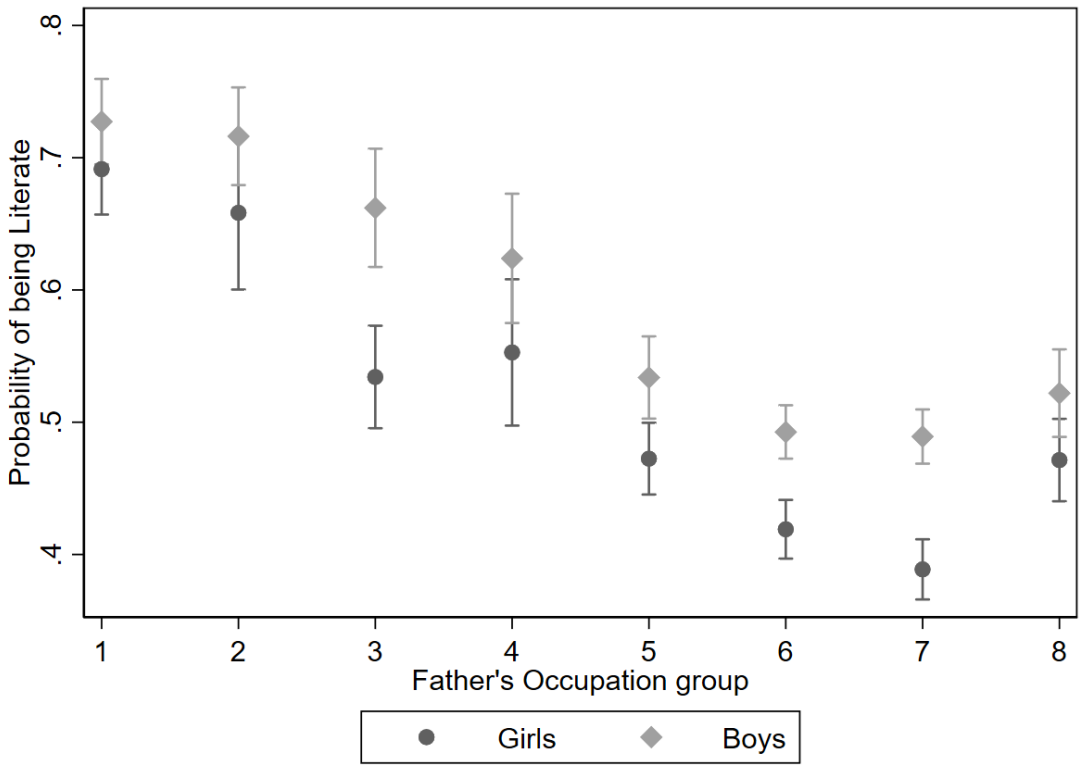
children were required to leave school to help in the household in low-income families (miners or unskilled), mother's education seems to be preventing this to a certain degree.

Table 5. Probabilities of being literate for children between 8 and 16 years old

	Boys (1)	Girls (2)
Mother's Literacy		
Illiterate	0.45	0.36
	(0.01)	(0.009)
Literate	0.73	0.68
	(0.02)	(0.016)
Migrated During Schooling Age		
No	0.55	0.48
	(0.001)	(0.001)
Yes	0.51	0.44
	(0.01)	(0.01)
Father's Migr. Distance (ln)		
25km	0.55	0.48
	(0.005)	(0.003)
250km	0.56	0.48
	(0.01)	(0.007)
500km	0.57	0.49
	(0.01)	(0.009)
Family		
Extended Family	0.57	0.5
	(0.009)	(0.015)
Simple Family	0.54	0.47
	(0.001)	(0.002)
Number of Younger Siblings		
None	0.56	0.51
	(0.005)	(0.006)
One	0.55	0.49
	(0.002)	(0.003)
Three	0.54	0.46
	(0.002)	(0.003)

Note: The predicted probabilities are from the estimation of Equation (1) in Table C.1, columns (11) and (12) for boys and girls, respectively.

Figure 1. Children's Education and Father's Occupation



Note: The predicted probabilities are from the estimation of Equation (1) in Table C.1, columns (11) and (12) for boys and girls. Adjusted predictions with 95% CI. Categories: 1. Higher Managers, professionals, and elite; 2. Service Sector; 3. Secondary Sector (Mechanics); 4. Secondary Sector (Artisans); 5. Construction, transport, sea, and servants; 6. Unskilled; 7. Miners; 8. Farmers.

