Family and individual social progresssion along industrialisation in Southern Europe, 19th-20th centuries

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Introduction

The role of the family in both individual social status attainment and the progression of careers during industrialization has been questioned by the already-classic Modernization theory. Changes in occupational structure, expansion of education, and the rise of mass transportation, urbanization, and communication propitiated a progressive turn from adscription into a career related to the family background to the individual achievement of socioeconomic position (Treiman, 1970; Blau and Duncan, 1969).

In this sense, the transformation of the labor market would have limited intergenerational transmission of occupations and consequently led to an increase in occupational mobility (Lipset and Zetterberg, 1956; Grusky and Hauser, 1984; Maas and Van Leeuwen, 2016). However, some have argued that this mobility was mainly absolute mobility, which affected societies in general through structural changes, but did not necessarily lead to real changes in relative social mobility for individuals (Simkus, 1984). In addition, the rural-urban migration also contributed to the breakdown of the traditional intergenerational ties, creating new paths for individual mobility (Kerr et al., 1973; Moch, 1992). On the other hand, recent research has shown levels of decreasing intergenerational mobility prior to the second half of the twentieth century for European societies like those of Sweden (Karlsson and Stanfors, 2011; Maas and Van Leeuwen, 2004; Mass et al., 2011) and the Netherlands (Knigge et al, 2014; Zijdeman, 2009).

Familial nuclearization was traditionally argued to be one cause of the loss of family influence on social status of its members, as stated within the modernization theory. This theory was mainly proofed in the United States and countries from Northern Europe where nuclear families were historically prevalent (Featherman et al., 1975; Kurz and

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Muller, 1987). However, little has been said on this topic regarding societies in which other family types were important. In recent years, research has found that societies classically labelled as predominantly nuclear family societies had both had before and kept during industrialization important levels of other family typologies, such as stem or joint families (Ruggles, 2010; Gruber and Szoltysek, 2012). Furthermore, some types of extended families (stem and joint) have been argued to have positively affected economic development within intergenerational and intragenerational mobility. This research further argues that the impact of extended families would have been constant during and after industrialization (Alesina and Giuliano, 2010; Borderías and Ferrer, 2016).

Some extended family typologies, like stem families, are usually linked to specific inheritance systems that also shaped individuals socioeconomically, mostly when based on the principle of impartibility, which usually named first-born sons the universal heirs to avoid the fragmentation of properties (Berkner and Mendels, 1978; Fertig, 2017). This system created unequal opportunities within families. In this regard, the single-heir system of inheritance led individuals to follow different occupational paths depending on birth order, mainly due to the inequality generated by the transmission of tangible assets solely to the first-born, which created unequal relative mobility within families (Ferrer, 2004; Pujadas-Mora et al., 2018).

Industrialization reinforced the already existent crisis in the single-heir system due to the increase of the secondary and the tertiary sectors, reducing the importance of land patrimonies and their fragmentation (Ferrer, 2005). This particular crisis would have faced its peak during the agrarian depression at the end of the nineteenth century, which decreased incomes and wealth in rural economies where the single-heir system was more entrenched (Congost et al., 2015).

The progressive economic and occupational transformations within industrialization would also have permitted individuals to achieve better careers across their lifetimes (Treiman, 1970; Brown et al., 2004), but also led to unskilled labor replacing skilled workers like, for instance, artisans in guilds (Blau and Duncan, 1969; Hobsbawm, 1964; Grau and López, 1974; Brea-Martínez and Pujadas-Mora, 2017). The trends in relative mobility indicate how unequal the opportunities were for individuals, both in intergenerational and intragenerational terms (Dribe et al., 2015; Erola and Kilpi-Jakonen, 2017). Consequently, an important number of labor resulted from the creation of new occupations and the demand for new skills. However, these changes in the labor market would not break the social barriers to mobility, especially for the lowest social groups (Dribe et al., 2015; Knigge et al., 2014). Families from the lower classes that were unable to transmit their occupations within the transforming labor structure were also less able to invest in the acquisition of new skills by their descendants, thus the next generation would have different occupations within the same status levels or even face downward mobility in comparison with their parents (Thernstrom, 1968; Ryczkowska, 2003). However, the upper and middle classes were able to invest more in the acquisition of new skills and social and cultural capital (Grusky, 1983; Maas et al., 2011). Industrialization

would lead families to use different mechanisms of social reproduction, shifting from occupational inheritance to investing in new skills (Bourdieu and Passeron, 1970).

The decline in fertility, which in turn was partly caused by the process of socioeconomic modernization within industrialization (Franck and Galor, 2015), following the resource dilution theory, allowed the families to invest and provide more for their descendants (Van Bavel et al., 2011; Bras et al., 2010). Hence, when a family allocated more resources to their children, together with the educational expansion and emergence of new occupations that emerged within industrialization, they multiplied their chances of improving the social destination of their descendants, albeit not equally in all socioeconomic groups. Besides, although fertility levels had differed among socioeconomic groups, the decline of fertility during industrialization appears to have been general, which makes this demographic aspect a common determinant for the entire society (Clark and Cummins, 2015; Manfredini and Breschi, 2008).

This article aims to shed light on the effects that industrialization had on the loss of familial influence for the individuals' social destinations during the nineteenth and twentieth centuries through the measurement of the labor career progressions of individuals born between 1860 and 1909 and living in the Barcelona area. These individuals are followed from their first occupational observations, from 1880 in the case of the oldest cohorts and until 1940 for the youngest. This area faced an early industrialization and early fertility decline, with a strong presence of stem families. Catalonia was one of the first places in Southern Europe to face the take-off of industrialization (Brea-Martínez and Pujadas-Mora, 2017; Martínez-Galarraga and Prat, 2016), while sharing with France one of the earliest fertility declines in Western Europe (Cabré, 1999; Weir, 1993; Coale, 2017). However, this area is still shaped by strong family ties (Reher, 2004; Fauve-Chamoux, 2009; Borderías and Ferrer, 2017; Esping-Andersen; 1999). In order to conduct this study, we use one of the few available historical longitudinal databases in Spain, the *Sant Feliu de Llobregat Longitudinal Demographic Database*, which allows us to follow the same individuals in different points in life, with up to 12 observations for the same person or family.

Since the second half of the nineteenth century, the flourishing Barcelonese cotton industry moved towards the area around the nearby Llobregat River in search of water for the demanding production more specifically to the region known as Baix Llobregat (the closest part of the river to the sea, including its delta) (Nadal, 1992). These elements started changing the region's configuration from primarily agricultural to being characterized by a wider occupational and social spectrum. The economic period this study covers featured important industrial growth, first by the textile industries and afterwards by metallurgic production (Carbonell i Porro, 1995). However, in the last decades of the nineteenth century, an important agricultural crisis in Europe affected agricultural prices and incomes. Regions including Catalonia saw even worse effects caused by the phylloxera crisis within the wine industry (Garrabou et al, 1991).

