Universitat Autònoma de Barcelona

Social reproduction and inequality in the Barcelona area, 15th -20th centuries

Gabriel Brea-Martínez

Doctoral dissertation

Social reproduction and inequality in the Barcelona area, 15th -20th centuries

Doctoral Candidate:

Gabriel Brea-Martínez

Supervisors:

Dr. Anna Cabré

Dr. Joana-Maria Pujadas-Mora

Doctoral programme in Demography

Departament de Geografia-Universitat Autònoma de Barcelona (UAB) and *Centre d'Estudis Demogràfics*

2018

INDEX

1 Introduction

1.1 Social reproduction and inequality

Social reproduction has sparked the interest of many researchers in different fields as history, sociology or economy among others (Bourdieu, 1973; Laslett and Brenner, 1989; Aschaffenburg and Maas, 1997; Bhattacharya, 2017). Although, nowadays there are important questions that still need to be answered as it will be set out in this dissertation. Traditionally, social reproduction has been analysed using a clear chronological distinction between preindustrial and industrial periods. In this sense, it has been argued that preindustrial periods showed high rates of social reproduction due to a remarkable intergenerational transmission of social status, implying also intragenerational social inmobility. These aspects were inherent features of the ordered societies of the Ancient Regime, opposed to industrial periods were social mobility increased importantly as the modernisation theory advocates (Featherman et al., 1975; Thernstrom, 2009; Blau and Duncan, 1969). However, recently studies devoted to the topic have found important levels of social mobility in preindustrial periods, arguing that the idea of social immobility responds more to a theoretical believe than to empirical findings (Boberg-Fazlic et al, 2011; Bearman and Deane, 1992; Dambruyne, 1998; Zofío Llorente, 2011).

From the nineteenth century onwards, industrialisation has been considered as a crucial turning point in terms of social reproduction. The *modernisation* theory and the *logic of industrialism* thesis presented the periods since the take-off of industrialisation as a synonym of the beginning in the increase on social mobility in both terms of *inter*- and intra- generational. The modernisation theory argues that economic and social change as in the occupational structure or educational expansion fostered a progressive turn from adscription into a career related to the family background to the individual achievement of socioeconomic position, propitiating an increase in meritocracy (Treiman, 1970; Blau and Duncan, 1969). Whilst the thesis on the logic of industrialism has presented the economic industrialisation and the extension of nuclear families as crucial on social status inheritance, becoming a common element among industrialised countries (Lipset and Zetterberg, 1956; Featherman et al., 1975).

However, in the last decades researchers have questioned this clear effect from industrialisation, nuancing the degrees of the social mobility growth and arguing the

continuation of important social barriers to mobility especially for the lowest social groups (Dribe et al., 2015; Knigge et al., 2014; Maas et al., 2011).

The levels of economic inequality have been seen as fundamental in processes of social mobility and social reproduction (Piketty, 1995). In this sense, societies with higher levels of economic inequality tend to have greater intergenerational persistence of advantage among wealthy individuals and less opportunities for the poorest on intragenerational terms, which by implication declines social mobility (Andrews and Leigh, 2009; Morgan et al., 2006). Nowadays, the long-term knowledge about the levels of economic inequality seems to indicate that disparity in the long run has a cyclical pattern, which could also influence social mobility trends (Milanovic, 2016; Álvarez Nogal and Prados de la Escosura, 2013).

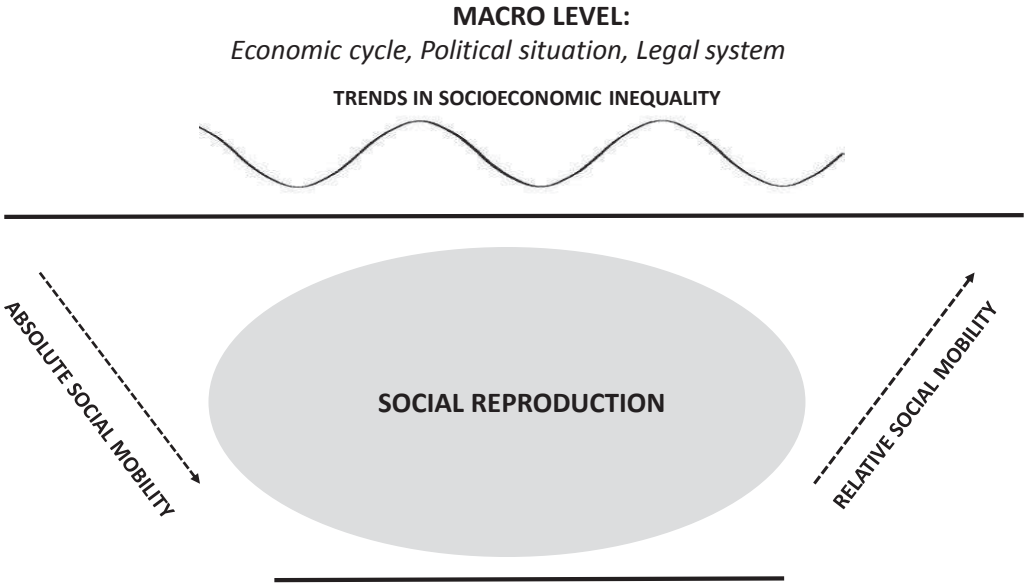
The term 'social reproduction' was firstly coined by Karl Marx in Volume 1 of Capital (1990 [1867]) as an analogy to biological reproduction. It referred mainly to the processes ensuring the continuation of given social structures and the legitimisation of the social relations of capitalism, which would reproduce over time on society the dominant modes of production. Marxists scholars, mainly those within feminist studies, stressed the concept as way of integrating social class and gender, in the sense that social reproduction would mean production of goods and production of 'life' (reproduction) integrated in only one process (Laslett and Brenner, 1989; Bhattacharya, 2017; Norton and Katz, 2016). However, this concept probably found one of the most complete definitions through Pierre Bourdieu who expanded social reproduction into the cultural and individual level (Nash, 1990).

In the framework of this thesis, social reproduction refers to a concept that embodies economic, institutional, legal, political and/or cultural mechanisms used by individuals, families or social groups for maintaining, improving and / or transmitting the acquired or inherited social positions or tangible and intangible assets (Bourdieu, 2013[1984]; Bourdieu, 1976; Bourdieu and Passeron, 1990; Breen and Jonsson, 2005). These mechanisms take part in societies with different legal and political systems, facing diverse economic cycles and historical periods, which may be summarised in that each society has constraints and opportunities from a determined context. Moreover, socially reproducing also involves the transmittance of cultural elements that influence individuals in shaping their behaviours and preferences, which is known as cultural capital and that

plays a major role in processes of class or group formation (Bourdieu, 2013[1984]; Kokca, 1984).

In this sense, the process of social reproduction depends on the interrelation between the actions of individuals, or groups of them as families, operating at the *micro level* and being influenced by the context embedded in the *macro level*. Such interrelation is schematised in the well-known Coleman's Diagram, which shows the effects that elements in the *macro-level* have in the *micro-level* and vice versa (Coleman, 1986). Accordingly, elements occurring within the *macro level* as the economic cycle, the political situation or the legal system act as inputs in the *micro level*, affecting directly individuals (See Figure 1). Individuals respond depending on their own characteristics and constraints as the demographic behaviour and the influence (as preferences or norms) of their families or social groups to which they belong, in order to ensure their social reproduction.

Figure 1: Coleman's diagram on the determinants of social reproduction



Source: Author's own elaboration based on Coleman (1986)

Social reproduction implies mechanisms (*micro level*) as responses to the context (*macro level*) for perpetuating over time (by generations or in the lifetime) all elements that allow maintaining a certain social position of a group of individuals or in the best of the cases facilitating its social promotion (Breen and Jonsson, 2005; Chacón, 1998). In this sense,

social reproduction embraces two aspects on status attainment, social transmission and/or preservation and social mobility or promotion. Both elements have been seen to be interdependent, whilst the first would entail continuity, the second would mean change, mainly across the lifetime (intragenerational) or between ascendants and descendants (intergenerational) (Prandy, 1998). However, intragenerational and intergenerational attainment of social status are mechanisms of social reproduction that may act also as sources of social inequality. In this sense, the social position that individuals or families have may foster or truncate the social reproduction of their descendants (Bordieu, 2013[1984]).

1.2 Determinants of social reproduction

Macro level

The determinants of social reproduction in the macro level may be understood as all the contextual elements surrounding societies at each historical period and influencing individuals through constraints or opportunities. Among these elements deriving from the context, the most important are usually: The economic cycles of growth or stagnation; the political situations that shapes the institutional functioning of each society; the legal system that regulates societal rules and customs influencing the behaviour and choices of individuals and families. Historically contextualising these different determinants on social reproduction implies a detailed work for different periods that in the long-term would mean an unmanageable amount of information to be followed in only one thesis. Thus, this dissertation shall focus on the most influential contextual determinants on social reproduction and over families, namely economic cycles and legal systems.

In this way, the straightforward way to evaluate economic cycles in the long-term with a clear and plausible comparativeness across periods involves observing two different elements. On the one hand, the evolving trends of overall economic inequality may serve as a thermometer of the economic circumstances in the long run (Milanovic, 2016). On the other hand, observing the patterns socioeconomic structure can inform about changes in the economic cycles and active role individuals had on it (Shaw-Taylor and Wrigley, 2014).

Furthermore, the legal determinant entailed historically one of the most important constraints on social reproduction among families, by means of inheritance systems that usually could create or not inequality within the family members (Berkner and Mendels,

1978). In this sense, some inheritance systems based on the principle of impartibility granted eldest children (primogeniture) or last-born children (ultimogeniture) with the privilege of being the single heir (Goody, 1973). These modalities of inheritance system would create by definition a structural unequal context within families and between siblings (Fertig, 2003).

Micro level

Among the main elements regarding social reproduction in the micro level there are the mechanisms of social status attainment on intergenerational and intragenerational types. The intergenerational mobility (or transmission) involves social status continuity or change between ascendants and descendants within a family. This relationship includes mechanisms sought by families to ensure and propitiate better-off positions to subsequent generations. For instance, parents passing on their same occupation to children or using their network of influence and resources for assisting positioning their offspring (Erikson et al., 1979; Breen, 2004). On the other hand, the intragenerational attainment or mobility refers to the extent to which individuals maintain or achieve better (or worst positions) in relation to their familial background or initial social status (e.g. first occupation) over their lives (Prandy and Bottero, 2000). This implicates the degrees of social progression or demotion on the individuals' trajectories (Schulz et al. 2015; Manzoni et al., 2014; Barone et al., 2011). However, the abovementioned mechanisms of social reproduction may generate different outcomes depending on the opportunities or constraints at both macro and micro levels. Consequently, it is possible to define the interactions macro-micro according to absolute and relative social mobility respectively.

1.3 Absolute mobility: Occupational structure and overall economic inequality

Absolute mobility refers to changes in terms of occupations or status involving almost all individuals in a given society, which may inform to what extent socioeconomic standards changes over time (Breen, 2004). Absolute social mobility is usually due to structural changes in the economy, which may increment or decrement the overall economic inequality rather than by actions played by individuals or families. Nevertheless, inequality can be also a product of determinants at the individual/family levels, as it will be introduced within the conceptualisation of relative mobility.

Absolute mobility and changes in the occupational structure

Absolute social mobility has been pointed out as increasing when important changes in the occupational structure and in the labour market existed, affecting individuals in a general way but not extensively modifying the social stratification (Lipset and Zetterberg, 1956). The emergence and disappearance of occupations lead to labour and social changes mainly by the reduction or extinction of some occupations and alterations in the share of economic sectors and subsectors (Simkus, 1984). Evolving trends in occupational structure have been traditionally associated with economic growth and its characteristics as trustable indicators of the degrees of economic development together with technical and technological changes (Moore, 1969; Boserup, 1981).

Traditionally, absolute mobility was argued as increasingly upward during industrialisation in Europe and the United States in the nineteenth century (Kerr et al., 1960). This view was based mainly in the idea that since the industrial revolution, a progressive transition from unskilled primary sector workers to technologically skilled secondary ones propitiated the economic modernisation (Kuznets, 1966). Accordingly, preindustrial periods would have had a constant occupational structure based on the primary sector predominance due to the lack of the needed combination of 'technology-economic growth' influencing labour market and economic sectors (Moore, 1969). Nevertheless, this view on the occupational structure transformation and upward absolute mobility received several critics. One the one hand, occupational changes during industrialisation also displayed unskilled job positions replacing skilled workers as for instance artisans in guilds, which also created downward mobility (Blau and Duncan, 1969; Hobsbawm, 1964; Grau and López, 1974). Moreover, empirical research done in preindustrial periods have shown that changes in the occupational structure through rising of the secondary sector took place in the seventeenth and eighteenth centuries in European countries as England and France, preceding the traditional take-off of the Industrial revolution (Broadberry et al., 2013; Grantham, 1993). Among the causes for these preindustrial changes in the occupational structure, there were technical improvements in agriculture and the incipient protoindustrial manufacturing activity in household economies that rose the share of productive occupations though by-employment (Mendels, 1972; Torras, 1998; Keibek and Shaw-Taylor, 2013).

Absolute mobility and overall trends in economic inequality

In the same way as with the occupational structure, the general levels of economic inequality at each period may shape importantly the levels and direction of the absolute social mobility at each society. The levels of economic inequality have been historically identified with cycles of economic growth; a relation originally coined in the seminal work from the economist Simon Kuznets (1955) "Economic growth and income inequality. Kuznets argued that at the beginning of a cycle of economic development, first inequality would increase and then decrease once such cycle would be consolidated.

Although inequality might be a process emerging within economic progress, the persistence and increase on levels of inequality over time are likely to be detrimental to the economic development (Aghion and Williamson, 1998). In particular, the effects of economic inequality enable the interruption of general trends towards prosperity and exacerbate poverty among individuals, because as higher the economic concentration, worst are the mechanisms of distribution of income, goods and welfare. (Williamson, 1991; Acemoglu and Robinson, 2000). The effects of an increasing level of economic inequality would also be extended to inequalities at the political and social level, which can derive on social instability and social conflicts (Acemoglu et al., 2015; Scheve and Stasvage, 2009).

Thus, the degrees of economic inequality may act as a simple and useful tool for evaluating the existence of constraints in the *macro level* may affect individuals and families in the *micro level* (Van de Werfhorst and Salverda, 2012). In this way, the levels of social and economic inequality in the macro level may also jeopardise the individual's social reproduction and enforce the transmission of disparity across generations or the lifetime, hampering the intergenerational transmission or individual achievement of tangible and intangible assets (Van Leeuwen, 2009; Andrews and Leigh, 2009).

The way inequality is estimated also implies the used sources for it. During historical periods, tax data are the most common way to estimate economic inequality, although is also one of the most problematic. When data from taxes allow the assessment of wealth-share in a given place, it may also lead to a selection-effect process, excluding an important part of the population. For example, the lower classes, a group not often owning properties; or the nobility, traditionally exempted from tax-compliance (Alfani & Rychbosch, 2016).

Furthermore, in cases where income taxation is taken into consideration, the source's representativeness may be limited, due to tax fraud and tax evasion, or simply because tax progressivity only started to be a reality in the second half of the twentieth century (Prados de la Escosura, 2008). Regarding the latter aspect, looking for progressivity may be an appropriate step before estimating inequality in order to avoid misleading estimations. Accordingly, subjects devoted to taxation as tax law handle a useful concept in this regard, the ability-to-pay principle of taxation. This principle can be defined as distributing fiscal burden among individuals according to their capacity to bear it (Kendrick, 1939). Moreover, this implies all the personal characteristics and elements shaping the individual's economic capacity, in other words the ability-to-pay principle of taxation is appropriately impartial (Musgrave and Musgrave, 1989). As a matter of fact, estimating inequality in historical periods through a perspective of ability-to-pay involves thus not only income or wealth taxation but also other plausible indicators of socioeconomic status as human capital.

The analysis of economic inequality has been largely influenced by the view of the industrialisation as a tipping point in socioeconomic disparity. This influence is partly due to the abovementioned seminal work from Kuznets (1955), which was based on the effect industrialisation had on inequality. In this sense, Kuznets theorised that in the early phases of the industrialisation, the investment opportunities for those with more resources would multiply, while the effects from rural exodus, sending cheap rural labor to the cities automatically decreased wages. Conversely, in societies approaching the industrial consolidation, elements as the educational expansion and professionalization would lead to a greater human capital accumulation, which by means of increasing the labour price would also slow inequality. According to the *Kuznetian* theory, all this process in the long-term would lead to an inverse "U" shaped pattern of economic inequality in most part of the European countries facing industrialisation. Hence, inequality would have been relatively low in preindustrial societies, then increasing during the early stages of industrialisation and finally decreasing later on, thanks to the expansion of economic modernisation across sectors and social groups.

Nevertheless, this classical view influencing great part of historians and economists during decades has been changing. On the one hand, great part of its criticism in contemporary periods argues that when Kuznets presented his economic model at the end of the 50's. In most part of the developed countries, the economic inequality was receding

thanks to the renewed socioeconomic situation after the Second World War (Piketty, 2014). On the other hand, the study of economic inequality was classically devoted to contemporary periods. The lack of knowledge about the economic disparity in historical periods was partly due to difficulties in accessing primary sources with data for estimating inequality, which implied high time-consuming tasks.

Fortunately, over recent decades, a flourishing literature started changing this view. Research on preindustrial periods have demonstrated that economic inequality persisted as an important issue since ancient civilisations (Scheidel and Friesen, 2009). Studies in the preindustrial Europe have been also assisting on finding determinants of economic inequality. For instance, the disparity growth was related with processes of urbanisation, while mortality crises as the plague or conflicts as wars would serve to decrease inequality (Alfani and Ryckbosch, 2015; Alfani 2010). Moreover, the classical view about the importance of industrialisation on inequality has also been changing. Accordingly, inequality would indeed have been increasing during the early phases of industrialisation; however, its roots were previous, as for instance in the starting point of the so called Kuznets curve, which in some European societies as the Netherlands would be traced back to the sixteenth centuries (Van Zanden, 1995, Alfani, 2010).

1.4 Relative mobility: Inequality at the individual level and familial and demographic determinants

Relative mobility embodies changes in social class, status or occupations that may diverge among individuals and that are partly caused by inherent characteristics and mechanisms used by individuals. These different social 'mobilities' among individuals may take the form of horizontal mobility or vertical one (Grusky and Hauser, 1984). While the former encompasses mobility within similar social statuses, the latter entails upward or downward mobility. For instance, different degrees of relative (vertical) mobility would result in that some individuals would face more upward or downward mobility than other individuals when compared to their social background, which are the parent's statuses (Bourdieu et al., 2009; Ganzeboom et al., 1989). Moreover, across the lifetime, the progressive economic and occupational transformations within the labour market would have also permitted individuals to achieve better labour careers, although marking divergent outcomes among individuals (Treiman, 1970).

Relative mobility and inequality at the individual level

The success or not in social reproduction is related to the direction taken by social mobility (equal or ascending / descending) of an individual during his/her life and/or in relation to their family or social group background (Berkner, 1972; Barrera González, 1992). In this way, social reproduction involves social/economic inequalities in the sense that disadvantaged members of society maintain a situation of disadvantage whilst advantaged individuals are those who reproduce successfully better-off positions and upward social motility (Erola and Kilpi-Jakonen, 2017). These differences among individuals creating inequalities may appear in diverse dimensions as between socioeconomic groups as well as within families because the elements favouring disparity may be from different orders as socioeconomic, legal, demographic or cultural (Breen and Jonsson, 2005). Thus, disadvantage may arise from different constraints as occupational or social positions, educational or skills levels, the predominant inheritance system in each society, the family size, the birth position or the gender (Andrews and Leigh, 2009; Breen and Jonsson, 2005; Jonsson et al., 2009; Laslett and Brenner, 1989).

Social reproduction can be equated to a meaning of inequality of opportunities (Breen and Jonsson, 2005; Lucas, 2001). Consequently, achieving social reproduction over time as in across generations is also about reproducing inequality, because while some groups of individuals will succeed others will not, which reinforces the social stratification (Bottero, 2004). Therefore, both social stratification and inequality are interdependent given that the differences in the distribution of wealth across social groups influences also social and economic inequality.

In this sense, individuals in preindustrial and early industrial societies inherited fundamentally two aspects: Wealth or income in one side and a social marker differing individuals from others (social position). Attaining a better-off position, as for example an occupation of high status, would be easier for children from families with high social status than for children from low status families. This would occur not only because of divergent resources but also because high status families detain better networks, better stereotype and any other issue related to social marker (Chantarat and Barrett, 2008). As matter of fact, the different degrees of opportunities among individuals and families contribute to the economic disparity growth, because inequality tends to be reproduced (McLanahan and Percheski, 2008). This induces a cyclical process due to if the economic inequality increases the social stratification also become more marked (Mogues and

Carter, 2005). Hence, it can be argued that general levels of economic inequality in the *macro level* are partly caused by the sum of multiple inequalities at the micro level among families and individuals.

Relative mobility and the demographical and familial determinants

The extent to which relative mobility affects individuals and generates social inequalities depends also on other interactions in the macro-micro level as those affecting on demographic and familial terms. In this sense, although the demographic behaviour outcomes may diverge at each family or by socioeconomic groups (Clark and Hamilton, 2006); the general patterns of fertility, mortality and nuptiality have historically affected importantly the families' composition and size in the light of different socioeconomic constraints (Chesnais, 1992; Caldwell, 1982). Additionally, cultural, institutional and legal aspects at each society also influenced dynamics of relative social mobility within families, creating important differences between its members as in the case of siblings through birth orders or, most unequally, by gender (Laslett and Brenner, 1989).

Among the different demographic determinants on relative social mobility, fertility is the one with higher impact given its trends may influence directly the families' capacity for operationalising social reproduction (Berent, 1952; Sobel, 1985). In this regard, during the preindustrial periods, fertility was closely related to oscillations in economic cycles, alternating in phases of fertility decline and expansion (Galloway, 1988; Van de Welle, 1985; Bengtsson et al., 2014). However, despite its fluctuations and besides important levels of mortality, larger adult offspring as result of successful reproductive patterns was common among high status families, which points out high fertility as positive determinant of relative social mobility in preindustrial societies (Boberg-Fazlic et al., 2011; Clark and Hamilton, 2006; Clark, 2014).

On the other hand, fertility levels had a diametrically opposed sense during industrialisation. The demographic transition, which was concomitant with the early stages of industrialisation, induced the decrease in mortality levels and consequently the weakening of the classical weighting factor of high fertility levels (Galor, 2005). As a result, families with a larger number of siblings show less upward mobility among their offspring due to a greater burden on allocation of parental resources, which is known under the *resource dilution theory* (Van Bavel et al., 2011; Öberg, 2015; Downey, 1995).

Conversely, when families declined their own fertility levels, the consequence would be the opportunity to assign more resources to their children, which together with the educational expansion and emergence of new occupations within industrialisation, multiplied the chances of relative social mobility, albeit not equally in all socioeconomic groups.

Resource dilution would be therefore the result of greater sibship size. However, several authors did not find any effect of sibship size in adult life in historical populations, the life-stages when better the degrees of relative social mobility are evaluated (Wall, 1996). This would have happened because in historical household economies, families of greater sibship size would have incentivise converting children into producers contributing to the family budget (Bras et al., 2010).

Furthermore, the existence of different legal systems surrounding familial dynamics, as in the case of inheritance, also influenced the dynamics and inequalities on social mobility within the familial level (Berkner, 1972). This would be exactly the case of the universal inheritance system in historical periods of Catalonia, which by means of granting eldest children (usually sons) could have created unequal conditions among siblings. In this way, this situation could multiply single-heir advantage by focusing on the heir most of the familial resources, generating rivalry between siblings, which is known under the hypothesis of the "sibling competition model" that has been approached in fields of human evolutionary studies as a set of conflictive behaviours between siblings in low-resource family contexts.

Alternatively, families could also opt for using compensatory approaches with regard to non-inheritors in order to ensure social reproduction (Erola and Kilpi-Jakonen, 2017). In this regard, non-inheritor siblings could be compensated for their initially unfavourable birth order with social mobility strategies, as finding an economic activity to complement the one carried out in the parental home or emigrating in search of new opportunities (Ferrer, 2005; Korosu, 1996). These strategies can be understood as part of the *cooperative breeding* framework, a concept taken from biology and evolutionary studies to explain the influence on offspring of *helpers* that are neither fathers nor mothers and can be kin or non-kin. Accordingly, families would try to maximise the opportunities of all siblings, which includes an altruistic perspective involving not only parental tangible and intangible endowments but also the participation of other kin (Kurzban et al., 2015), as could be the case of the single-heir contributing towards the social positioning of

siblings. Thus, within families intergenerational and intragenerational strategies of cooperation could determine the fate of all siblings.

1.5 Objectives and thesis structure

This thesis has a twofold aim in order to shed light on the mechanisms of social reproduction and social mobility and the estimation of socioeconomic inequality trends and the occupational structure in the long run, from the late fifteenth century to the mid-twentieth century in the specific area of the Barcelona area. This geographical space, which conglomerated the most populated area of Catalonia during all the period under study, counts with data from two unique databases. The main used data comes from the *Barcelona Historical Marriage Database* constructed within the project Five Centuries of Marriages (PI A. Cabré) with the information contained in the *Llibres d'Esposalles* (Marriage Licence Books) from the Diocese of Barcelona. This source registered fiscal, nominative, and socioeconomic information of all marriages celebrated in the Diocese from the mid fifteenth century until the beginning of the twentieth century.

Additionally, the *Sant Feliu de Llobregat Longitudinal Demographic Database*, one of the few longitudinal databases in Spain is used. This particular database makes part of a greater ongoing database called the *Baix Llobregat (BALL) Demographic Database*, built within the project 'Tools and procedures for the large-scale digitization of historical sources of population' (PI JM. Pujadas-Mora and A. Fornés), gathering population information from the Baix Llobregat, a zone in the south of the Barcelona area. The used database has been constructed using the Local Censuses (*Padrones*) from the town of Sant Feliu de Llobregat during the nineteenth and twentieth centuries, providing us with nominal and socioeconomic data for studying intragenerational social mobility during the entire industrialisation process.

The mechanisms of social reproduction are easily evaluated when done over time, as across the lifetime of an individual or comparing if the mechanisms of social reproduction were effective over generations (Jonsson et al., 2009; Laslett and Brenner, 1989). Additionally, identifying trends in socioeconomic inequality are better observed in the long-term than only picking some observations. Thus, taking into account all the previously mentioned elements and keeping the Coleman's conceptual distinction

between *macro* and *micro* level without losing their interdependence, specific objectives shall be distinguished between *macro* and *micro* levels.

1- How was the occupational structure of the Barcelona area? How it evolved historically from the late fifteenth century to the final decades of the nineteenth century? Which were the main determinants of occupational transformation? How they interacted with changes within economic cycles?
2- How socioeconomically unequal was the Barcelona area in the long-term? Was the preindustrial era less unequal than the periods after the take-off of industrialisation? Which were historically the determinants of different levels of inequality and how it could affect or be influenced in the *micro* level?

Concerning the *micro level*, in the evaluation of mechanisms of social reproduction, as previously mentioned, we may differentiate between two main dimensions for observing social mobility, the intergenerational (between generations) and the intragenerational (across the life time). However, although these dimensions are usually studied separately, both intergenerational and intragenerational social mobility are interdependent. In this sense, we can delineate questions on the four main processes involved in social reproduction (Prandy and Bottero, 2000):

1- What was the influence of the social position of parents and/or siblings on the social position of individuals at the initial stages of the life cycle?
2- To what extent the social position of an individual was related to the social position of his/her spouse or their parents-in-law (homogamy and assortative mating)?
3- What was the degree of progression (demotion) on the individual's labour career when related to his/her occupational starting point? Secondly, what was the influence of the familial social background?
4- Finally, apart from all the socioeconomic *macro level* effects operating independently to the three earlier processes on the individual's position (economic cycles through occupational structure or economic inequality). Which other elements intervened and influenced the process of social reproduction? What was the role of different demographic aspects as the family size, the birth position or the gender in social mobility? How could the legal system through inheritance practices shape the social outcome of individuals?

Thesis structure

According to the abovementioned aims, the thesis is developed into two blocks:

The first block approaches the analysis regarding the *macro level* questions. In this way, first the long-term socioeconomic inequality in the area of Barcelona in the period comprising from the fifteenth to the nineteenth centuries is estimated, followed by a specific descriptive analysis for reconstructing the occupational structure in the eighteenth and nineteenth centuries, both aspects corresponding to two publications. The first publication entitled "Estimating long-term socioeconomic inequality in southern Europe: The Barcelona area, 1481–1880" reconstruct the trends in socioeconomic inequality from the end of the fifteenth century, in the midst of the preindustrial era, until the end of the nineteenth century along the expansion of the industrialisation. The inequality trends are reconstructed through a sample of population with comparable ages (marriage age) and following an approach to human capital as baseline for computing inequality indexes. Moreover, the second publication "*Transformación y desigualdad económica en la industrialización en el área de Barcelona*, *1715-1860*" [Transformation and economic inequality during the industrialisation in the Barcelona area]. This publication conducts an analysis of the occupational structure and economic inequality during the industrialisation take-off and expansion, evaluating the influence that the appearance and disappearance of different occupational titles had over inequality trends.

In the second block, an analysis on the mechanisms of social reproduction is done through the assessment of both intergenerational and intragenerational social mobility with two other publications. In this sense, the third article "The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries" analyses the intergenerational transmission of social status during the preindustrial era. We target the two main social groups at the time in the Barcelona area on the studied period, artisans and farmers, taking into considerations constraints in the *macro level* as the 'universal inheritance system' and asking whether it would create different mechanisms of social reproduction depending on social group, gender and marriage order. Conversely, the fourth article entitled "Windows of opportunity for status attainment in Southern Europe: Family impact and industrialization on the individual career in Catalonia (nineteenth and twentieth centuries)" focuses on the entire process of the industrialisation expansion and consolidation. In this article, we reconstruct the labour trajectories of five different

cohorts, born between the second half of the nineteenth century and first half of the twentieth century in the industrial town of Sant Feliu de LLobregat, linking their intragenerational social outcomes with the influence of the familial social background. We seek if industrialisation meant a decrease in the familial influence over occupational choice of individuals as well as if career progression with labour experience increased over time, as more industrial the society became. However, we also evaluate if there were different outcomes between social groups for evaluating if the social barriers to social mobility were broken or not.

1.6 Summary of publications

1- *Brea-Martínez, G., & Pujadas-Mora, J. M. (2018). Estimating long-term socioeconomic inequality in southern Europe: The Barcelona area, 1481–1880. European Review of Economic History.* https://doi.org/10.1093/ereh/hey017

This publication estimates the long-term patterns of socioeconomic inequality in the Barcelona area during the period 1481–1880. For doing so, the study uses data recorded in the Marriage Licence Books from the Diocese of Barcelona and included in the Barcelona Historical Marriage Database. These books registered all the marriages held within all the Parishes in the Diocese. Moreover, the source also represents a unique fiscal source levying every marriage according to a socioeconomic category that ranged society from nobility, the highest level of payment, to impoverished active individuals, which albeit declaring an occupation were exempted from taxation. The individual level taxes included in the source together with the social status information of each groom has allowed setting fiscal progressivity in historical periods, when it is barely achievable (Prados de la Escosura, 2008). The fiscal progressivity has been achieved through the use of the *ability-to-pay* principle of taxation, which adapted to ancient societies embodied individual paid taxes and an approach to human capital (Kendrick, 1939; Álvarez and Ramos Palencia, 2016).

The results show that the trends in overall inequality among individuals, computed through Gini indexes, were higher in preindustrial periods, which grants more argument to the important levels of inequality prior to the industrialisation period (Alfani and Ammannati, 2017; Van Zanden, 1995). Nevertheless, a closer look to the contribution of the inherent tax exemptions in the source reveals that increasing trends of inequality during the industrialisation process propitiated the emergence of a new working-class that reinforced the socioeconomic disparity due to the effects of proletarianization. Finally, by using methods for inequality decomposition (Theil indexes), this study has been able to disentangle the social and occupational determinants driving unequal structures either in preindustrial and industrial periods. In preindustrial periods, inequality responded to the classical ordered structure from the ancient regime. On the other hand, inequality during the industrialisation had a clear unequal dichotomy between skilled and unskilled occupations, where liberal professionals and other high-skilled individuals held the higher part of the concentration whilst impoverished workers and day labourers were in the bottom part of the distribution.

2- *Brea-Martínez, G., & Pujadas-Mora, J. M. (2018). Transformación y desigualdad económica en la industrialización en el área de Barcelona, 1715-1860. Revista de Historia Economica-Journal of Iberian and Latin American Economic History, 36(2), 241-273.*

The transformations in the labour market and the inequality levels were fundamental aspects in transitional periods towards industrialisation. This publication reconstructs the economic structure of the Barcelona area across the eighteenth and the nineteenth century through the data from the Marriage Licence Books of the Diocese of Barcelona. These documents registered a proportional tax paid by the spouses' according to their occupational and social status. Moreover, the occupational information within the source made possible a long-term and continuous reconstruction of the occupational structure in the first area of industrialisation in Spain (Nadal, 1975).

The results displayed in the study account for an important decrease in the primary sector, which came together with the growing predominance of the secondary sector since the 1780's. This transformation is explained the major role from the textile activities that progressively shifted from an equilibria between garment tailoring and manufacturing of textile fabrics to the almost exclusive presence of the latter in the second half of the nineteenth century. The transformation in the occupational structure points out to an early beginning of the industrialisation process in Catalonia, preceding in almost half century the traditional calendar of the industrial take-off (Martínez-Galarraga and Prat, 2016).