Conclusion

Both father's job and mother's education played a major role in the children's education decision-making process. Families with low living standards had to rely on their offspring's help, preventing school enrolment. Moreover, these families probably had a negative or apathetic perception of education, as in unskilled or mining jobs literacy was not a required skill. Therefore, in Spanish mining towns, the education process within the household, and hence the demand for education, was heavily restricted by the low living standards of mining families.

However, mother's education could counteract the negative effect on education formation in poor and working-class families. Having a literate mother meant an important increase in the probabilities of being literate, both for girls and boys. Consequently, female's education is confirmed as one of the main movers of human capital accumulation. This is of special relevance for the Spanish historiography, because,

as mentioned before, in the period under study Spanish literacy levels were far behind European ones.

Moreover, family characteristics also influenced education decision-making, although minor in comparison with father's job and mother's literacy. Living in a simple family, meant that parents could not resort to relatives for economic help. Therefore, offspring, both boys and girls, might be required to bring an extra income, then preventing school attendance, or advancing the finish of the schooling period. Additionally, having younger siblings had a significant gender bias, as the impact was more negative on girls than boys. Thus, rearing younger siblings within the family was a burden mainly for younger women, a task that prevent them to attend school like their brothers.

Finally, the migration process had a special effect on children's education. Migrating during the schooling age was an important disruption in the human capital formation of children. Arriving at a mining town, together with other hundreds of migrants, could lead to overcrowded or not enough schools. Therefore, during the years between arrival and the construction of enough schools, these children might not be able to receive an education. Furthermore, migrant families might need a period of adaptation. This could be translated into the necessity of extra income or help in household tasks. Therefore, young boys, and as the results show, especially girls, might be required for these tasks preventing them to attend school.

In conclusion, poor and working-class families were educating less their offspring because of their living standards and perception towards education. However, mothers were fostering education, as they potentially knew its possibilities in that changing society.

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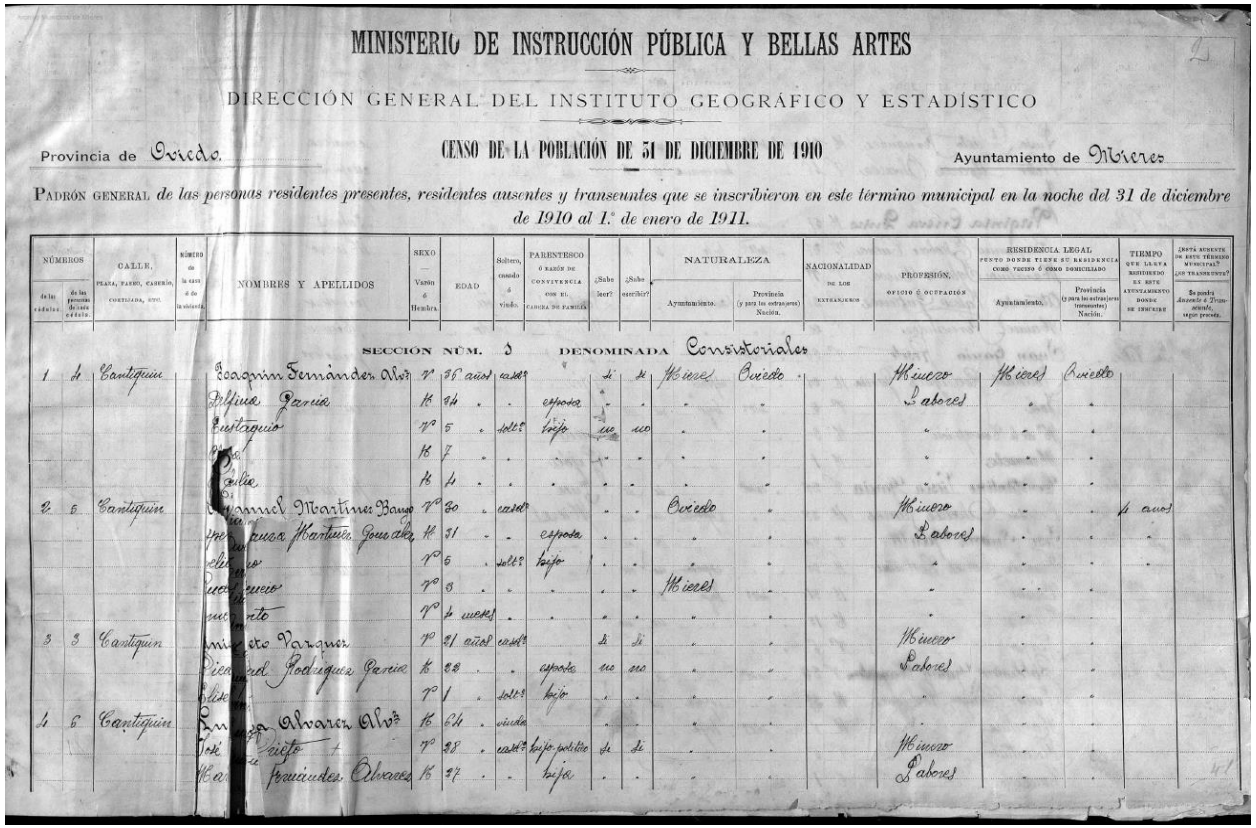
Appendix