Conversely, in the case of the area around the Llobregat, although this agrarian crisis disturbed the economy, its effect was limited because the region enjoyed highly fertile

soils and had faced an incipient commercialization of its agricultural production since the eighteenth century. The Llobregat had provided the city of Barcelona with agricultural products during the nineteenth century, and beginning in the first years of the twentieth century, the Llobregat's agricultural commodities were exported across other European countries (Tribó, 1989).

All in all, we seek to explain if the industrialization process led to an increase in opportunities for status attainment for individuals across their labor careers, without losing sight of family influence. Thus, different hypothesis may emerge:

- H1) The youngest generations born within the new window of opportunities displayed within industrialization, born in the 1890's and 1900's, would show more relative mobility across their lifetimes. In other words, people in these generations would show more career progression than previous generations, in line with the works of Schulz et al. 2015; Manzoni et al., 2014; Barone et al., 2011.
- H2) In a society featuring stem families, which by definition encompass stronger family ties, industrialization would also induce a loss in family influence, as it did in places where nuclear families predominated. (Featherman et al., 1975; Borderías and Ferrer, 2017) However, family influence would not vanish completely; otherwise today's Catalan society, a 'familiaristic society', would not be possible (Reher, 2004; Esping-Andersen, 1999). During industrialization, this influence was directly felt through investment in human capital instead of intergenerational occupational transmission.
- H3) The expansion of industrialization would have a corrective effect on the inequalities generated within the Catalan inheritance system based on the impartibility principle between siblings. In this sense, the traditional advantage granted to firstborn children would be compensated to non-firstborn through wider opportunities within the new occupational structure (Ferrer, 2005).
- H4) Nevertheless, although industrialization may have been positive in its reduction of inequalities within families or between siblings, the social class barriers from the past were not broken (Bourdieu and Passeron, 1970; Manzoni et al., 2014; Schulz et al. 2015). In this sense, despite the transformations of the occupational structure and the multiplication of working opportunities, for all cohorts, those individuals from high-status families would continue to have higher status, whilst children from lower classes would remain in the lower classes. Thus the social stratification would be reproduced.

Data

The *Sant Feliu de Llobregat Longitudinal Demographic Database* contains individual census data from this Catalan town (Sant Feliu) in the region of Baix Llobregat for the nineteenth and twentieth centuries. The Database has been built up within the project 'Tools and procedures for the large-scale digitization of historical sources of population', a joint venture of the Center for Demographic Studies and the Computer Vision Center, both at the Universitat Autònoma de Barcelona. The main aim of the project is to develop

computing technologies to facilitate the massive digitalization of demographic sources, more specifically those called padrones (local censuses), to create historical 'social' networks. Such networks are assessed thanks to the linkage of nominative individual information compiled in local censuses across time and space to establish individual and family lifespans and to spatially locate individuals and families.

Sant Feliu de Llobregat was one of the most important towns in the region economically and administratively, as the judicial district capital of Baix Llobregat and having seen the arrival of new economic activities, such as the textile and metallurgical industries since the second half of the nineteenth century and a railway station in 1855. The dataset collected all the information registered in the 15 censuses recorded in Sant Feliu from 1828 to 1940.[3] This information has been gathered using computer-assisted manual data transcription through an online crowdsourcing platform in which 58 volunteers have collaborated (27 men and 31 women) for a period of 2 years. The dataset contains 59,084 individual registers. These censuses contain nominative information of each individual, occupations (mostly for adult males), literacy (infrequently), age or birthday, birthplace or income (rarely) and family or labor relationship with the head of the household.

These censuses were recorded in intervals of around 4-5 years (not always strictly defined) and the nominative information of individuals recorded within households was quite stable from one census to other. This redundancy has been used to assist the transcription of consecutive local censuses, such as those from 1881 and 1886 (Mas et al., 2016). The rest of the censuses have been transcribed manually through an online data entry tool integrated into the abovementioned crowdsourcing platform. In this way, the redundant information (names, surnames and addresses) are transferred from the census already transcribed to the next one to be updated manually, adding new members or deleting those who leave or die. The household (address) and the individual names and surnames are located automatically using visual word search. Since the process is based on a focused search, the accuracy is very high. In this way, there is a 70% reduction in the transcription time.

Nominative data have been harmonized according to etymological criteria to facilitate the record linkage of the same individual across different censuses, due to the high variability in the written surnames (Christen, 2012; Jordà, 2016; Jordà et al., 2013). Places have been georeferenced, and occupations have been coded using the Historical International

[3] Specifically for the following years: 1828, 1833, 1839, 1857, 1878, 1881, 1889, 1906, 1910, 1915, 1920, 1924, 1930, 1936 and 1940.

Classification of Occupations (HISCO) (Van Leeuwen et al., 2002) as well as with schemes of social status as HISCAM[4] and HISCLASS[5].

Once the standardization process was done, a record linkage using nominative information was performed in order to follow the individuals across time. Therefore, parts of the life courses of 10,405 individuals with at least 2 different observations in 2 different censuses have been traced, standing for 73.4 % of those 50,084 total initial records (see Figure 1). Nevertheless, only 1,872 males have complete occupational information in all linked observations, which is necessary in order to measure individual career progression through occupational classifications. Additionally, individuals can only be traced from the local census of 1881 onwards, due to the low frequency of recorded occupations in previous censuses.

[Figure 1 about here]

Although this has all led to a remarkable decrease in the number of individuals in the sample, the distribution in the occupational structure for the sample used in this study for analyzing labor careers is the same as that observed for the total number of cases in Sant Feliu. The leadership in the secondary sector and the progressive decline in the primary one are reflected in both datasets, except for a certain over-representation of the secondary sector in 1881 and a resulting lower increase from 1930 onwards. During the period 1881-1940, Sant Feliu experienced an important transition from an agricultural town to an industrial one. The consolidation of its industrialization started in 1876 with the establishment of new textile concerns, leading to six in 1913 employing with 1,071 workers (Carbonell i Porro, 1995).

Along with the growth in population of Sant Feliu, almost doubling from 3,000 inhabitants in 1881 to nearly 6,000 in 1940, the share of economic sectors also evolved, from having equal proportions of population in the primary and secondary sectors in 1881 to the dominant role of the latter from 1906 onwards (See Figure 2). The secondary sector (mainly textile and metallurgy) represented the vast majority of Sant Feliu's occupational structure during the first four decades of the twentieth century. Conversely, the primary sector followed a progressive decline, while the tertiary sector featured constant levels of employment (See Figure 2). These distributions in the economic sectors show a clear scheme of the industrialization process in the final part of its take-off (1881-1889), the expansion phase (1906-1930), and its consolidation (from 1930 onwards). In the same way, these aspects have been observed for Barcelona and other locations in its hinterland since the nineteenth century (Martínez-Galarraga and Prat, 2016).

[4] The Historical Cambridge Social Interaction and Stratification scales (HISCAM) is an occupational stratification scale for data coded with HISCO that is increasingly used by scholars in historical research and allows for a suitable and comparable interpretation of analysis in social stratification and inequality in the past (Lambert et al., 2013)

[5] HISCLASS differentiates individuals in consonance with the social group to which they belonged according to dimensions like manual/non-manual division, skill level, degree of supervision and economic sector, which gives 12 different classes, going from unskilled rural workers at the bottom to higher managers and professionals at the top (Van Leeuwen and Maas, 2011).