Additionally, all these elements influenced in shaping the levels in disparity across the nineteenth century. In this sense, the general levels of inequality augmented driven by the increasing presence of day labourers and impoverished workers within the factory-system due to proletarianisation. This process was also featured by an increasing inequality within the secondary sector (textile). Conversely, disparity levelled-off in the primary sector and decreased in the tertiary sector induced by professionalisation.

3- *Pujadas-Mora, J. M., Brea-Martínez, G., Jordà Sánchez, J. P., & Cabré, A. (2018). The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries. The History of the Family, 1-35.*

This publication sheds light on the intergenerational status attainment of preindustrial societies in the Barcelona area during the sixteenth and seventeenth centuries. For doing so, this paper evaluates the characteristics of intergenerational transmission of social and occupational status from parents to sons and daughters throughout all the existing social groups during the period in the Barcelona area. On the other hand, this article also individuates strategies of social reproduction among siblings within families of farmers and artisans in the light of the universal inheritance system. This particular inheritance system in Catalonia granted eldest sons with the privilege of being the only heir, which by definition created unequal opportunities among siblings (Ferrer, 2005; To, 1993).

The data source used are the Marriage Licence Books from the Barcelona Diocese compiled in the Barcelona Historical Marriage Database, which for the sixteenth and seventeenth centuries provides a rich and continuous demographic and socioeconomic information. Moreover, a procedure of record linkage has been used for reconstructing genealogies and reconstituting 1,272 families in order to establish the analytical framework for siblings using the multilevel regression analysis.

The main findings point out the important family impact on the social fate of children, with levels of 66% for males and 54% for females. The reasons behind it were higher patterns of occupation inheritance of sons while daughters were used in marital strategies looking for upward mobility. Moreover, first-married children were the maximal inheritors of parental statuses in all social groups, granting evidences that first married used to be the firstborn and consequently the single heirs.

Among farmers and artisans, the patterns of intergenerational status transmission were important although with different features, with the former being more linked to ascription than the latter. However, among siblings non-first married brothers and daughters tended to have different outcomes between farmers and artisans, due to different strategies used within the sibling's unequal structure deriving from the inheritance system. In this sense, farmers were found to be the group with the highest intergenerational occupational inheritance, although non-heir also used to perform

between-class social mobility mainly in artisan careers. Conversely, artisans' children inherit less the same parental occupation, but their mobility was always within the artisan class boundaries.

These divergent strategies used on non first- married children of farmers and artisans occurred when families were not able to transmit the same parental occupation. Thus, both social classes preferred to address their offspring in artisans' careers, thanks to a favourable context of a flourishing manufacturing industry in the countryside as an opportunity of diversifying the families' economy (Torras, 1998).

4- *Pujadas-Mora, J. M., Brea-Martínez, G., Valls-Fígols, M. & Cabré, A. (2018).* Windows of opportunity for status attainment in Southern Europe: Family impact and industrialization on the individual career in Catalonia (nineteenth and twentieth centuries). *Papers de demografia.*

The role of the family in both individual social status attainment and labour careers during industrialisation was questioned by the Modernization theory (Blau and Duncan, 1969). Accordingly, familial nuclearization was argued to be one of the causes (Featherman et al., 1975). However, little has been said on this topic regarding societies in which stem or joint families were important as in the case of Southern Europe (Reher, 2004).

This article studies the industrialisation effects on the familial influence for the individuals' social destinations and labour career progressions on cohorts born between 1860 and 1909 in Catalonia in an area of early industrialisation and fertility decline, through the Sant Feliu de Llobregat Longitudinal Demographic Database, one the few historical longitudinal databases in Spain.

The results show that family influence on occupational attainment decreased during the industrialisation in Catalonia, albeit did not vanish totally. Moreover, this loss of familial influence was concomitant with the fertility decline (Cabré, 1989), entailing an interdependent relationship between the effects of industrialisation and shrinking number of offspring (Bras et al., 2010). Additionally, in contrast to societies with a prevalence of nuclear families, Catalonia faced changes in family influence and fertility decline without losing the strong presence of stem families.

Over time, the youngest cohorts facing industrialisation's consolidation attained higher levels of occupational status, while the oldest cohorts within the initial stages of industrialisation achieved less career progression and faced social immobility, which is explained by the proletarianization effect. Nevertheless, this general enhancement over time did not break the social stratification caused by social background, which demonstrates that inequality in accessing opportunities is linked to the capacity to generate progress or demotion within societies.

2. Sources and methodology

2.1 Sources

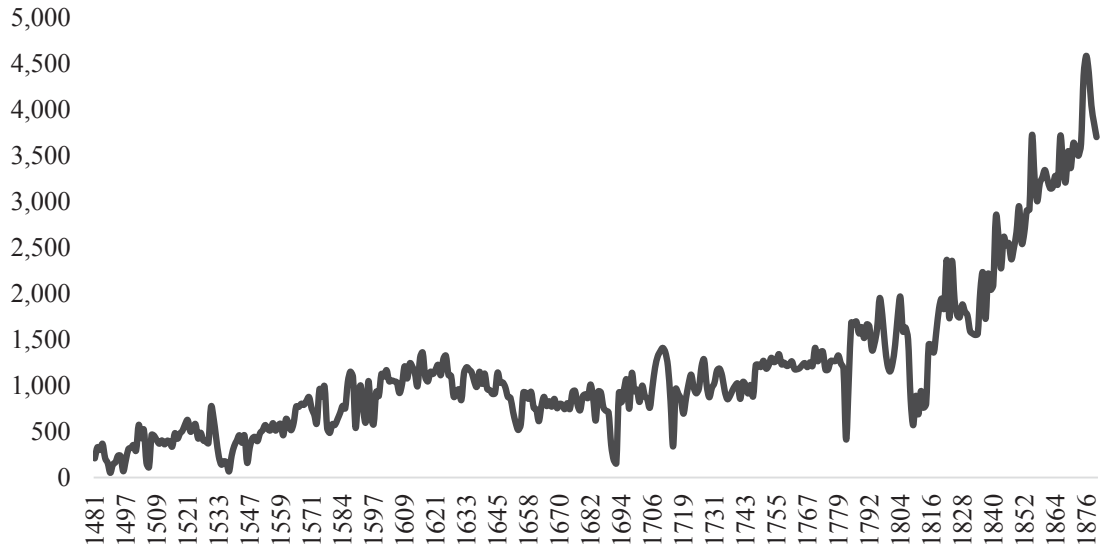
The analysis of social reproduction mechanisms within intergenerational and intragenerational social mobility as well as the estimation of socioeconomic inequality trends require an important amount of various information at individual level. In this way, this kind of study needs reliable data on families (nominal and kinship data), on socioeconomic information (occupations and social position) and economic quantitative data on individuals (tax data), which are information hardly accessible in historical periods and even less in the long-term. However, the zone comprised within Barcelona and its broad hinterland, the so called Barcelona area counts with two sources that allow the assessment of the kind of data needed in this analysis, the Marriage Licence Books and the Local Censuses.

The Marriage License Books (1451 – 1905)

The Marriage Licence Books are the source used in three of the four publications of this thesis. Its origins date back to 1409, when Pope Benedict XIII (Pedro Martínez de Luna, 1328 – 1432), visited Barcelona and granted the new Cathedral with the power to impose a tax to be levied on every marriage occurring in the Diocese for defraying the costs related to the construction and preservation of the Cathedral (Carreras i Candi, 1914). This tax was operative between 1451 and 1905, the Marriage License Books were a centralised register that recorded all marriages, and the fees charged according to the groom's social status. Church members usually recorded the information in the books, and across its history, Catalan was main used language until 1860, when was substituted by Spanish from then onwards. This unique source has been conserved in the Barcelona Cathedral archives (*Taula de la Catedral de Barcelona*) and consists of 291 books with information on approximately 610,000 marriages held in 250 parishes, ranging from the Barcelona city centre to the most rural villages in the periphery of the Diocese. Moreover, the frequency of marriages registered in the source reflects the constant demographic growth in the territories within the Diocese (Nadal and Giralt, 1960) (See Figure 1).

The source's impeccable conservation for over four and a half centuries[1] is unique in a region where parish archives have suffered massive destruction in several periods of upheaval, mainly during the last two hundred years, and its nominal information represented an enormous potentiality for studying the demographic behaviour of populations though nominal data (Cabré and Pujadas-Mora, 2011). However, the massive amount of data recorded in the source's complete series signified a major challenge for the traditional procedures used in the construction of historical databases. In this way, the Marriage Licence Books were used then to build the Barcelona Historical Marriage Database, one of the main focuses of the ERC Advanced Grant Project Five Centuries of Marriages (2011-2016) (P.I. Anna Cabré), which was funded by the European Research Council (FP7-ERC-2010-AdG-269796). The project signified an innovative joint venture of interdisciplinary research within digital humanities merging computer sciences and modern tools for digitisation and data-entry, which involved up to almost 150 transcribers at phases of data collection. The Five Centuries of Marriages (5CofM) team included on its coordination and design researchers from the Universitat Autònoma de Barcelona, the Centre for Demographic Studies (CED), and the Computer Vision Center (CVC).

Figure 1: Yearly frequency of marriages recorded in the Marriage Licence Books



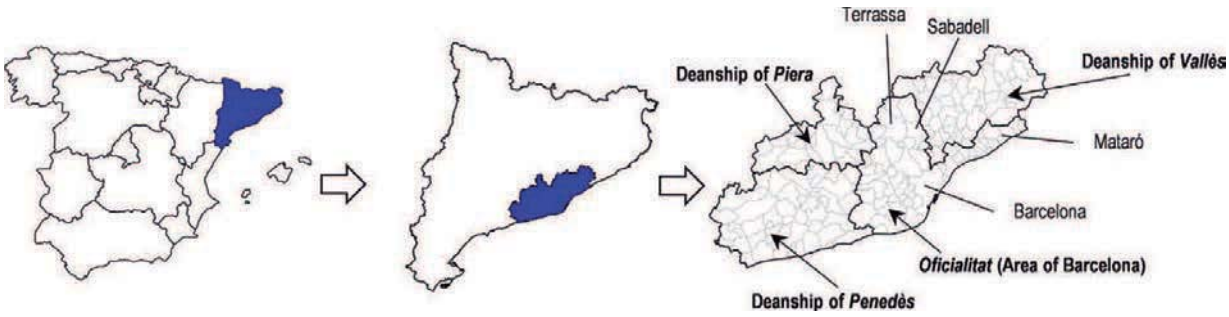
Source: Own elaboration (BHMD)

[1] The continuous information recorded in the Marriage Licence Books has few interruption throughout ist history, which are precisely the periods compring 1456-1480; 1488-1490;1496, 1538,1546, 1564. 1782-1783.

Among the information contained in the Marriage Licence Books, there are extensive records on different nominal data. The source recorded the first names and the grooms' family names (one family name until 1876 and two family names thereafter), the names of brides (who were included in the licences after 1485) and their marital status (mostly for brides and widowed grooms). Unfortunately, Brides' surnames were not registered until 1643 because women had to be bound by name to their fathers (single brides) or their previous husband (widowed brides). Moreover, there are also nominative data on parents as names and information whether fathers and mothers were alive or dead. Data on parents were extensively registered except for the period from 1643 to 1750, because the quality of the licenses declined during this period.

Another remarkable strength in the Marriage Licence Books is its large territorial coverage of around 250 parishes in 1900. The Barcelona Diocese was divided into four main deanships: *Piera*, *Vallès*, *Penedès* and the *Oficialitat* of Barcelona, which is what we refer to as the Barcelona area. This Barcelona area represents a wide variety of locations, ranging from the most rural parishes through to the main towns of the period, for example Barcelona, Terrassa, Mataró and Sabadell. The *Oficialitat* deanship, or Barcelona area, accounted for 90% (556,318) of total marriages registered in the source, and is the one with better continuity and data quality through the almost five centuries of the source's existence. Moreover, the *Oficialitat* was located in the most populated area of Catalonia, and remains so today (See map 1). In the source, geographical locations were systematically recorded from 1715 onwards in the parish where marriage was held.

Map 1: Territorial Coverage of the Marriage Licence Books



Source: 5CofM elaboration (BHMD)

In the source's fiscal information, the amount of tax to be paid by a couple depended on social status or the occupation recorded throughout the period, the social status or occupation was always recorded for grooms and rarely for brides. Moreover, this

information for their parents can be found for the period 1560–1663. The socioeconomic differentiation of taxes reflected the entire social structure, from the nobility (with the highest amount)[2] until to those who were declared poor and thus exempted from the marriage tax. From 1451 to 1575, the taxes were not strictly classified in accordance with the groom's socioeconomic status, and presented greater variation in the values paid. However, from 1575 until 1649, they were fixed in a seven-tier scale:

- 1) Nobility
- 2) Military Citizens (like knights)
- 3) Honoured Citizens (those who could hold public office),
- 4) Merchants, Lawyers, Physicians
- 5) Guild Masters,
- 6) Farmers and small artisans
- 7) The poor.

The last level referring to poor represented a tax exemption for those unable to pay the fee and who therefore received their marriage licenses thanks to God's love (*Amore Dei* or *Gratia Deo*), even though most members of this group declared some kind of occupation, which may be considered as a valuable information on contextually impoverished workers. From 1649 to 1857, a new category of payment, this time for merchants, was added, thus making the fee scale one of eight tiers. After 1857, with the suppression of the merchant category, the seven-tier scale was restored.

Taxes were calculated in *lliures*, *sous* and *diners* as units of currency,[3] and the values remained stable throughout the period (1481-1880), although they were paid with the type of currency in circulation at each stage. The only alteration observed in the taxes recorded in the Marriage Licence Books occurred between 1649 and 1650, when all the fiscal values were doubled, which is likely to have been a response to an inflationary adjustment concerning the currency at the time (Feliu, 1992) (See Table 1). Nevertheless, although the taxes were categorised in 7-8 socioeconomic labels, throughout the source's history the great majority (around 90-80%) of licences were paid in the category of farmers and small artisans, which represents the importance of these two groups. Only from the second

[2] This feature in the Marriage Licence Books represents an exceptional strength in the source because usually nobles were exempted from taxation and then traditionally absent in historical fiscal sources (Alfani and Ammannati, 2017).
[3] This system is based on the Carolingian monetary system.

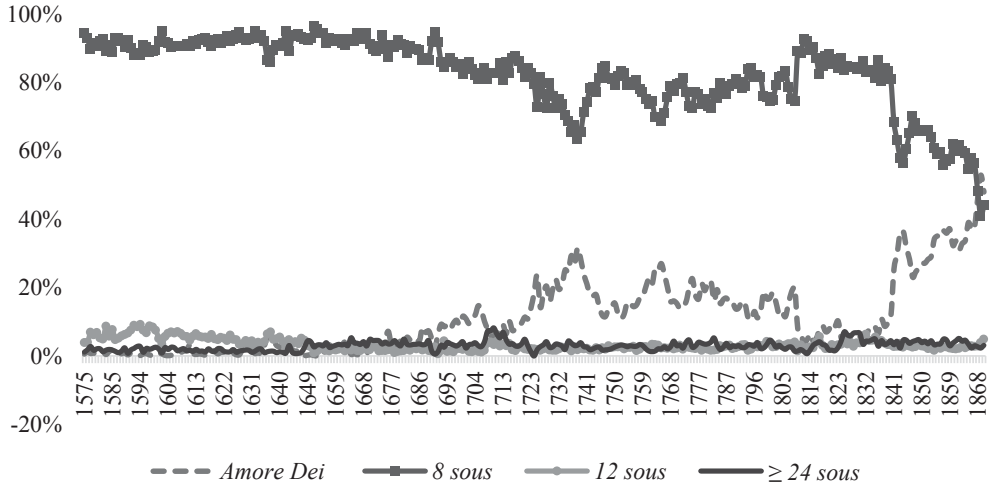
half of the nineteenth century, the share of *Amore Dei* taxes increased up to almost 40%. (See Figure 2)

Table 1: Fiscal socioeconomic categories in the Marriage Licence Books

Socieconomic categories	1481-1649	1650-1880
Nobility	12 ll	24 ll
Military Citizens	2 ll & 8 s	4 ll & 16 s
Honoured Citizens	1 ll & 4 s	2 ll & 8 s
Merchants, Lawyers, Physicians	12 s	1 ll & 4 s
Guild Masters	6 s	12 s
Farmers and Small artisans	4 s	8 s
The poor	*Amore Dei*	*Amore Dei*

*(ll = *lliures;* s = *sous*). Own elaboration (BHMD)

Figure 2: Distribution of paid taxes according to fiscal categories in the Marriage Licence Books (1575-1880)



*Taxes standardized to *sous*. 1 *lliura = 20 sous*. SOURCE: Own elaboration (BHMD)

Local censuses (Padrones) from Sant Feliu de Llobregat (1828-1940)

Local censuses (called *Padrones* in Spanish) started to be taken regularly in Spain in the nineteenth century as a result of the administrative centralisation came with the establishment of the liberal state, which purpose was rationalising the state's population and wealth (Porter, 1995). This was a common although not simultaneous process around the nineteenth century in Europe. Spanish local censuses were compulsory after 1823 (Reher and Valero-Lobo, 1995) which means that they were carried out even before of the first modern national census (1857) or the definitive implementation of the civil register (1871).

The state's will of progressively implementing throughout the country the new regulation of Local censuses can be observed with several decrees informing municipal officials of the obligation to take Local Censuses. Thus, from the Royal Decree of March 14th 1857, all the registers were established to be nominal and simultaneous along the national territory. Nonetheless, only after the enactment of the Municipal Law of August 20th 1870 was when the periodicity for taking Local censuses was fixed to 5-year intervals. Finally, along the drafting of the Municipal Statute of March 8th 1924, the formats of Local censuses were standardized gathering the type of variables that should be recorded in each town (García Ruipérez, 2012). In this way, local censuses showed the sociodemographic features of each inhabitant in a particular household in an urban centre or in the hinterland. For each person, the register included name and surnames, age or birth date, civil status and occupation and the family or working relationship with the household head. In some periods, the information is also available about the individuals' levels of literacy and income. Additionally, one of the most important characteristics from local censuses are the only data conserved at the census individual level in Spain due to national censuses used to be *destroyed* once the population number was estimated or the main variables were crossed.

In this sense, following the conjunction of Historical Demography and Computer Sciences inaugurated by the project 'Five Centuries of Marriages', the project NETWORKS 'Tools and procedures for the large scale digitization of historical sources of population'(PI Joana-Maria Pujadas-Mora and Alicia Fornés), funded by Recercaixa program (2017-2019) started the construction of a new database focused on local censuses. The *Baix Llobregat* (*BALL*) *Demographic Database* is nowadays an ongoing database containing individual census data from the Catalan region of *Baix Llobregat* (Spain) during the nineteenth and twentieth centuries. The Baix Llobregat region played an important role in the Catalan industrialisation process, 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 specifically to where the Baix Llobregat is located (Map 2). The aim of the database is assessing historical 'social' networks thanks to the linkage of nominative information compiled in the local censuses across time and space to establish individual and family lifespans and to spatially locating individuals and families.

Map 2: The Baix Llobregat region within Catalonia and Spain.

NETWORKS project elaboration

Among the different potentialities derived from the BALL Demographic Database, one is the possibility of creating longitudinal databases of individuals and households through the linkage of Local censuses. In this way, the first scientific product within the project was creating a longitudinal su-Database in one of the most populated towns in the Baix Llobregat, which has also one of the largest time span coverage, namely *Sant Feliu de Llobregat Longitudinal Demographic Database*.

The longitudinal database of *Sant Feliu* is based on the individual reconstruction of individual life-courses using local censuses. The town of *Sant Feliu de Llobregat* was one of the most important towns in the region, economically and administratively, being the judicial district capital and showing the arrival of new economic activities as the textile and metallurgical industries since the second half of the nineteenth century and the railway station in 1855. The database collected all the information registered in all the 15 censuses recorded in Sant Feliu from 1828 to 1940. This information has also benefited from the computer-assisted manual data transcription through crowdsourcing in which 58 volunteers have collaborated.

The local censuses in Spain (and *Sant Feliu* as well) were recorded in intervals of few years (not strictly defined) and the nominative information of individuals, which were recorded within households, was quite stable from one census to the next one. This redundancy has been used to assist the transcription of the 1886 census once the 1881 census was transcribed (Mas et al., 2016), the rest of the censuses have been transcribed manually through an integrated tool of data entry. In this way, the redundant information (names, surnames and address) is transferred from the census already transcribed to the next one to be updated manually adding new members or deleting those who leave or

died for each household. Since the process was based on a focused search, the accuracy was very high. In this way, there was 70% of reduction in the transcription time.

The Longitudinal Database of *Sant Feliu* contains 59,084 individual observations, which increased chronologically, mainly from the 1920 onwards when the town of *Sant Feliu de Llobregat* started having important migratory inflows. All the individuals are distributed in 12,748 households across the entire period with a mean number of 4.6 individuals per household, levels that decreased along the time, passing from 5.2 persons per household in 1828 to 4 in 1940 (See Table 2).

Table 2: Frequency of individuals and households by year in the Local censuses of Sant Feliu de Llobregat

Years	Inviduals	Households	Individuals per household
1828	2,209	426	5.2
1833	1,470	313	4.7
1839	1,946	377	5.2
1857	2,472	533	4.6
1878	2,762	610	4.5
1881	3,005	598	5
1889	3,118	644	4.8
1906	3,606	805	4.5
1910	3,809	866	4.4
1915	4,330	936	4.6
1920	4,353	918	4.7
1924	5,575	1081	5.2
1930	6,392	1459	4.4
1936	7,023	1458	4.8
1940	6,727	1675	4

Own elaboration (BALL Demographic Database)

2.2 Data harmonisation and codification

The tasks of database construction in both of the projects described previously (5CofM and NETWORKS) implied the participation of many volunteers in transcription, which could lead to diverse ways of interpreting nominal information. In this sense, instead of conducting a transcription of data in harmonized way, volunteers were told to transcribe literally all records in order to avoid different derivations of nominal data.

Once the different sources were transcribed it was then necessary to apply processes of linguistic harmonisation. One single individual could appear with different names and surnames, or apparently different names because they were recorded with different spelling, or abbreviations or a single combination of name and surname (relative frequency of names and surnames) might refer to many individuals (Goiser and Christen 2006). These questions need particular attention in the case of Catalan, which was not standardized until 1913. Moreover, not only a large variability in names and surnames by linguistic reasons are seen, also in occupational labels or locations. Additionally, apart from reducing such variability, it is important to make variables and outcomes more accessible for analysis and comparisons at national or international levels. For this reason, a process of harmonization and codification of the different variables in each source was conducted. Records entailed phonetic transcription of names, surnames and other terms with the dialectal differences of the language and influences from other languages like Spanish which favored many written variations (Peytaví 2010). For instance, the surname *Ferrer* (Smith) was found as *Ferré, Farré, Farrer*, and so on. By contrast, the Spanish onomastic does not present the same orthographical variability because its standardisation dates back to the 15th century (Herzog, 2007). Foreign surnames were adapted to the Catalan or Spanish languages. The harmonisation process was applied also to geographic names that afterwards wee georeferenced and with occupations.

Occupations and Social Positions

In both Marriage Licence Books and Local Censuses, the main available social marker, as is common in demographic sources, are occupations. In this way, analyses on social reproduction and social mobility have been focused mainly in occupational and social positional terms. Records on occupations are one the best available information in some historical sources and the occupation is considered the major conduit for social reproduction because on its own informs relatively well of socioeconomic capacities as well as cultural capital levels (Jonsson et al., 2009). However, in the case of the Marriage Licence Books, the source contained in almost five centuries 16,300 different harmonised occupational titles while in the Local censuses of Sant Feliu the amount was 1,611, which converts extremely difficult to manage all the information in any level of occupational analysis. In this sense, in order to simplify the occupational data and make it comparable nationally and internationally, it has been applied the Historical International Standard Classification of Occupations (HISCO) based on the ISCO68 occupational codes from

the International Labour Organisation, which gives a specific code to every single occupation (Van Leeuwen et al., 2002). Hence the simplified results were 304 occupational codes in the Barcelona area and 292 in Sant Feliu. The main reason for the important amount of occupational codes in the Sant Feliu Database when compared to the Barcelona Historical Marriage Database is due to in the case of Sant Feliu, periods covering the nineteenth and twentieth centuries presented higher variance of occupations. Additionally, each occupation was also grouped into economic sectors, following an adaptation of HISCO for the Catalan historical labour market (Pujadas-Mora et al., 2014).

In order to measure the status of each individual, occupational codes have been ranked according to socio-occupational position and group by means of HISCLASS (Van Leeuwen & Maas, 2011) and HISCAM (Lambert et al., 2013), respectively. On the one hand, 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. On the other hand, HISCAM is an occupational stratification scale based on the Cambridge Social Interaction and Stratification scheme (Prandy, 2000). The main idea behind this scaling is that individuals who interact more (in terms of occupational and social relations) are closer in terms of social position, assuming that these interactions represent the occupational stratification structure. The result is a ranking of occupations that move theoretically from 0 to 99, showing not only closer social standing but also differences between occupations.

Furthermore, owing to contextual specificities in the different periods under study, an extra level has been included for both classifications, this concerning the nobility, due to its social class significance (score 100 on HISCAM and label 0 on HISCLASS). Thus the final result of this process was a detailed occupational and social status classification within the two used sources (See Table 3).

Table 3: Example of classification of occupations and social status

Occupation /Social Position	HISCO	HISCAM	HISCLASS	Subsector	Sector
Nobility	-105	100	Nobility	-	-
Physician	6105	92.87	High Professional	Liberal Professiona	Tertiary
Tradesman	41025	63.03	Lower and Prof. Manager	Trade	Tertiary
Peasant	61110	52.84	Farmer	Agriculture	Primary
Wool Preparer	75100	58.29	Skilled worker	Textile	Secondary
Weaver	75432	49.91	Lower-Skilled worker	Textile	Secondary
Day Laboure	99920	41.43	Unskilled worker	Day Labourer	Day Labourer

Own elaboration from the Marriage Licence Books (BHMD).

2.3 Applied methodologies

Record linkage for reconstructing genealogies and individual life courses

Among the specific objectives defined within this thesis, some of the analysis required an extra methodological procedure in order to use the data. This was the case in the analysis of intergenerational social status attainment among families and siblings, which required genealogical reconstitution in the Barcelona Historical Marriage Database. Moreover, the intragenerational study of occupational careers in the Sant Feliu de Llobregat Longitudinal Demographic Database also involved linking the same individual across the lifetime.

Within the data provided by the Barcelona Historical Marriage Database in the sixteenth and seventeenth centuries, two kinds of links were created, first to link siblings within the same family, and second to link siblings' marriages with their parents' marriages. The former type of record linkage was achieved through the three registered variables shared by siblings: names of both parents and surnames of fathers. The latter dataset linked groups of siblings to the marriage of their parents in order to complete missing information or to obtain more information on them over time. An additional unique restriction imposed on the former record linkage was setting a temporal lower bound based on Roman law, implemented since the fourteenth century by the Church, according to which males could not marry before the age of 14 and women before 12.

The record linkage was performed by means of the software programme *Busca* Descendències ('Looking for Offspring') developed within the 5CofM project in collaboration with researchers from the Computer Vision Centre (CVC) and the Centre d'Estudis Demogràfics (CED). The programme integrated two string distances, the Bag distance and the Levenshtein distance, together with a language model that palliated the effects of similarities in pronunciation and penalised typographic errors.

The total number of family units including at least two siblings was 2,752, and consisted of 6,686 individuals. However, for the total number of families, 52% (1,330 families) brought together only sisters because, among the 76,567 marriage licences containing occupational information for both children and fathers, 62% provided information on occupations of grooms and their fathers-in-law. In the case of the Sant Feliu de Llobregat Longitudinal Demographic Database the procedure also used probabilistic criteria with the Levshtein and Bag distance algorithms. This allowed us to follow 10,405 individuals at least in 2 different censuses what represents to take into consideration a 73,4 % of those 50,084 total records. In the best cases, we have been able to reconstruct up to 12 different observations for individuals, which signifies assessing the entire life-cycle of a person.

Methods for assessing and estimating economic inequality

Another of the specific objectives in this thesis regarded estimating the trends of economic inequality in the Barcelona area through the fiscal information in the Marriage Licence Books. However, taxes in the source were based on proportional distribution rather than a progressive one, which could disguise the real economic dispersion, while also contributing to underestimates of economic inequality. In order to avoid this problem and to obtain a more plausible estimation, taxes were categorised into a progressive taxation system. The idea of this change is based on the ability-to-pay concept, in which the economic capacity of an individual is not based on income alone but also on other tangible and intangible assets such as social status, which is one of the best markers for historical analysis.

The use of both tax categories and HISCAM is a move in the direction of attaining better measures of socioeconomic status, and also overcoming and improving some of the drawbacks of both approaches. However, it is far-fetched to think that all the individuals sharing the same occupational title would be at the same level, and in this sense the taxes in the source provide a more reliable disparity within occupations, which would not be

assessed in any occupational classification. Thus, the combination of inherent taxes and HISCAM has provided a proxy for estimating disparity by means of an analysis based on the distribution of human capital. Hence, multiplication of tax paid and the HISCAM score gives the result shown below, where A_i is the individual's ability-to-pay, T_i is the tax paid by a certain individual and H_i is the HISCAM score.

$$\boldsymbol{A_i = T_i * H_i}$$

In order to estimate the overall inequality among individuals Gini coefficients have been computed through each individual's ability-to-pay for the entire area of Barcelona and for other geographic units in order to assess inequality levels. The Gini indexes have been computed in the following way:

First it is approached the sum of the cumulative proportion of grooms declaring an occupation and paying a tax (p*i*), and the cumulative proportion of the *ability-to-pay* indicator (A_i). Second, the cumulative proportion of grooms declaring an occupation and paying a tax (pi) divides the result of the first summation

$$\mathrm{G} = \frac{\Sigma(pi - Ai)}{\Sigma\, pi}$$

Additionally, in order to identify economic inequality among economic sectors and social groups, the thesis also uses a set of Theil indexes, enabling the assessment of the *between* and *within* inequality in the occupational or social structure. In the example below, the way in each instance of socioeconomic inequality appears among economic sectors is explained in detail:

1- First, by identifying the total share of workers (n) and the proportion of ability-to-pay (w) from the different economic subsectors and sectors.
2- Once the share of workers (n) and the proportion of ability-to-pay (w) of a certain economic subsector are known, we can estimate their contribution (c_i) to the within inequality of a given sector:

$$c_i = w_i * [\ln(w_i) - \ln(n_i)]$$

3- The total within inequality of a given sector (***T'***) is thus calculated as:

$$\boldsymbol{T_j'} = c_i = \sum_{i=1}^{n}(ci)$$

4- Next, the between sector inequality (***T''***) is easily computed as the weighted sum of the Theil indexes (***T'***) from each of its economic subsectors:

$$\mathbf{T''} = \sum_{j=1}^{n} (\mathrm{wj} * Tj')$$

5- Finally the total inequality including between and within economic sectors is:

$$\mathbf{T = T' + T''}$$

Multivariate analysis

When moving towards the causal analysis aimed at studying intergenerational and intergenerational determinants of social reproduction, the chosen modelling typology was the use of multilevel models. The technical choice of a multilevel approach allows controlling for between-family variance and statistical non-independence of individuals, which in ordinal regressions are not taken into account, and probably generating spurious results (Hox, 2002).

In the case of intergenerational analysis within families and siblings, the benefit of this kind of model lies in the possibility of analysing how similar siblings were in status attainment in view of the relatively high level of ascription assumed in preindustrial periods. In addition, these models take into account the fact that siblings share a series of characteristics and constraints (Jencks et al., 1972). On the other hand, the longitudinal use of local censuses implies statistical challenges. The information on the exact timing of changes as well as the number of occupational status among individuals differed in the source. Additionally, the number of right-censored cases were also important, mainly for individuals that obviously did not finish their careers. In this sense, the most common method to study occupational trajectories as 'event history analysis' models are not applicable, however multilevel models handle it more easily without hampering the analysis (Schulz and Maas, 2010).