A. Datasource

Figure A.1. Page 1 of the Mieres Population Census of 1910 (Archivo Municipal de Mieres)



MINISTERIO DE INSTRUCCIÓN PÚBLICA Y BELLAS ARTES

DIRECCIÓN GENERAL DEL INSTITUTO GEOGRÁFICO Y ESTADÍSTICO

Provincia de Oviedo. CENSO DE LA POBLACIÓN DE 31 DE DICIEMBRE DE 1910 Ayuntamiento de Mieres

PADRÓN GENERAL *de las personas residentes presentes, residentes ausentes y transeuntes que se inscribieron en este término municipal en la noche del 31 de diciembre de 1910 al 1.° de enero de 1911.*

SECCIÓN NÚM. 3 DENOMINADA Consistoriales

NÚMEROS de la cédula	NÚMEROS de las personas de esta cédula.	CALLE, PLAZA, PASEO, CARRERA, CORTIJADA, ETC.	NÚMERO de la casa ó de la vivienda	NOMBRES Y APELLIDOS	SEXO — Varón ó Hembra	EDAD	Soltero, casado ó viudo.	PARENTESCO Ó RAZÓN DE CONVIVENCIA CON EL CABEZA DE FAMILIA	¿Sabe leer?	¿Sabe escribir?	NATURALEZA Ayuntamiento.	NATURALEZA Provincia (y para los extranjeros) Nación.	NACIONALIDAD DE LOS EXTRANJEROS	PROFESIÓN, OFICIO Ó OCUPACIÓN	RESIDENCIA LEGAL PUNTO DONDE TIENE SU RESIDENCIA COMO VECINO Ó COMO DOMICILIADO Ayuntamiento.	RESIDENCIA LEGAL Provincia (y para los extranjeros transeuntes) Nación.	TIEMPO QUE LLEVA RESIDIENDO EN ESTE AYUNTAMIENTO DONDE SE INSCRIBE	¿ESTÁ AUSENTE EN ESTE TÉRMINO MUNICIPAL? ¿O TRANSEUNTE? Se pondrá Ausente ó Transeunte, según proceda.
1	1	Cantiquin		Joaquin Fernandez Alv.ª	V.°	36 años	casado		sí	sí	Mieres	Oviedo		Minero	Mieres	Oviedo		
				Delfina Garcia	M.	34		esposa						Labores				
				Cristaquin	V.°	5		hijo	no	no								
				[illegible]	M.	7												
				[illegible]	M.	4												
2	6	Cantiquin		Manuel Martinez Bango	V.°	30	casado				Oviedo			Minero			4 años	
				[illegible] Manuela Martinez Gonzalez	M.	31		esposa						Labores				
				[illegible]	V.°	6		hijo										
				[illegible]	V.°	3					Mieres							
				[illegible]	V.°	4 meses												
3	3	Cantiquin		[illegible] ero Vazquez	V.°	21 años	casado		sí	sí				Minero				
				[illegible] Rodriguez Garcia	M.	22		esposa	no	no				Labores				
				[illegible]	V.°	1		hijo										
4	6	Cantiquin		[illegible] Alvarez Alv.ª	M.	64	viuda											
				José [illegible]	V.°	28	casado	hijo político	sí	sí				Minero				
				[illegible] Fernandez Alvarez	M.	27		hija						Labores				