[Figure 2 about here]

In order to analyze the career progression of individuals longitudinally, their occupational information is fundamental. However, in many historical sources like local censuses, females cannot be analyzed because, unfortunately, their occupations were usually not recorded. Only in the 1936 local census were women's occupations precisely registered, while in the rest of the censuses the majority of women were recorded under the label "*sus labores"* ('their own tasks"). This was a deliberate way of making women invisible in the labor market, which was common in many historical administrative sources (Humpries and Sarasua, 2012).

Methodology

We conduct an analytical strategy based on multilevel modelling for estimating both the familial impact on individuals and the career progression in the individual life course by applying models for repeated measures, also known as the so-called growth models. The main advantages of using a multilevel approach reside in the fact that it allows for differentiation between clustered effects that usually hamper the "statistical independence" of individuals or observations (Knigge et al., 2014). In this sense, the evolving occupational status of an individual may be influenced by his/her family, school, neighborhood, or many other factors that make a person more similar within a group, which if not properly handled may give biased results in an ordinary regression (Snijders and Bosker, 1999). In the precise case of studying careers with a longitudinal view, the traditional methodological tool is the well-known event history analysis, which requires a common quantity of observations by individuals as well as a similar time between such observations. All these aspects are hardly possible for historical sources. In this regard, multilevel growth models better handle historical sources, because in almost all of the few historical longitudinal sources that allow for the study of occupational careers, the time between observations and their number usually differs among individuals (Schulz and Maas, 2010).

The family influence on the individual's occupational status is measured through an *intra-class correlation coefficient* of how much of their status is explained by their original family, in order to identify the levels of intergenerational status adscription shaping the beginning of the individual's labor trajectory (Knigge, 2016). Thus, to assess the familial influence on the labor debut of individuals, we have gathered all the occupational statuses within the same households in which our studied individuals had their first occupational observation. In other words, this means that we take into account the occupational background of the family on the individual's first occupational observation in order to know how much it influenced the individual at the beginning of their labor career. However, occupational trajectories of individuals may have been altered by constraints, such as by the birth cohort or the period in which they lived, by age or their experience in work. For that reason, we estimate different multilevel growth models in which individual occupational observations across time are clustered together to test factors and constraints, such as birthdate, birth order, family size or the parental social and

occupational status, that may determine individuals' life cycles and shape occupational careers.

Nevertheless, Sant Feliu also faced migratory flows, mainly after the 1920's, and some of the 1,872 linked male individuals were migrants whose first occupational observations cannot be captured since their parental household was outside Sant Feliu. For these cases, we have differentiated those individuals whose first occupational information was recorded at the parental household from those whose first working record was as household head or at a higher age. For this purpose, we have controlled all linked individuals at their first observations in order to test if the first occupational observation was a good proxy for the initial stage of the labor career within the source material.

The descriptive statistics have shown that among the 1,872 total linked individuals, 1,770 had their first observation at the parental household as children, while the mean age at the first occupational register was 18.37 years old, with a modal age of 15 and a median of 17. Thus, the source can be confirmed as reliable for the starting point of individuals' labor careers, thanks to the early ages recorded for the first working records and the high percentage (95%) of individuals being observed for first time in terms of occupation. Hence, to analyze the family impact, the 102 individuals found to be migrants without information on the parental household were excluded. In order to estimate the family influence over the occupational debut of individuals, we have gathered the 1770 males within their households and compared their occupational status with those of their siblings, constituting a sample of 5,241 individuals.

The dependent variables used in this study are the HISCAM scores for individual occupations in order to establish a ranking of socio-occupational stratification (Lambert et al., 2013). Additionally, to establish the evolving patterns of career progression, we have computed individuals' experience in years as a proxy to explore human capital accumulation (Schulz and Maas, 2010). Experience was computed as the number of years worked since the age of14 years old. which was the age at which people could start paying taxes, and at which therefore a substantial share of people were already in the labor market (García Ruipérez, 2008). Finally, we have introduced in the models different demographic and socioeconomic variables to observe which elements determined and shaped more the labor career of individuals (See Table 1).

[Table 1 about here]

Family influence on the occupational debut of individuals in Sant Feliu

The expansion and consolidation of industrialization has been argued to have led to the decrease of familial influence on individuals. In this way, one of the aims of this study is to assess how much the intergenerational transmission of occupational and familial influence may have changed during the long and progressive process of industrialization. In order to achieve this purpose, the first occupational observation of all the individuals in the set, together with those of their siblings in the sample, have been compared. In this

sense, a null model has been generated, keeping only the occupational observations of all the siblings in the same household to know how similar they were in occupational terms[6]. This allowed us to compute the family impact through the Intra Class Correlation Coefficient (ICC) of individuals (siblings) clustered in the same families (parental households). The higher the number of siblings sharing the same occupation or status within the same household, the more likely they were inheriting their occupational status from parents or other relatives (Knigge et al, 2014).

The family impact, measured through the ICC for each year, fell over time in Sant Feliu from 75% to around 55% (See Figure 2). The similarities between siblings in occupational attainment plummeted from the end of the nineteenth century to the first quarter of the twentieth century by more than 20%, and from 1915 onwards, it kept constant near 55%. This means that familial influence in the first occupational status of individuals decreased significantly from the end of the nineteenth century but did not disappear. Literature has traditionally argued that industrialization brought about the fall of family influence, mainly because of the rise of opportunities and status achievement to the detriment of status adscription (Kerr et al., 1973; Knigge et al., 2014; Treiman, 1970).

However, it should be noted that the demographic transition was in a certain way concomitant with industrialization[7]. Due to the decline in fertility, families would have more opportunities to avoid resource dilution and invest more in their descendants to ease them into intergenerational upward social mobility (Van Bavel et al., 2011; Bras et al., 2010). The decrease in the mean number of siblings per household in Sant Feliu aligns with the early decline in fertility shown in Catalonia at the end of the nineteenth century (See Figure 3). This descent was only interrupted around 1924, coinciding with a flow of southern Spanish migrants, who still showed higher levels of fertility (Cabré, 1999).

[Figure 3 about here]

When measuring the evolution in the mean household size as well as the composition by family type in Sant Feliu, there is evidence that despite the decrease in the family impact and sibship size, the household composition did not vary, indicating that the family type did not vary (See Figure 3). In this sense, there was no monotonic decrease in the mean number of household members despite the decrease in fertility. This paradox can be explained by the fact that along with the decrease in the mean number of siblings *per* household there was also an increasing migratory flow of unskilled and low-skilled workers that usually joined households in which not all members were relatives and consequently increased the household size, compensating for the fertility decline.

Family type composition of Sant Feliu shows that nuclear families made up about 60% of families from the end of the nineteenth century to the first quarter of the twentieth century (See Figure 4). Afterwards, the proportion of nuclear families started to decrease,

[6] It has to be noted that estimating the family influence without migrants incur in an issue of selection effect because only non-migrant individuals are included in this specific model.