Accordingly, the multilevel analytical strategy adopted in this thesis has implied the use of different types of multilevel models that shall be presented in the following lines:

In first place, in order to assess the family influence over the status attainment of individuals a multilevel linear only intercept model was used. This kind of model includes

only the fixed and random intercepts of a measured dependent variable and its main interest resides in the random variance for explaining how similar or non-independent individuals within families and geographic units were. The model had as its random part family unity clusters, defined in the following way, where Y_{ijk} is the occupational status of children (HISCAM) i in family j. The term γ_{00} is the intercept, u_{0j} is the error term at the family level, and ε_{ij} is the error term at the individual level (M1). Afterwards, the modelling process can be expanded by adding other explanatory variables at the individual or at the family levels, as for instance by including the socio-occupational status from parents (X_{1j}) (M2).

$$Y_{ij} = \gamma_{00} + u_{0j} + \varepsilon_{ij} \text{ (M1)}$$

$$Y_{ij} = \beta_{00} + \beta_{01} X_{1j} + u_{0j} + \varepsilon_{ij} \text{ (M2)}$$

Thus this two-level model allowed estimating the family influence through an Intra-class Correlation coefficient (ICC), which explains to which extent the individual variance on status attainment is determined by personal characteristics or between groups, namely family aspects (Knigge et al., 2014) (E1).

$$ICC_{2\text{-level clustering}} = \frac{\sigma^2_{family}}{\sigma^2_{child} + \sigma^2_{family}} \text{ (E1)}$$

Secondly, in the analysis of intergenerational transmission or not of the social class status, the thesis has used multilevel logistic regressions for controlling for three different outcomes, if sons had lower, higher or the same social status (HISCLASS) as the father. The dynamic of the logistic multilevel regression works as in the hierarchical linear models, the only difference being that it is derived as the conditional probability (η_{ij}) of the population proportion (π_{ij}) (M3).

$$\eta_{ij} = \ln\left[\frac{\pi_{ij}}{1-\pi_{ij}}\right] \beta_{00} + \beta_{01} X_{1j} + \beta_{0\ldots n} X_{\ldots nij} \text{ (M3)}$$

In multilevel logistic regression models, in the random part, which takes into account the difference among family units, the between-family variance in occupational inheritance is computed through the intra-class correlation. In this sense, similarly in the multilevel linear model, it explains how different families were in terms of social mobility and how similar siblings inside one family can be in social outcomes or, in other words, how big the family impact was on children. For assessing this family impact when logistic regression is used, the intercept error estimate is assumed to have a logistic cumulative density function, which is scaled to 1 (the maximum value in logistic/probability distributions). Hence the individual's variation has a fixed value of 3.29 (Evans et al., 2000) (E2).

$$ICC\ (occupational\ inheritance) = \frac{\sigma^2_{family}}{3.29+\sigma^2_{family}} \quad \text{(E2)}$$

Finally, when analysing the intragenerational occupational trajectory of linked individuals in the Local censuses, the used typology was a multilevel linear modelling of repeated measures also known as the so-called growth models. This kind of model also holds two levels; the only difference is that individuals are considered as clusters that gather each one of their observations across the lifetime. Thus Y_{ij} would refer to the social status of a given observation (i) nested in the individual (j). The trajectory then is computed as the sum of single observations, the error terms at the observation level (u_i) and the error term at the level two (individuals nesting observations) (ε_{ij}). Finally, the explanatory variables may be inserted as those regarding years of experience, the cohort individuals belonged to or the occupational status from their fathers (M4).

$$Y_{ij} = \beta_0 + \sum^{observations} \beta_{Experience} + \beta_{cohort+} \beta_{father\ occupation} + \beta.... + u_i + \varepsilon_{ij} \text{(M4)}$$

4. QUOTED REFERENCES IN THE INTRODUCTION

Acemoglu, D., & Robinson, J. A. (2000). Why did the West extend the franchise? Democracy, inequality, and growth in historical perspective. *The Quarterly Journal of Economics, 115*(4), 1167-1199.

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2015). Democracy, redistribution, and inequality. Handbook of income distribution, 2, 1885-1966.

Aghion, P., & Williamson, J. G. (1998). *Growth, inequality, and globalization: theory, history, and policy*: Cambridge University Press.

Alfani, G., & Ammannati, F. (2017). Long-term trends in economic inequality: the case of the Florentine state, c. 1300-1800. *The Economic History Review* (doi:10.1111/ehr.12471).

Alfani, G., & Ryckbosch, W. (2016). Growing apart in early modern Europe? A comparison of inequality trends in Italy and the Low Countries, 1500-1800. *Explorations in Economic History, 62*, 143-153.

Alfani, G. (2010). Wealth inequalities and population dynamics in early modern northern Italy. *Journal of interdisciplinary history, 40*(4), 513-549.

Álvarez, B., & Ramos Palencia, F. (2017). Human capital and earnings in eighteenth-century Castile. Explorations in Economic History 67 (2018), 105-133.

Álvarez-Nogal, C., & Prados de la Escosura, L. (2013). The rise and fall of Spain (1270–1850) 1. *The Economic History Review*, *66*(1), 1-37.

Andrews, D., & Leigh, A. (2009). More inequality, less social mobility. *Applied Economics Letters*, *16*(15), 1489-1492.

Aschaffenburg, K., & Maas, I. (1997). Cultural and educational careers: The dynamics of social reproduction. *American sociological review*, 573-587.

Barone, C., Lucchini, M., & Schizzerotto, A. (2011). Career mobility in Italy: A growth curves analysis of occupational attainment in the twentieth century. *European Societies*, *13*(3), 377-400.

Barrera-González, A. s. (1992). Eldest and younger siblings in a stem-family system: the case of rural Catalonia. *Continuity and Change, 7*(03), 335-355.

Bearman, P. S., & Deane, G. (1992). The structure of opportunity: middle-class mobility in England, 1548-1689. *American Journal of Sociology, 98*(1), 30-66

Bengtsson, T., Campbell, C., & Lee, J. Z. (2004). Life under pressure: Mortality and living standards in Europe and Asia, 1700-1900. MIT Press.

Berent, J. (1952). Fertility and social mobility. *Population studies*, *5*(3), 244-260.

Berkner, L., & Mendels, F. (1978). Inheritance systems, family structure and demographic patterns in Western Europe. In C. Tilly (Ed.), *Historical Studies of Changing Fertility* (pp. 209-223). Princeton: Princeton University Press.

Berkner, L. (1972). The stem family and the developmental cycle of the peasant household: An eighteenth-century Austrian example. *The American Historical Review, 77*(2), 398-418.

Bhattacharya, T. (Ed.). (2017). Social reproduction theory: Remapping class, recentering oppression. Pluto Press.

Blau, P. & Duncan, O. (1969). *The American Occupational Structure*. New York: John Wiley and Sons.

Boberg-Fazlic, N., Sharp, P., & Weisdorf, J. (2011). Survival of the richest? Social status, fertility and social mobility in England 1541-1824. *European Review of Economic History, 15*(3), 365-392.

Boserup E., 1981. Population and Technological change: A study of long-term trends, Chicago, University of Chicago Press.

Bottero, W. (2004). Stratification: Social division and inequality. Routledge.

Bourdieu J. Ferrie, J., Kesztenbaum, L. (2009). Vive la difference? Intergenerational social mobility in France and the United States during the nineteenth and twentieth centuries. Journal of Interdisciplinary History, 39, 523–557.

Bourdieu, P. & Passeron, J.C. (1990). Reproduction: In Education, Society and Culture. 2nd Ed. Trans. Richard Nice. Beverley Hills: Sage.

Bourdieu, P. (1973). Cultural reproduction and social reproduction. *London: Tavistock*, *178*.

Bourdieu, P. (1976). Marriage strategies as strategies of social reproduction. In R. Forster & O. Ranum (Eds.), *Family and society. Selections from the Annales, Économies, Sociétés, Civilisations.* Baltimore: The Johns Hopkins University Press.

Bourdieu, P. (2013{1984}). Distinction: A social critique of the judgement of taste. Routledge.

Bras, H., Kok, J., & Mandemakers, K. (2010). Sibship size and status attainment across contexts: Evidence from the Netherlands, 1840-1925. *Demographic Research, 23*(4), 73-104.

Breen, R., & Jonsson, J. (2005). Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annu. Rev. Sociol.*, *31*, 223-243.

Breen, R. (Ed.). (2004). Social mobility in Europe. Oxford University Press.

Broadberry, S., Campbell, B. M., & Van Leeuwen, B. (2013). When did Britain industrialise? The sectoral distribution of the labour force and labour productivity in Britain, 1381–1851. *Explorations in economic history*, *50*(1), 16-27.

Cabré, A., Pujadas-Mora, JM. (2011) "Five Centuries of Marriages (5CofM). A project of historical demography in the Barcelona area". *Papers de Demografía,* 368:1-24.

Cabré, A. (1989). *La Reproducció de les generacions catalanes, 1856-1960*. Doctoral thesis directed by J. Nadal. Universitat de Barcelona.

Caldwell, J, 1982. Theory of fertility decline, Academic Press, London.

Carreras i Candi, F. (1914): "Les obres de la Catedral de Barcelona 1298-1445". *Butlletí de la Reial Acadèmia de Bones Lletres de Barcelona* 7 (49), 22-30.

Chacón, F. (1998). Propuestas teóricas y organización social desde la Historia de la Familia en la España Moderna. *Studia Historica: Historia Moderna*, *18*.

Chantarat, S. & Barrett, C., Social Network Capital, Economic Mobility and Poverty Traps (June 25, 2008). Journal of Economic Inequality. Available at SSRN: https://ssrn.com/abstract=1151353 or http://dx.doi.org/10.2139/ssrn.1151353

Chesnais, J.C., 1992. The Demographic Transition. Stages, Patterns, and Economic Implications, 1st ed. Clarendon Press Oxford, New York.

Clark, G., & Hamilton, G. (2006). Survival of the richest: the Malthusian mechanism in pre-industrial England. *The Journal of Economic History*, *66*(3), 707-736.

Clark, G. (2014). The son also rises: Surnames and the history of social mobility. Princeton University Press.

Coleman, J. S. (1986). Social theory, social research, and a theory of action. *American journal of Sociology*, *91*(6), 1309-1335.

Dambruyne, J. (1998). Guilds, social mobility and status in sixteenth-century Ghent. *International review of social history*, *43*(1), 31-78.

Downey, D. B. (1995). When bigger is not better: Family size, parental resources, and children's educational performance. *American Sociological Review, 60*(5), 746-1761

Dribe, M., Helgertz, J., Van de Putte, B. (2015). Did social mobility increase during the industrialization process? A micro-level study of a transforming community in southern Sweden 1828–1968. *Research in Social Stratification and Mobility*, *41*, 25-39.

Erikson, R., Goldthorpe, J. H., & Portocarero, L. (1979). Intergenerational class mobility in three Western European societies: England, France and Sweden. *The British Journal of Sociology*, *30*(4), 415-441.

Erola, J., & Kilpi-Jakonen, E. (2017). Compensation and other forms of accumulation in intergenerational social inequality. In J. Erola & E. Kilpi-Jakonen (Eds.), *Social Inequality Across the Generations: The Role of Compensation and Multiplication in Resource Accumulation*. Cheltenham: Edward Elgar Publising.

Featherman, D., Jones, L., Hauser, R. (1975). Assumptions of social mobility research in the US: the case of occupational status. *Social science research*, *4*(4), 329-360.

Feliu, G. (1992). Precios y salarios en la Cataluña moderna Vol. II: Combustibles, productos manufacturados y salarios. Madrid. Banco de España.

Ferrer, L. (2005). Indicios de cambio en el sistema de heredero único en Cataluña en el siglo XIX. *Historia contemporánea*, (31).

Fertig, G. (2003). The invisible chain: niche inheritance and unequal social reproduction in preindustrial continental Europe. *The History of the Family*, *8*(1), 7-19.

Galloway, P. R. (1988). Basic patterns in annual variations in fertility, nuptiality, mortality, and prices in pre-industrial Europe. *Population studies*, *42*(2), 275-303.

Ganzeboom, H. B., Luijkx, R., & Treiman, D. J. (1989). Intergenerahonal class mobility in comparative perspective. *Research in social Stratification and Mobility*, *8*, 3-84.

García Ruipérez, M. (2012). El empadronamiento municipal en España: Evolución legislativa y tipología documental. *Documentalia & Instrumenta*, 10:45-86.

Goiser, K.; Christen, P. (2006). *Towards automated record linkage.* Paper presented at the Fifth Australasian Data Mining Conference.

Goody, J. (1973). Strategies of heirship. *Comparative Studies in Society and History, 15*(01), 3-20.

Grantham, G. W. (1993). Divisions of labour: agricultural productivity and occupational specialization in pre-industrial France 1. *The economic history review*, *46*(3), 478-502.

Grau, R. & López, M. (1974): Empresari i capitalista a la manufactura catalana del segle XVIII. Introducció a l'estudi de les fabriques d'indianes. Recerques: historia, economía, cultura (4): 19-57.

Grusky, D. & Hauser, R. (1984). Comparative social mobility revis-ited: Models of convergence and divergence in 16 countries. American Sociological Review, 49, 19–38.

Herzog, T. (2007). Nombres y apellidos: ¿cómo se llamaban las personas en Castilla e Hispanoamérica durante la época moderna? *Jahrbuch für Geschichte Lateinamerikas, 44*(1), 1-36.

Hobsbawm, Eric. (1964) The labor aristocracy in 19th-century Britain. In: Hobsbawm EJ (ed) Labouring. Men. London: Weidenfeld and Nicolson, pp.272–315.

Hox, J. J. (2002). Sample sizes for multilevel modeling. In J. Jorg Blasius, J. Hox, E. deLeeuw & P. Schmidt (Eds.), *Proceedings of the Fifth International Conference on Logic and Methodology* (pp. 1-19). Opladen, Germany: Leske & Budrich Verlag.

Jencks, C., Smith, M., Acland, H., Jo Bane, M., Cohen, D., Gintis, H. (1972). *Reassessment of the Effect of Family and Schooling in America*. New York: Basic Books.

Jonsson, J., Grusky, D. B., Di Carlo, M., Pollak, R., & Brinton, M. C. (2009). Microclass mobility: Social reproduction in four countries. *American Journal of Sociology*, *114*(4), 977-1036.

Keibek, S. A., & Shaw-Taylor, L. (2013). Early modern rural by-employments: a re-examination of the probate inventory evidence. *Agricultural History Review*, *61*(2), 244-281.

Kendrick, M. S. (1939). The Ability-to-Pay Theory of Taxation. *The American Economic Review*, 92-101.

Kerr, C. et al. (1960).Industrialism and industrial man: The problems of labour and management in economic growth; with a postscript, Penguin Books, London.

Knigge, A., Maas, I., Van Leeuwen, M. H., & Mandemakers, K. (2014). Status attainment of siblings during modernization. *American sociological review, 79*(3), 549-574

Kocka, J. (1984). Family and class formation: intergenerational mobility and marriage patterns in nineteenth-century Westphalian towns. *Journal of Social History, 17*(3), 411-433

Kurosu, S. (1996). Leaving home in a stem family system: Departures of heirs and non-heirs in pre-industrial Japan. *The History of the Family, 1*(3), 329-352

Kurzban, R., Burton-Chellew, M. N., West, S. A. (2015). The evolution of altruism in humans. *Annual review of psychology*, *66*, 575-599.

Kuznets, S. (1955). Economic growth and income inequality. *The American economic review*, *45*(1), 1-28.

Kuznets, S. (1966). Modern economic growth: Rate, structure, and spread. New Haven and London: Yale University Press.

Lambert, P., Zijdeman, R., Van leeuwen, M. H., Maas, I., & Prandy, K. (2013). The construction of HISCAM: A stratification scale based on social interactions for historical comparative research. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, *46*(2), 77-89.

Laslett, B., & Brenner, J. (1989). Gender and social reproduction: Historical perspectives. *Annual review of sociology*, *15*(1), 381-404.

Lipset, S. & Zetterberg, H. (1956). A theory of social mobility. In *Social Mobility in Industrial Society*, edited by S. M. Lipset and R. Bendix. Berkeley: University of California Press.

Lucas, S. R. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American journal of sociology*, *106*(6), 1642-1690.

Maas, I., Van Leeuwen, M., Pélissier, J., Rébaudo, D. (2011). Economic development and parental status homogamy: a study of 19th century France. *The history of the family, 16*(4), 371-386

Manzoni, A., Härkönen, J., Mayer, K. (2014). Moving on? A growth-curve analysis of occupational attainment and career progression patterns in West Germany. *Social Forces*, *92*(4), 1285-1312.

Martínez-Galarraga, J., & Prat, M. (2016). Wages, prices, and technology in early Catalan industrialization. *The Economic History Review*, *69*(2), 548-574.

Marx, K. 1990 [1867]. Capital Volume I: A Critique of Political Economy. 2d ed. London: Penguin Books.

Mendels, F. F. (1972). Proto-industrialization: the first phase of the industrialization process. *The journal of economic history*, *32*(1), 241-261.

Milanovic, B. (2016). Income inequality is cyclical. *Nature News*, *537*(7621), 479.

Mogues, T., & Carter, M. R. (2005). Social capital and the reproduction of economic inequality in polarized societies. *The Journal of Economic Inequality*, *3*(3), 193-219.

Moore, W. 1969. "Changes in Occupational Structures." In William A. Faunce and William H. Form (eds.), Comparative Perspectives on Industrial Society. Boston: Little Brown.

Musgrave, Richard A. and Musgrave, Peggy B. (1989) *Public Finance in Theory and Practice*, Fifth Edition (New York: McGraw-Hill).

Nadal, J. (1975): El Fracaso de la Revolución industrial en España, 1814-1913. Barcelona, Ariel.

Nash, R. (1990). Bourdieu on education and social and cultural reproduction. *British Journal of Sociology of Education*, *11*(4), 431-447.

Norton, J., & Katz, C. (2016). Social reproduction. *International Encyclopedia of Geography: People, the Earth, Environment and Technology*, 1-11.

Öberg, S. (2015). Sibship size and height before, during, and after the fertility decline: A test of the resource dilution hypothesis. *Demographic Research*, *32*, 29-74.

Peytaví, J. (2010). *Antroponímia, poblament i immigració a la Catalunya modernan: l'exemple dels comtats de Rosselló i Cerdanya (segles XVI-XVIII)*. Barcelona, Institut d'Estudis Catalans.

Piketty, T. (1995). Social mobility and redistributive politics. *The Quarterly journal of economics*, *110*(3), 551-584.

Piketty, T. (2014). *Capital in the 21st Century*. Harvard University Press.

Porter, T. (1995). *Trust in numbers. The pursuit of objectivity in science and public life*. Princeton, Princeton University Press.

Prados de la Escosura, L. (2008): Inequality, poverty and the Kuznets curve in Spain, 1850–2000. *European Review of Economic History*, *12*(3): 287-324.

Prandy, K., & Bottero, W. (2000). Reproduction within and between generations: The example of nineteenth-century Britain. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, *33*(1), 4-15.

Prandy, K. (1998). Class and continuity in social reproduction: an empirical investigation. *The Sociological Review*, *46*(2), 340-364.

Pujadas-mora, J. M. et al. (2014): "Propuestas metodológicas para la aplicación de HISCO en el caso de Cataluña, siglos XV-XX." Revista de Demografía Histórica 32(1): 181-220.

Reher, D & Valero Lobo, A. (1995). *Fuentes de información demográfica en España*. Madrid: Centro de Investigaciones Sociológicas.

Reher, D. (2004.), Family Ties in Western Europe. U: G. D. Zuanna and G. A.Micheli (ur.), *Strong Family and Low Fertility: A Paradox*? (str. 45-76), New York, Kluwer Academic Publishers.

Scheidel, W., & Friesen, S. J. (2009). The Size of the Economy and the Distribution of Income in the Roman Empire. *The Journal of Roman Studies*, *99*, 61-91.

Scheve, K., & Stasavage, D. (2009). Institutions, partisanship, and inequality in the long run. *World Politics*, *61*(2), 215-253.

Schulz, W. & Maas, I. (2010). Studying historical occupational careers with multilevel growth models. *Demographic Research*, *23*, 669-696.

Schulz, W., Maas, I., Van Leeuwen, M. (2015). Occupational career attainment during modernization. A study of Dutch men in 841 municipalities between 1865 and 1928. *Acta Sociologica*, *58*(1), 5-24.

Shaw-Taylor, L. y Wrigley, A. (2014): "Occupational structure and population change." The Cambridge Economic History of Modern Britain: Volume 1, Industrialisation, 1700–1870: 53.

Simkus, A. (1984). Structural transformation and social mobility: Hungary 1938-1973. *American Sociological Review*, 291-307.

Sobel, M. E. (1985). Social mobility and fertility revisited: Some new models for the analysis of the mobility effects hypothesis. *American Sociological Review*, 699-712.

Thernstrom, S. (2009{1968}). Notes on the historical study of social mobility.Comparative Studies in Society and History, 10, 162–172.

To, L. (1993). Le mas catalan du XIIe s.: Genèse et évolution d'une structure d'encadrement et d'asservissement de la paysannerie. *Cahiers de civilisation médiévale, 36*(142), 151-177

Torras, J. (1998). Small Towns, Craft Guilds and Proto-Industry in Spain. *Jahrbuch für Wirtschaftsgeschichte/Economic History Yearbook*, *39*(2), 79-96.

Van Bavel, J., Moreels, S., Van de Putte, B., Matthijs, K. (2011). Family size and intergenerational social mobility during the fertility transition: Evidence of resource dilution from the city of Antwerp in nineteenth century Belgium. *Demographic Research, 24*(14), 313–344.

Van de Walle, F. (1985), “Infant mortality and the European demographic transition”, en A. Coale & S. Watkins (Eds.), *The decline of fertility in Europe*, Princeton, Princeton University Press, pp. 201-233.

Van de Werfhorst, H. G., & Salverda, W. (2012). Consequences of economic inequality: Introduction to a special issue. *Research in Social Stratification and Mobility*, *30*(4), 377-387.

Van Leeuwen, M. & Maas, I. (2011). *HISCLASS: A historical international social class scheme*: Universitaire Pers Leuven.

Van Leeuwen, M., Maas, I., Miles, A. (2002). *HISCO: Historical international standard classification of occupations*. Leuven: Leuven University Press.

Van Leeuwen, M. (2009). Social inequality and mobility in history: introduction. *Continuity and change*, *24*(3), 399-419.

Van Zanden, J. L. (1995). Tracing the beginning of the Kuznets curve: Western Europe during the early modern period. *The Economic History Review, 48*(4), 643-664.

Wall, R. (1996). Marriage, residence, and occupational choices of senior and junior siblings in the English past. *The History of the Family, 1*(3), 259-271

Williamson, J. G. (1991). British inequality during the industrial revolution: accounting for the Kuznets curve. *Income distribution in historical perspective*, 57-75.

Zofio Llorente, J. (2011). Reproducción social y artesanos. Sastres, curtidores y artesanos de la madera madrileños en el siglo XVII. *Hispania, 71*(237), 87-120.

3. PUBLICATIONS

4.1 Brea-Martínez, G., & Pujadas-Mora, J. M. (2018). ***Estimating long-term socioeconomic inequality in southern Europe: The Barcelona area, 1481–1880***. *European Review of Economic History*: 1-24.

European Review of Economic History, 1–24
doi:10.1093/ereh/hey017

Estimating long-term socioeconomic inequality in southern Europe: The Barcelona area, 1481–1880

GABRIEL BREA-MARTÍNEZ AND
JOANA-MARIA PUJADAS-MORA
Centre d'Estudis Demogràfics (CED), Autonomous University of Barcelona, Spain, gbrea@ced.uab.es, jpujades@ced.uab.es

This article estimates the patterns of socioeconomic inequality in the Barcelona area during the period 1481–1880 using the Marriage License Books from the Diocese of Barcelona, a unique fiscal source that ranged society from nobility, the highest level of payment, to the poor, exempted from taxation. These taxes together with the social status information of each individual allow setting fiscal progressivity and an approach to human capital. The results show how the levels of inequality were higher in preindustrial periods. However, industrialization with a deskilling occupational process and the emergence of a new working class reinforced the socioeconomic disparity due to the effects of proletarianization.

1. Introduction

Economic and social inequality is one of the most prominent and enduring research topics in social sciences. A substantial literature, begining with the seminal contribution of Kuznets (1955), sees inequality as a "natural" consequence of the early stages of economic development. However, more recent research (e.g., Van Zanden 1995; Aghion and Williamson 1998) have analyzed the negative, or positive, consequences for economic growth of social and economic inequality. In particular, they have noted that inequality in the past was detrimental to any stage of economic growth, enabling interruption of general trends toward prosperity and exacerbating poverty among individuals. Furthermore, they have concluded that the faster the process of economic concentration, the slower the mechanisms of distribution of income, goods, and welfare (Williamson 1991; Acemoglu and Robinson 2000).

The classical view was that disparity would have been relatively low in preindustrial societies, would have increased during the early stages of industrialization, and then decreased later on, thanks to the expansion of economic modernization. However, this standard view has been changing recently. A flourishing literature in the field suggests that inequality was not low during the Ancient Regime and, in fact, increased inequality associated with industrialization had started before the first industrial revolution (Van Zanden 1995; Alfani 2010; Milanovic *et al.* 2011). Thus, evaluating long-term economic inequality is essential for ascertaining whether it was a significant social factor in the preindustrial period, or whether it was reinforced with industrialization and the consolidation of capitalism (Atkinson *et al.* 2011; Ryckbosch 2015).

There are few studies on long-term inequality which cover both preindustrial and industrial periods, owing to a scarcity of sources on economic data at the individual level prior to the nineteenth century (Milanovic *et al.* 2011). In fact, the most significant approaches in estimating inequality in societies of the past tend to be related with wealth and/or income sources. Probate inventories (Main 1977; Canbakal 2012) and real estate tax data (Alfani 2010, 2015; Alfani and Ryckbosch 2016) are among the available sources used in research estimating wealth. Conversely, approaches to income inequality are based on contemporary interpretations of income share among social groups, as is the case with the so-called social tables (Milanovic *et al.* 2011), or they refer to a range of tax records (Prados de la Escosura 2008; Santiago-Caballero 2011; Nicolini and Ramos Palencia 2016).

Studying tax data is the most common way of estimating economic inequality, although it is also highly problematic. Furthermore, in cases where income tax is considered, the representativeness of the source may be limited due to tax fraud or evasion, or simply because progressive tax only started to be introduced in the second half of the twentieth century (Prados de la Escosura 2008). Finally, even when a more reliable primary source on taxation is found, it can often be fragmented over time and territory, thus presenting an obstacle to long-term analysis.

In Spain, there are few studies on economic inequality in periods before the nineteenth century, with the notable exceptions of work by Álvarez Nogal and Prados de la Escosura (2007), and Prados de la Escosura (2008) for the regions of Castile, Andalusia, and Catalonia, using the ratio between rental income and wages in the sixteenth and nineteenth centuries. Authors like Martínez-Galarraga *et al.* (2015) have studied regional inequality in Spain through per capita income estimates, pointing to increased regional divergence in the second half of the nineteenth century. Furthermore, the study by Santiago-Caballero (2011) has estimated concentration of income in the eighteenth century using the price of wheat as a proxy, while an article by Nicolini and Ramos Palencia (2016) measured inequality by means of fiscal sources like the Ensenada census of 1750. In the case of Catalonia, among studies concerned with the relationship between inequality and employment during the period of industrialization, are analyses by Mora-Sitja (2006, 2007, 2011) in which a significant increase in wage inequality is observed between 1830 and 1860, especially in the textile sector. In addition, García-Montero (2015) has studied long-term (1400–1800) economic inequality in rural and urban areas of Catalonia, finding clear differences between the two. In fact, Catalonia would not be included in Kuznets' "super curve" which claims that increased inequality in preindustrial times occurred during stages of economic growth (Van Zanden 1995).

The aim of this article is to analyze long-term trends of socioeconomic inequality on the basis of continuous fiscal and occupational data conserved in the Marriage License Books (*Llibres d'Esposalles*) from the Diocese of Barcelona, a unique source covering Barcelona and its hinterland in a period from 1481 to 1880. We propose a way of estimating socioeconomic inequality by relating occupational and socioeconomic status as a proxy of human capital (Álvarez and Ramos Palencia, 2018), and introducing progressivity into a proportional or flat tax classification based on socioeconomic features. This is basically a combination of fiscal information and occupational or social status related with the concept of progressive tax based on the ability-to-pay concept, in which the individual's economic position is defined by income or wealth, and also status (Kendrick 1939). Since the source is a marriage register, estimations of economic inequality are carried out on an age-comparable basis in the early stages of the life cycle and covers the entire social spectrum, from the nobility through to day laborers.

When carrying out an estimate of long-term inequality trends (in terms of income, wealth, and socioeconomic status), it is important to have some awareness of the main constraints and conditioning factors which may have shaped inequality evolving in any given territory. In this sense, Barcelona and its hinterland might be one of the best examples in Spain, due to its importance as political, administrative and economic center and its role as the forerunner of Spanish industrialization. This historical process also enabled the formation and consolidation of different social groups which may have influenced inequality trends in the period between the end of the fifteenth century and the nineteenth century.

In 1482 the King Ferran II (Ferdinand II of Aragon) delivered the legal decree known as the "Arbitral Decision of Guadalupe" which redeemed peasants from servitude by means of paying a fee (*remensa*) and thus put an end to a series of rebellions known as the War of the *Remences* (Serra i Puig 1980). As a result, most of the former serfs in the northeast of Catalonia, including the Barcelona area, became "free" peasants. Although the decree was followed by a process of reinforcing property rights and expanding tenancies (by appropriation of vacant farms) peasants continued paying feudal rents. During the sixteenth century, in what is historically known as *Catalunya Vella* (Old Catalonia), the territory with which this study is concerned, there was a progressive consolidation of an agrarian structure based mainly on the medium-sized farm—the *mas*—which was basically worked by family units (Gifre 2012). Throughout the seventeenth and eighteenth centuries, land transmission by means of the inheritance system based on the principle of impartibility in which eldest sons were usually the heir, and marital strategies, contributed to the formation of a new landowning class, an intermediate peasant group which accumulated large areas of land with the result that access to land became more limited (García Espuche 1998).

Hence, in order to increase production and income, many landowners, rather than hiring additional workers, hired out part of their estates with the establishment of an emphyteutic lease, one of the most common forms of which was the "*rabassa morta*" (a leasehold contract of long duration based on the life cycle of grapevines whereby a sharecropper could work the land as long as the plant lasted) in which the land was let out to peasant families. However, this latter option did not solve the problem of land access and, in many cases, individuals who were not the sole heir opted for artisan careers, for example, in wool-related guilds like that of the Fiber Preparers (*Paraires*) which, in Catalonia, ended up becoming "the production organizers of the rural manufacturing" (Torras 1998; Pujadas-Mora *et al.* 2018). The constraints in the economic and legal contexts led to a shift, in the population facing the early stages of the life cycle, from tangible assets to human capital investments. This situation would have brought about an increase in ancillary employment in what were previously rural zones thanks to a considerable presence of proto-industrial activities in the Barcelonese hinterland. Some authors see this as being essential to the relatively early industrialization in Catalonia through the eighteenth and nineteenth centuries (García Espuche 1998) by producing, on the one hand, individuals acquiring resources and experience to invest and, on the other, a pool of workers equipped with "nonformal" human capital and ready to respond to the demand for cheap skilled labor in the incipient factory system (Rosés 1998; Ferrer 2008; Marfany 2012).

After the end of the sixteenth century, the demand for wine in urban centers and Atlantic areas led to the expansion of vineyards in the coastal zones (Valls Junyent 2002), a project which required new sharecropper families for slash-and-burn preparation of land for planting vines. The expansion of vineyards in Catalonia occurred in several waves between the seventeenth and nineteenth centuries (Vilar 1966). Among the growing industries, woolen textile production had, since the seventeenth century, began to expand in the Barcelona

area, driven by crisis in some sectors of guilds in urban areas like Barcelona. The expanding industry moved out from Barcelona into the hinterland surrounding the city and zones in the pre-coastal area. The resulting boost to proto-industrial activities (García Espuche 1998) and the associated proto-industrial population was fundamental for industrial development in Barcelona and its hinterland (Torras 1998). It should also be emphasized once again that Barcelona and its metropolitan area were groundbreakers in Spanish industrialization (Nadal 1975) which, by extension, would define this area as a forerunner in the changes which occurred in patterns of socioeconomic structure and inequality.

From the economic point of view all these elements are important for better contextualizing trends in socioeconomic inequality among individuals, especially those presumably contemplating marriage and forming a family. However, other noneconomic factors are also likely to be influential in this study of socioeconomic inequality. For instance, demographic and family drivers should be taken into account, and so should the abovementioned inheritance system and mortality constraints. With regard to the latter, fast-moving, widespread crises like the plague tended to drive inequality downward due to an increased demand for labor and expanding land availability (Alfani 2010, 2015).

At this point, we can formulate a main question for further exploration. Was inequality more significant before or after industrialization?

2. The Marriage License Books and the Barcelona Historical Marriage Database (1451–1905)

On 27 September, 1409, Pope Benedict XIII (Pedro Martínez de Luna, 1328–1432), visited Barcelona and granted the new Cathedral the power to impose a tax on marriage licenses (*esposalles*) to be levied on every marriage occurring in the Diocese. This tax was in force until the third decade of the twentieth century. Between 1451 and 1905, the Marriage License Books, a centralized register, recorded all marriages and the fees charged according to the groom's social status. This exceptional documentary treasure consists of 291 books with information on approximately 610,000 marriages held in 250 parishes, ranging from the city center to the most rural villages in the periphery of the Diocese. Their impeccable conservation for over four and a half centuries is unique in a region where parish archives have suffered massive destruction in several periods of upheaval, mainly during the last 200 years.

These marriage licenses have now been used to build the Barcelona Historical Marriage Database. They record first names and the grooms' family names, the names of brides (who were included in the licenses after 1481) and their marital status (mostly for brides and widowed grooms) as the items most commonly found in each record over five centuries. Brides' surnames were not registered until 1643 because women had to be bound by surname to their fathers (single brides) or their previous husband (widowed brides). Information on parents (names, and whether they were or were not alive at the time of their children's weddings) was usually registered except for the period from 1643 to 1750. Geographical location was systematically recorded from 1715 onward in the parish where marriage was held, and the records were written in Catalan until 1860, after which Spanish was used.

The amount of tax to be paid by a couple depended on social status or the occupation recorded throughout the period for grooms alone.[1] The taxes reflect the entire social

[1] Social status or occupation was always recorded for grooms and rarely for brides. This information for their parents can be found for the period 1560–1643.

structure, from the nobility (with the highest amount), to those who were declared poor and thus exempted from the marriage tax. From 1451 to 1575, the taxes were not strictly classified in accordance with the groom's socioeconomic status and presented greater variation in the values paid. However, from 1575 until 1649, they were fixed in a seven-tier scale: 1. nobility, 2. military citizens (like knights), 3. honored citizens (those who could hold public office), 4. merchants, lawyers, physicians, 5. guild masters, 6. farmers and small artisans, and 7. the poor. This last level represents tax exemption for those unable to pay the fee and who therefore received their marriage licenses thanks to God's love (*Amore Dei* or *Gratia Deo*), even though most members of this group declared some kind of occupation.