A. Dataset and Descriptive Statistics

Map B.1. Location of the municipalities

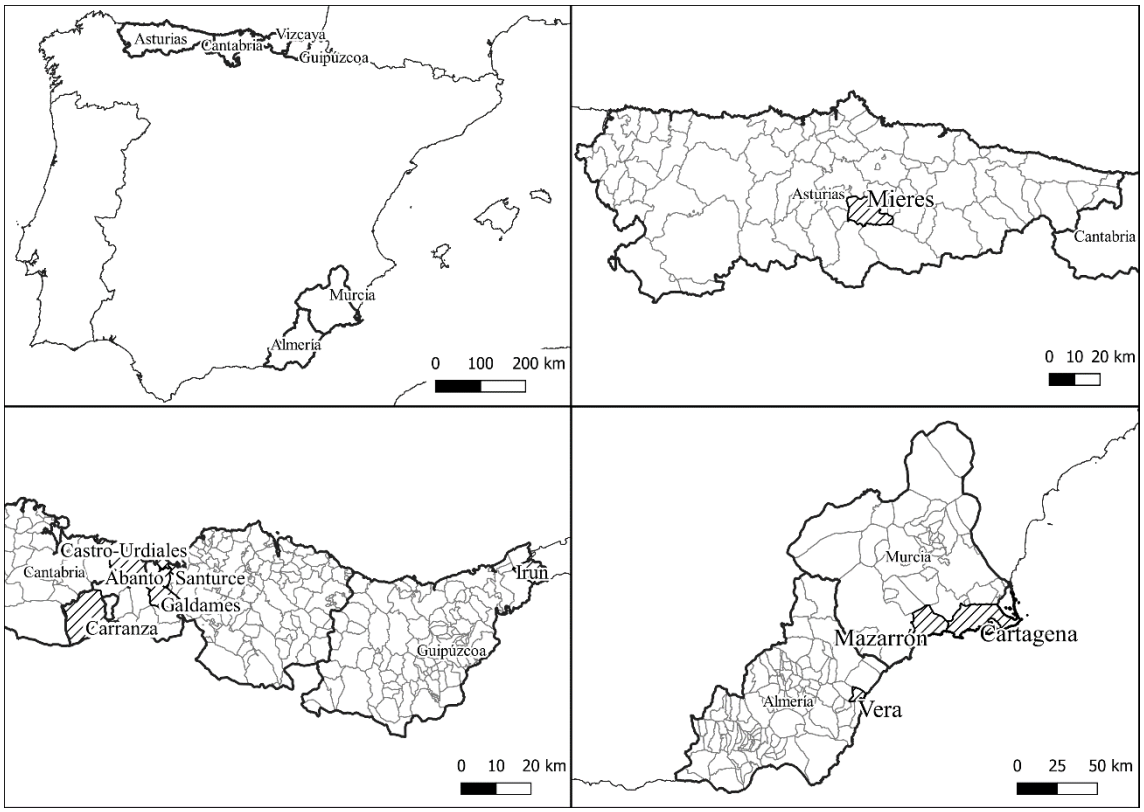


Table B.2. Occupation groups and HISCO codes

Occupation Groups	Sub-group, definition	HISCO
1.Higher Managers, professionals, and elite	Landowners, rentiers and capitalists	-10100
	Engineers and technicians	01100 to 03900
	Medical doctors, pharmacist, and biology	05100 to 07900
	Mathematicians, economist, and statisticians	08100 to 09000
	Accountant	11000
	Law	12000 to 12900
	Education	13000 to 13900
	Religion	14100 to 14900
	Arts and Sports	15100 to 18000
	Historians and Sociologist	19100 to 19900
	Managers	20100 to 21900
	Trade, retail trade	41020, 41025, 41040, 42200 to 44300, 45120 and 45125
	Ships' Masters and Ships' Engineers	04200 to 04300
	Police, and officer (military)	58100 to 58900
2.Service Sector	Supervisors, Foremen, and Inspectors	22000 to 22600
	Tax collector and Customs Officers	31000
	Office and Bank Clerks	32100 to 34200
	Railway and Communications Clerks	36000 to 38000, and 39960