[7] It is argued here to be concomitant in a certain way because Catalonia and France were the forerunners in fertility decline in Western Europe (Cabré, 1999; Weir, 1993; Coale, 2017).

replaced by a higher proportion of stem families and households that included non-relative members because of migratory flows. Thus, it can be argued that a process of family nuclearization did not explain all the changes associated within the family influence in Sant Feliu (Bengtson, 2001). Additionally, stem families seemed to be reinforced rather than weakened during industrialization (Alesina et al., 2010; Borderías and Ferrer, 2016).

[Figure 4 about here]

Individual labor career progressions in Sant Feliu (1881-1940)[8]

Age effect translated into years of labor experience, period effect as a reflection of the socioeconomic phases underlying industrialization and birth cohort might have shaped the occupational trajectories of individuals (Schulz et al., 2015; Manzoni et al., 2014). Therefore, we have modelled individuals' working trajectories according to a different set of socioeconomic, temporal and demographic variables (See Table 1).

The first step in the multilevel modelling was to estimate a null model with only the dependent variable intercept in order to distinguish the importance of occupational variance (within and between). This specific model would test if there were more occupational status differences within the different observations of the same individual or, conversely, if individuals kept the same status across their labor trajectories, with greater differences occurring between individuals (Manzoni et al., 2014). The results for the longitudinal occupational sample of Sant Feliu showed that the between-individuals variance was significant, with an intra-class correlation coefficient (ICC) of 55%. In other words, there were obvious disparities between individuals' occupations. However, the variance between observations across the labor trajectory implied that occupational mobility in this period in Sant Feliu was also important. The ICC in Sant Feliu is much lower when compared to the same kind of analysis for more recent data in Germany, which gave ICC's around 80% (Manzoni et al., 2014) (See Model 1). The reason why the variance would be lower during industrialization before the 1940's in Sant Feliu than in Germany between the 1950's and 1980's may be explained that labor instability and the proletarianization process by which individuals could have had different occupations when young (as day laborers) and moved to others, more specialized occupations when older (Dribe et al., 2015).

These results might be contextualized within a period of transition from a preindustrial economy to an industrial one. On the one hand, the take-off and expansion of industrialization changed the occupational structure, resulting in an increase in absolute mobility, which would be observed in the loss of family impact because children would be less likely to inherit their occupational status from their parents (adscription) and

[8] It has to be noted that the study lasts until 1940, including the years of The Spanish Civil War (1936-1939). However, all the analyses have been done both including and excluding the war years and the results obtained were the same, thus, in order to gather as many cases as possible, this article examines the period up to 1940.

because the occupational structure transformation would extinguish many types of work. On the other hand, the expansion and consolidation of industrialization would bring a higher demand for skill, inducing investment in education or training, thus if individuals had opportunities to invest and progress (or regress) during the labor career, the variability in occupations during an active life span would be higher and increase, along with relative mobility.

Some demographic and social characteristics were later included, showing that the individual's background, understood as the father's occupational status, positively and significantly affected the individual's status: the higher the status of the father, the higher that of the children (See Model 2). Secondly, we also tested demographic characteristics at the family level at the time of the individual's entrance in the labor market (first occupational observation). The results show that belonging to a large family (number of siblings) was detrimental to individual status attainment, while being married or having a child were positive elements. The latter may reflect that people in western Europe formerly conceived of marriage and family formation as a transitional state to adulthood, requiring better and more ensured statuses (Lundh and Kurosu, 2014) (See Model 2). Finally, controlling for the birth order of individuals, given the impartible inheritance system prevalent in Catalonia granting to the eldest son the privilege of being the universal heir, is expected that firstborn would attain better statuses. In actuality, the second-born showed better social status scores. This might reflect that industrialization's occupational increasing variance favored non-inheritors, who had traditionally been disadvantaged in preindustrial periods (Ferrer, 2004).

Another set of variables included in Model 3 account for the subject's number of years in the labor market, demonstrating that higher experience led to better performance in occupational status, which aligns with human capital theory (Becker, 1965; Schulz and Maas 2010; Manzoni et al., 2014). Additionally, when in Model 4 we introduce the combination of age and period as birth cohorts, it is clear that the generations born between the 1890's and the 1900's had better occupational status performance. Thus, these results show that the cohorts entering the labor market upon the consolidation of industrialization faced better opportunities for career progression. Afterwards, we have categorized the fathers' occupations into 5 classes based on HISCLASS (See Model 5), which demonstrates that though the intergenerational transmission of occupations decreased over time, higher classes, such as liberal professionals or wholesale traders, continued to be able to place their children in more advantaged positions than were other lower classes, which is still important in any period (Piketty, 2014).

Subsequently, we conducted an interaction between cohort and birth order in order to define whether industrialization reversed the inherent inequalities of the universal inheritance system, usually between first-born and other siblings. In earlier periods as for the cohort born from 1860-69, firstborn attained higher social status, whilst in younger cohorts the roles are inverted and the second-born siblings achieved higher HISCAM scores (Table 3). We have disentangled the differences in birth orders according to the parental economic sector, observing that children from fathers working in the secondary

and tertiary sectors tended to achieve more career progression than the average (Model 7). In this way, siblings from fathers working in the secondary sector did not show remarkable differences among them, whilst there from non-firstborn children of tertiary sector fathers would enjoy some advantages over their first-born siblings. Conversely, among children of fathers working in the primary sector, first-born children had less career progression, which may show that they were inheriting the parental occupation and property. Despite the important decrease in the share of agrarian occupations within the transformation of the occupational structure, farmers' firstborn children would tend to remain farmers across their life courses; among farmers' firstborn, around 60% stayed farmers. This preserved the idea of *'casa'* (home), which in the Catalan inheritance system would give continuity to the familial economic unit (Ferrer, 2004). On the other hand, the rest of a farmer's children would move towards day laborer occupations (around 40%) and artisans (near 25-30%).

Finally, we control for how the family size, understood as the total number of siblings, could change according to the economic sector of the father. The premise behind this is to shed light on whether the effect of the decline of fertility could be different for people of different social backgrounds (here represented by the father's occupation) and affect the individual social progression of children. From the results, it can be argued that resource dilution would have impeded families in the primary and secondary sectors from having children who achieved more career progression, since the higher the number of siblings within a family lowered the status progression of children (Model 8). Conversely, for children from fathers of the tertiary sector, it seems that resource dilution had no effect, because career progression was positively related to a higher number of siblings. These results show that families within the primary and secondary sectors with larger family sizes would face barriers to social mobility, which could have been another driver for the fertility decline (Van Bavel et al., 2011; Bras et al., 2010).