Taxes were calculated in *lliures*, *sous* and *diners* as units of currency,[2] and the values remained stable throughout the period (1481–1880), although they were paid with the type of currency in circulation at each stage. This was a tax-based source in which the whole (married) population was registered, and it covered a long time span and large geographical area for the whole preindustrial period and the first decades of the industrialization in Catalonia. Moreover, it can be argued that even though the data are restricted to marriages, the representativeness of this sample is remarkable since, according to the seminal work of Hajnal on "European marriage pattern" (1976), in some parts of France and Catalonia the incidence of celibacy was quite low and marriage was widespread.

3. Methodology

The tax of the Marriage License Books was based on proportional distribution rather than a progressive one, which could disguise the real economic dispersion, while also contributing to underestimates of economic inequality. This is a common risk with sources prior to the second half of the twentieth century. In order to avoid this problem and to obtain a more plausible estimation, this study proposes transforming the original categorization of taxes into a progressive taxation system. The idea is based on the ability-to-pay concept (Kendrick 1939), in which the economic capacity of an individual is not based on income alone but also on other tangible and intangible assets such as social status, which is one of the best markers for historical analysis. For instance, in a proportional tax categorization, a day laborer could pay the same tax as an artisan or a peasant, although they clearly have different socio-occupational status and earning capacities. The case of an impoverished individual belonging to a higher status group and paying lower tax obviously cannot be compared with that of an individual of much lower status. Furthermore, individuals in the same occupational group as a tradesman could have different earning capacities, which would not be revealed using classificatory schemes based on occupation alone. The table below shows the proportion of taxes paid by some of the main occupational groups. (table 1). Finally, we assume the tax-exempt category as a proxy of circumstantial poverty or unemployment, due to its coetaneous feature.[3] Hence, when a groom was exempted from paying tax under the *Amore Dei* category, his ability-to-pay value was zero, because the assumption of poverty would transform him into an economically nonactive person.

[2] This system is based on the Carolingian monetary system.

[3] The person in charge of registering and collecting the fees was usually a member of the clergy in the parish community where marriages took place and who probably knew about the economic situation of grooms and brides.

Table 1. *Tax dispersion among some of the main social and occupational groups in the Barcelona Area (1481–1880)—Authors' elaboration (BHMD)*

		Main tax levels 1650–1880 (1481–1649)							
		Amore Dei (%)	8s (4s) (%)	12s (6s) (%)	1ll and 4s (12s) (%)	2ll and 8s (1ll and 4s) (%)	4ll and 16s (2ll and 8s) (%)	24ll (12ll) (%)	*n*
Social-group occupation	Nobility	-	-	-	-	29	57	14	2,186
	Physician	2	17	15	31	1	33	-	1,393
	Tradesman	-	11	31	56	1	1	-	5,007
	Peasant	6	94	0.1	0.2	-	-	-	122,215
	Wool preparer	12	85	3	0.2	-	-	-	11,383
	Weaver	24	76	-	-	-	-	-	31,240
	Day laborer	40	60	-	-	-	-	-	56,110

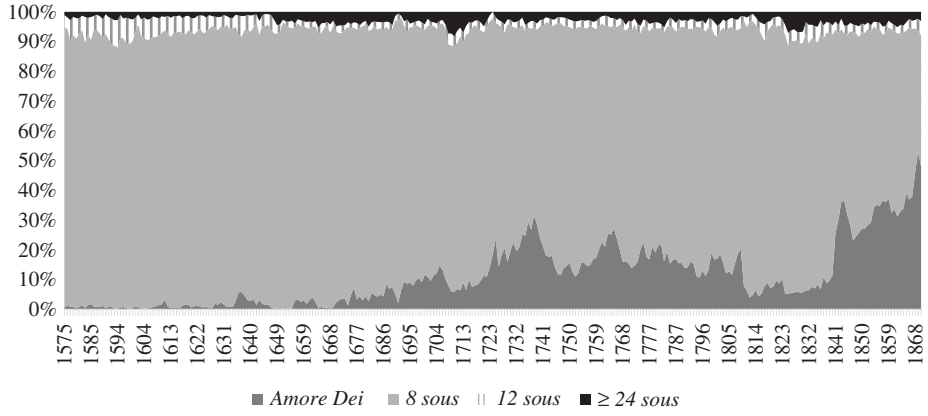


Figure 1. *Frequency of tax categories in* sous *in the Barcelona area (1481–1880)—Authors' elaboration (BHMD).*

The fact that the marriage tax depends on the socio-occupational category or status of the groom means that the assessment of inequality is based on a socioeconomic criterion rather than an economic perspective alone, which makes that most part of the individuals were inside the same category in the lower part of the distribution (see figure 1). As a result, applying the ability-to-pay approach, matching marriage taxes with the social and occupational status data entailed establishing the use of an important factor for gauging human capital. Recent studies in economic history have shown that earnings and income levels are related to the human capital achievements of individuals (Álvarez and Ramos Palencia 2018), and this relation may be driven up through accumulation of experience (Schulz and Maas 2010). Having long-term information about these features in relation with time of marriage therefore introduces an interesting demographic dimension into the study of inequality and of how the trends of socioeconomic inequality have evolved over the centuries. This analysis starts from the premise that, throughout history, marriage was a

fundamental event in the early stages in the individual's life cycle and one which, in Western societies, marked the starting point for family formation (Reher 1998).

The progressive dispersal of taxes was achieved thanks to the combination of two factors: the tax system recorded in the Marriage License Books (mainly *sous* and *lliures*) and classification of the whole occupational structure. This classification is the result of applying the Historical International Standard Classification of Occupations (HISCO), which gives a specific code to every single occupation (Van Leeuwen *et al.* 2002). Once all the occupations are codified, we rank them according to socio-occupational position by means of HISCAM, a historical status scale allowing continuous social status measurement by scoring occupations in a ranking theoretically going from 1 to 99 (Lambert *et al.* 2013).

The choice of HISCAM was because it offers the possibility of continuous measurement, which provides greater variation. Other classifications, such as HISCLASS, even when allowing a plausible social division, do not skip the tax flatness matter (Van Leeuwen and Maas 2011). Hence, the social group labeled in HISCLASS as "skilled workers" identifies occupations with different economic status, for example silversmiths and shoemakers, while the same social group is given different scores in the HISCAM classification: 69 and 50, respectively. With these data, the maximum score was set at 100 to include the nobility, which is not reflected in HISCAM. The actual conversion from HISCO codes to HISCAM and HISCLASS scores can be seen in table 2 for some of the main occupations in the Marriage License Books.

We consider that the combination of inherent taxes and HISCAM can provide us with a proxy for estimating disparity by means of an analysis based on the distribution of human capital. Hence, multiplication of tax paid and the HISCAM score gives the result shown below, where A_i is the individual's ability-to-pay, T_i is the tax paid by a certain individual and H_i is the HISCAM score.

$$A_i = T_i * H_i$$

In order to estimate socioeconomic inequality, we applied two different measures. Gini coefficients have been computed through each individual's ability-to-pay for the entire area of Barcelona and for other geographic units in order to assess inequality levels. Additionally, in order to identify economic inequality among economic sectors and social groups, we have computed a set of Theil indexes, enabling breakdowns of the *between* and *within* inequality in the occupational or social structure. In the example below, the way in

Table 2. *Occupational classification by schemes—Authors' elaboration (BHMD)*

		HISCO	HISCAM	HISCLASS	Subsector	Sector
Social-group occupation	Nobility	−1	100	Nobility	-	-
	Physician	6,105	92.87	High Professional	Liberal Professional	Tertiary
	Tradesman	41,025	63.03	Lower and Prof. Manager	Trade	Tertiary
	Peasant	61,110	52.84	Farmer	Agriculture	Primary
	Wool preparer	75,100	58.29	Skilled worker	Textile	Secondary
	Weaver	75,432	49.91	Lower-Skilled worker	Textile	Secondary
	Day laborer	99,920	41.43	Unskilled worker	Day laborer	Day laborer

each instance of socioeconomic inequality appears among economic sectors is explained in detail:

(1) First, by identifying the total share of workers (n) and the proportion of ability-to-pay (w) from the different economic subsectors and sectors.
(2) Once the share of workers (n) and the proportion of ability-to-pay (w) of a certain economic subsector are known, we can estimate their contribution (c_i) to the within inequality of a given sector:

$$c_i = w_i * [\ \ln(w_i) - \ln(n_i)\ ]$$

(3) The total within inequality of a given sector ($\mathbf{T}'$) is thus calculated as:

$$\mathbf{T}_j = c_i = \sum_{(i=1)}^{n} (c_i)$$

(4) Next, the between-sector inequality (T'') is easily computed as the weighted sum of the Theil indexes ($\mathbf{T}'$) from each of its economic subsectors:

$$\mathbf{T}'' = \sum_{(j=1)}^{n} (w_j * T_{j'})$$

(5) Finally, the total inequality including between and within economic sectors is as follows:

$$\mathbf{T} = \mathbf{T}' + \mathbf{T}''$$

Gini indexes were applied to measure socioeconomic inequality between individuals. However, this choice involves being aware of the limitations and strengths of Gini, the latter of which probably explain why it is the most commonly used indicator worldwide. Notable among its strong points is its comparability between distributions of income, wealth or socioeconomic scores (as in our case) from any kind of population regardless of size. For all that, the Gini index also has several considerable limitations, including nondifferentiation of several kinds of inequalities, with the result that different patterns of distribution, from the top or the bottom distribution, can give similar Gini coefficients. In addition, we would add that Gini coefficients are not easily decomposable or additive and that the index does not accurately reflect changes in the tails of a given distribution, as for instance in the highest or lowest two deciles. This means that Gini is more sensitive to middle transfers in the distribution (Cowell 2011).

Nevertheless, other measures to estimate inequality have been also applied to marriage licenses to compare with estimations obtained with Gini coefficients. For instance, the Kakwani index, which was developed in order to measure tax progressivity (De Maio 2007). Additionally, two more recent measures, namely, the Mehran and Piesch indexes were used in order to adjust the Gini index's sensitivity to changes in the middle parts of the distribution in order to give a better focus on the upper (Piesch) or lower (Mehran) tails (Aguilar-Gutiérrez 2016).

Furthermore, it should be taken into account that *lliures* and *sous* in the Marriage License Books were units of accountancy. After the beginning of the eighteenth century Catalonia did not have its own currency and these units were used until the end of the nineteenth century in what are nowadays considered historical church sources and not only the one used in this particular study. They were also used for factory payrolls and records of prices

(Ventura 1988). In this regard, we have compiled daily wages for some years and some occupations found in the literature to compare them with the taxes paid in our source. For instance, Vilar (1974) notes that in the first half of the eighteenth century the daily wage of rural occupations fluctuated between 7 and 8 *sous* (in our source, the fee paid for them at the time was 8 *sous*), while Codina (1996), in a work based on the southwest hinterland of Barcelona, argues that during the second half of the fifteenth and the first half of the seventeenth century the rural daily wages were quite stable, at around 3–4 *sous* (in our source, the fee is about four *sous* in this period). Yet, Codina also points that in the periods after the Catalan revolt (1640–1652), rural daily wages dropped to 2.3–2.8 *sous* on average. For other occupations like those related with the textile sector, Okuno (1999) reports a wide variety of daily wages for a cotton spinner in the last quarter of the eighteenth century, which could range from 5.6 to 10.2 *sous* per day (in our source, the fee in this period was 8 *sous*). Mora-Sitja (2007) reports a mean daily wage of 13 *sous* for one of the highest paying textile factories in Barcelona in 1799 (in our source the fee for most textile occupations is around 8 *sous*). Moreover, Feliu (1991b) delivers preindustrial daily wages for workers involved in church constructions from the sixteenth to the seventeenth century. For instance, the daily wage of a master builder between 1500 and 1640 ranges between 6 and 8 *sous* (their tax of reference at the time was 6 *sous*), while from 1650 to the end of the eighteenth century it varied between 10 and 26 *sous* (the tax of reference was 12 *sous*). Again, similar trends are observed for masons, carpenters, and day laborers in construction, all them with daily wages that varied in ranges surrounding the taxes of reference for their occupations between the sixteenth and eighteenth centuries. Thus, the marriage licenses values cost, at least for waged workers, the equivalent of something close to one day's work. This assumption is likely to seem valid when estimating inequality among individuals in a given period; however, the information could be biased when comparing periods. In other words, if the same units of accountancy were used throughout almost five centuries, there would be certainly a significant trend of devaluation in these units over time, as was pointed out by Feliu (1991a, p. 21) with regard to the value of *sous* in terms of silver grams. His observation is in line with the pioneering work of Hamilton (1934), *American Treasure and the Price Revolution in Spain*, in which he notes major inflation due in part to the growing influx of American silver. An example that may reflect the effects of this devaluation of units of accountancy over time would be the modification in taxes reported before and after 1649. For instance, in periods prior to the second half of the seventeenth century, the tax for farmers and artisans (the lowest tax) was 4 *sous*. After 1649, this former tax was doubled (8 *sous*), and the adjustment is the same for all the other categories. Thus, the tax structure doubled its nominal value from 1 year to the next in a period when, according to Feliu (1991a), the silver equivalent to a *sou* dropped from almost 1.08 g (1644) to only 0.71 g (1649).

In order to know how this could affect the notion of evolving economic patterns over centuries, we have weighted taxes for each year with their respective values in grams of silver. The premise is that if the value of *sous* remained constant over long periods, the real value was higher in the eighteenth and nineteenth centuries than in the previous centuries. Hence, taxes in *sous* were weighted as follows, for instance 8 *sous* in the period 1490–1499 were valued at 5.13 (8 *sous*/1.56 g of silver) and, in the period 1790–1799, the value was 12.5 (8 *sous*/0.64 g of silver). This allowed us to compute a measure of ability-to-pay per capita for the period 1490–1799, which are the years with information on *sous* and silver.

With this exercise, we have attempted to obtain an overall insight of how economic progress could have changed the meaning of inequality in the Barcelona area. We have used the estimated ability-to-pay per capita to calculate the extraction ratio based on the Gini index (Milanovic *et al.* 2011). This is gauged in different steps. The first is to compute the *maximum feasible Gini*, which may be understood as the extreme inequality measure as if 99 percent of a given population were lower class, a hypothetical scenario which would comprise the *inequality possibility frontier* of a given society in a given period (Milanovic *et al.* 2011). In order to obtain the *maximum feasible Gini*, three steps are basically needed: 1. an estimation of gross domestic income for a given period (ability-to-pay in our case); 2. an assumption of the subsistence levels of a society for the same period; and 3. a hypothesis concerning the share pertaining to the elites in the society being studied. Based on Milanovic, Lindert and Williamson's (2011) work, we have set the subsistence levels of the individuals in our study at 30 percent in terms of ability-to-pay per capita, and the share of elites at most 1 percent, as expressed below, where G^* is the *maximum feasible Gini*, ε is the share of the elite, μ is the ability-to-pay per capita, and s the subsistence level.

$$G^* = \frac{1 - \varepsilon}{\mu}(\mu - s)$$

After establishing this term G, it is now only necessary divide the actual measured Gini coefficient by the *maximum feasible Gini*, which would then signal the extent of potential inequality converted into actual inequality or, in other words, how much of the total inequality is extracted by the elites, when the higher the extraction ratio the *greater* the inequality would

Table 3. *Descriptive statics of the used variables—Author's elaboration (BHMD)*

Descriptives				
Total cases $n = 458{,}755$	Minimum	Maximum	Mean	SD
Period	1,481	1,880		
Taxes (in *sous*)	0	480	6.86	8.73
Status scores (HISCAM)	41.43	100	55.22	10.82
Ability to pay	0	48.000	411.99	820.40
	n			
Occupational titles (HISCO)	388			
Status (HISCAM)	263			
Classes (HISCLASS)	12(9)			
Georeferenced cases	375.200			
Parishes	421			
Geographic groups	Periods			
	From	To	From	To
Barcelona	1,560	1,649	1,715	1,880
Mataró	-	-	1,715	1,880
Terrassa	-	-	1,715	1,880
Sabadell	-	-	1,715	1,880
Rural	1,560	1,649	1,715	1,880

appear to be. In terms of our analysis, using the marriage taxes enables the measurement of inequality between individuals in a same period but, as might be expected in a long-term, we cannot compare individuals from different periods in the same way since the same nominal tax could have different values over time.

The different variables regarding this study can be seen in table 3.

4. Inequality among individuals in the Barcelona area, 1481–1880

First of all, we have measured socioeconomic inequality between individuals in the Barcelona area (1481–1880) by means of different measures which have been briefly described in Section 3 dealing with methodology. As can be seen in figure 2, all the measures present trends with similar shapes but with different impacts and levels. For instance, the Kakwani index, which was originally devised to measure the progressivity of tax systems in any given distribution where it is argued that values closest to 1 show greater progressivity. In this case, it appears that the ability-to-pay approach may have accomplished one of its aims, namely, applying progressivity to the proportional fiscal data.

The Mehran index, which aimed to be more sensitive to changes in the lower tails, shows higher levels of inequality. This is probably the result of changes that occurred with the *Amore Dei* tax exemptions. The Piesch index, which was designed to focus more on changes in the upper tails, shows the second-highest levels because it can be sensitive to the small presence of upper classes (like the nobility) in the distribution. Finally, Gini indexes show

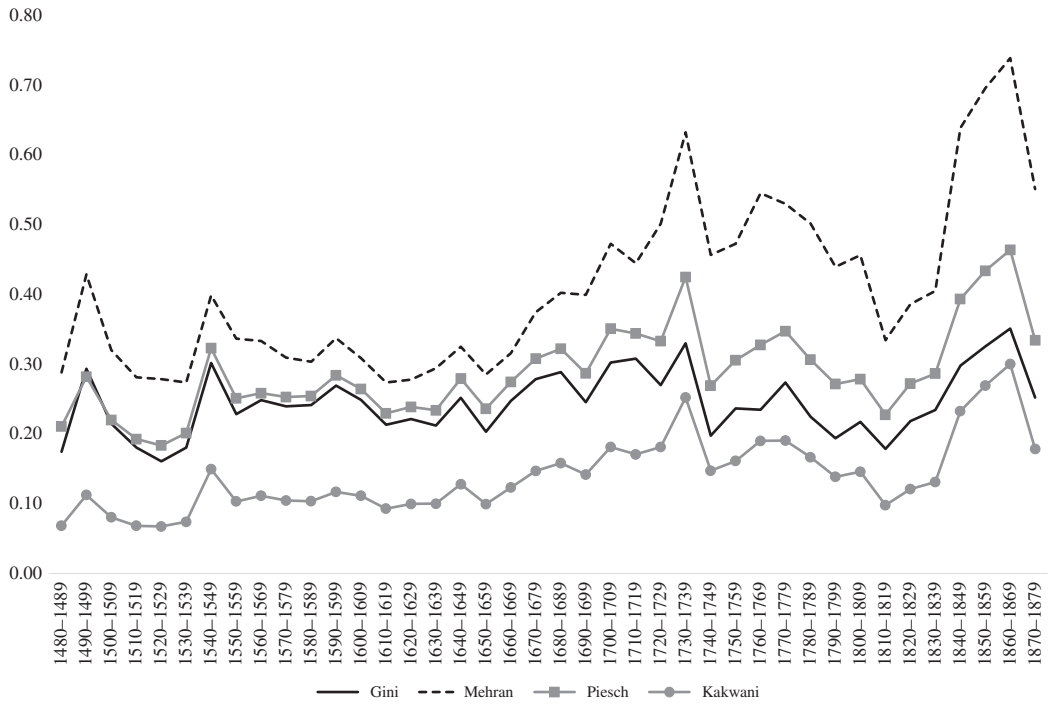


Figure 2. *Inequality in the Barcelona estimate with different measures (1481–1880)—Authors' elaboration (BHMD).*

levels lying between the other measures which, in a source like the marriage license books mainly featuring medium-distribution levels, might be one of the best measures.

In any case, the Marriage License Books allow more precise yearly estimation of economic inequality among individuals, given that this source offered a reliable sample. We can accordingly divide the Gini index trends for the Barcelona area from 1480 to 1880 into four main periods, which coincide with the established patterns of economic development in Catalonia over the same period.

The first period, from 1480 to the first half of the seventeenth century, was a time of economic stagnation after the Catalan Civil War (1462–1472) and the so-called Rebellion of the *Remences* (*Guerra dels Remences*), in which the diminishing importance of Barcelona's harbor was closely linked with the progressive decline of Catalan international trade in the fifteenth century (Simon Tarrés 1992). This was a time of economic downturn (1500–1530) but the Gini indexes leveled-off at around 0.25.

Some authors argue that with the end of the Rebellion of the *Remences*, the feudal lords' loss of political control over the peasantry led to increased tax pressure, which meant that access to lands became even more unequal (Freedman 1991). This might explain the outstanding peak in levels of inequality during the closing years of the fifteenth century. However, throughout this period there were serious mortality crises closely related with outbreaks of the plague like those which occurred in Barcelona in 1501, 1507, 1515, 1520, 1528, 1530, 1558, 1564, 1589, and 1614 (Betrán 1996). This delayed Catalonia's demographic and economic growth and could be a plausible reason for the sharp drop in the Gini coefficients thereafter. In addition, this process concluded with the worst episode of the plague, from 1647–1652, and its sequelae after it had taken a toll of approximately 40 percent of Barcelona's population (Moreno *et al.* 1986).

The second period, starting with the latter half of the seventeenth century, shows increasing inequality. This could partly be the result of the political and economic reorganization resulting from the critical situation of the first half of the century (García Espuche 1998). This restructuring also reinforced the prominent position in Catalonia of the city of Barcelona and its hinterland. The worsening inequality also coincides with new sharecropping contracts (*Rabassa Morta*) established in the last decades of the seventeenth century, in addition to expanding exports of wines and spirits. All together, these factors altered the growth trend of the Catalan economy and led to major demographic expansion (Carmona and Simpson 1999). The period shows a drop in the Gini coefficients around the last 15 years of the seventeenth century, which coincide with two of the last outbreaks of the plague in 1684 and 1697 (Betrán 1996). The ascendant trend reached its peak with a Gini coefficient of 0.36 in the 1740s, when the revival of the Catalan economy after the eighteenth century took it to unprecedented heights owing to its expanding trade. After 1740, these changes, allied with considerable demographic growth, enabled the introduction of the first calico-printing establishments in Barcelona as the preindustrial origin of an early industrialization. The trend to inequality shows a sharp downturn in the decades that followed (figure 3). Despite some oscillations, it never went beyond the 0.3–0.25 levels until the beginning of the nineteenth century when the drop was more pronounced, to around 0.15. This is likely to have been caused by the upheaval occasioned by the Peninsular War (or the Spanish War of Independence, 1808–1814), the battle for control of the Iberian peninsula during the Napoleonic Wars which, according to authors like Jordi Nadal (1975), affected mainly Catalonia's urban areas like Barcelona and therefore delayed the takeoff of its industrial revolution until the 1830s. Finally, the last phase of economic inequality in the Barcelona area began after 1830, when the Gini coefficients reached levels of 0.4 at the beginning of the Catalan industrialization (figure 3).

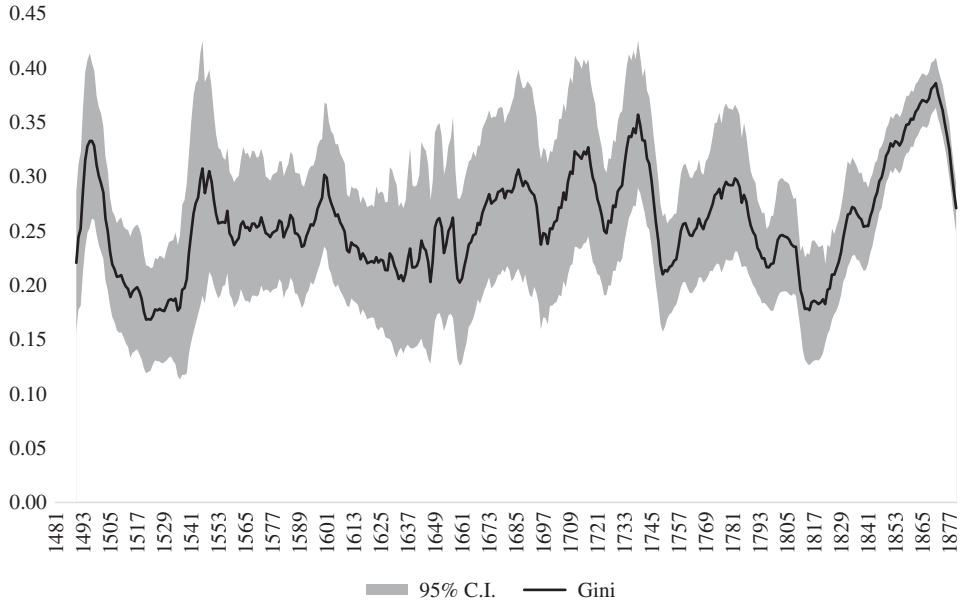


Figure 3. *Gini indexes (10-year moving average) in the Barcelona are (1481–1880)—Authors' elaboration (BHMD).*

The remarkable change in the pattern starting in around the 1650s may seem to evoke the Super-Kuznets curve, a concept coined by Van Zanden (1995), except for the effects of war at the beginning of the nineteenth century. However, the overall decrease in the Gini coefficients between 1750 and the final years of the eighteenth century correspond with an epoch of accelerated economic growth and the transition from a stagnating rural economy to the expansion of the trade and manufacturing sectors (Tello 1995). This oscillation and diminishing inequality during the eighteenth century would certainly contest the existence of a Super-Kuznets curve in this case, as García-Montero (2015) has also observed in other parts of Catalonia.

As society became urbanized, the trend to greater higher inequality can also be observed in the different locations. If the Barcelona area is divided into different parts—the town of Barcelona, the rural parishes and, after the eighteenth century, growing towns with a significant presence of industry (Mataró, Terrassa, and Sabadell)—a hierarchy of inequality in keeping with urban levels is revealed. Inequality in the city of Barcelona was three times as high as that in rural areas, with Mataró and Sabadell lying between these two poles. Mataró, with a population of 5,917 inhabitants in 1717 and 9,657 in 1787, showed levels that were twice those in rural areas (figure 4). These geographic dynamics coincide with trends of greater inequality in urban areas commonly found in other European societies or other Catalan towns (Alfani 2010; García-Montero 2015; Rychbosk 2015).

5. Was socioeconomic inequality higher in preindustrial or industrial periods in the Barcelona area?

Inequality trends seemed to reach their highest points in two periods, one between the end of the seventeenth century and the start of the eighteenth century, and the other from the

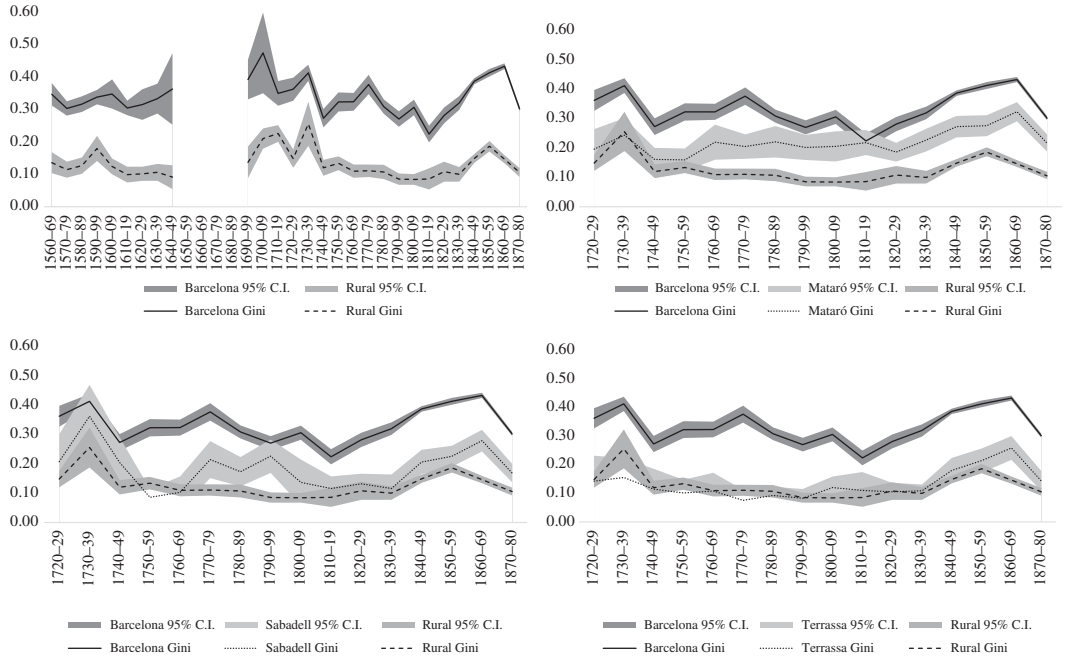


Figure 4. *Gini indexes in Barcelona, Mataró, Terrassa, and Rural Zones—Authors' elaboration (BHMD)*.

1840s onward. However, in the latter period, inequality estimates were driven up mainly because of the tax-exempt level applied to all grooms unable to pay the marriage license fee (*Amore Dei*). This exemption was granted to those grooms the church authorities considered to be impoverished,[4] and some of them could have been in this situation because of temporary economic hardship or unemployment, since all them had declared an occupation. How would this tax-exemption influence measurement of inequality? Assuming socioeconomic poverty alone may be risky, since we cannot ascertain whether eligibility criteria changed over time or whether the issue was strictly of an administrative nature rather than socioeconomic.

The proportion of grooms exempted from paying became noticeable from 1720 onward and then, after a marked drop, in the two first decades of the nineteenth century. Individuals in this situation accounted for almost half of all the grooms who married between 1840 and 1850 (figure 5). This rising tendency was significant in the period of the first stage of industrialization. Besides, the average HISCAM of those exempted dropped after the 1840s, owing to the considerable growth in the numbers of unskilled day laborers, which would seem logical since, toward the second half of the nineteenth century, Barcelona and a great part of its hinterland were moving into a factory system mode of production which gave rise to large flows of unskilled migrants (Mora-Sitja 2011).

In order to better control for the likely effect of *Amore Dei* in our measures, we analyze this influence with three different sets of Gini indexes, one including tax exemption, one

[4] In this case, poverty was referred to as circumstantial, the kind of functional poverty that affected parts of the population and that should not be confused with individuals comprising structural poverty, for example, beggars who were common in preindustrial periods.

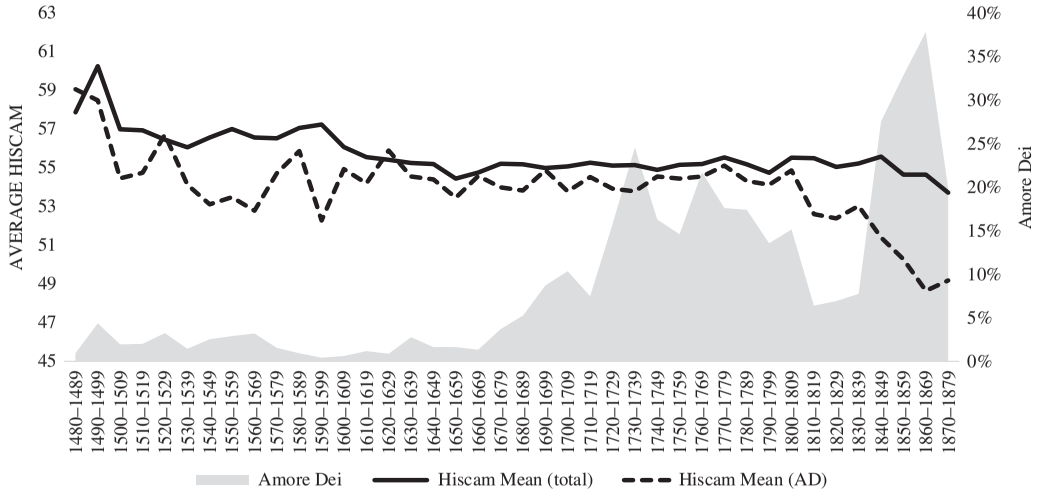


Figure 5. *Average HISCAM scores and proportions of tax exemptions (*Amore Dei*) in the Barcelona area (1481–1880)—Authors' elaboration (BHMD).*

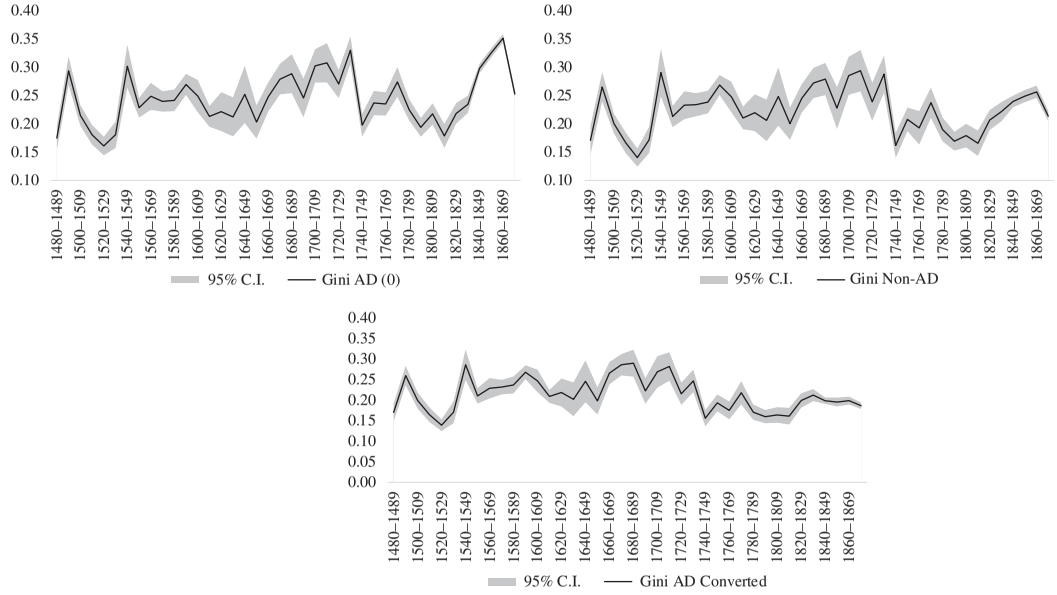


Figure 6. *Gini indexes with, without, and converted tax exemptions (*Amore Dei*) in the Barcelona area, 1481–1880—Authors' elaboration (BHMD).*

excluding it, while the last set converts all the *Amore Dei* cases into the fixed tax for a given occupation. In other words, if a given weaver was exempted we converted his fee value into 8 *sous* and also did the same for any exempted occupation which might have been in other categories. The results reveal that the effect of impoverished grooms raised inequality levels in the Barcelona area, with a difference of almost ten points in Gini coefficients when

comparing estimates with and without impoverished individuals, and the figure is even lower with converted exemptions than without them (figure 6).