	Other Clerks	39100 to 39500, and 39990
	Salesmen, and shop assistants	41010, 41030, 45130 to 45150, 45200 to 49090
3.Secondary Sector (Mechanics)	Metal processors, smelting, roller and furnaceman	72000 to 72900
	Mechanic, machinery fitter, and electrical fitter	84100 to 86200
	Printers	92100 to 92900
	Railway engine drivers	98300 to 98400
	Machinery operators	96100 to 96900 and 97200 to 97300
	Chemical processes	74100 to 74900
4.Secondary Sector (Artisans)	Sawyer, and paper maker	73100 to 73400
	Textile	75000 to 76200
	Food processing	77100 to 77900
	Tobacco preparers, tailors, and hat makers	78100 to 79900
	Shoemakers	80100 to 80300
	Wooden worker, and stone carver	81000 to 82000
	Blacksmith	83000 to 83900
	Plumber and tinsmith	87100 to 87400
	Glass blower and pottery	89100 to 89900
	Basket and candle makers	94200 to 94900
5.Construction, transport, sea, and servants	Building painter	93100 to 93900
	Construction workers	95000 to 95900
	Dockers	97100 to 97190
	Drivers	97400 to 98000, and 98500 to 98570
	Animal-drawn vehicle driver	98600 to 98690
	Seaman	98100 to 98200
	Fisherman	64100 to 64900
	Cook and waiters	53100 to 53200, and 54050 to 54090
	Domestic servants	54000 to 54045
	Cleaners, concierges, and janitors	55100 to 55200
	Launderer	56000 to 56090
	Hairdressers	57000 to 57090
6.Unskilled	Farm worker	62100 to 62900
	Livestock farmer	61200 to 61290
	Logger	63100 to 63200
	Day labourer and factory worker	99900 to 99930
7.Miners	Miners	71100 to 71190
8.Farmers	Farm owners	61110 and 61115

Table B.3. Summary statistics for all Sample

	N	Mean	Std. Dev.	min	max
Literacy	227,321	0.4	0.5	0	1
Female	228,027	0.5	0.5	0	1
Age	228,027	25.7	19.1	0	114
Age Squared	228,027	1025.9	1298	0	12996
Simple Family	228,027	0.8	0.4	0	1
1.Higher Managers, professionals, and elite	228,027	0.02	0.14	0	1
2.Service Sector	228,027	0.006	0.075	0	1

3.Secondary Sector (Mechanics)	228,027	0.027	0.162	0	1
4.Secondary Sector (Artisans)	228,027	0.063	0.243	0	1
5.Construction, transport, sea, and servants	228,027	0.11	0.313	0	1
6.Unskilled	228,027	0.08	0.271	0	1
7.Miners	228,027	0.033	0.178	0	1
8.Farmers	228,027	0.064	0.246	0	1

Source: Own elaboration from Population Censuses.