The economic modernization also represented an important expansion of occupational variety which, allied with the increasing presence of formal education, would have permitted an increase in the human capital levels of individuals. To explore this, we have predicted the average status (HISCAM) for individuals in Sant Feliu according to the interaction between the birth cohorts of individuals and their number of years in the labor market, based on Model 4 (See Figure 5). The results show insights arguing that, indeed, the expansion of industrialization brought changes in the career progression of individuals, with remarkable differences between cohorts. Whilst the oldest cohort (1860-69) show constant average levels of status across their labor careers, the youngest cohorts, those born between 1890 and 1899 or 1900 and 1909, attained higher occupational status than the older generations, with steeper slopes of progression as a function of experience (years in the labor market) (See Figure 5). However, it is also noticeable how the cohorts born between 1870 and 1889 show fluctuations in status and even downward mobility. The labor careers of these latter cohorts coincide with the transitional phase of industrialization's expansion and the years of the so-called Long Depression at the end of the nineteenth century (Colomé, 2015) (See Figure 5).

[Table 2 about here]

[Table 3 about here]

[Figure 5 about here]

Though there was a clear expansion of social status with experience, which may reflect human capital accumulation with age, the influence of the familial or parental status in the individuals' backgrounds should not be ignored. The differences in status attainment among individuals with fathers of diverse social classes were also important, as expected. In this way, using Model 5 we have looked at the relationship between the father's social class observed in the first occupational observation of our studied individuals and their labor experience in years. There is a clear hierarchy led by children from higher classes, who were favored in status attainment, not only in the labor market entry but also across the years of experience, due to their more pronounced slopes in occupational career progression. This pattern also repeats for children with fathers working in sales or clerical occupations, but not with any offspring of manual workers (See Figure 6). Children of skilled workers, farmers or day laborers faced less increase in status over years of experience in the labor market, which may indicate a predominance of occupational adscription for these groups, especially farmers. The slope for skilled workers and day laborers does not increase over time but decreases, which may tell us that these children also worked as manual workers, and these activities are penalized with age (Feinstein, 1998).

It is also remarkable that those achieving lower statuses across their labor careers were the farmers' children, which may show either occupational inheritance (firstborn children) or downward mobility (other birth orders) (See Figure 6). This might reveal that intergenerational status adscription could have been important at the beginning of careers in order to achieve social mobility later. Moreover, the occupational structure transformation that greatly reduced the share of primary sector workers would force a farmer's children to find occupations in other activities.

[Figure 6 about here]

Another aspect that should be taken into account in the case of Catalonia is the presence of the universal inheritance system, which has been argued historically as an important element creating socioeconomic differences among siblings, especially between the firstborn and other brothers and sisters (Congost et al., 2015). Thus, we have predicted the average patterns of career progression with a triple interaction including cohorts, experience and birth order based on Model 6, and the results are shown according to years of experience in the labor market with the oldest and youngest cohorts in our sample and between first and second born children (See Figure 7). It can be argued that the traditional impact of the universal system decreased as industrialization consolidated (Ferrer, 2005; Congost et al., 2015). While the difference in status was greater between birth orders for cohorts born in 1860-1869, with a clear advantage for the firstborn siblings, the differences in the youngest cohort (1900-1909) decreased dramatically, and the second-

born would have performed on average even better than the firstborn, evincing changes in the inheritance system effects.

[Figure 7 about here]

Concluding remarks

Family influence on occupational attainment decreased during the industrialization process in Catalonia, a fact that fits within the shift from status adscription to status achievement argued in the modernization theory. However, this influence did not vanish totally. Moreover, there are indications that the loss of familial influence in social and occupational terms was concomitant with the fertility decline, entailing an interdependent relationship between the effects of industrialization and shrinking number of offspring, as has been argued in studies about the resource dilution hypothesis. In this sense, the new window of occupational opportunities brought by industrialization would be mainly accessible with investments in human capital, and larger family sizes were a barrier to such investment.

In contrast to 'Northern' societies with a presumably important prevalence of nuclear families, Sant Feliu faced changes in family influence and fertility decline without losing the strong presence of stem families. In other words, these findings might point to two different explanations. On the one hand, unlike what has been traditionally argued about the importance of nuclear families in the industrialization process (Featherman et al., 1975), other familial typologies were not a barrier to modernization (Boderías and Ferrer, 2016; Alesina et al, 2010). On the other hand, as argued more recently by authors like Steven Ruggles (2010), the lack of family types other than nuclear ones in North-western European societies during the nineteenth century is far from true, which would automatically show that loss of family influence was not just a feature typical of societies with a predominance of nuclear families (Reher, 2004).

Trends of labor trajectories observed in Sant Feliu in the period 1881-1940 have shown that time was a determinant for occupational career progression, as expected in our hypotheses. Therefore, occupational status was augmented as a function of the increase of the number of years in the labor market: the longer the experience, the higher the statuses. Additionally, birth cohorts showed different levels of career progression. The youngest cohorts (1890-99 and 1900-09), which faced industrialization's consolidation, attained higher levels of occupational status, while the oldest cohorts from the 1860's, 1870's and 1880's within the initial stages of industrialization would have achieved less progression in their careers and tended to have more social immobility. This might be explained by the significant share of day laborers or unskilled secondary workers during these years and by a likely proletarianization effect. Hence, the take-off of industrialization would entail intergenerational absolute mobility as a result of the change in the occupational structure, but would not lead to strong relative social mobility, as individuals would have occupations with similar (or slightly inferior) statuses than those of their parents along their occupational careers.

It seems that the economic crisis of the last quarter of the nineteenth century, although not affecting Sant Feliu and the rest of the Baix Llobregat with the same intensity as in other regions, could have contributed to the important immobility of the generations born between the 1860's and the 1880's. In contrast, the youngest cohorts lived during a more favorable period when the window of opportunities could have been wider. At the same time, the decline in fertility might also explain the fact that the youngest cohorts, born in the 1890's and the 1900's, showed better status attainment progress. Accordingly, families would have distributed their resources, which not necessarily were tangible assets, among fewer children, and there would might also have been fewer competitors in the labor market during the dynamic economic phase industrialization was. Furthermore, the interactions between cohorts and birth order appear to demonstrate that the universal inheritance system based on impartibility and primogeniture declined over time.

The differences between the social class background of individuals (measured in terms of the father's position) indicate that the general enhancement over time (mainly by cohorts) did not break the inequalities in the social stratification through which some individuals started their careers in advantaged or disadvantaged positions. As a result, family influence decreased but did not vanish, which connects with the predictions from Piketty (2014) pointing out that families were and will continue to be important in terms of socioeconomic performance and its distribution. In a certain sense, the evolution of the status attainment of individuals shapes other socioeconomic aspects, which means different levels of equality in accessing opportunities is directly linked to the capacity to generate progress or demotion within societies.

The results presented here should not obviate the likely effects that sample selection and the subsequent endogeneity could cause in our analysis. Establishing endogenous explanatory variables is highly likely in historical studies, since we usually have to count on a small number of variables in the primary sources. This obviously may give rise to biased causalities from the years of experience and individual labor careers, which could be caused and affected by examination on the same outcome (social status and social class) and also because we do not count with variables regarding other important aspects, such as education. Additionally, we should point out the presence of a selection effect problem in our source, due to the fact that we only follow individuals developing their labor careers in Sant Feliu and thus lose out-migrants, though this is likely to be of small impact because during the periods covered in this article, Sant Feliu was mainly migrant-hosting.