After 1820, the levels of exemptions and inequality initiated a rising trend. And from 1830 onward, when *Amore Dei* was included in the measurement, the rise in inequality was much higher. The difference between the Gini trends was greater than 10 percent. The most noticeable aspect of this gap is explained by the occupational composition of tax-exempted grooms, a situation that was compounded in these years by a large proportion of day laborers who came to constitute as much as 80 percent of the group. Weavers and many day laborers were among the first workers to be integrated into the incipient Catalan factory system (Mora-Sitja 2006).

Hence, the overall long-run trend of individual inequality seems to point to some possible interpretations. First, in the latter half of the nineteenth century when the lowest economic strata (*Amore Dei*) is included in the analysis, there is a notable increase in inequality, maintaining higher levels than in the past period and coinciding with the takeoff of Catalan industrialization. Another plausible reason for this large increase in *Amore Dei* cases could be not so much a radical deterioration in workers' living standards, as an aspect related with changes in the labor calendar and its seasonality, given that after the 1830s, most of the population in Barcelona and other urban zones tended to marry in December and January, a phenomenon also observed in other countries like Sweden (Dribe and Van de Putte 2012) where workers mainly chose to get married when there were breaks in industrial activity. In other words, this could mean that *Amore Dei* indicates temporary unemployment and was therefore circumstantial and not a sign of structural poverty. Second, when the tax-exempted group was not taken into consideration (absent or converted), we observed rising inequality in the first period of Catalan industrialization, although at lower levels. This would indicate that the preindustrial period of the seventeenth century was the most economically unequal period in the 400 years analyzed.

Nevertheless, comparing inequality trends in the long run may be complicated, the premise is that if the record of *sous* remained mainly constant over long periods, the real value of *sous* would be higher in the eighteenth and nineteenth centuries than in previous centuries. In order to give an insight of how this could affect evolving economic patterns over centuries, we have weighted taxes for each year with their respective values in grams of silver (see

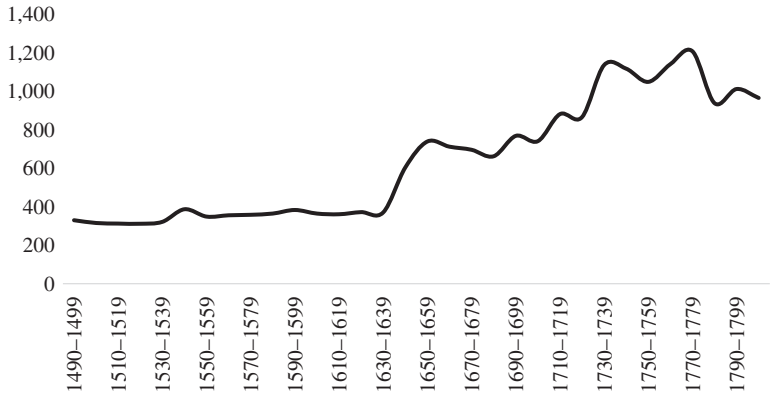


Figure 7. *Ability-to-pay* per capita *weighting* sous *with prices of silver grams—Authors' elaboration (BHMD) using data on silver prices from Feliu (1991a).*

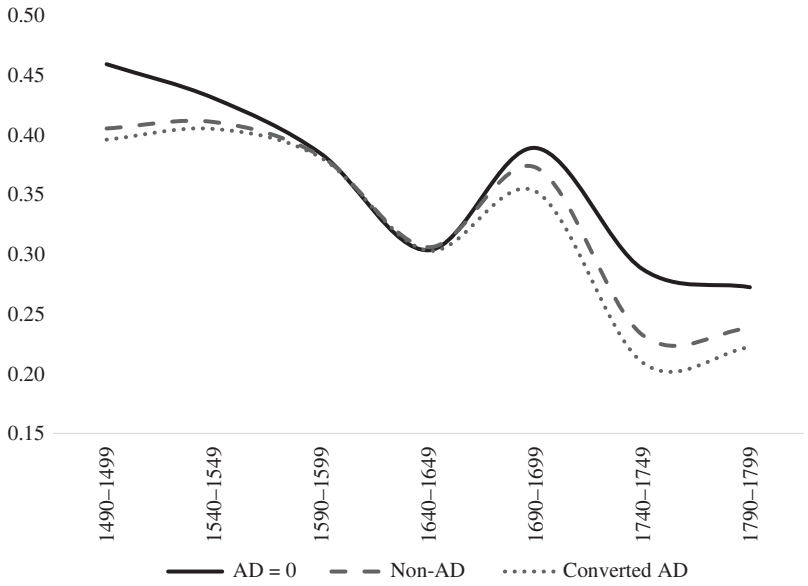


Figure 8. *Extraction ratio in some benchmark decades in the Barcelona area, 1481–1880—Authors' elaboration (BHMD).*

Section 3). This allows us to compute a measure of ability-to-pay per capita for the period 1490–1799, the years with information on *sous* and silver (Feliu 1991a). The result shows a significantly rising pattern after the 1640s (figure 7). This gross estimate means that using marriage taxes seems to enable measurement of inequality between individuals (or groups) in a same period but in a long-run study, we cannot directly compare individuals from different periods in the same way since the same nominal tax could have different values over time.

In an attempt at assessing whether socioeconomic inequality was higher in preindustrial or industrial periods we computed the extraction ratio based on Gini coefficients, which shows the extent of potential inequality converted into actual inequality (Milanovic *et al.* 2011), since it can be argued that higher ratios of extraction can mean a *greater* inequality. The extraction ratio shows, despite similar Gini measures, a downward trend toward the industrialization period in different scenarios (with, without *Amore Dei* or converting *Amore Dei*). There are signs of further evidence suggesting that the inequality in preindustrial periods might have been higher than during industrialization (figure 8).

6. *Within* and *between* inequality among economic sectors

The general trends in economic inequality among individuals points to a likely influence of structural development in occupational terms through the four centuries under consideration. Long-term economic development can be observed thanks to structural changes in occupation from 1481 to 1880. When assessing the evolution of labor share from the occupational data registered in the source, the first noticeable element is the constant growth of the primary sector in the Barcelona area from 1481 to 1680, which would confirm the ruralization of the Catalan economy in the sixteenth and seventeenth centuries (Elliott 1984).

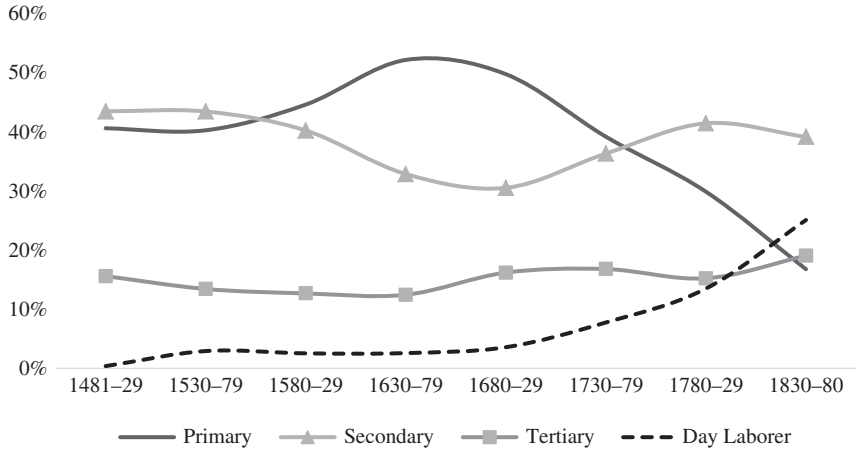


Figure 9. *Occupational structure in the Barcelona area (1481–1880)—Authors' elaboration (BHMD).*

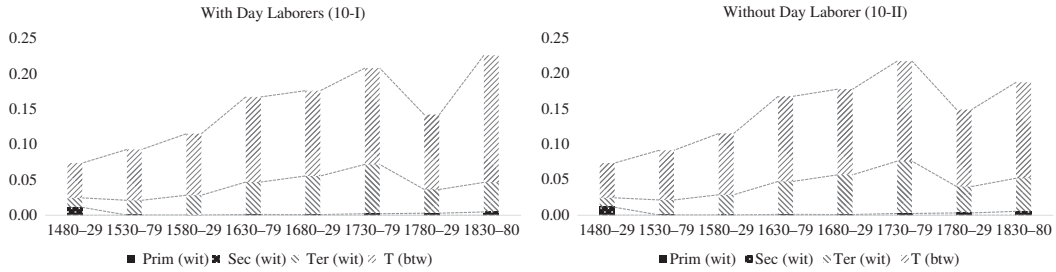


Figure 10. *Decomposed Theil Indexes by economic sectors in the Barcelona area (1481–1880)—Authors' elaboration.*

This primary-sector growth reached a peak in the second half of the seventeenth century, after which there is a long period of decline (figure 9).

The waning primary sector was mainly replaced by occupations in the secondary sector, with day laborers and, to a lesser extent, with occupations pertaining to the tertiary sector (figure 9). After the end of the seventeenth century, these changes show an early transformation of the occupational structure of Barcelona and its surroundings, indicating that the economic changes traditionally assigned in the context of industrialization had begun much earlier (García Espuche 1998). Taking into account the economic and demographic weights of the most active sectors present in the city of Barcelona, it is possible to compute a decomposed inequality index (Theil) based on the total share between ability-to pay (tax and status) and frequency of cases.

The total inequality computed shows a progressive increase during the whole period, from 0.07 in the years from 1481 to 1529 up to around 0.22 between 1830 and 1880, a trend that was only interrupted in the period 1780–1829 which may respond to the effects of the Peninsula War (1808–1814) (figure 10-I). Observing the different figures, it can be argued that the between inequality was more significant, ranging from 66 percent (1481–1529) to

80 percent (1830–1880), followed by the tertiary sector and, residually, by the secondary and primary sectors.

Nevertheless, although we consider the differences in Gini coefficients in the nineteenth century, when the tax-exemption effect was controlled, we carry out the same exercise among sectors. With the exception of day laborers, the overall development of sector inequality changed in the final period, 1830–1880, in which inequality was slightly below that for the period 1730–1779, and similar to that for 1680–1729 (figure 10-II). Moreover, the effects of between-sector inequality also decrease, indicating the effect of day laborers and, for first time, a part of the tertiary sector, while the within inequality of the secondary sector also rises after 1780, which together with the inequality accounted for by day laborers, indicates an early industrialization starting before than traditionally argued (Brea-Martínez and Pujadas-Mora 2017).

So far, our analysis of the economic inequality trends has been based on the ability-to-pay principle. However, the long period under analysis entails a dramatic transformation of the socioeconomic structure, which went from the Old Regime to an incipient industrial society. It seems reasonable, then, to consider whether inequality in the Barcelona area indicates a move from an ordered society to another which might be described as a skilled–unskilled occupational society.

Using a similar logic to compute the Theil indexes related with grooms, it is possible to identify nine social groups based on the HISCLASS social scheme and the original tax data (Van Leeuwen and Maas 2011). The HISCLASS classification was adapted to include 1. the nobility, as the first group, followed by 2. high managers, 3. high professionals, 4. lower and professional managers, 5. lower clerical and sales personnel, 6. skilled workers, 7. farmers, 8. low-skilled and unskilled workers, and 9. low-skilled and unskilled farm workers. The objective was to establish an estimate of inequality in a division similar to a social table (Milanovic *et al.* 2011). The inequality that emerges in accordance with this social organization can be observed in the figure below computing the income-weighted multiplication of the log share of tax and the number of grooms in a given social class. The positive values correspond to social groups with a higher tax weight contribution and lower

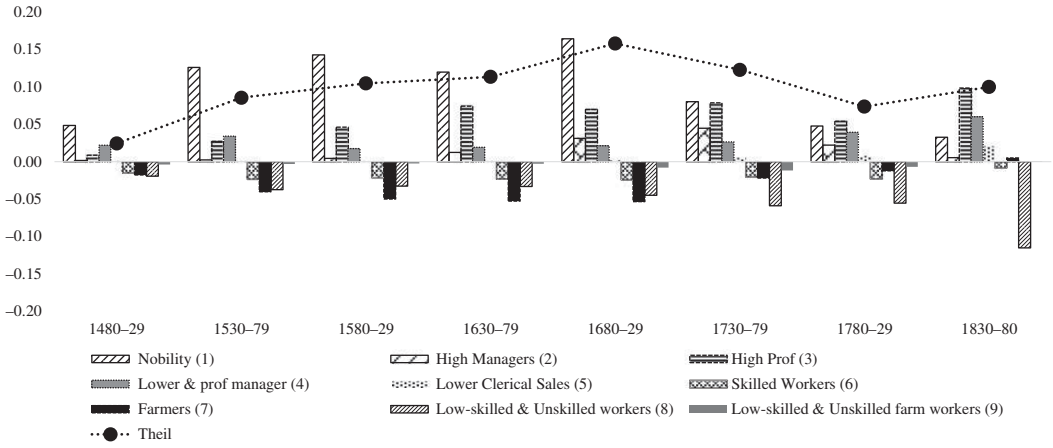


Figure 11. *Socioeconomic contributions to inequality by social groups in the Barcelona area, 1481–1880—Authors' elaboration (BHMD).*

population, whereas negative values represent exactly the opposite. In other words, positive values represent with the richer part of the society and negative values the poorer part.

In this scheme based on the marriage taxes alone, the trends in total inequality (Theil) by social groups would have increased progressively from the period 1481–1529 until 1680 and 1729. However, from 1730 onward, the trends drop, showing even lower levels during the period 1830–1880. Observing contributions from the social groups, until the period 1680–1729, inequality was explained mainly by the positive contribution of the nobility who accounted for up to 45 percent of total inequality (Figure 11). However, from 1730 onward, the impact of the nobility lessens, which may be the result of a progressively declining presence of this group in the social spectrum. Rather, total inequality starts to be explained by the "negative" contribution of low-skilled and unskilled workers (basically day laborers and weavers) which progressively increases until 1830–1880, when 33 percent of inequality was accounted for by the group that was presumably introduced into the factory system (Figure 11).

7. Concluding remarks

Estimating socioeconomic inequality using the Barcelona Historical Marriage Database has made it possible to identify tax progressivity over a long period when this is rarely achievable using the other kinds of sources which have traditionally been used in this kind of study.

An overall view of the phases of the Catalan economy seems to offer a partial explanation of trends in socioeconomic inequality, except for the second half of the eighteenth century when, despite economic growth, inequality levels dropped or were interrupted by the effects of the Peninsula War. This peculiarity also coincides with other cases described by different authors where the relationship between economic growth and increasing inequality (based on empirical work) was not always visible, as happened, for instance, in preindustrial Portugal (Reis 2017), or in Florence, where inequality increased in times of economic stagnation (Alfani and Ammannati 2017). Moreover, the overall trends observed in this area match with other studies, for instance, with higher levels of inequality in urban areas (Alfani 2010; García-Montero 2015).

The differences observed with the inequality which came with industrialization, when the effects of tax exemption and low-skilled and unskilled industrial workers were taken into account, together with insights from the extraction ratio in some benchmark decades, point to a unique interpretation. The patterns of socioeconomic inequality would have been higher in preindustrial periods, mainly during the second half of the seventeenth century and the first half of the eighteenth century than in the "strictly" industrial period. The reason for this would seem to be the ordered social structure, which may have contributed to a more unequal society than one based on skilled and unskilled occupations. However, industrialization brought about a new situation, where processes like the deskilling occupational structure and the emergence of a new working class would have given rise to a new kind of mounting inequality, probably due to the *proletarianization* effect.

Paradoxically, in the second half of the eighteenth century the Barcelona area showed lower socioeconomic inequality, in a break from the rising trends which started around the seventeenth century. If we relate this with knowledge from earlier studies in the region, perhaps the considerable increase in sharecropping contracts, allied with rising rural profits and rather low salaries in manufacture, could explain the decline in inequality levels

(Badia-Miró and Tello 2014). However, in the case of the Barcelona area, in the absence of evidence of income inequality, and with the economic growth mismatch in the second half of the eighteenth century, the only possible response is to formulate several hypotheses. If we take into account the peculiarity of Catalonia regarding the universal (impartible) inheritance system, together with the rural occupational structure, noninheriting individuals could have been contributing to rising inequality due to their lack of resources (Ferrer 2008). Conversely, during the industrialization process, a possible reason for the decline in socioeconomic inequality in a period well known for economic growth could have been a more dynamic occupational structure, and also those noninheritors who were able to find new and different occupations (perhaps in the secondary or tertiary sectors), thus allowing better balance in economic dispersion (Ferrer 2003). This last point signals the interest of introducing into analyses of inequality in economic history the effects that demography and family might have in terms of ages, mortality, fertility, and marriage processes as well as family composition, and this can be achieved through the analysis of individual microlevel information.

Acknowledgements

We are grateful to Anna Cabré, Isabel Moll Blanes, Gabriel Jover Avellà, and Juan Gabriel Rodríguez Hernández for all the support, helpful comments, and suggestions. A first version of this study was also presented in the EINITE conference held in Bocconi University in Milan (2017) and in the Belfast ESSHC conference (2018), both organized by Guido Alfani to whom we thanks also valuable comments.

Funding

This article was funded by the ERC Advanced Grant Project Five Centuries of Marriages (2011-2016), which was funded by the European Research Council (FP7-ERC-2010-AdG-269796) (PI Anna Cabré). The team includes researchers from the Universitat Autónoma de Barcelona, its Centre for Demographic Studies (CED), and the Computer Vision Center (CVC).

Conflict of interest statement. None declared.

References

Acemoglu, D. and Robinson, J.A. (2000). Why did the West extend the franchise? Democracy, inequality, and growth in historical perspective. *The Quarterly Journal of Economics* **115**(4), pp. 1167–99.

Aghion, P. and Williamson, J.G. (1998). *Growth, Inequality, and Globalization: Theory, History, and Policy*. Cambridge, UK: Cambridge University Press.

Aguilar-Gutiérrez, G. (2016). Why inequality declined in Mexico? Analysis with Gini, Mehran and Piesch Indexes, 2000–2012. *Economia Sociedad y Territorio* **16**(52), pp. 557–90.

Alfani, G. (2010). Wealth inequalities and population dynamics in early modern northern Italy. *Journal of Interdisciplinary History* **40**(4), pp. 513–49.

Alfani, G. (2015). Economic inequality in northwestern Italy: a long-term view (fourteenth to eighteenth centuries). *The Journal of Economic History* **75**(4), pp. 1058–96.

Alfani, G. and Ammannati, F. (2017). Long-term trends in economic inequality: the case of the Florentine state, c. 1300–1800. *The Economic History Review* **62**, pp. 143–53.

Alfani, G. and Ryckbosch, W. (2016). Growing apart in early modern Europe? A comparison of inequality trends in Italy and the Low Countries, 1500–1800. *Explorations in Economic History* **62**, pp. 143–53.
Alvarez-Nogal, C. and Prados de La Escosura, L. (2007). The decline of Spain (1500–1850): conjectural estimates. *European Review of Economic History* **11**(3), pp. 319–66.
Álvarez, B. and Ramos Palencia, F. (2018). Human capital and earnings in eighteenth-century Castile. *Explorations in Economic History* **67**(2018), pp. 105–33.
Atkinson, A.B., Piketty, T. and Saez, E. (2011). Top incomes in the long run of history. *Journal of Economic Literature* **49**(1), pp. 3–71.
Badia-Miró, M. and Tello, E. (2014). Vine-growing in Catalonia: the main agricultural change underlying the earliest industrialization in Mediterranean Europe (1720–1939). *European Review of Economic History* **18**(2), pp. 203–26.
Betrán, J.L. (1996). *La peste en la Barcelona de los Austrias*, Vol. 2. Barcelona: Milenio.
Brea-Martínez, G. and Pujadas-Mora, J. (2017). Transformación y desigualdad económica en la industrialización en el área de Barcelona, 1715–1860. *Revista De Historia Económica/Journal of Iberian and Latin American Economic History*, pp. 1–33. doi:10.1017/S0212610917000234.
Canbakal, J. (2012). Wealth and inequality in Ottoman Bursa, 1500–1840. Draft paper. http://www.econ.yale.edu/~egcenter/Wealth%20and%20Inequality%20in%20Ottoman%20Bursa-Canbakal.pdf.
Carmona, J. and Simpson, J. (1999). The "Rabassa Morta" in Catalan viticulture: the rise and decline of a long-term sharecropping contract, 1670–1920s. *The Journal of Economic History* **59**(2), pp. 290–315.
Codina, J. (1996). Cost de la vida a l'Hospitalet de LLobregat. Increment de preus i salaris, 1313–1807. *Materials del Baix Llobregat* **2**, pp. 69–7.
Cowell, F. (2011). *Measuring inequality*. Oxford: Oxford University Press.
De Maio, F. (2007). Income inequality measures. *Journal of Epidemiology & Community Health* **61**(10), pp. 849–52.
Dribe, M. and Van de Putte, B. (2012). Marriage seasonality and the industrious revolution: southern Sweden, 1690–1895. *The Economic History Review* **65**(3), pp. 1123–46.
Elliott, J.H. (1984). *The revolt of the Catalans*. Cambridge, UK: Cambridge University Press.
Feliu, G. (1991a). Precios y salarios en la Cataluña moderna. Vol. I: Alimentos. Madrid. Banco de España.
Feliu, G. (1991b). Precios y salarios en la Cataluña moderna. Vol. II: Combustibles, productos manufacturados y salarios. Madrid. Banco de España.
Ferrer, L. (2003). Segundones y actividad econòmica en Cataluña (siglos XVIII-XIX). Reflexiones a partir de la familia Berenguer de Artès. *Revista de Demografía Histórica* **XXI**(2), pp. 93–128.
Ferrer, L. (2008). La diversitat de l'activitat econòmica a la Catalunya moderna: més enllà de la renda feudal. *Pedralbes* **28**, pp. 725–64.
Freedman, P. (1991). *The origins of peasant servitude in medieval Catalonia*. Cambridge: Cambridge University Press.
García Espuche, A. (1998). *Un siglo decisivo: Barcelona y Cataluña, 1550–1640*, Vol. 11. Madrid: Alianza editorial.
García-Montero, H. (2015). Long-term Trends in Wealth Inequality in Catalonia, 1400–1800: Initial Results. Dondena Centre for Research. Working Paper. No. 79 0. Document Number.
Gifre, P. (2012). Els senyors útils i propietaris. La formació històrica d'un grup social pagès (Vegueria de Girona, 1486–1730), Barcelona, Fundació Noguera-Editorial Pagès.
Hajnal, J. (1976). European Marriage Patterns in Perspective. *Population and Development Review* **2**(3–4), pp. 101–43.
Hamilton, E. (1934). *American treasure and the price revolution in Spain, 1501–1650*. Harvard Economic Studies. Cambridge, MA: Harvard University Press.
Kendrick, M.S. (1939). The Ability-to-Pay Theory of Taxation. *The American Economic Review*, **29**, pp. 92–101.

Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review* **45**(1), pp. 1–28.

Lambert, P.S., Zijdeman, R.L., Van Leeuwen, M.H., Maas, I. and Prandy, K. (2013). The construction of HISCAM: a stratification scale based on social interactions for historical comparative research. *Historical Methods: A Journal of Quantitative and Interdisciplinary History* **46**(2), pp. 77–89.

Main, G.L. (1977). Inequality in early America: the evidence from probate records of Massachusetts and Maryland. *The Journal of Interdisciplinary History* **7**(4), pp. 559–81.

Marfany, J. (2012). *Land, Proto-industry and Population in Catalonia, c. 1680–1829: An Alternative Transition to Capitalism?* London: Ashgate.

Martínez-Galarraga, J., Rosés, J. and Tirado, D.A. (2015). The long-term patterns of regional income inequality in Spain, 1860–2000. *Regional Studies* **49**(4), pp. 502–17.

Milanovic, B., Lindert, P.H. and Williamson, J.G. (2011). Pre-industrial inequality. *The Economic Journal* **121**(551), pp. 255–72.

Mora-Sitja, N. (2006). *Exploring changes in earnings inequality during industrialization: Barcelona, 1856–1905*. Economics Group, Nuffield College, University of Oxford. Document Number.

Mora-Sitja, N. (2007). Labour market integration in a pre-industrial economy: Catalonia, 1772–1816. *Oxford Economic Papers* **59**(suppl_1), pp. i156–77.

Mora-Sitja, N. (2011). El primer proletariat català. Mà d'obra i relacions laborals a les fàbriques d'indianes de Barcelona. *Barcelona quaderns d'història* **17**, pp. 237.

Moreno, A., Planaguma, J. and Domenech, T. (1986). Las crisis demográficas en Cataluña Siglos XIV al XVII: Algunas reflexiones. *Contrastes (Murcia, Spain)* **2**, pp. 15–38.

Nadal, J. (1975). *El Fracaso de la Revolución Industrial en España, 1814–1913*. Barcelona: Ariel.

Nicolini, E. and Ramos Palencia, F. (2016). Decomposing income inequality in a backward pre-industrial economy: Old Castile (Spain) in the middle of the eighteenth century. *The Economic History Review* **69**(3), pp. 747–72.

Okuno, Y. (1999). Entre la llana i el cotó. Una nota sobre l'extensió de la indústria del cotó als pobles de Catalunya el darrer quart del segle XVIII. *Recerques: Història, Economia, Cultura* **38**, pp. 47–76.

Prados de la Escosura, L. (2008). Inequality, poverty and the Kuznets curve in Spain, 1850–2000. *European Review of Economic History* **12**(3), pp. 287–324.

Pujadas-Mora, J.M., Brea-Martínez, G., Jordà Sánchez, J.P. and Cabré, A. (2018). The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries. *The History of the Family*, pp. 1–23. doi: 10.1080/1081602X.2018.1426483

Reis, J. (2017). Deviant behaviour? Inequality in Portugal 1565–1770. *Cliometrica* **11**(3), pp. 297–319.

Reher, D.S. (1998). Family ties in Western Europe: persistent contrasts. *Population and Development Review* **24**(2), pp. 203–34.

Rosés, J. (1998). Measuring the contribution of human capital to the development of the Catalan factory system (1830–61). *European Review of Economic History* **2**(1), pp. 25–48.

Ryckbosch, W. (2015). Economic inequality and growth before the industrial revolution: the case of the Low Countries (fourteenth to nineteenth centuries). *European Review of Economic History* **20**(1), pp. 1–22.

Santiago-Caballero, C. (2011). Income inequality in central Spain, 1690–1800. *Explorations in Economic History* **48**(1), pp. 83–96.

Schulz, W. and Maas, I. (2010). Studying historical occupational careers with multilevel growth models. *Demographic Research* **23**, pp. 669.

Serra i Puig, E. (1980). El règim feudal català abans i després de la sentència arbitral de Guadalupe. *Recerques: Història, Economia, Cultura* **10**, pp. 17–32.

Simon Tarrés, A. (1992). La població catalana a l'època moderna. Síntesi i actualització. *Manuscrits: Revista D'història Moderna* **10**, pp. 217–58.

Tello, E. (1995). El fin de la expansión agraria en Cataluña del siglo XVIII: factores económicos y crisis social. *Agricultura y Sociedad* **74**, pp. 109–57.

Torras, J. (1998). Small towns, craft guilds and proto-industry in Spain. *Jahrbuch für Wirtschaftsgeschichte/Economic History Yearbook* **39**(2), pp. 79–96.

Valls Junyent, F. (2002). El Paper de les exportacions vitícoles en la configuració de les relacions exteriors de l'economia catalana, 1672–1869. *Anuari de la Societat Catalana d'Economia* **17**, pp. 10–8.

Van Leeuwen, M.H. and Maas, I. (2011). *HISCLASS: A Historical International Social Class Scheme*. Leuven: University Press.

Van Leeuwen, M.H., Maas, I. and Miles, A. (2002). *HISCO: Historical International Standard Classification of Occupations*. Leuven: University Press.

Van Zanden, J.L. (1995). Tracing the beginning of the Kuznets curve: western Europe during the early modern period. *The Economic History Review* **48**(4), pp. 643–64.

Ventura, J. (1988). La moneda a Catalunya durant el regnat de Carles III. *Pedralbes: Revista D'història Moderna* **8**, pp. 499–508.

Vilar, P. (1966). *Catalunya dins l'Espanya Moderna. Vol III. Les Transformacions Agràries del Segle XVIII Català*. Barcelona: Edicions, pp. 62.

Vilar, P. (1974). La Catalunya industrial: reflexions sobre una arrencada i sobre un destí. *Recerques: història, economia, cultura* **3**, pp. 7–22.

Williamson, J.G. (1991). British inequality during the industrial revolution: accounting for the Kuznets curve. In Y. S. Brenner, H. Kaelble and M. Thomas (eds), *Income Distribution in Historical Perspective*. Cambridge: Cambridge University Press, pp. 57–75.

4.2 Brea-Martínez, G., & Pujadas-Mora, J. M. (2018). ***Transformación y desigualdad económica en la industrialización en el área de Barcelona, 1715-1860***. *Revista de Historia Economica-Journal of Iberian and Latin American Economic History, 36(2), 241-273.*

TRANSFORMACIÓN Y DESIGUALDAD ECONÓMICA EN LA INDUSTRIALIZACIÓN EN EL ÁREA DE BARCELONA, 1715-1860*

GABRIEL BREA-MARTÍNEZ
(Centre d'Estudis Demogràfics-Universitat Autònoma de Barcelona)[a]

JOANA-MARIA PUJADAS-MORA
(Centre d'Estudis Demogràfics-Universitat Autònoma de Barcelona)[a]

Transformation and Economic Inequality in the Industrialisation of the Area of Barcelona, 1715-1860

ABSTRACT

Labour market transformation and inequality were fundamental aspects in the transition to the industrialisation. This article reconstructs the Barcelona's area economic structure across the 18th and 19th centuries through the Marriage Licences of the Barcelona's Cathedral. These documents registered a proportional tax paid by the spouses' according to their occupational and social status. Since 1780, an important decrease in the primary sector and an increase in the secondary and tertiary sectors are observed. Inequality between economic sectors rose and also within the secondary sector (textile) due to the proletarianization of the workers. Conversely, there was not an increase in inequality in the primary sector while it decreased in the tertiary sector.

Keywords: Industrialisation, occupational structure, area of Barcelona, economic inequality, proletarianization.

JEL Classification: J21, N33, 014, O15, D63

* Received 27 February 2017. Accepted 11 October 2017. Este trabajo forma parte de la tesis doctoral en curso del primer autor. La investigación se ha desarrollado en el proyecto *"Five Centuries of Marriages"* dirigido por la Prof. Anna Cabré y financiado por el *European Research Council* (FP7-ERC-2010-AdG-269796). Agradecemos el apoyo e inspiración por parte de la Profesora Anna Cabré, sin la cual esta investigación no habría sido posible.

[a] C/ de Ca n'Altayó, Ed. E2, UAB, 08193 Bellaterra/Barcelona. Email: gbrea@ced.uab.es, jpujadas@ced.uab.es.

Page 1 of 33. doi:10.1017/S0212610917000234

RESUMEN

La transformación del mercado laboral y sus desigualdades fueron fundamentales en la transición hacia la industrialización. Este artículo reconstruye la estructura económica del área de Barcelona entre los siglos XVIII y XIX a través de los Libros de Esponsales de la Catedral de Barcelona, que registraban el pago de un impuesto proporcional en función del estatus social u ocupacional de los contrayentes. A partir de 1780 se observa una disminución del sector primario y el crecimiento del secundario y terciario. La desigualdad entre sectores aumentó, al igual que en el interior del sector secundario (textil) que se entendería por un proceso de proletarización. En el primario no se incrementaron las desigualdades y en el terciario disminuyeron.

Palabras clave: Industrialización, estructura ocupacional, área de Barcelona, desigualdad económica, proletarización

1. INTRODUCCIÓN

La industrialización conllevó un importante proceso de diversificación y especialización del mercado de trabajo causado por transformaciones que afectaron a la composición ocupacional, debido a la aparición, desaparición, declive y aumento de diferentes ocupaciones con un consecuente cambio en los niveles de desigualdad. De hecho, se dio una especialización productiva (técnica y/o tecnológica) en diferentes sectores económicos, tanto en actividades relacionadas con la transformación de recursos naturales, como en la producción de bienes de consumo (Broadberry et al. 2013; Shaw-Taylor y Wrigley, 2014). A su vez, este proceso propició un traspaso de población activa de la agricultura a la industria, provocando un éxodo rural, como consecuencia de una mejora técnica en la producción agrícola y sobre todo al desarrollo del modo de producción fabril[1].