B. Regression

Table B.1 Logit Model, Children 8 to 16 years old

	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	1.243***	1.299***	1.251***	1.335***	1.243***	1.298***	1.254***	1.306***	1.243***	1.298***	1.261***	1.342***
	(0.161)	(0.127)	(0.162)	(0.130)	(0.161)	(0.127)	(0.166)	(0.129)	(0.160)	(0.127)	(0.167)	(0.132)
Age sq.	-0.043***	-0.045***	-0.043***	-0.046***	-0.043***	-0.045***	-0.043***	-0.045***	-0.043***	-0.045***	-0.043***	-0.046***
	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.007)	(0.005)
Mother's Literacy	1.625***	1.839***	1.628***	1.863***	1.625***	1.840***	1.628***	1.839***	1.625***	1.839***	1.631***	1.862***
	(0.184)	(0.141)	(0.184)	(0.142)	(0.183)	(0.141)	(0.181)	(0.140)	(0.184)	(0.141)	(0.181)	(0.141)
Mother's Occupation (Ref. Mother Elite)												
Mother Home labour	0.132	0.110	0.151	0.168	0.123	0.096	0.130	0.125	0.139	0.107	0.149	0.183
	(0.239)	(0.228)	(0.237)	(0.223)	(0.233)	(0.227)	(0.229)	(0.228)	(0.232)	(0.228)	(0.227)	(0.223)
Mother Paid work	0.003	0.021	0.017	0.065	-0.007	0.009	0.012	0.041	0.007	0.019	0.027	0.084
	(0.214)	(0.201)	(0.211)	(0.198)	(0.203)	(0.200)	(0.204)	(0.199)	(0.208)	(0.201)	(0.201)	(0.196)
Father's Occupation (Ref. Higher Managers, professionals, and elite)												
2.Service Sector	-0.073	-0.199	-0.072	-0.218	-0.071	-0.196	-0.081	-0.210	-0.074	-0.199	-0.080	-0.228
	(0.147)	(0.235)	(0.148)	(0.236)	(0.146)	(0.234)	(0.145)	(0.234)	(0.147)	(0.235)	(0.146)	(0.235)
3.Secondary Sector (Mechanics)	-0.443***	-1.016***	-0.444***	-1.011***	-0.440***	-1.013***	-0.448***	-1.033***	-0.442***	-1.018***	-0.450***	-1.027***
	(0.141)	(0.140)	(0.139)	(0.138)	(0.139)	(0.138)	(0.142)	(0.141)	(0.142)	(0.142)	(0.140)	(0.140)
4.Secondary Sector (Artisans)	-0.694***	-0.885***	-0.691***	-0.901***	-0.691***	-0.881***	-0.699***	-0.896***	-0.693***	-0.886***	-0.696***	-0.911***
	(0.166)	(0.200)	(0.167)	(0.201)	(0.162)	(0.198)	(0.162)	(0.200)	(0.166)	(0.200)	(0.164)	(0.202)

Table C.1 Logit Model, Children 8 to 16 years old (cont.)

5.Construction, transport, sea, and servants	-1.244***	-1.365***	-1.245***	-1.397***	-1.236***	-1.354***	-1.248***	-1.380***	-1.247***	-1.365***	-1.248***	-1.411***
	(0.121)	(0.143)	(0.121)	(0.148)	(0.120)	(0.137)	(0.123)	(0.143)	(0.120)	(0.142)	(0.123)	(0.148)
6.Unskilled	-1.483***	-1.701***	-1.487***	-1.733***	-1.479***	-1.695***	-1.490***	-1.715***	-1.483***	-1.702***	-1.494***	-1.745***
	(0.168)	(0.162)	(0.168)	(0.165)	(0.169)	(0.160)	(0.170)	(0.163)	(0.168)	(0.162)	(0.169)	(0.165)
7.Miners	-1.514***	-1.923***	-1.512***	-1.934***	-1.510***	-1.918***	-1.516***	-1.929***	-1.515***	-1.924***	-1.515***	-1.938***
	(0.158)	(0.165)	(0.158)	(0.163)	(0.156)	(0.162)	(0.156)	(0.164)	(0.157)	(0.166)	(0.156)	(0.162)
8.Farmers	-1.334***	-1.372***	-1.350***	-1.418***	-1.321***	-1.352***	-1.302***	-1.371***	-1.339***	-1.370***	-1.319***	-1.418***
	(0.201)	(0.204)	(0.201)	(0.206)	(0.194)	(0.193)	(0.188)	(0.194)	(0.199)	(0.200)	(0.188)	(0.197)
Simple Family			-0.196***	-0.198*							-0.199***	-0.196*
			(0.068)	(0.116)							(0.067)	(0.116)
Eldest offspring			-0.058	-0.040							-0.058	-0.040
			(0.066)	(0.041)							(0.065)	(0.041)
Num. Younger Siblings			-0.043***	-0.113***							-0.042***	-0.112***
			(0.015)	(0.021)							(0.015)	(0.021)
Father Migrant					0.038	0.059						
					(0.088)	(0.069)						
Migration during school age							-0.212**	-0.237**			-0.211**	-0.232**
							(0.098)	(0.103)			(0.099)	(0.105)
Father migration distance (ln)							0.030*	0.015			0.030*	0.014
							(0.016)	(0.012)			(0.016)	(0.012)
Father from mining town									-0.047	0.027		
									(0.112)	(0.078)		
Observations	17,240	16,644	17,240	16,644	17,240	16,644	17,240	16,644	17,240	16,644	17,240	16,644
Town FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Town-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.309	0.342	0.310	0.346	0.309	0.342	0.310	0.342	0.309	0.342	0.311	0.346

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1