Finally, it has to be remembered that the impossibility of estimating the labor careers of women could tend to overestimate upward mobility with age, given that phenomena like marriage or childbearing may have negative effects on women's occupational trajectories. Thus, males would benefit from the lower status of women in the job market as well, which would ease their own labor progression.

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Figure 1: Example of a reconstructed life course, Sant Feliu de Llobregat (1874 – 1940)

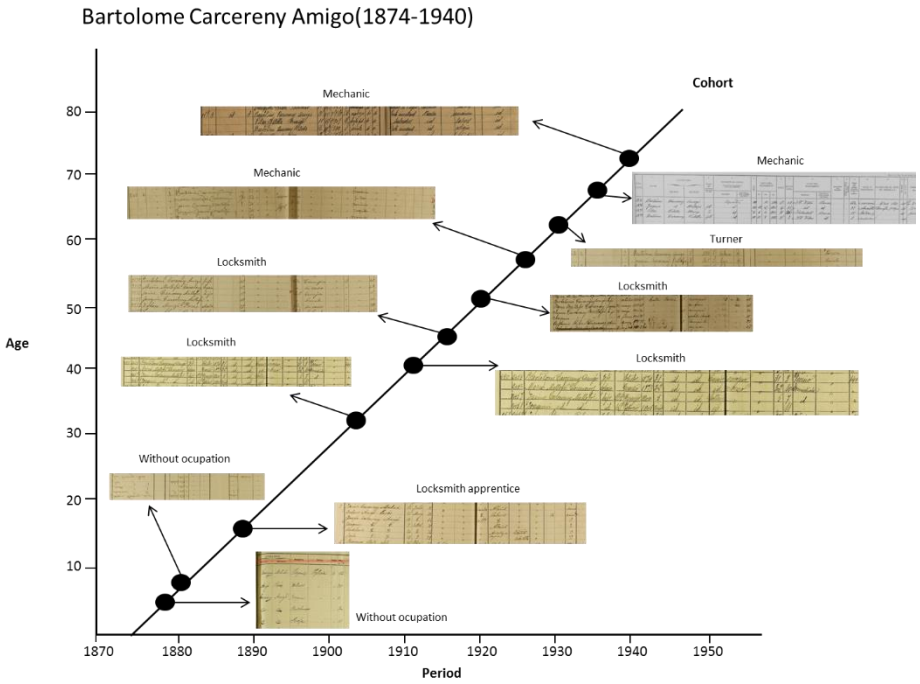
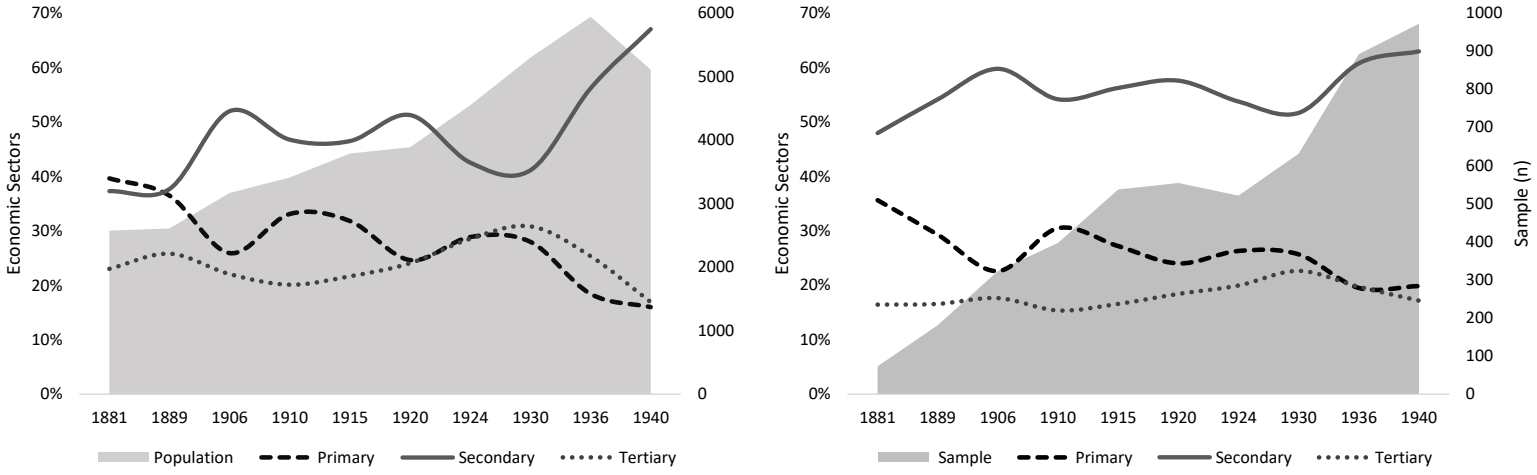


Figure 2: The occupational structure in *Sant Feliu* (Total Cases and Sampling), 1881-1940.



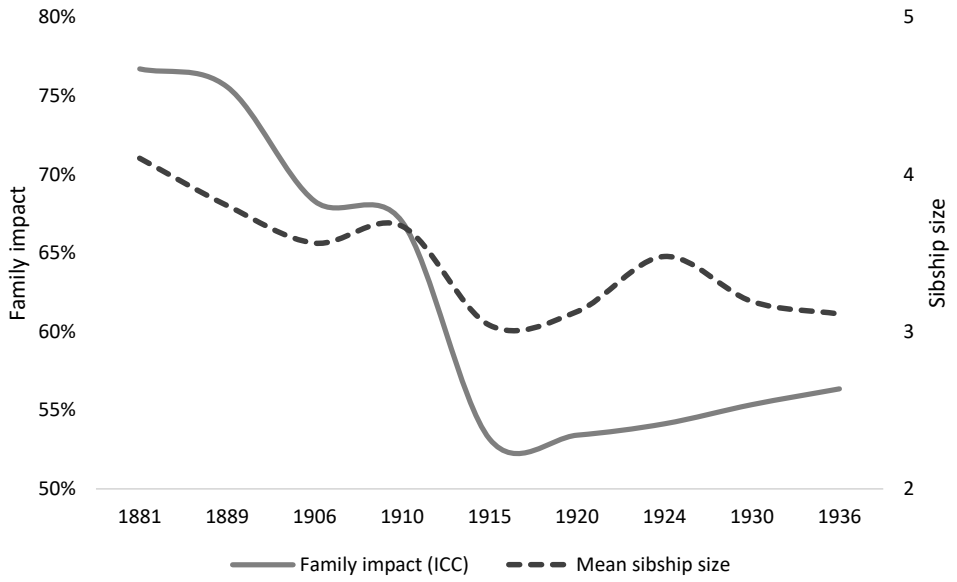
Authors' elaboration (Sant Feliu de Llobregat Longitudinal Demographic Database)

Table 1: Descriptive statistics of variables used in multilevel growth modelling.