El progreso tecnológico en muchas industrias permitió absorber a un número importante de trabajadores que no necesariamente tenían una especialización concreta. En el caso de la industria textil, la adopción de nuevas formas de producción posibilitó disminuir el tiempo de aprendizaje ocupacional además de facilitar el acceso a trabajadores ajenos al sistema gremial[2]. De esta manera, en sectores como la manufactura, la construcción

[1] Sobre la productividad agrícola previa a la industrialización véase Allen (2000) y Clark (1987). En la importancia de los movimientos migratorios relacionados durante la industrialización véase Camps Cura (1995), Moch (2003), Oris (2003) y Vidal i Bendito (1979).

[2] La industrialización conllevó a una disminución de la especialización del trabajador como se afirma en Form (1987) y Hanagan (1977).

y los transportes se reconfiguraron muchas de sus ocupaciones[3]. El crecimiento del sistema fabril en el siglo XIX implicó una especialización de parte de las ocupaciones manufactureras mientras que otros menesteres se proletarizaron (Form, 1987; Camps Cura, 1992). También se observa el surgimiento de nuevas actividades en el sector del comercio, claramente en expansión, o la eclosión del sector de las finanzas (Prat Sabartés, 2007; Sudrià, 2004).

En España, los estudios sobre la composición ocupacional en épocas históricas se hicieron principalmente en los años ochenta del siglo XX, centrándose en los siglos XVIII y XIX, a partir de documentación censal y registros civiles[4]. Desgraciadamente, los censos y padrones solo empezaron a tener mayor información ocupacional a partir de la segunda mitad del ochocientos[5].

Tradicionalmente, se había presentado que la desigualdad era inferior en épocas anteriores a la modernización económica (industrialización) que en fases iniciales y de asentamiento de la revolución industrial. Esta disminuiría una vez la industrialización se hubiese consolidado, un planteamiento de la llamada *hipótesis de Kuznets* (Kuznets, 1955). De esta manera, la creciente diferenciación entre ocupaciones cualificadas y no cualificadas podría haber supuesto un importante aumento de la desigualdad económica entre trabajadores en las primeras fases de la industrialización (Prados de la Escosura, 2008, Álvarez y Ramos Palencia; 2016). En la actualidad la visión clásica de la inequidad en épocas anteriores a la industrialización se ha modificado, bajo el argumento que la desigualdad no era tan baja en

[3] Sobre la transformación de la manufactura, la construcción y los transportes véase Arranz (1990), Cooney (1993), Grau y López (1974), Landes (2003) y Muset (1995).

[4] Pocos trabajos en España se han dedicado a este tema. A nivel general se destacan: Soto Carmona (1989) sobre el trabajo industrial en España, utilizando censos desde 1857 hasta 1930. A nivel local para los siglos XVIII y XIX se cuenta con los trabajos de Almárcegui y Sarrión (1981) para Zaragoza, Almárcegui (1981) para Reus, Martín Cabreros y Sánchez Ruiz (1985) para Zamora, Roig (1985) para el Alt Empordà, Torras i Ribé (1987) para Igualada. Barcelona dispone del estudio clásico de Nadal y Giralt (1963), reconstruyendo la estructura ocupacional a partir del primer catastro borbónico (1717–1718) comparándose con la estructura reconstruida a partir del recuento de hogares de 1517 (*fogatge*).

[5] Solo a partir del 1887 los censos y padrones empiezan a catalogar las ocupaciones de forma más precisa y homogénea, evitando que diferentes títulos ocupacionales pudieran referirse a una misma ocupación (Camps Cura y Borderías, 2012). Hay que tener presente que con anterioridad al siglo XIX y gracias al Censo de Floridablanca (1787) la población activa se puede categorizar por sectores económicos (Reher, 1986). Otras fuentes que recogen información ocupacional son los Censos Obreros surgidos en la segunda mitad del XIX, promovidos por las Juntas Locales de Reformas Sociales entre 1919 y 1923. En Cataluña previamente ya se levantó un Censo Obrero en 1905 para Barcelona y en Sabadell para 1858 y 1863. Otra fuente que contiene información ocupacional en Cataluña es la *Monografía estadística de la clase obrera* de Ildefons Cerdà publicada en 1858. Las fuentes censales aunque recogen al grueso de la población son fotografías fijas en el tiempo y no permiten ver una evolución temporal pormenorizada. Las fuentes de carácter obrero únicamente recogen actividades relacionadas con la industria y comercio, no ofreciendo una imagen completa de la estructura ocupacional.

períodos anteriores a la revolución industrial y que el importante aumento de la disparidad económica habría aumentado ya en siglos previos al XIX (Van Zanden, 1995, Alfani, 2010 y 2015, Milanovic et al., 2010). De hecho, el crecimiento económico fruto de la industrialización pudo verse entorpecido por el aumento de la inequidad (Acemoglu y Robinson, 2000), también pareja a los niveles de urbanización y a la transformación de la estructura ocupacional (Williamson, 2013).

En España todavía se cuenta con pocos estudios sobre la desigualdad económica en periodos anteriores al siglo XIX. Destacamos los trabajos de Álvarez Nogal y Prados de la Escosura (2007) y Prados de la Escosura (2008) para regiones de Castilla, Andalucía y Cataluña utilizando la razón entre rentas de arrendamiento y salarios en los siglos XVI y XIX. Autores como Martínez-Galarraga et al. (2015) han estudiado la desigualdad regional en España a través de estimaciones de renta per cápita, apuntando al aumento de la divergencia regional en la segunda mitad del siglo XIX. Además a nivel de diferencias regionales también se ha estudiado el vínculo entre pobreza y disparidad de renta en Beltrán-Tapia y Martínez-Galarraga (2015). Asimismo, el estudio de Santiago-Caballero, (2011) ha estimado la concentración de renta en el siglo XVIII utilizando el precio del trigo como *proxy* o el trabajo de Nicolini y Ramos Palencia (2016) con fuentes fiscales como el Catastro de Ensenada en 1750. En Cataluña, entre los trabajos que tratan la relación entre desigualdad y ocupación durante la industrialización se cuenta con los análisis de Rosés (1999) y Mora-Sitjà (2006) en los cuales se observa un importante crecimiento de la desigualdad salarial entre 1830 y 1860 sobre todo en el sector textil. Además, García-Montero (2015) ha estimado la desigualdad económica en localidades rurales y urbanas de Cataluña a largo plazo (1400-1800) encontrando una clara distinción entre las dos tipologías. De hecho, Cataluña no se incluiría en la llamada "súper curva" de Kuznets que alega que el aumento de la desigualdad en épocas pre-industriales ocurriría en etapas de crecimiento económico (Van Zanden, 1995).

Las principales formas utilizadas para medir la desigualdad económica en épocas anteriores al siglo XIX son los niveles de ingresos y la riqueza a través de fuentes fiscales. Sin embargo, debe tenerse en cuenta que dichas fuentes pueden mostrar sesgos de selección para los extremos sociales que podrían estar exentos o no sujetos a tributación (como la nobleza o los jornaleros). Estas fuentes también pueden adolecer de poca representatividad por evasión fiscal o por la ausencia de progresividad fiscal (Lindert, 2000; Prados de la Escosura, 2008; Alfani y Ryckbosch, 2016). Otros autores para el estudio de la desigualdad han utilizado indicadores de bienestar biológico y nutricional como las medidas antropométricas, mostrando una importante correlación entre la disparidad de estaturas y la inequidad económica. Estos estudios ayudan a concluir que la desigualdad no siempre se incrementó en épocas de crecimiento económico (Martínez Carrión, 2016; García Montero, 2016; Ramón Muñoz y Ramón Muñoz, 2016).

El objetivo de este artículo es analizar las transformaciones de la estructura ocupacional en el área de Barcelona entre 1715 y 1860, con especial atención al sector textil atendiendo a sus efectos en términos de desigualdad económica. Para tal fin se utilizaran los datos impositivos y ocupacionales proporcionados por los *Llibres d'Esposalles* en su registro de los matrimonios de la Diócesis de Barcelona recogidos en la *Barcelona Historical Marriage Database* (BHMD). Los *Llibres d'Esposalles* son una fuente eclesiástica de carácter fiscal que gravaba los matrimonios que se celebrarían en la Diócesis de Barcelona. Cada matrimonio debía satisfacer un impuesto o *tasa*¸ como reza originalmente la fuente, según el estatus socioeconómico de los contrayentes, con la finalidad de financiar la construcción y mantenimiento de la Catedral de Barcelona por gracia del papa Benedicto XIII (Carreras y Candi, 1913). En la actualidad se conservan 291 libros que van desde 1451 a 1905 y que recogen más de 600.000 matrimonios celebrados en las 250 parroquias existentes en la diócesis alrededor de 1900. Este territorio comprende los principales núcleos poblacionales y urbanos de la época, como Barcelona, Mataró, Sabadell, Terrassa y un conglomerado de poblaciones rurales situadas en las comarcas actuales del *Baix Llobregat, Barcelonès, Maresme* y *Vallès Occidental*.

Así, los Libros de Esponsales tienen una importante continuidad temporal y territorial que posibilita una observación minuciosa de la evolución de la composición ocupacional de los contrayentes; a diferencia de los censos o padrones que solo incluyen determinados años aunque a toda la población. Además, lo más importante de la fuente es que ofrece información fiscal que se corresponde con la ocupación declarada del marido. Esta ocupación declarada, permite una aproximación a la capacidad contributiva de los individuos, la cual permitiría aproximar la desigualdad entre individuos a partir de su posición social y económica, lo que durante épocas preindustriales y en las primeras fases de la industrialización se vincularía a una desigualdad de capital humano (Álvarez y Ramos Palencia, 2016). Para nuestro periodo de estudio, 1715–1860, únicamente se registró la ocupación de los maridos, constituyendo una muestra de la población activa que reuniría a varones cuyas edades medias rondarían los 26 años para aquellos que se casaban en primeras nupcias (Cabré, 1999; Ferrer et al., 1992, Hajnal, 1976)[6]. No obstante, quedarían fuera del análisis la población célibe, las mujeres y los niños, piezas importantes en el mercado laboral de la industrialización catalana (Romero, 2010, Borderías; 2002; Iturralde, 2013).

A continuación, se presenta detalladamente las fuentes utilizadas para la estimación de la estructura ocupacional y la desigualdad en el área de Barcelona. En el siguiente epígrafe se aborda la metodología aplicada para su estimación a partir de análisis descriptivos e índices de Gini y de Theil.

[6] El 10% de matrimonios del área de Barcelona entre 1715 y 1860 tenía maridos viudos, dilatando un poco el rango de edades de la muestra.

Posteriormente se presentan los resultados y se concluye con una discusión sobre estos.

2. DATOS: *BARCELONA HISTORICAL MARRIAGE DATABASE*

La *Barcelona Historical Marriage Database* recoge los matrimonios registrados en los Libros de Esponsales de la Diócesis de Barcelona entre 1451 y 1905. Para el 1715–1860, este registro fiscal y matrimonial recogía la filiación de los contrayentes, la ocupación o status del marido que determinaba el correspondiente impuesto. Para este estudio, únicamente se han tenido en cuenta los individuos registrados en la Oficialidad de Barcelona, principal decanato de la Diócesis que acumulaba el 90 por cien de los individuos registrados, ya que agrupaba a las zonas más pobladas de la Diócesis[7]. Entre 1715 y 1860 se registraron 227.373 individuos que declararon una ocupación, un estatus o una condición de un total de 232.834 (Gráfico 1). El 70 por cien de los individuos considerados se concentran entre 1785 y 1860, fenómeno que concuerda con el crecimiento de la población en Cataluña y más concretamente con el de Barcelona, observado a partir de las últimas décadas del siglo XVIII (Livi Bacci, 1987, Nadal, 1978). Sin embargo, hay que tener en cuenta que esta tendencia creciente se rompió con la Guerra de Independencia (1808-1814).

Las ocupaciones registradas en los Libros de Esponsales, como en muchas fuentes de demográficas, eran fruto de una auto-declaración o de una descripción de otra persona (Hauser, 1982). De hecho, estas informaciones pudieron variar en el tiempo y/o en el espacio geográfico[8]. Además, con el fin de reconstruir la estructura ocupacional, es necesario agrupar las ocupaciones individuales para poder verificar si más de un título ocupacional pueda referirse a una misma ocupación, o que con el tiempo una ocupación pudiera observar un cambio en su actividad (Broadberry et al., 2013)[9]. De esta manera, todas las ocupaciones han sido normalizadas ortográficamente para luego ser codificadas con la clasificación *Historical Classification of Occupations* (HISCO) (Van Leeuwen, 2002)[10].

Los 227.373 individuos muestran 12.770 títulos ocupacionales literales diferentes, que se han convertido en 304 códigos ocupacionales HISCO. Estos códigos han sido transformados en sectores y subsectores económicos

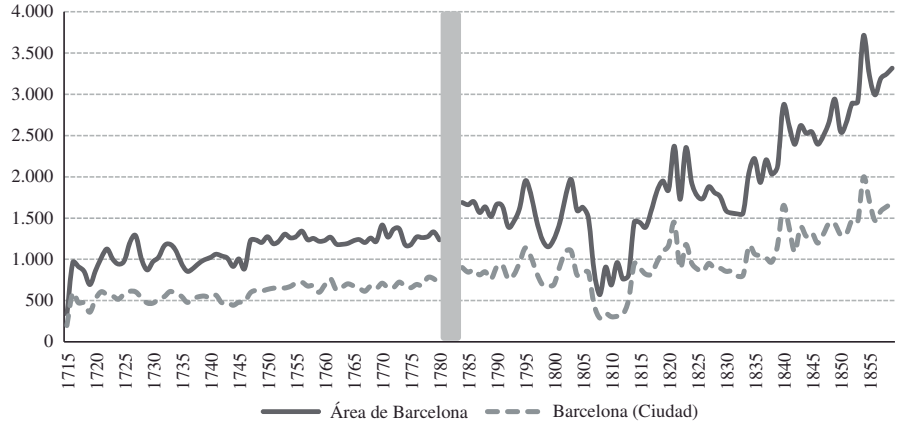
[7] De los 612.489 matrimonios totales de la Diócesis entre 1451-1905, unos 556.318 casos son de la *Oficialidad* y 232.834 en el período de estudio 1715-1860, el Decanato del *Penedès* aportó 27.947 y 13.528, el de *Piera*, 14.791 y 10.395 y el del *Vallès*, 13,433 y 9.469 respectivamente.

[8] Como mostraron Hauser (1982) y Katz (1972) para Estados Unidos y el norte de Europa en el siglo XIX.

[9] Sin un proceso de clasificación y codificación ocupacional sería imposible estimar correctamente la estructura ocupacional y tener resultados comparables con otros lugares.

[10] Una clasificación de amplia difusión en demografía histórica, historia social e historia económica. Véase a modo de ejemplo De Pleijt y Weisdorf (2017), Maas y Van Leeuwen (2016) o Molitoris y Dribe (2016).

GRÁFICO 1
MATRIMONIOS EN EL ÁREA DE BARCELONA, 1715-1860



Fuente: Estimado a partir de la *Barcelona Historical Marriage Database*.

Notas: La parte destacada en gris se refiere al período de 1780-1784 en el que no se conservan los correspondientes *Llibres d'Esposalles*.

(Pujadas-Mora et al., 2014)[11]. Los denominados *trabajadores* y *jornaleros* no se han atribuido a ningún sector ya que se parte de la idea de que estas etiquetas ocupacionales describían a trabajadores temporales que podían realizar diferentes actividades en diferentes subsectores (De Pleijt y Weisdorf, 2017). Finalmente, con el objetivo de profundizar en la evolución de la estructura ocupacional del sector textil se han categorizado las ocupaciones textiles en sus diferentes fases de producción dado que la clasificación HISCO no recoge este tipo de especificaciones (Cuadro 1)[12]. En esta categorización no se han incluido las materias primas empleadas ya que en la fuente no se registró de manera frecuente. Esto se debió a que el proceso de mecanización del sector textil durante los siglos XVIII y XIX hizo que ya no fuera tan necesaria la existencia de ocupaciones especializadas en una determinada materia (Thomson, 2003). Otra posible razón sería la adopción generalizada del algodón, en detrimento de la lana o del lino, propiciando la omisión de la materia (Okuno, 1999)[13].

[11] Véase otros trabajos en España con clasificaciones basadas en HISCO en Álvarez y Ramos Palencia (2016); el monográfico de la Revista de Demografía Histórica *"HISCO y los sistemas de clasificación profesional para la Historia., 2014, XXXII, 1* (http://www.adeh.org/?q=es/contenido/revista-de-demografia-historica-2014-xxxii-1).

[12] Por contra HISCO distingue entre ocupaciones especializadas y no especializadas por el nivel de manejo de tecnología y las sitúa en una jerarquía (Van Leeuwen et al., 2002)

[13] Cabe destacar la concentración territorial de la industria lanera en Cataluña durante el siglo XIX en torno a Sabadell y Terrassa como muestra Benaul (1995).

CUADRO 1
CATEGORIZACIÓN TEXTIL POR FASE DE PRODUCCIÓN

Fase de Producción	Código HISCO	Ocupación Literal
Preparación-Fibra	75135	Cardador
Preparación-Fibra	75145	Peinador
Hilatura	75220	Hilador
Hilatura	75240	Retorcedor
Preparación-Tisaje	75165	Tintorero
Tisaje	75400	Tejedor
Tisaje	75535	Calcetero
Tisaje	75450	Cintero
Tisaje	75710	Cordelero
Tisaje	75920	Pasamanero
Tisaje	75490	Velero
Tisaje	75430	Terciopelero
Confección	79100	Sastre
Confección	79310	Sombrerero
Confección	79500	Bordador
Confección	79600	Tapicero
Confección	79640	Colchonero
Estampado-Tejidos	92950	Pintor de Indianas

Fuente: Realizado a partir de la *Barcelona Historical Marriage Database*.

El impuesto o tasa que satisfacían los contrayentes se expresaban en libras y sueldos, a modo de unidades de cuenta, aunque el pago se efectuaba con la moneda en curso[14]. Estas tasas en los siglos XVIII y XIX se organizaron a partir de un sistema de imposición proporcional con ocho niveles diferentes (Cuadro 2)[15]. En la primera categoría de pago se halla la nobleza titulada (duques, marqueses, condes, etc.); siguen caballeros, ciudadanos honrados[16]. En la parte central de la clasificación, se encuentran ocupaciones relacionadas con el comercio y las profesiones liberales. En la base de

[14] Cada Libra equivalía a veinte Sueldos.

[15] Entre 1715 y 1860 existían ocho categorías socioeconómicas en la clasificación fiscal de la fuente que incluían la totalidad de estatus sociales u ocupacionales.

[16] Los Ciudadanos Honrados eran una aristocracia urbana presente en las principales ciudades de la corona de Aragón desde la baja Edad Media, hasta los inicios del siglo XVIII. En el caso de la ciudad de Barcelona eran los principales integrantes del Consejo de Ciento y son un símbolo del ascenso al poder de estamentos urbanos en el seno de la crisis del Antiguo Régimen (Amelang, 1986).

CUADRO 2
NIVELES SOCIOECONÓMICOS DE LOS LIBROS DE ESPONSALES, (1786-1788, VOLUMEN 157)[a].

1- Pagan los señores como son Duques, Marqueses, Condes, Vizcondes y Barones...24 libras
2- Los caballeros nobles y los señores de vasallos...4 libras y 16 sueldos
3- Los ciudadanos honrados, los burgueses y todos los doctores de cualquier facultad mayor...2 libras y 8 sueldos
4- Los Mercaderes...1 libra y 12 sueldos
5- Los negociantes, notarios, comerciantes de telas, sedas y paños; Boticarios, cirujanos, pintores, drogueros y todos los demás artistas...1 libra y 4 sueldos
6- Los corredores, causídicos, merceros, jóvenes tenderos y todos los demás jóvenes artistas...12 sueldos
7- Los campesinos y menestrales...8 sueldos
8- Los pobres ... Amore Dei

Fuente: Archivo Capitular de la Catedral de Barcelona, volumen 157, p.2
Notas: [a]Transcripción al castellano realizada por los propios autores.

la tasación, los artesanos y campesinos. Por último, se halla un nivel no monetario, es decir, a los que no podían satisfacer la tasa se les concedía la licencia matrimonial por *Amore Dei*. Este nivel representa una exención del pago de la tasa y no agruparía una categoría ocupacional concreta, aunque en el 95 por cien de los casos los individuos declaraban una ocupación. Por este motivo, entendemos que el hecho de no satisfacer la tasa era reflejo de una situación coyuntural de falta de trabajo ya fuese por enfermedad o cualquier contingencia del mercado laboral.

3. METODOLOGÍA

La categorización en diferentes tasas, permite cuantificar una aproximación a la desigualdad económica entre los grupos sociales recogiendo una muestra socioeconómica completa que incluye desde nobles hasta trabajadores no cualificados y se debe tener en cuenta que al tratarse de tasas registradas en unidades de cuenta, aunque pagadas con la moneda en curso, la información reflejaría más la posición social y capital humano que los ingresos. No obstante, somos conscientes que la clasificación socioeconómica propia de la fuente no refleja totalmente la variedad posible de las capacidades económicas/contributivas que podían existir en la estructura ocupacional del área de Barcelona. Así determinados jornaleros pudieron pagar la misma tasa que campesinos o tejedores siendo ocupaciones con diferente estatus. Además, individuos con un mismo tipo de ocupación pudieron satisfacer diferentes tasas como en el caso de los comerciantes (Cuadro 3).

CUADRO 3
DISTRIBUCIÓN DE LAS TASAS PAGADAS POR ALGUNAS OCUPACIONES EN EL ÁREA DE BARCELONA ENTRE 1715 Y 1860[a]

		Tasas							
		Amore Dei	**8s**	**12s**	**1l y 12s**	**2l y 8s**	**4l y 16s**	**24l**	**n**
Social	Nobleza	-	-	-	-	-	73 %	27 %	123
	Médico	7 %	5 %	57 %	29 %	1 %	0.1 %	-	2.047
Posición Ocupacional	Negociante	1 %	11 %	37 %	50 %	1 %	0.1 %	-	3.917
	Campesino	10 %	90 %	-	-	-	-	-	48.255
	Tejedor	37 %	63 %	-	-	-	-	-	13.745
	Jornalero	44 %	56 %	-	-	-	-	-	16.468

Fuente: Estimado a partir de la *Barcelona Historical Marriage Database.*
Notas: [a](l = libras y s = sueldos)

Con el objetivo de recoger los diferentes status de las ocupaciones junto a la posición socioeconómica reportada por la fuente, se han combinado las tasas con el sistema de clasificación social HISCLASS (*Historical International Social Class Scheme*) que convierte y agrupa en clases sociales a los diferentes códigos HISCO, basándose en los niveles de especialización, formación y jerarquía ocupacional[17].

Una forma de evitar la subestimación de la desigualdad, que sería acusada si únicamente se hubiese calculado a través de los niveles impositivos de las tasas matrimoniales, es la estimación de la desigualdad a través de la interacción entre la tasa matrimonial y la etiqueta/declaración ocupacional (HISCLASS) aplicando el principio de capacidad contributiva, en su denominación inglesa se la conoce como *ability-to-pay* (Kendrick, 1939). Con esta interacción entre ambos elementos se busca establecer una cierta progresividad fiscal que no se tendría si únicamente se utilizase la tasa matrimonial que se sufragaba según 7 niveles impositivos, en los cuales el 75 por cien de los varones registrados entre 1715 y 1860 pagaron 8 sueldos, el 18,3 por cien estaban exentos de pago y el 6,7 por cien se distribuía en las categorías fiscales restantes. Además, la interacción entre tasa y categoría HISCLASS permite, no solo medir la capacidad contributiva de los diferentes individuos, sino que también valorar si los individuos de una misma categoría ocupacional o social estaban en diferentes situaciones económicas. La clasificación HISCLASS otorga valores, de forma ordinal, más altos a los trabajadores menos cualificados y menores a los de mayor status social.

Por lo tanto, para poder combinar las tasas presentes en los libros de esponsales con el status ocupacional, es decir, para que las tasas más altas se correspondan con los status más altos se han invertido los valores de HISCLASS. Adicionalmente, también se ha llevado a cabo la interacción con una segunda clasificación de status ocupacional denominada HISCAM, que se basa en el *Cambridge Social Interaction and Stratification Scale* (CAMSIS), que en lugar de una estructura ordinal como la de HISCLASS establece un ranking que va teóricamente de 0 a 99, asignando los valores más altos a los códigos ocupacionales HISCO de mayor estatus[18].

Debe remarcarse que la interacción entre la tasa matrimonial basada en la ocupación y la(s) clasificación(es) de status social son un buen instrumento para conferir una mayor progresividad fiscal a la fuente y con ello reconstruir la desigualdad de capital humano a largo plazo. No obstante, las estimaciones a partir de salarios, renta o riqueza serán más refinadas ya que no necesitan de aproximaciones dado que sus valores por si solos ya representan la diversidad económica. Por lo tanto, al tener una base distinta para

[17] Véase: Van Leeuwen, M. H. and I. Maas (2011). HISCLASS: A historical international social class scheme, University Press Leuven. Se trata de una clasificación que convierte los códigos ocupacionales derivados de HISCO en clases sociales, basándose en elementos como el grado de especialización, la jerarquía ocupacional o si se trataban de trabajos manuales o no.

[18] En Lambert, Zijdeman, Van Leeuwen, Maas y Prandy (2013)

el cálculo de la desigualdad se debería prestar más atención a la evolución y los cambios en la tendencia de la desigualdad que al valor singular de un índice u otro, cuestión que retomaremos en el apartado de resultados.

La interacción entre tasa pagada y posición social (HISCLASS o HISCAM) se ha formulado de la siguiente forma:

$$C_i = T_i * H_i$$

Donde *C* es la capacidad contributiva de un determinado individuo como resultado de la tasa pagada (*T*) y la posición social HISCLASS o HISCAM (*H*). El valor de la capacidad contributiva se obtiene a través de la interacción entre la ocupación declarada y el impuesto satisfecho para la obtención de la licencia matrimonial. Para la estimación de la desigualdad económica Se han calculado dos tipos de indicadores: el coeficiente de Gini (G) permite la estimación de la desigualdad entre individuos, a su vez el índice de Theil (T) posibilita la descomposición de la desigualdad en términos de aportación interna y entre grupos[19]. El indicador de Gini se calcula a través de la suma de la proporción acumulada de la variable población (p*i*), (en este caso los varones que declaraban una ocupación o status y pagaban una tasa), y la proporción acumulada de la variable capacidad contributiva (tasa combinada con posición social) (*Ci*) dividido por la proporción acumulada da la variable población (p*i*).

$$G = \frac{\sum (pi - Ci)}{\sum pi}$$

El índice de Theil permite descomponer la desigualdad por grupos y saber cuánto aportan cada uno de ellos en términos globales a la desigualdad *intra*-grupos y *entre*-grupos. Identificando así si la desigualdad se explica más por las diferencias internas de los grupos o por las diferencias entre grupos. La estimación del índice de Theil se ha hecho de la siguiente manera[20]:

1- Se estima la proporción total de trabajadores (*n*) y la proporción de la capacidad contributiva (*w*) de los diferentes sectores y subsectores económicos por la combinación de tasa y posición social.

[19] Pese a que el índice de Gini es la medida más utilizada para medir desigualdad (en parte gracias a su simplicidad) su interpretación tiene algunas limitaciones. Una de ellas es que los coeficientes pueden establecer resultados iguales a distribuciones diferentes, por ejemplo si el 50% de una población no tiene nada y el otro 50% tiene todo, el coeficiente de Gini sería del 0,5 igual que si el 25% de una población tuviera el 75% y el otro 25% concentrase los ¾ de la riqueza. Otra limitación es la imposibilidad de descomponer a través del índice de Gini la desigualdad en términos *intra* y *entre* grupos, la razón por la cual se calculan también los índices de Theil en este trabajo.

[20] El índice de Theil se ha calculado a partir de la adaptación de Conceiçao y Ferreira (2000).

2- La aportación (f_i) de cada subsector a la desigualdad económica se ha calculado de la siguiente manera:

$$f_i = w_i * [\ln(w_i) - \ln(n_i)]$$

3- La desigualad interna de un determinado sector (T') se calcula como la suma de las diferentes contribuciones de los subsectores:

$$T'_j = F_i = \sum_{j=1}^{n} (fi)$$

4- La desigualdad entre sectores (T'') se puede estimar como la suma ponderada de la desigualdad interna de cada sector (T'):

$$T'' = \sum_{j=1}^{n} (wj * Tj')$$

La desigualdad total, que incluye términos *entre* e *intra* sectores es solo la suma de ambos índices: $\mathbf{T} = T' + T''$

4. LA ESTRUCTURA OCUPACIONAL DEL ÁREA DE BARCELONA (1715-1860)

El sector primario dejó de ser dominante en la economía del área de Barcelona a partir de la segunda mitad del setecientos, siendo sustituido por el sector secundario (Gráfico 2). El sector primario pasó de aglutinar casi la mitad del total de individuos en la primera mitad del siglo XVIII a solo juntar el 30 por cien hacia finales de la década de los 70 del mismo siglo, un declive que estuvo acompañado por el aumento del sector secundario.

De esta manera, se observaría una inversión de los pesos del primario y secundario ya en la primera mitad del siglo XVIII que podría indicar que el camino hacia la industrialización se inició en una fecha próxima a la del comienzo de la Revolución Industrial Inglesa como ya ha notado Sánchez Suárez (2000) con un estudio relacionado con el sector textil en Barcelona. La inversión temprana entre sector primario y secundario en el caso del área de Barcelona coincide con la cronología del importante crecimiento de la industria de indianas en la ciudad de Barcelona que alcanzó su auge en las últimas décadas del siglo XVIII, así como en zonas prelitorales con una industria dispersa protoindustrial[21] (Mora-Sitjà, 2007; Sánchez Suárez, 1993). Cabe destacar que la tendencia alcista del sector secundario se rompe con la Guerra de Independencia (1808-1814) por un menor registro de matrimonios en los núcleos urbanos, donde la guerra tuvo un mayor

[21] Este sistema ha sido observado para la industria de indianas por Thomson (2003) o para época protoindustrial por Torras (1984) y Marfany (2012).

impacto, lo que podría explicar el aumento del peso del sector primario[22] (Benaul, 1993; Fontana, 2008) (Gráfico 2).

En el caso de los trabajadores y jornaleros, títulos de difícil atribución a un sector concreto, cabe destacar que, posiblemente el primer término fue sustituido por el segundo a medida que avanzaba el tiempo. Entre 1715 y 1760 únicamente se registró con la etiqueta "trabajador" (*treballador*). A partir de finales del siglo XVIII los términos de trabajador y jornalero coincidieron y en la segunda década del XIX casi exclusivamente se empleó la etiqueta de "jornalero" (*jornaler*). Sin embargo, si se consultan diccionarios de la época, se puede observar que durante los siglos XVIII y XIX se diferenciaban los dos términos. Los trabajadores podrían referirse únicamente a trabajadores rurales y representan entre el seis por cien y el diez por cien de los casos registrados durante la primera mitad del siglo XVIII[23]. Sin embargo, excepcionalmente entre 1785 y 1789 representaron el 20 por cien del total de varones ocupados. Esto podría deberse a una etapa muy concreta de la agricultura catalana, en que el litigio entre propietarios y arrendatarios por los contratos de enfiteusis comportó un aumento del valor de las rentas en la década de los 80 del siglo XVIII y la disminución del número de campesinos con usufructo de la tierra, afectando principalmente a las zonas litorales y pre-litorales (Tello, 1995, Badia-Miró y Tello, 2014, Badosa, 1990). Posteriormente, la etiqueta *trabajador* pasó a tener un uso residual salvo durante la Guerra de Independencia (1808-1814). Los jornaleros, en cambio, son casi inexistentes hasta 1770, pasando a representar a partir de 1855 un 25 por cien de los casos totales (Gráfico 2). La sustitución terminológica entre ambos términos podría indicar además un posible cambio de función por la que los trabajadores estarían relacionados mayoritariamente con el sector primario y los jornaleros con ambos aunque con el tiempo estarían más relacionados con los sectores secundario y terciario.

La correlación entre los declarados trabajadores y los individuos pertenecientes al sector primario es ligeramente negativa (-0.26) y significativa al 98 por cien. Si se calcula la correlación entre jornaleros y sector secundario, la estimación es positiva (0,82) y con valores $p > 0,01$. Estas asociaciones parecen confirmar el binomio trabajadores-actividades rurales que se diferenciarían de los campesinos (*pagès*) por el acceso a la tierra, tanto en dominio útil o directo. Además, la fuerte correlación entre el sector secundario y el jornalero daría más fuerza al argumento de que estos últimos se relacionaban más con los sectores pujantes en la industrialización.

[22] Además de una disminución del registro de ocupaciones del sector secundario, otro elemento que explicaría el aumento del peso del sector primario es el aumento de las segundas nupcias entre propietarios agrícolas, lo que indicaría una mejor posición en el mercado matrimonial. Sin embargo, los matrimonios con viudas solo aumentan entre 1815 y 1819 cuando la guerra ya había finalizado.

[23] En la edición de 1825 de Núñez de Taboada (DRAE). Véase El "Nuevo tesoro lexicográfico de la lengua española" (http://www.rae.es/recursos/diccionarios/diccionarios-anteriores-1726-1992/nuevo-tesoro-lexicografico).

CUADRO 4
LOS SECTORES ECONÓMICOS EN LOS ESPONSALES Y EN EL CENSO (1860)

Sectores económicos: Censo 1860 (Libros de Esponsales)				
	BCN	**TERR-SAB**	**MATARÓ**	**BCN PROVINCIA**
PRIMARIO	7% (7%)	32% (12%)	19% (20%)	19% (20%)
SECUNDARIO	39% (44%)	23% (46%)	26% (53%)	28% (39%)
TERCIARIO	28% (22%)	6% (9%)	13% (10%)	17% (16%)
JORNALEROS	26% (26%)	44% (33%)	46% (17%)	41% (25%)
Total Individuos	93,233 (2061)	17,588 (228)	13,980 (115)	254,083 (3317)

Fuente: Calculado a partir de la *Barcelona Historical Marriage Database* y del censo de 1860.