Total number of individuals (males) n = 1,872					
Total number of observations n = 7,290					
Total number of siblings in the same household at the first observation n = 5,241					
Total number of household members at the first observation n = 11,425					
Total number of households at the first observation n = 2,688					
	n				
Occupational titles (HISCO)	169				
Status (HISCAM)	138				
Father's status (HISCAM)	99				
	Min	Max	Mean		SD
Period	1881	1940			
Observations per individual	2	12	3.25	3.25	2.05
Individual Status-HISCAM	37.18	99	54.18	54.18	10.20
Background (Father)-HISCAM	38.59	99	53.24	53.24	11.78
Labour experience in years	0	59	12.58	12.58	12.16
Birth Order	1	10	2.21	2.21	1.37
Sibship size	1	14	3.58	3.58	1.69
Categorical Variables	%				
Father's Social Class[9]					
Higher classes	4.6				
Sales and clerical	9				
Farmers	32				
Day Labourers	33.5				
Skilled workers	20.9				
Father's Economic Sector					
Primary	0.44				
Secondary	0.36				
Tertiary	0.2				
Cohorts					
1900-1909	23.4				
1890-1899	27.4				
1870-1879	14.2				
1860-1869	11.4				
1880-1889	23.6				
Married (Observation)	50.1				
Migrants	29.1				
Having children (Observation)	30.8				

[9] These categories were created binding some of the 12 labels from HISCLASS. Hence, HISCLASS Labels 1 (Higher Managers); Higher Professionals (2) and Lower Managers were comprised on Higher Classes; Lower Professionals and Clerical (4), Lower Clerical Sales (5) and Foremen (6) were put together in Sales and Clerical; Farmers (8) and Lower Skilled Farmers (10) were labelled as Farmers; Skilled workers (7) and Lower Skilled Workers (9) were comprised in Skilled Workers; whilst Unskilled Workers (11) and Unskilled Farm Workers (12) were labelled as Day Labourers.

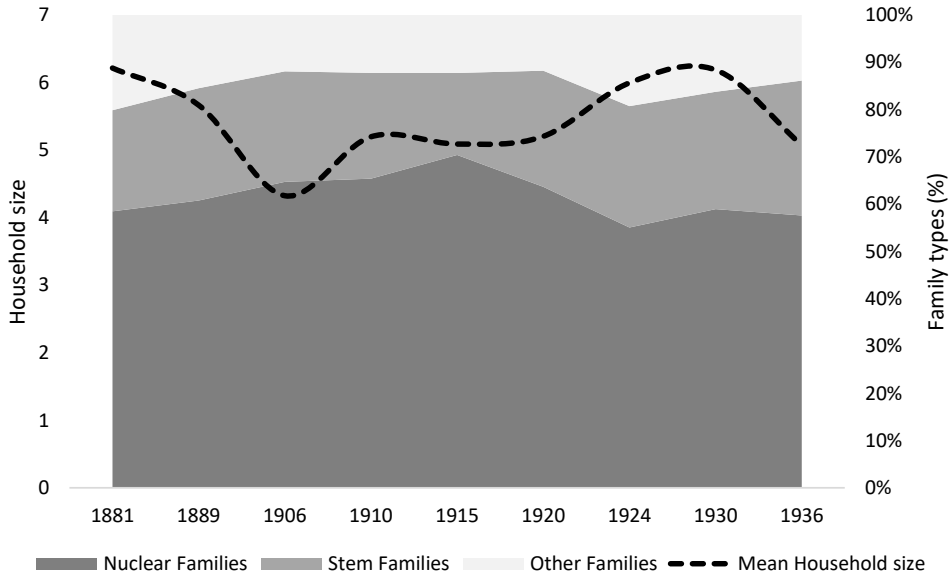
Figure 3 : Evolution of the family impact and the mean sibship size in Sant Feliu, 1881-1936



Authors' elaboration (Sant Feliu de Llobregat Longitudinal Demographic Database)

Note: The data does not correspond to continous information but to cross-sectional one from each different local census. The continous format in the graph has been chosen for a better visualisation

Figure 4: Mean household size and family type composition in *Sant Feliu* (1881-1936)



Authors' elaboration (Sant Feliu de Llobregat Longitudinal Demographic Database)

Note: The data does not correspond to continous information but to cross-sectional one from each different local census. The continous format in the graph has been chosen for a better visualisation

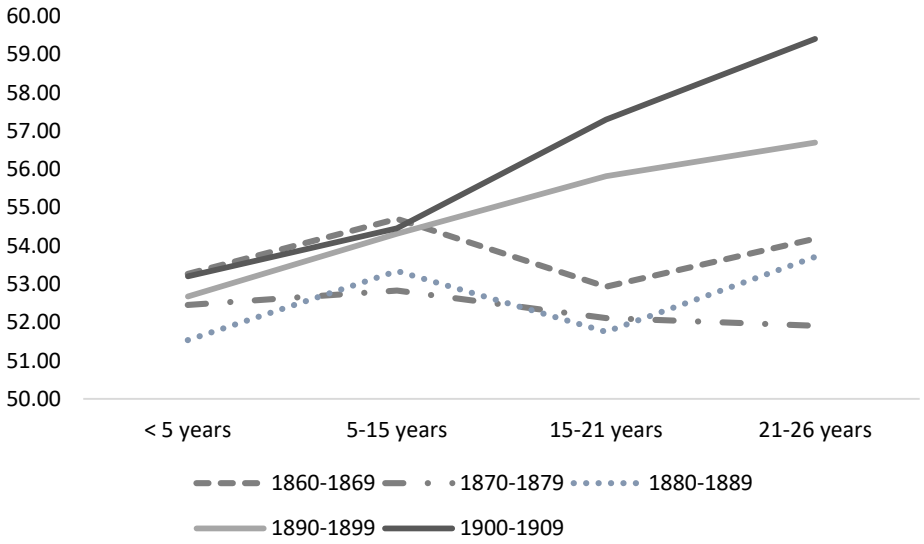
Table 2: Models 1-5 in individual career progression in *Sant Feliu* (1881-1940)

	Model 1	Model 2	Model 3	Model 4	Model 5
Fixed Part	β	β	β	β	β
Intercept	54.89***	33.28***	32.63***	29.86***	54.25
Background (father's occupation)		0.38***	0.37***	0.38***	
Sibling's Marriage Order					
1st born		1.20***	1.63***	2.16***	0.97
2nd born		1.92***	2.13***	2.23***	1.12***
3rd born		1.13***	1.38***	1.64***	0.6***
4th o + born (ref)					
Sibship size		-0.15***			
Married		1.35***	0.16	1.81***	
Having children		0.79***	0.11	0.81***	
Migrant		-0.13			
Experience in years					
27-35 years			3.74***		3.81***
21-26 years			2.36***		2.53***
15-21 years			2.01***		2.15***
5-15 years			1.51***		1.43***
less than 5 (ref)					
Birth Cohort					
1900-1909				2.25***	
1890-1899				1.80***	
1870-1879				-0.75	
1860-1869				0.52	
1880-1889 (ref)					
Father's Social Class					
Father Higher class					11.46***
Father Sales and Clerical					4.31***
Day Labourers					-4.67***
Farmers					-3.33***
Skilled workers (ref)					
Random Part	β	β	β	β	β
Within Variance	48.25	46.52	46.87	46.92	47.15
Between Variance	58.33	41.43	41.06	37.14	41.74
ICC	55%	47%	47%	44%	47%

Table 3: Models 6-8 in individual career progression in *Sant Feliu*, 1881-1940

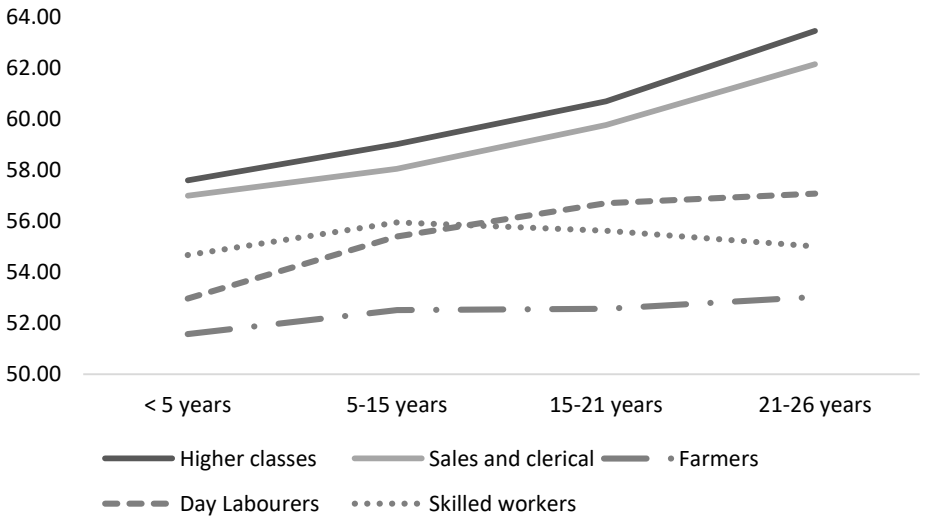
	Model 6	Model 7	Model 8
Fixed Part	β	β	β
Intercept	49.15***	52.70***	53.70***
Cohort x Birth order			
1900-09 * 1st born	3.84***		
1900-09*2nd born	4.26***		
1900-09*3rd born	3.56***		
1900-09*4th or +	2.84***		
1890-99*1st born	3.79***		
1890-99*2nd born	3.82***		
1890-99*3rd born	2.54***		
1890-99*4th or +	0.44		
1870-79*1st born	0.58		
1870-79*2nd born	-0.32		
1870-79*3rd born	-0.24		
1870-79*4th or +	2.90		
1860-69*1st born	3.50***		
1860-69*2nd born	-1.22*		
1860-69*3rd born	4.47		
1860-69*4th or +	-0.01**		
1880-89*1st born	2.00		
1880-89*2nd born	0.98***		
1880-89*3rd born	2.94		
1880-89*4th or +	ref		
Experience in years	0.13***	0.14***	0.14***
Father's Sector x birth order			
Father-Primary * 1st born		-1.78***	
Father-Primary * 2nd born		-1.02	
Father-Primary * 3rd born		-0.81	
Father-Primary * 4th born		-2.32***	
Father-Secondary * 1st born		4.26***	
Father-Secondary * 2nd born		4.20***	
Father-Secondary* 3rd born		3.05***	
Father-Secondary * 4th or +		2.84***	
Father-Tertiary * 1st born		8.70***	
Father-Tertiary * 2nd born		11.82***	
Father-Tertiary* 3rd born		10.29***	
Father-Tertiary * 4th or +		13.22***	
Father's Sector and sibship size			
Father-Primary* Sibship Size			-0.47***
Father-Secondary* Sibship Size			0.60***
Father-Tertiary* Sibship Size			2.26***
Cohorts			
1900-09		0.84	0.67
1890-99		1.38***	1.39***
1870-79		-0.52***	-0.77***
1860-69		0.86	0.17
1880-89		ref	ref

Figure 5: Average predicted status from the interaction between birth cohort and labour experience in years in *Sant Feliu*.



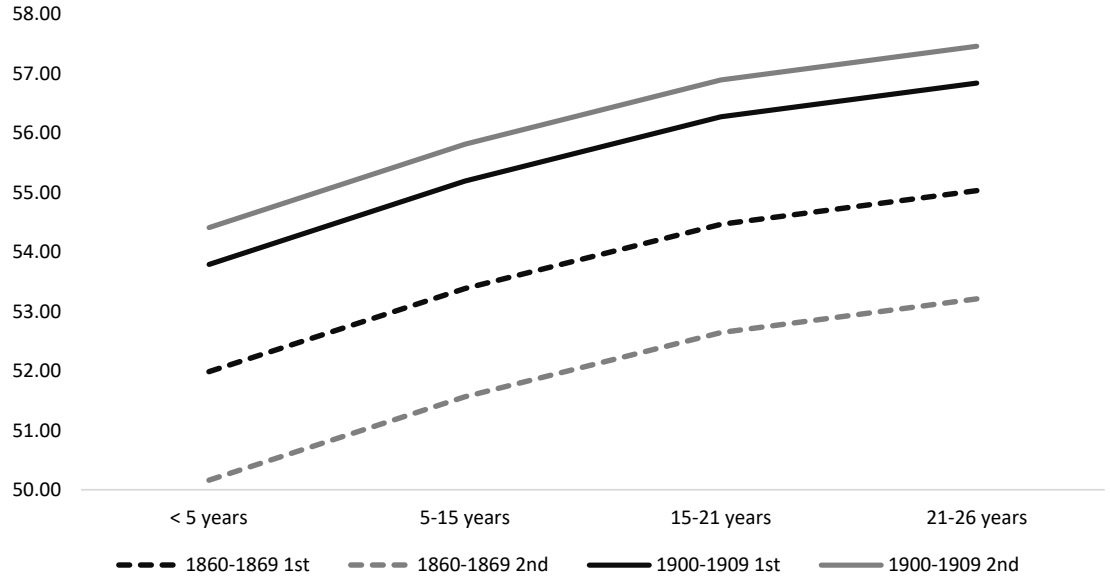
Authors' elaboration based on Model 4 through Stata's package Margins (Sant Feliu de Llobregat Longitudinal Demographic Database)

Figure 6: Average predicted status from the interaction between father's social class and labour experience in years in *Sant Feliu*.



Authors' elaboration based on Model 5 through Stata's package Margins (Sant Feliu de Llobregat Longitudinal Demographic Database)

Figure 7: Average predicted patterns or career progression for the 1860-1869 and 1900-1909 birth cohorts through the interaction of birth order and labour experience in years



Authors' elaboration based on Model 6 through Stata's package Margins (Sant Feliu de Llobregat Longitudinal Demographic Database)