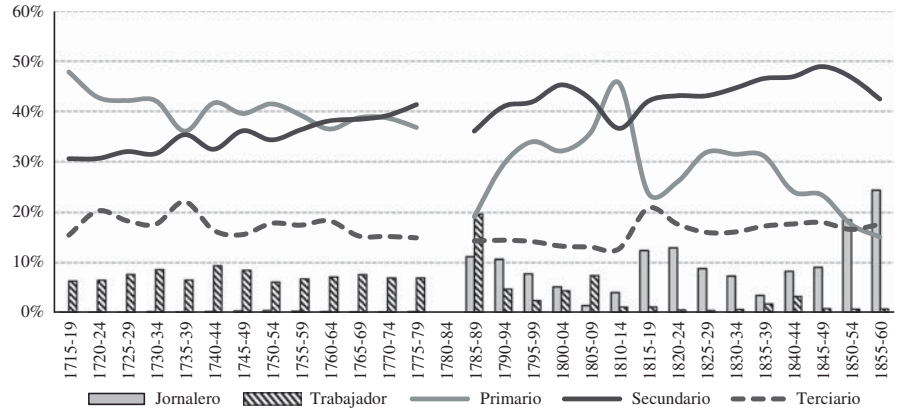
Otro importante elemento a tener en cuenta es la representatividad de la información dada la utilización de un registro matrimonial y evaluar la existencia de un sesgo en los datos analizados ya que sus individuos se concentran en edades jóvenes. En este sentido se ha llevado a cabo un análisis de sensibilidad, comparando la distribución ocupacional por sectores en los Libros de Esponsales y los recogidos por el censo de 1860. La máxima desagregación territorial recogida en este censo son los partidos judiciales y los que más se asemejan a la extensión territorial de los Libros de Esponsales son el partido de Barcelona, y en menor grado los de Mataró y Terrassa (que incluye a Sabadell).

La comparación entre los datos ocupacionales de la población masculina y activa del partido judicial de Barcelona y los de la ciudad de Barcelona muestran una total correspondencia en el sector primario y los jornaleros. En cambio, presenta una ligera sobrerrepresentación del sector secundario y una sub-representación del sector terciario, de forma similar para el partido judicial de Mataró y su correspondiente en los Libros de Esponsales con una alta correspondencia entre los sectores primarios y terciario.

El peso del sector secundario es mayor en los Libros de Esponsales mientras que el de los jornaleros es superior en el censo. Esto podría deberse a que se clasificaran como jornaleros a trabajadores del sector secundario o bien que los jornaleros tuvieran menor nupcialidad. La única comparación con menor correspondencia es aquella del partido judicial de Terrassa. Existen, tanto diferencias en los sectores primarios y secundarios como con los jornaleros. Una posible explicación podría residir en el hecho de que las dos agrupaciones territoriales son muy dispares, ya que este partido judicial agrega muchos municipios rurales no recogidos en los Libros de Esponsales.

Territorialmente, las transformaciones de la estructura ocupacional no ocurrieron en el mismo tiempo ni con la misma intensidad. En el caso de Barcelona y Mataró el peso del sector secundario ya era considerable en la primera mitad del setecientos, De igual forma, el sector primario en estas ciudades sufrió un descenso abrupto a partir de la década de los 80 y el

GRÁFICO 2
SECTORES ECONÓMICOS EN EL ÁREA DE BARCELONA (1715-1860)



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.
Nota: El vacío en el período 1780-1784 se debe a la falta de Libros de Esponsales para estos años.

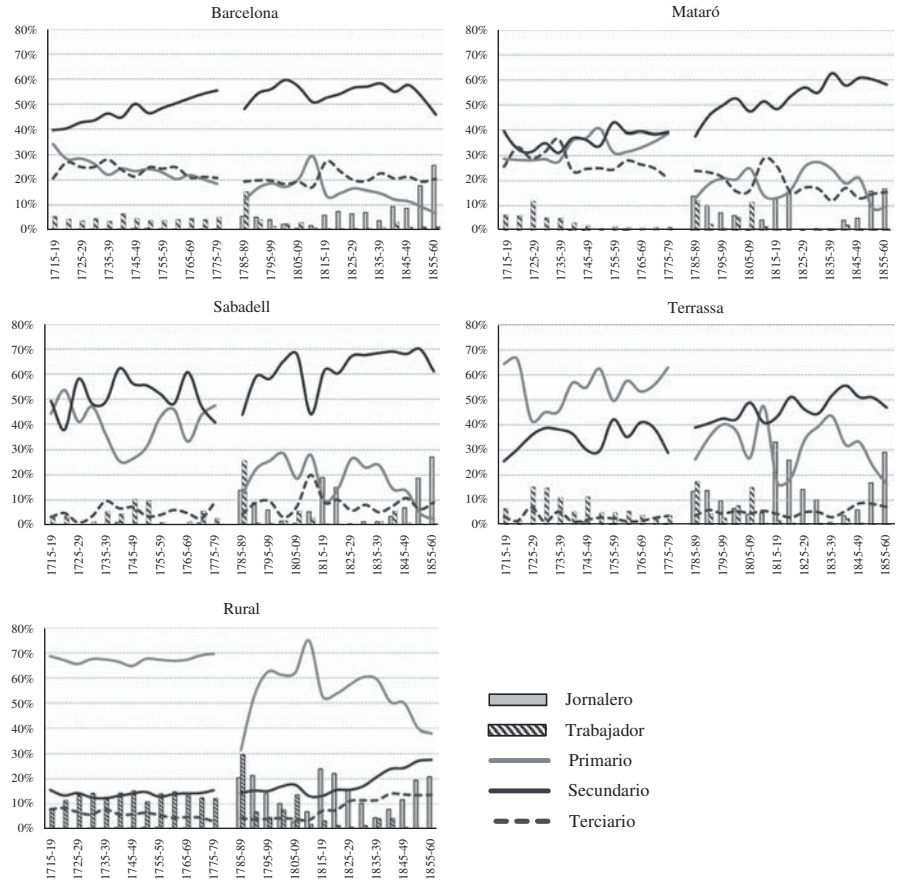
terciario en Barcelona representó siempre alrededor del 20-25 por cien de las ocupaciones, en parte explicado por su capitalidad (Gráfico 3). En Sabadell y Terrassa, el secundario creció de forma muy importante en el siglo XIX, implicando que el peso del terciario fuese inferior al observado en Barcelona y Mataró[24]. En cambio el sector primario en Sabadell y Terrassa pasó de mayoritario a casi residual (Gráfico 3).

Casi el 75 por cien de todas las ocupaciones registradas entre 1715 y 1860 en el área de Barcelona se distribuían en los subsectores de la agricultura (sector primario); el textil y la construcción (sector secundario); el comercio y el transporte (sector terciario). La agricultura vivió un lento proceso de descenso durante el siglo XVIII que fue más acusado después de la Guerra Napoleónica (1808-1814). De hecho, en la primera mitad del siglo XIX, menos del 15 por cien de los varones registrados declararon una ocupación relacionada con tareas agrícolas. Este descenso se ha atribuido a mejoras técnicas en los cultivos y al aumento de la propiedad privada por la compra de tierras antes enfitéuticas con una consecuente reducción del número de individuos que tendrían acceso a la tierra (Badosa, 1990).

El textil creció de forma gradual hasta los años 80 del siglo XVIII. A partir de la primera mitad del ochocientos detenía casi el 25 por cien de las ocupaciones. Este subsector, era la principal actividad de un sector secundario

[24] En el caso de los jornaleros su peso aumentó a partir de finales del XVIII y de forma sustancial para todos los territorios a partir de 1840, fecha que coincide con el establecimiento total de la Industrialización según Nadal (1975)

GRÁFICO 3
LOS SECTORES ECONÓMICOS POR TERRITORIO, ÁREA DE BARCELONA
(1715-1860)



Fuente: Calculados a partir de la *Barcelona Historical Marriage Database*.
Nota: El vacío en el período 1780-1784 se debe a la falta de Libros de Esponsales para estos años.

basado mayoritariamente en industrias de producción de bienes de consumo (Horrell, 1996). Por lo que respecta a la construcción, esta dobló su proporción a partir del siglo XIX en relación al siglo XVIII. Esto es un importante indicador del proceso urbanizador y de continuo crecimiento demográfico del siglo XIX (Arranz, 1990; De Vries, 2006).

El comercio era el subsector clave del sector terciario, en creciente expansión por la ampliación de los transportes (González Enciso, 1985).

Este subsector, pese a no tener un peso determinante en la estructura ocupacional recogía a los grupos ocupacionales que se transformaron de forma más acentuada entre el siglo XVIII y XIX. Se observa un aumento importante de los denominados negociantes que podría ser entendido como compradores al por mayor (Muset, 1997).

5. LA TRANSFORMACIÓN DEL TEXTIL EN LA INDUSTRIALIZACIÓN

La actividad que representa realmente la transformación económica y el proceso de industrialización catalán es indudablemente el textil, siendo además uno de los subsectores más estudiados y de mayor importancia en la Europa del sur (Martínez-Galarraga y Prat, 2015). Sin embargo, el estudio del textil se ha centrado mayoritariamente en el análisis de las ocupaciones relacionadas con la manufactura de una determinada materia prima ya fuese lana, algodón o seda o en el estudio de alguna de las fases productivas de manera individual tales como la hilatura o el tisaje[25]. Por esta razón, en este apartado se presenta un análisis de la composición ocupacional del textil a través de todas y cada una de sus fases de producción: Preparación de fibras, hilatura, preparación del tisaje, tisaje, confección y estampado de tejidos[26]. A nivel general se advierte una continua disminución del número de artesanos que acompañaron su ocupación con el título de maestro (*mestre*) u oficial (*Joves*), ambos relacionados con el sistema gremial (Cuadro 5).

Estos títulos dejaron prácticamente de existir en el siglo XIX y a modo de ejemplo empezaron a registrarse títulos ocupacionales como Tejedor de Fábrica (*Teixidor de Fàbrica*) o Hilandero de Industria (*Filador d'Indústria*) lo que parece indicar la transición hacia un sistema fabril y la disminución del peso de los gremios en la manufactura (Molas, 1970).

El proceso de preparación de fibras que agrupaba principalmente ocupaciones como pelaires, cardadores o peinadores cuentan 2.738 casos registrados y de los cuales el 90 por cien son pelaires, en torno a un 15 por cien del total de trabajadores textiles registrados entre 1715 y 1780[27]. A partir de entonces hasta la primera mitad del siglo XIX su peso bajó gradualmente (Gráfico 4). Los pelaires eran la principal ocupación de la Preparación de Fibras, sus especialidades incluían tanto el cardado como el peinado y casi

[25] Véase para la industria lanera de Sabadell y Terrassa los estudios de Benaul (1992 y1995), el sector algodonero de Barcelona en Sánchez Suárez, (2000), el sector indianero de Barcelona en Thomson (2003), un análisis sobre los tejedores de Barcelona en Grau y López (1974) y sobre la hilatura en Ferrer (2004).

[26] El estampado de tejidos estaba formado principalmente por Pintores de Indianas, una actividad que tiene su auge en Barcelona en la segunda mitad del setecientos (Thomson, 2003).

[27] Los Pelaires (*Paraires*) eran una de las ocupaciones más importantes del sector lanero. En muchos casos tenían el control de todo el proceso productivo y actuaban como negociantes. De hecho, Torras (1984) apunta que los pelaires introdujeron el *putting-out system* en muchas localidades catalanas.

CUADRO 5
INDIVIDUOS RELACIONADOS CON EL SISTEMA GREMIAL EN EL TEXTIL

Período	Sin título gremial	Con título gremial	Total
1720-1755	1.278 (43%)	4.064 (57%)	5.432
1756-1790	4.288 (55%)	3.560 (45%)	7.848
1791-1825	9.708 (89%)	1.257 (11%)	10.965
1826-1860	17.723 (99%)	134 (1%)	17.857

Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

siempre poseían autoridad frente las demás ocupaciones laneras ya que también podían ser gestores de venta y organizadores de la producción (Torras, 1984). Además, muchos pelaires supieron adaptarse como figura gestora del *putting-out system* en la protoindustria dispersa de áreas rurales (Torras, 1987). Por otra parte, los tejedores y los hilanderos sufrieron una desespecialización cada vez mayor desde finales del XVIII e inicios del XIX, relacionada directamente con la llegada de nueva tecnología en telares y husos, que abrían el nicho de mercado para muchos inmigrantes que llegaban desde finales del setecientos.

La hilatura tiene un peso bajo en el conjunto textil del área de Barcelona hasta la segunda mitad del siglo XIX, contando con 504 retorcedores en el siglo XVIII (dedicados a la seda y en menor número a la lana) y solo 643 hilanderos registrados entre 1715 y 1860. Estos números se dan pese al incentivo de la hilatura por parte de la corona a través de medidas como la instauración de la Real Compañía de Hilados de Algodón en 1772 (Raveux y Sánchez Suárez, 2010). La ausencia de hilanderos puede deberse a que hasta la mecanización completa de la hilatura en la segunda mitad del ochocientos, era una actividad casi exclusivamente femenina (Ferrer, 2004). No obstante, se llegaron a registrar 250 varones hilanderos entre 1850 y 1855. La fase productiva denominada Preparación del tisaje y que se conformaba por ocupaciones como tintoreros y blanqueadores registró un poco más de 2.000 casos en todo el período estudiado con una distribución muy uniforme y no significando nunca más del 5 por cien del total de sector textil.

El tisaje durante el siglo XVIII se componía de casi 12.000 casos, la mitad de estos eran tejedores de lino, lana y seda, mientras que la otra mitad se distribuía entre cordeleros, pasamaneros, veleros o terciopeleros. En cambio, a partir de 1790 los tejedores pasan a representar la gran mayoría del tisaje, un crecimiento que comportó, además de la disminución de los tejedores de lino y lana, la aparición de etiquetas ocupacionales como tejedores de algodón y de indianas.

La confección, a su vez, mantuvo durante todo el período estudiado una misma estructura conformada por sastres (6.100 casos), sombrereros y bordadores (unos 1.100 varones) (Gráfico 4). Durante las primeras cuatro décadas del siglo XVIII, el textil del área de Barcelona tenía una estructura

marcada por un peso de compensado entre el tisaje y la confección (Gráfico 4)[28]. A partir de la segunda mitad del XVIII, se puede ver como el tisaje empieza a destacar en el conjunto del textil, en detrimento de las actividades de confección. Esta tendencia continúa hasta la segunda mitad del XIX, cuando ocupaciones como la de Tejedor representaba casi un 80 por cien del textil mientras la confección solo un diez por cien (Gráfico 4).

El estampado de tejidos, compuesto por ocupaciones del sector de indianas como son los pintores de indianas alcanzó su cénit en la década de los 90 del siglo XVIII como Thomson (2003) mostró para Barcelona y su declive se manifestó a partir del inicio del conflicto napoleónico (1808-1814) (Gráfico 4).

Las diferencias de estatus socio-ocupacional existentes dentro de un mismo subsector como el textil, a veces no se pueden detectar únicamente con el análisis de las etiquetas ocupacionales o incluso teniendo en cuenta las materias primas utilizadas. Sin embargo, los Libros de Esponsales como ya explicábamos anteriormente ofrecen una clasificación socio-económica propia y coetánea de los datos que permiten distinguir entre los que podían satisfacer la tasa para la obtención de la licencia matrimonial y los que no[29]. De esta manera, se observa que en la época de máxima mecanización del sector textil, en el último período estudiado, se dio un incremento importante del número de individuos que no podían pagar la tasa matrimonial, principalmente entre hilanderos y tejedores (Gráfico 5).

En el caso de los estampados de tejidos, se puede ver que las mayores proporciones de individuos exentos del pago de la licencia matrimonial, se dan en los momentos de disminución del número de trabajadores del sector de Indianas (Gráfico 5). Sin embargo, en la preparación de fibras las exenciones fiscales llegan a disminuir con el pasar del tiempo (Gráfico 5).

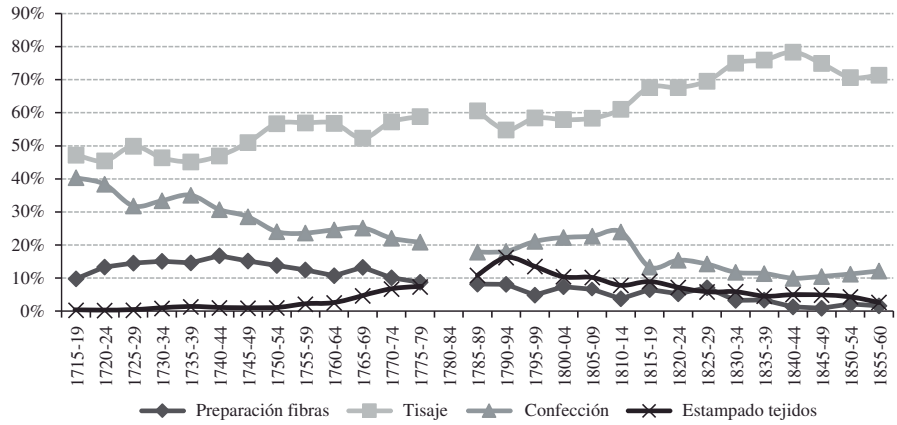
Paradójicamente, los niveles de gratuidad de la tasa en las ocupaciones relacionadas con la agricultura son mucho más bajos en el período del XIX que los del textil, aunque se dé un momento de importante reducción en la frecuencia de varones ocupados en el sector primario.

En resumen, parece existir una relación entre el crecimiento y modernización de algunas fases productivas del sector textil con un empobrecimiento de sus trabajadores, es decir, un aumento del número de individuos que no pagaban la licencia matrimonial. De hecho, en aquellas fases que el proceso de mecanización fue temprano o que entraron pronto en el sistema fabril como el caso de la hilatura, del tisaje o de los estampados de tejidos se observa un número importante de individuos que no satisficieron la tasa muy por encima de la media general. El 25 por cien del total de los individuos relacionados con

[28] Una estructura que coincide con la que presentaron Nadal y Giralt (1963) para Barcelona en 1717-1718.

[29] Debido a la proporcionalidad fiscal de la fuente todas las ocupaciones relacionadas con el textil por defecto pagaban 8 sueldos de tasa matrimonial lo que significa que el número de individuos con este tipo de ocupaciones que contribuía a un nivel más alto es casi residual.

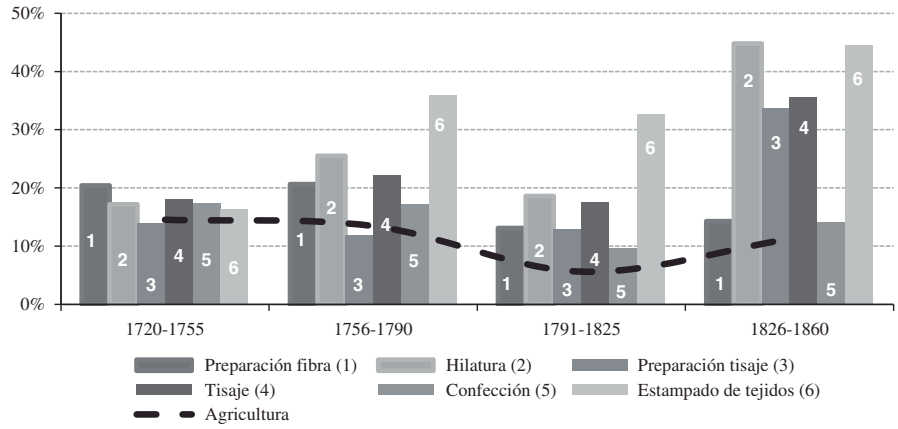
GRÁFICO 4
COMPOSICIÓN OCUPACIONAL TEXTIL POR FASES DE PRODUCCIÓN



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

Nota: El vacío en el período 1780-1784 se debe a la falta de Libros de Esponsales para estos años.

GRÁFICO 5
PROPORCIÓN DE *AMORE DEI* ENTRE LAS FASES DE PRODUCCIÓN TEXTIL. ÁREA DE BARCELONA, 1720-1860



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

las anteriores actividades fueron exentos, aunque la gratuidad de las licencias para los jornaleros fue aún más importante (44%)[30].

[30] El 25% del total de los individuos relacionados con las anteriores actividades fueron exentos, aunque la gratuidad de las licencias para los jornaleros fue aún más importante (44%). Este

6. DESIGUALDAD ECONÓMICA EN EL ÁREA DE BARCELONA

Una de las principales características que diferencian a los Libros de Esponsales de otras fuentes históricas es que incluyen una categorización fiscal y socioeconómica propia. Esta categorización entre 1715 y 1860 se correspondía con ocho niveles diferentes de tasas, con una división socioeconómica que recogía desde la nobleza titulada hasta los denominados *pobres* por la fuente.

Las principales ventajas de la clasificación socioeconómica de los Libros de Esponsales son su continuidad temporal y para el período de estudio se mantuvieron los mismos niveles impositivos. Estos pueden entenderse como un reflejo de la capacidad contributiva de los diferentes grupos sociales/ocupacionales que recoge la fuente. No obstante, pese a la existencia de esta categorización, no todos los individuos de un mismo grupo necesariamente pagaron la misma tasa.

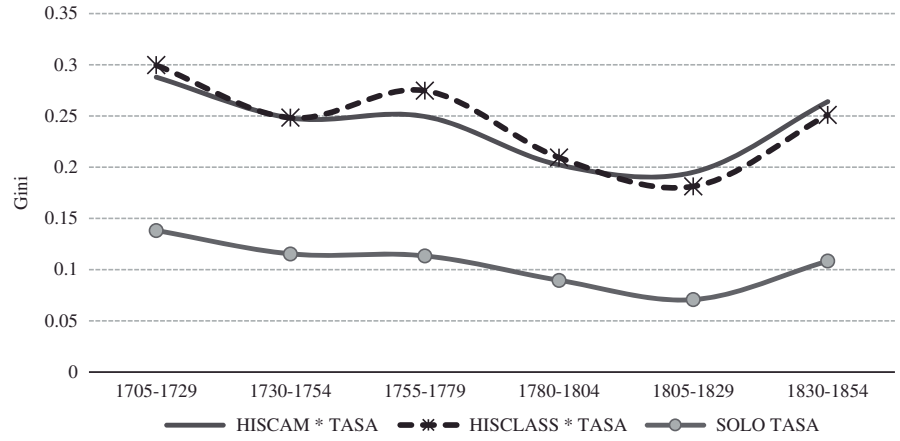
De esta manera, negociantes o comerciantes pudieron pagar diferentes tasas, tanto superiores como inferiores a la categoría que tenían asignada por defecto. Asimismo, ocupaciones con diferentes estatus socioeconómicos eran gravadas con la misma tasa, como por ejemplo jornaleros, artesanos o campesinos (Tabla 3). Por esta razón, entendemos que es necesario combinar el título ocupacional y la tasa satisfecha con el fin de proporcionar una mayor progresividad fiscal a través del principio de capacidad contributiva (Kendrick, 1939). Al mismo tiempo esto permitiría captar los cambios de estatus o disparidad económica interna en un mismo grupo social u ocupacional. Las ocupaciones, ya codificadas en HISCO, se transforman en grupos sociales a través de HISCLASS para evitar la dispersión del uso de las etiquetas ocupacionales individuales.

Paralelamente, también se ha llevado a cabo el ejercicio de combinar las tasas inherentes a la fuente y el ranking de estatus socioeconómico HISCAM, con el fin de comparar los niveles de desigualdad calculados solo con los tasas y con la interacción de estas con las dos clasificaciones (Gráfico 6). En el gráfico se puede observar como realmente si se estima la desigualdad solo teniendo en cuenta las categorías fiscales presentes en la fuente, los resultados de los coeficientes de Gini son mucho más bajos que cuando se calculan usando la interacción entre la tasa y el estatus ocupacional, muestra de que se subestimaría la desigualdad. Por otro lado, se puede observar como los valores de ambas interacciones (HISCLASS y HISCAM), son muy similares, razón por la cual a partir de ahora solo se presentarán los valores calculados a partir de la combinación de las tasas y HISCLASS.

La desigualdad total se mantuvo mayoritariamente en niveles inferiores al 0,3 con la excepción del periodo 1720-1739 así como a partir de 1840 en que

(*footnote continued*)
indicador de pobreza entre varones puede encajar en el fenómeno denominado por Mora-Sitjà (2007) el "primer proletariado catalán", en el cual el inicio del desarrollo del sistema de fábrica en Cataluña propició la entrada de trabajadores menos cualificados en trabajos más precarios.

GRÁFICO 6
COMPARACIÓN DE LOS NIVELES DE DESIGUALDAD SIN Y CON DIFERENTES INTERACCIONES DE CLASIFICACIONES DE ESTATUS



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

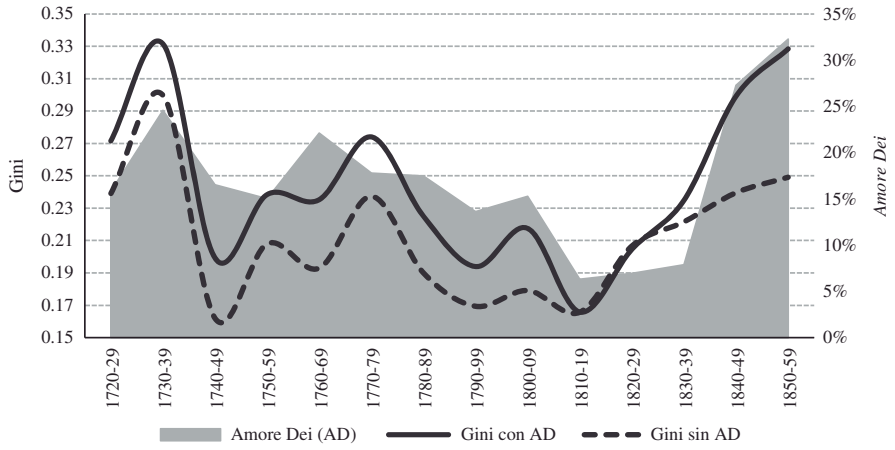
alcanzó máximos del 0.33. Los niveles más bajos, de en torno al 0,16, se notaron durante la Guerra de Independencia (1808-1814) (Gráfico 7). Sin embargo, si se descompone la curva de desigualdad entre los individuos que pagaron su licencia matrimonial y los que no, la desigualdad de los primeros disminuye frente al aumento de esta entre los segundos.

La desigualdad económica, si se excluye a los individuos que no satisficieron la tasa de su licencia matrimonial, enseña coeficientes de Gini inferiores a la estimación total con una diferencia de apenas tres puntos hasta 1830. No obstante, a partir de 1840 la diferencia entre las estimaciones aumenta en casi diez puntos (Gráfico 7).

El aumento en la brecha entre la desigualdad incluyendo a los individuos que pagaron la tasa y a los que no, se da por el importante crecimiento de los exentos. No obstante, la parte más significativa de este cambio se explica por la composición del grupo de individuos que no pagaron. Más del 70 por cien de los individuos exentos eran jornaleros o pertenecientes a algunas ocupaciones textiles como las de tejedor e hilandero. Estas ocupaciones eran las más relacionadas con el sistema de fábrica, en una fecha de despliegue definitivo de la industrialización catalana (1840) y que se encuadrarían dentro de un proceso de proletarización vigente en el seno del mercado laboral, auspiciado por el aumento del éxodo rural (Mora-Sitjà, 2006 y 2011).

Los niveles de desigualdad presentados en este artículo difieren de los niveles obtenidos en otros estudios que utilizan coeficientes de Gini, tales como los calculados para Madrid y Jerez, 0,77 y 0,5 respectivamente, para los siglos XVIII y

GRÁFICO 7
GINI Y PROPORCIÓN DE *AMORE DEI* (AD). ÁREA DE BARCELONA 1715-1860



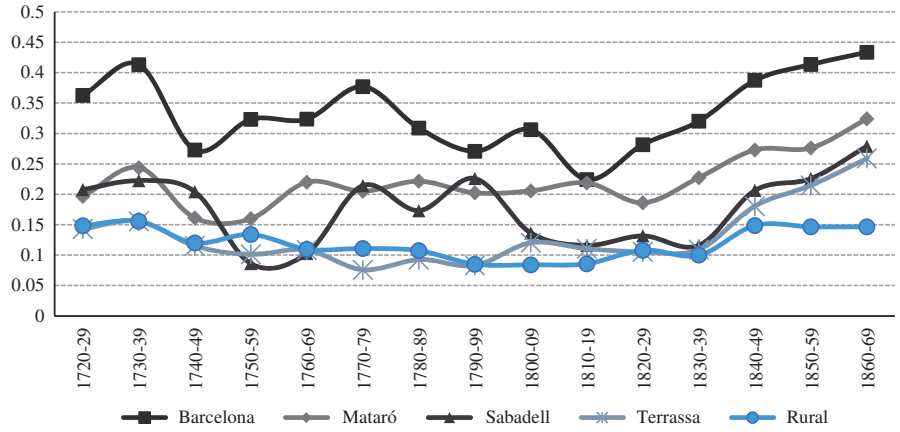
Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.
Nota: Aunque la etiqueta de los gráficos refiere al periodo 1780-1789, únicamente se calcularon los datos para el período 1785-1789.

XIX a partir de fuentes diferentes (Álvarez Nogal y Prados de la Escosura, 2007). Sin embargo, los mismos autores utilizan una medida de desigualdad basada en la relación entre renta de la tierra/salarios que muestra tendencias de desigualdad en Cataluña coincidentes en parte con el área de Barcelona (Gráfico 7).

Los valores bajos de desigualdad obtenidos en comparación con otros estudios anteriores pueden deberse a dos temas. En primer lugar, la desigualdad para este trabajo concreto se ha medido a partir del estatus socioeconómico y no directamente a través de ingresos o riqueza. En segundo lugar, debe tenerse en cuenta la homogeneidad de la muestra trabajada, es decir los individuos analizados son relativamente jóvenes en sus fases iniciales del ciclo vital propio y comparten un rango etario similar, no siendo así cuando se recurre a otras fuentes. Estas fuentes incluirían individuos de todas las edades con lo cual los más mayores habrán tenido más tiempo de acumular más riqueza y por ende los niveles de desigualdad se presentarían superiores. De aquí se desprende que ante fuentes diferentes y muestras de individuos dispares en cuanto a ciclo de vida sería más importante observar la tendencia de la desigualdad más que sus niveles concretos.

Las localidades más urbanas, pobladas y con mayor transformación de la estructura ocupacional mostraron mayor inequidad. La ciudad de Barcelona era la más desigual, alcanzando coeficientes que rondaron el 0,3-0,35 hasta 1830 y que alcanzaron el 0,45 a partir de 1840 (Gráfico 8). La segunda localidad más desigual era Mataró con niveles del 0,2 que aumentaron al 0,3

GRÁFICO 8
GINI POR ÁREAS GEOGRÁFICAS (1720-1860)



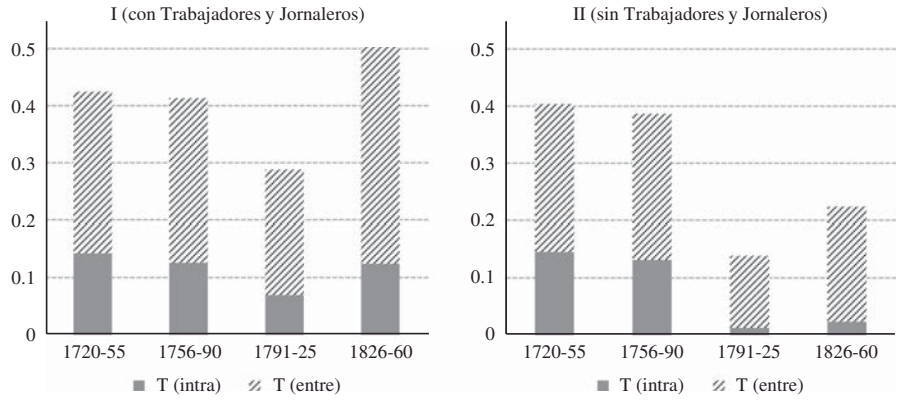
Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.
Nota: Aunque la etiqueta de los gráficos refiere al periodo 1780-1789, únicamente se calcularon los datos para el período 1785-1789.

a partir de 1840. Los niveles de desigualdad en Sabadell y Terrassa se situaron en el 0,1 durante el siglo XVIII y alcanzaron el 0,22 en 1850 (Gráfico 8).

Por último, en las localidades con menor población (rurales), los índices durante el periodo analizado, nunca sobrepasan el 0,15 (Gráfico 8). Cabe destacar la existencia de un posible sesgo en la asignación de las categorías sociales de HISCLASS debido a la disparidad territorial. Esta es una de las razones fundamentales por las cuales se ha introducido el concepto de capacidad contributiva (Kendrick, 1939). De esta manera, con la interacción de la tasa matrimonial y la clasificación HISCLASS se ha buscado conferir progresividad fiscal a los grupos sociales que ofrece HISCLASS para poder registrar las diferentes situaciones económicas en un mismo grupo. Por lo tanto, aunque estas clasificaciones puedan proporcionar un cierto sesgo a las estimaciones que hemos intentado paliar con los términos explicados anteriormente, las tendencias de desigualdad y la marcada jerarquía entre zonas urbanas y rurales coincide plenamente con las de otros estudios con fuentes diferentes.

La importante transformación de la estructura ocupacional también pudo conllevar cambios en la inequidad económica en el sí de los subsectores económicos ya que el crecimiento económico no necesariamente igualó a todos los individuos. La disminución del peso de determinados subsectores también acarreó el aumento de la desigualdad en el interior de los subsectores en cuestión como cabría esperarse. La desigualdad *intra* y *entre* sectores no mostró ningún tipo de cambio en el periodo de estudio (1720–1860). Esta desigualdad se explica en un 70 por cien por la diferencia económica entre

GRÁFICO 9
THEIL POR SECTORES ECONÓMICOS EN EL ÁREA DE BARCELONA



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

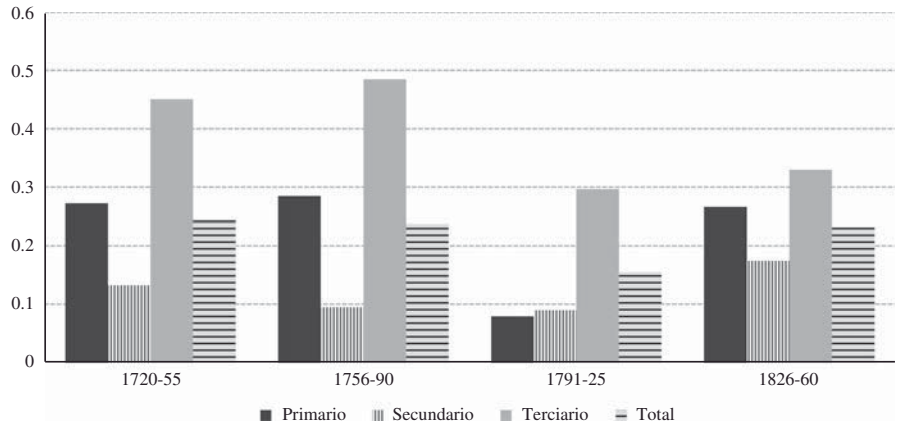
sectores y en un 30 por cien por las diferencias internas. (Gráfico 9-I). Sin embargo, si no se tiene en cuenta en el análisis a los jornaleros, los resultados serían radicalmente diferentes[31]. Así, en el período de despliegue industrial (1826-1860) las desigualdades tenderían a disminuir. En comparación con el siglo XVIII, con o sin el efecto de los jornaleros, la disparidad entre subsectores pasaría de un 30 a un 10 por cien del total (Gráfico 9-II).

El aumento de la desigualdad por la presencia de los jornaleros, como hemos enseñado anteriormente, junto al hecho de que estos mostraran una mayor incidencia de matrimonios que recibían su licencia matrimonial gratuitamente, lleva a pensar que este grupo era producto de la proletarización junto a la descualificación laboral que conllevó el sistema de fábrica en muchos países como por ejemplo Inglaterra (De Pleijt y Weisdorf, 2017).

Desgraciadamente nuestros datos no permiten reconstruir las trayectorias laborales completas de los individuos analizados lo cual ayudaría a observar el tránsito a la proletarización o si desde el inicio de sus trayectorias fueron ya proletarios. Un tema que se relacionaría con el transcurso del tiempo y la implementación de la industrialización. Por lo tanto, los resultados indicarían que la desigualdad económica creció con la industrialización con un aparente empobrecimiento de los trabajadores que observamos por el aumento continuado del número de matrimonios con licencia

[31] A partir de 1840 los jornaleros representan casi una tercera parte del total de ocupaciones del área de Barcelona, con una notable homogeneidad del pago de la tasa matrimonial, más del 55% de los jornaleros en el siglo XIX fueron exentos de la tasa por ser declarados pobres. Su peso podría enmascarar la dinámica de la desigualdad del resto de sectores.

GRÁFICO 10
GINI POR SECTORES ECONÓMICOS, 1720-1860



Fuente: Calculado a partir de la *Barcelona Historical Marriage Database*.

gratuita. Este fenómeno se observaría de manera más acentuada en sectores como el textil. Sin embargo, en sectores con baja presencia de jornaleros, como el sector terciario, la disparidad económica habría disminuido incluso coexistiendo ocupaciones tradicionales y nuevas.

El sector terciario siempre presentaba niveles de desigualdad superiores al primario o secundario como cabía esperar dada la heterogeneidad de las ocupaciones que reúne, incluyendo desde de servicios de menor estatus como el doméstico hasta profesionales liberales o militares (Gráfico 10). En detalle, los valores de los coeficientes de Gini para el sector primario se sitúan alrededor del 0,3 para todo el periodo estudiado, a excepción de los años del conflicto napoleónico (1808-1814). Mientras la desigualdad en el sector secundario creció durante la industrialización en casi diez puntos, la inequidad del sector terciario descendió del 0,48 en el 1756-1790 a 0,31 entre 1826 y 1860 (Gráfico 10). Estas tendencias se explicarían por una polarización menos acusada en el sector terciario observándose un proceso de profesionalización de ciertas ocupaciones como las sanitarias (Abbott, 1993, Zarzoso, 2003). Paralelamente la proletarización del textil ilustraría este comportamiento (Form, 1987; Grau y López, 1974; García Balañà, 2004).

7. VALORACIONES FINALES

El estudio de la evolución de la estructura ocupacional en el área de Barcelona ha mostrado su trascendencia para la estimación del efecto de la industrialización en la desigualdad económica. La inequidad tendió al

decrecimiento hasta la Guerra de Independencia (1808-1814) para mostrar una tendencia inversa a partir de 1840. De hecho, a medida que la desigualdad general iba en aumento, el sector primario descendía, el secundario se agrandaba y el número de matrimonios exentos de la tasa crecía. La desigualdad interna entre los sectores económicos a largo plazo se mantiene inalterada para el sector primario, mientras aumenta para el secundario y disminuye para el terciario desde el inicio de la industrialización.

El sector secundario, clave de la industrialización catalana, sufrió importantes transformaciones en términos de estructura ocupacional. Se pasó de un equilibrio entre el número de individuos dedicados a la producción manufacturera y a su confección a un predominio de las actividades productivas, lo cual supuso un aumento de la desigualdad inter-subsectorial. La ruptura de este equilibrio da indicios de la transición de una economía tradicional de escala local a otra que se expandía para suplir nuevos mercados, auspiciada por el crecimiento del comercio con el resto de España y América. De aquí se entiende que las actividades relacionadas con el tisaje (sobre todo la de tejedor) fueron las más frecuentes entre los individuos que contrajeron matrimonio en el área de Barcelona entre 1715 y 1860. Estos individuos mostraron mayores niveles de exención de pago en sus licencias matrimoniales que otros grupos ocupacionales y en consecuencia se observó un aumento de la inequidad en el sector secundario.

El aumento del número de licencias por *Amore Dei* del secundario sería comparable al observado entre los jornaleros. Estos niveles tanto de desigualdad como de exenciones fiscales mostrarían como la industrialización conllevó un empobrecimiento de aquellos trabajadores relacionados con la producción industrial, lo cual podría indicar la existencia de un proceso de proletarización; algo que también se observa en otras sociedades industrializadas. Además, debe tenerse en cuenta, que los niveles totales de desigualdad del área de Barcelona pudieron ser aún mayores ya que las estimaciones presentadas en este trabajo únicamente se refieren a individuos que contrajeron matrimonio, determinado por población analizada concentrada en edades más bien tempranas. Al hilo de este argumento debe tenerse en cuenta que los jornaleros eran el grupo social que contribuyó de manera más importante a la desigualdad total entre sectores. De hecho, la no consideración de este grupo en el análisis implicaría que la desigualdad total tendería a descender en el tiempo.

Los cambios en la estructura ocupacional y el proceso de proletarización que se observa con la proliferación de jornaleros a partir del siglo XVIII en el área de Barcelona conectarían con algunos de los elementos definitorios de la evolución de la desigualdad económica en fases preindustriales y de transición, tal y como se defiende en la hipótesis de Kuznets, en que el trasvase de mano de obra no especializada del sector primario a la industria favorecería el aumento de la inequidad (Van Zanden, 1995).

De igual manera, se pueden detectar indicios de la acumulación de capital en los núcleos urbanos a partir de la jerarquía encontrada en sus niveles de

desigualdad. Sin embargo, pese a esto, no intuimos la presencia de una "súper curva de Kuznets" en el periodo de 1715-1860 en el área de Barcelona como ya había indicado también para el caso de Cataluña García Montero (2015). Esto se debe principalmente al hecho que se observa una disminución de la desigualdad a partir de finales del ochocientos, momento en el que la estructura ocupacional inicia su transformación y la industrialización empieza en Cataluña, contradiciendo, al menos para el siglo XVIII, la interrelación entre crecimiento económico y aumento de la inequidad.

REFERENCIAS

Abbott, A. (1993): «The Sociology of Work and Occupations». *Annual Review of Sociology* 187-209.

Acemoglu, D., y Robinson, J. (2000): «Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective». *The Quarterly Journal of Economics* 115 (4), 1167-1199.

Alfani, G. (2015): «Economic Inequality in Northwestern Italy: A Long-Term View (Fourteenth to Eighteenth centuries)». *Journal of Economic History* 75 (4), pp 1058-1096.

Alfani, G. (2010): «Wealth Inequalities and Population Dynamics in Early Modern Northern Italy». *Journal of Interdisciplinary History* 40, 513-549.

Alfani, G., y Ryckbosch, W. (2016): «Growing Apart in Early Modern Europe? A Comparison of Inequality Trends in Italy and the Low Countries, 1500–1800». *Explorations in Economic History* 62, 143-153.

Allen, R. C. (2000): «Economic Structure and Agricultural Productivity in Europe, 1300–1800». *European Review of Economic History* 4 (01), 1-25.

Almárcegui, A. M. (1981): «Transformación socioprofesional, trayectoria demográfica y familia: Un estudio del artesanado reusense a partir de las actas de matrimonio: 1601-1810». *Pedralbes: revista d'història moderna* 1, 77-102.

Almárcegui, M, y Sarrión, G (1981): «Población y estructura social de Zaragoza en 1787: la distribución por estados y profesiones». *Jornadas Sobre el Estado Actual de Los Estudios Sobre Aragón* (4ª. 1981. Alcañiz), 293-301.

Álvarez, B., y Ramos Palencia, F. (2016): "The Role of Human Capital in Pre-Industrial Societies: Skills and Earnings in Eighteenth-Century Castile (Spain)". *Universidad Pablo de Olavide, Department of Economics, Quantitative Methods and Economic History Working Papers*, (16.03).

Álvarez-Nogal, C., y Prados de la Escosura, L. (2007): «The Decline of Spain (1500–1850): Conjectural Estimates». *European Review of Economic History* 11 (03), 319-366.

Amelang, J. S. (1986): *Honored Citizens of Barcelona: Patrician culture and class relations, 1490-1714*. Princeton: Princeton University Press Princeton.

Arranz, M. (1990): «La construcció: un sector al marge de la revolució industrial?». *Finestrelles* (2), 146-153.

Badia-Miró, M., y Tello, E. (2014): «Vine-Growing in Catalonia: The Main Agricultural Change Underlying the Earliest Industrialization in the Mediterranean Europe (1720-1939)». *European Review of Economic History* 18 (2), 203-226.

Badosa, E. (1990): «Endeutament col· lectiu i desaparició de béns comunals a Catalunya a la segona meitat del segle XVIII». *Pedralbes: revista d'història moderna* 10, 51-66.

Beltrán-Tapia, F., y Martínez-Galarraga, J. (2015): "Inequality and Poverty in a Developing Economy: Evidence from Regional Data (Spain, 1860-1930)". *European Historical Economics Society (EHES) Working Papers*, (0078).

Benaul, J. M. (1995): «Cambio tecnológico y estructura industrial. Los inicios del sistema de fábrica en la industria pañera catalana, 1815–1835». *Revista de Historia Económica* 13 (02), 199-226.

Benaul, J. M. (1993): *Guerra i canvi econòmic. L'impacte de la Guerra del francès en la industria tèxtil llanera de Sabadell i Terrassa, 1808-1914*. Sabadell, Sabadell. Fundació Bosch i Cardellach.

Benaul, J. M. (1992): «Los orígenes de la empresa textil lanera en Sabadell y Terrassa en el siglo XVIII». *Revista de Historia industrial* 1, 39-62.

Borderías, C. (2002): "Women Workers in the Barcelona Labour Market, 1856-1936." Red Barcelona. *Social Protest and Labor Mobilization in the Twentieth Century*. London: Routledge: 142-166.

Broadberry, S., *et al*. (2013): «When Did Britain Industrialise? The Sectoral Distribution of the Labour Force and Labour Productivity in Britain, 1381–1851». *Explorations in economic history* 50 (1), 16-27.

Cabré, A. (1999): «El sistema català de reproducció. Cent anys de singularitat demogràfica». Barcelona: Edicions Proa.

Camps Cura, E. (1995): *La formación del mercado de trabajo industrial en la Cataluña del siglo XIX*. Madrid: Ministerio de Trabajo y Asuntos Sociales.

Camps Cura, E. (1992): «Population Turnover and the Family Cycle: The Migration Flows in a Catalan Town during the Nineteenth Century». *Continuity and Change* 7.02. 225-245.

Camps Cura, E., y Borderías, C. (2012): "*Historical International Classification of occupations*"; Cataluña, siglos XIX-XX en: https://hiscodigos.files.wordpress.com.

Carreras I Candi, F. (1914): «Les obres de la Catedral de Barcelona 1298-1445». *Butlletí de la Reial Acadèmia de Bones Lletres de Barcelona* 7 (49), 22-30.

Clark, G. (1987): «Productivity Growth Without Technical Change in European Agriculture Before 1850». *The Journal of Economic History* 47 (02), 419-432.

Conceição, P., y Ferreira, P. (2000): "The Young Person's Guide to the Theil Index: Suggesting Intuitive Interpretations and Exploring Analytical Applications". UTIP working papers. University of Texas.

Cooney, E. (1993): «Productivity, Conflict and Order in the British Construction Industry: A Historical View». *Construction History* 9, 71-84.

De Vries, J. (2006): *European Urbanization, 1500-1800* (Vol. 4). Routledge. New York.

De Pleijt, A., y Weisdorf, J. (2017): «Human Capital Formation from Occupations: the 'Deskilling Hypothesis' Revisited». *Cliometrica* 11 (1), pp. 1-30.

Fernández, R. G, y López, M. (1974): «Empresari i capitalista a la manufactura catalana del segle XVIII. Introducció a l'estudi de les fàbriques d'indianes». *Recerques: història, economia, cultura* 4, 19-57.

Ferrer, L. (2004): «Bergadanas, continuas y mules. Tres geografías de la hilatura del algodón en cataluña (1790–1830)». *Revista de Historia Económica* 22 (2), 337-386.

Ferrer, L., *et al*. (1992): «Edat de casament i celibat definitiu a la Catalunya Central (1803-1807)». *Manuscrits: revista d'història moderna* (10), 259-286.

Fontana, J. (2008): *La guerra del Francès 1808-1814*. Barcelona. *Pòrtic*.

Form, W. (1987): «On the Degradation of Skills». *Annual Review of Sociology* 29-47.

García Balañà, A. (2004): *La fabricació de la fàbrica: treball i política a la Catalunya cotonera, 1784-1874*, Universitat de Barcelona.

García-Montero, H. (2016): «The Nutritional Status of Manufacturing Workers and Craftsmen in Central Spain in the Eighteenth Century». *Revista de Historia Industrial* 25 (64), 51-75.

García-Montero, H. (2015): "Long-Term Trends in Wealth Inequality in Catalonia, 1400-1800: Initial Results". Dondena Working Papers, no. 79.

González Enciso, A. (1985): «Especialización y competencia regionales: la expansión del negocio catalán en Castilla a fines del siglo XVIII». *Pedralbes: revista d'història moderna* 5, 31-58.

Hajnal, J. (1976): «European Marriage Patterns in Perspective». *Population and Development Review* 2 (3-4), 101-143.

Hanagan, M. (1977): «Artisan and Skilled Worker: The Problem of Definition». *International Labor and Working-Class History* 12, 28-31.

Hauser, R. M. (1982): «Occupational Status in the Nineteenth and Twentieth Centuries». *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 15 (3), 111-126.

Horrell, S. (1996): «Home Demand and British Industrialization». *The Journal of Economic History* 56 (03), 561-604.

Iturralde, M. (2015): «Las edades de acceso al mercado de trabajo formal: de los oficios tradicionales a la industria algodonera moderna, Barcelona, 1784-1856». *Revista de Demografía Histórica* 33 (1), 65-97.

Katz, M. B. (1972): «Occupational Classification in History». *The Journal of Interdisciplinary History* 3 (1), 63-88.

Keibek, S. A., y Shaw-Taylor, L. (2013): «Early Modern Rural By-Employments: A Re-Examination of the Probate Inventory Evidence». *Agricultural History Review* 61 (2), 244-281.

Kendrick, M. (1939): «The Ability-to-Pay Theory of Taxation». *The American Economic Review* 29 (1), 92-101.

Kuznets, S. (1955): «Economic Growth and Income Inequality». *The American Economic Review* 45 (1), 1-28.

Lambert, P.; Zijdeman, R.; van leeuwen, M.; Maas, I., y Prandy, K. (2013): «The Construction of HISCAM: A Stratification Scale Based on Social Interactions for Historical Comparative Research». *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 46 (2), pp. 77-89.

Landes, D. S. (2003): The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present.

Lindert, P. (2000): « "Three Centuries of Inequality in Britain and America». *Handbook of Income Distribution"* 1, 167-216.

Livi-Bacci, M. (1987): «Il censimento di Floridablanca nel contesto dei censimenti europei». *Genus* 137-151.

Maas, I., y Van Leeuwen, M. (2016): «Toward Open Societies? Trends in Male Intergenerational Class Mobility in European Countries during Industrialization» 1. *American Journal of Sociology* 122 (3), 838-885.

Marfany, J. (2012): *Land, Proto-Industry and Population in Catalonia, c. 1680-1829: An Alternative Transition to Capitalism?* Surrey: Ashgate Publishing, Ltd.

Martín Cabreros, P., y Sánchez Ruiz, J. (1985): «Aproximación a la estructura socio-profesional de la provincia de Zamora en el siglo XVIII a través de las respuestas generales del Catastro del Marqués de 1a Ensenada». *Anuario 1985. Instituto de Estudios Zamoranos Florian de Ocampo* 443-513.

Martínez Carrión, J.M. (2016): «Living Standards, Nutrition and Inequality in the Spanish Industrialisation. An Anthropometric View». *Revista de Historia Industrial* 25 (64), 11-50.

MARTÍNEZ-GALARRAGA, J., Y PRAT, M. (2015): "Wages, Prices, and Technology in Early Catalan Industrialization". *The Economic History Review* 69 (2), 548-574.

MARTÍNEZ-GALARRAGA, J, *et al*. (2015): «The Long-Term Patterns of Regional Income Inequality in Spain, 1860–2000». *Regional Studies* 49 (4), 502-517.

MILANOVIC, B., *et al*. (2011): «Pre-Industrial Inequality». *The Economic Journal* 121 (551), 255-272.

MOCH, L. P. (2003): *Moving Europeans: Migration in Western Europe since 1650*. Indiana University Press.

MOLAS RIBALTA, P. (1970): *Los gremios barceloneses del siglo XVIII: la estructura corporativa ante el comienzo de la revolución industrial*. Madrid: Confederación Española de Cajas de Ahorros.

MOLITORIS, J., Y DRIBE, M. (2016): «Industrialization and Inequality Revisited: Mortality Differentials and Vulnerability to Economic Stress in Stockholm, 1878–1926». *European Review of Economic History* hev023.

MORA-SITJÀ, N. (2007): «Labour Market Integration in a Pre-Industrial Economy: Catalonia, 1772–1816». *Oxford Economic Papers* 59 (suppl 1), 156-177.

MORA-SITJA, N. (2006): "Exploring Changes in Earnings Inequality during Industrialization: Barcelona, 1856-1905". *Oxford University Economic and Social History Series*, (_061).

MUSET, A. (1995): «Los arrieros y negociantes del Calaf y Copons y su implantación en el mercado español en el siglo XVIII». *Revista de Historia Industrial* 8, 193-210.

MUSET, A. (1997): *Catalunya i el mercat espanyol al segle XVIII: els traginers i els negociants de Calaf i Copons*, Abadía de Montserrat.

NADAL, J. (1978): *La població catalana al segles XVI i XVIII*. Barcelona, *Salvat*.

NADAL, J. (1975): *El fracaso de la revolución industrial en España, 1814-1913*. Barcelona: Ariel.

NADAL, J, Y GIRALT, E. (1963): «Barcelona en 1717-1718. Un modelo de sociedad pre-industrial». Homenaje a Don Ramon Carande. Madrid, *Moneda y Crédito* 20, 159-160.

NICOLINI, E., Y RAMOS PALENCIA, F. (2016): "Decomposing Income Inequality in a Backward Pre-Industrial Economy: Old Castile (Spain) in the Middle of the Eighteenth Century". *The Economic History Review*.

OKUNO, Y. (1999): «Entre la llana i el cotó. Una nota sobre l'extensió de la indústria del cotó als pobles de Catalunya el darrer quart del segle XVIII». *Recerques: història, economia, cultura* 38, 47-76.

ORIS, M. (2003): «The History of Migration as a Chapter in the History of the European Rural Family: An Overview». *The History of the Family* 8 (2), 187-215.

PRADOS de la Escosura, L. (2008): «Inequality, Poverty and the Kuznets Curve in Spain, 1850–2000». *European Review of Economic History* 12 (3), 287-324.

PRAT SABARTÉS, M. (2007): «Fabricants, comerciants i banquers. Les estructures comercials de la indústria cotonera catalana en el mercat español (1840-1936)». *Butlletí de la Societat Catalana d'Estudis Històrics* vol. XVIII, p 205-212.

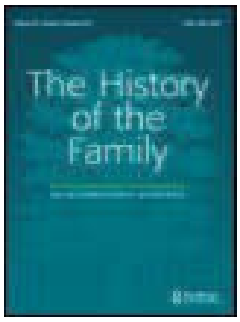
PUJADAS-MORA, J. M., *et al*. (2014): «Propuestas metodológicas para la aplicación de HISCO en el caso de Cataluña, siglos XV-XX». *Revista de Demografía Histórica* 32 (1), 181-220.

RAVEUX, O., Y SÁNCHEZ, A. (2010): «La adaptación tecnológica como factor de localización industrial. Una revisión de las investigaciones sobre la industria de hilados de algodón en Cataluña (1772–1885)». *Investigaciones de Historia Económica* 6 (17), 65-94.

RAMÓN MUÑOZ, R., Y RAMÓN MUÑOZ, J.M. (2016): «The Biological Standard of Living in Nineteenth-Century Industrial Catalonia: A Case Study». *Revista de Historia Industrial* 25 (64), 71-118.

Reher, D. (1986): «Desarrollo urbano y evolución de la población: España 1787–1930». *Revista de Historia Económica* 4 (1), 39-66.
Roig, M. P. (1985): «Vies d'estudi dels registres parroquials. Estructura social i oficis a l'Alt Empordà durant l'Antic Règim». *Manuscrits: revista d'història moderna* (1), 39-62.
Romero, J. (2010): «Estado, trabajadores y empleo femenino en los orígenes de la industria en la España contemporánea». *Mélanges de la Casa de Velázquez. Nouvelle série* (40-2), 95-115.
Rosés, J. (1999): "Explaining the Upwising of the Kuznets Curve during the Early Industrialisation (Catalonia, 1830-1861)". Manuscrito sin publicar. European Historical Economics Society Conference, Lisboa.
Ryckbosch, W. (2016): «Economic Inequality and Growth Before the Industrial Revolution: The Case of the Low Countries (Fourteenth to Nineteenth Centuries)». *European Review of Economic History* 20 (1), 1-22.
Sánchez Suárez, A. (2000): «Crisis económica y respuesta empresarial. Los inicios del sistema fabril en la industria algodonera catalana, 1797-1839». *Revista de Historia Económica* 18 (03), 485-523.
Sánchez Suárez, A. (1993): «Les activitats econòmiques a Barcelona (1717–1833)», en Sobrequés I Callicó, J. (dir.), *Història de Barcelona. El desplegament de la ciutat manufacturera* 217-265.
Santiago-Caballero, C. (2011): «Income Inequality in Central Spain, 1690–1800». *Explorations in Economic History* 48 (1), 83-96.
Shaw-Taylor, L., y Wrigley, A. (2014): "Occupational Structure and Population Change." *The Cambridge Economic History of Modern Britain: Volume 1, Industrialisation, 1700–1870: 53*.
Soto Carmona, A. (1989): *El trabajo industrial en la España contemporánea, 1874-1936*. Madrid Anthropos Editorial.
Sudrià, C. (2004): «Comerç, finances i indústria en els inicis de la industrialització catalana». *Barcelona quaderns d'història* 11, 9-38.
Tello, E. (1995): «El fin de la expansión agraria en Cataluña del siglo XVIII: factores económicos y crisis social». *Agricultura y sociedad* (74), 109-158.
Thomson, J. K. (2003): *A Distinctive Industrialization: Cotton in Barcelona 1728-1832*. Cambridge: Cambridge University Press.
Torras Elias, J. (1984): «Especialización agrícola e industria rural en Cataluña en el siglo XVIII». *Revista de Historia Económica* 2 (03), 113-127.
Torras I Ribé, J. (1987): «Demografia i societat a Igualada durant els segles XVI i XVII». *Miscellanea Aqualatensia* (4), 87-111.
Van Leeuwen, M., *et al*. (2002): *Historical International Standard Classification of Occupations*. Lovaina: Leuven University Press.
Van Zanden, J. L. (1995): «Tracing the Beginning of the Kuznets Curve: Western Europe During the Early Modern Period». *The Economic History Review* 48 (4), 643-664.
Vidal i Bendito, T. (1979): «Èxode rural i problemàtica demospacial a Catalunya (1860-1970)». *Estudis d'Història Agrària* 2, 193-207.
Williamson, J.G. (2013): *Did British Capitalism Breed Inequality?* London: Routledge.
Zarzoso, A (2003): *La práctica médica a la Catalunya del segle XVIII*, Tesis doctoral. J. Institut Universitari d´Història "Jaume Vicens i Vives", Universitat Pompeu Fabra, Barcelona.

4.3 Pujadas-Mora, J. M., Brea-Martínez, G., Jordà Sánchez, J. P., & Cabré, A. (2018). ***The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries.*** *The History of the Family, 1-35.*



The History of the Family

ISSN: 1081-602X (Print) 1873-5398 (Online) Journal homepage: http://www.tandfonline.com/loi/rhof20

The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries

Joana-Maria Pujadas-Mora, Gabriel Brea-Martínez, Joan-Pau Jordà Sánchez & Anna Cabré

To cite this article: Joana-Maria Pujadas-Mora, Gabriel Brea-Martínez, Joan-Pau Jordà Sánchez & Anna Cabré (2018): The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries, The History of the Family

To link to this article: https://doi.org/10.1080/1081602X.2018.1426483

Published online: 23 Feb 2018.

THE HISTORY OF THE FAMILY, 2018
https://doi.org/10.1080/1081602X.2018.1426483

Routledge
Taylor & Francis Group

The apple never falls far from the tree: siblings and intergenerational transmission among farmers and artisans in the Barcelona area in the sixteenth and seventeenth centuries

Joana-Maria Pujadas-Mora[a], Gabriel Brea-Martínez[a], Joan-Pau Jordà Sánchez[a] and Anna Cabré[a,b]

[a]Centre d'Estudis Demogràfics (Center for Demographic Studies), Universitat Autònoma de Barcelona, Barcelona, Spain; [b]Geography Department, Universitat Autònoma de Barcelona, Barcelona, Spain

ABSTRACT

This article aims at studying the intergenerational transmission of status within farmers and artisans in the preindustrial area of Barcelona from a siblings' attainment perspective in a context of impartible inheritance. The data source used are the Marriage License Books from the Barcelona's Diocese compiled in the Barcelona Historical Marriage Database, which for the sixteenth and seventeenth centuries provides a rich and continuous demographic and socioeconomic information through the use of the multilevel regression analysis. Our main findings points out the important family impact on the social fate of children. First-married children were the maximal inheritors of parental statuses in all social groups, especially for farmers and artisans, the former being more linked to ascription than the latter. However, farmers were found to be the group with the highest intergenerational occupational inheritance although artisans were who transmitted at most their social group. This divergent effect is due to the different strategies, or in a way a same strategy, used on non-first-married children to whom, families from the two social groups, when not able to transmit the same parental occupation, preferred to position the offspring in artisans' careers thanks to a favourable context of a flourishing manufacturing industry at the countryside.

ARTICLE HISTORY
Received 20 June 2017
Accepted 8 January 2018

KEYWORDS
Intergenerational transmission; sibship; sibling marriage order; artisans; farmers

1. Introduction

Historically, families tended to place their members in better-off social and economic positions in order to biologically perpetuate their lineages over time. To achieve this aim they used a range of intergenerational transmission strategies in the demographic, legal and economic domains (Berkner & Mendels, 1978; Ganzeboom, Treiman, & Ultee, 1991). This phenomenon led to a view of the pre-industrial society as unequivocally immobile, although this has been revised and refuted in recent years (Boberg-Fazlic, Sharp, & Weisdorf, 2011; Dambruyne, 1998). It is true, however, that levels of social transmission between generations in these societies have remained high.[1] However, this might vary among different social

CONTACT Joana-Maria Pujadas Mora jpujades@ced.uab.es

groups. We will investigate the case of farmers and artisans – the two major groups socially and economically speaking in the period under study – since they might have adapted their strategies according to their own circumstances and the general context (Bourdieu, 1976; Laslett, 1983), for example with the legal inheritance system or the total number of children reaching adulthood which, in the end, necessarily involves class formation (Kocka, 1984).

It is noted that the legal context, and specifically inheritance systems, can strengthen intergenerational transmission of occupations or status, particularly when the system is based on the principle of impartibility, which usually granted eldest sons the privilege of being heir[2] (Barrera-González, 1992; Berkner & Mendels, 1978; Comas d'Argemir, 1988; Ferrer, 2007; Platteau & Baland, 2001; Thirsk, 1976). If there were no male offspring, the eldest daughter would be made heiress (Arrizabalaga, 2005; Ferrer, 2005). It is clear that this system marked not only the fate of first-born children but also the destinies of the rest of the siblings. In the legal system of the time, inheritance was divided among a 'universal inheritor' and the other siblings. The universal inheritor would give continuity to the *house*[3] by obtaining his/her inheritance through the marriage contract, and was expected to provide for the future of his/her sisters and/or brothers. The non-inheritor siblings received what is known as the 'legitimate' part of the inheritance, or the dowry in the case of women, to be used in forming their own families or trades (Barrera-González, 1992; Fauve-Chamoux, 2005; Ferrer, 2004; Kurosu, 1996). The logic of this system implied that non-inheritor brothers would marry downwards, by comparison with their families of origin (Ferrer, 2003, 2010a).

Hence, families looked for mechanisms to compensate for and mitigate sibling competition or rivalry[4] for the same family resources, and to avoid parent–offspring conflict (Schlomer, Ellis, & Garber, 2010; Trivers, 1974) and, consequently, resource dilution (Low, 1991; Shenk et al., 2010). In this sense, the existence of a specific legal inheritance system based on a single heir might provide an institutionalised form of conflict resolution for siblings by providing all the tangible endowments to only one offspring, the single inheritor. Parents would have made this situation less or more 'unfair' through adopting different strategies. They could multiply single-heir advantage by focusing on this one heir most of the parental investments or, alternatively, opt for compensatory approaches with regard to non-inheritors (Erola & Kilpi-Jakonen, 2017). However, even using compensatory strategies could not totally resolve parent–offspring conflicts since single heirs, although they did achieve through endowments greater stability in social status, would have had to shoulder more responsibilities vis-à-vis their siblings.

With regard to the number of adult siblings[5] in families, one strategy was to advance or delay marriage depending on the siblings' age and gender, and the number of siblings in the family who could marry (Dribe & Lundh, 2010; van Poppel & Nelissen, 1999; Van de Putte et al., 2009). Hence, gender, birth order, sibship and of course whether or not siblings were heirs all came into play in establishing siblings' ages at marriage (Barrera-González, 1992; Dillon, 2010; Ferrer, 2010b; Gjerde & McCants, 1999; Suanet & Bras, 2014; Vilalta, 2006; Wall, 1996). It should be recalled that not all siblings entered the marriage market; some took up a religious vocation and others, who remained unmarried, never left the parental home (Ciuffreda, 1997; Ferrer, 2008, 2016). In fact, for historical societies, especially during the fertility transition, there is evidence of an association between sibship size and social status attainment (Beise & Voland, 2008; Bras, Kok, & Mandemakers, 2010; Nitsch, 2014; Van Bavel, Moreels, Van de Putte, & Matthijs, 2011; Voland & Dunbar, 1995) by contrast with the negative

or non-association found in contemporary societies (Angrist, Lavy, & Schlosser, 2010; Blake, 1986; Black, Devereux, & Salvanes, 2005; Leibowitz, 1974).

Resource dilution can therefore be one result of greater sibship size, assuming that families with a larger number of siblings show less upward mobility among their offspring due to a greater burden on allocation of parental resources (Downey, 1995; Öberg, 2015). However, several authors did not find any effect of sibship size in adult life in historical populations (Van Bavel, Moreels, Van de Putte & Matthijs, 2011; Wall, 1996). Bras et al. (2010) provided insights and examples explaining this absence of association, including the household economic cycle, in which families of greater sibship size would have more opportunities to convert adult offspring into producers contributing to the shared family budget (Berkner, 1972). A second argument has to do with family typologies, and suggests that resource dilution would affect nuclear families but apparently not extended families (as were common in Catalonia), due to the greater likelihood of influence from other kin agents (Erola & Kilpi-Jakonen, 2017; Knigge, Maas, Van Leeuwen & Mandemakers, 2014). In fact, for *ancien régime* societies in a context of high fertility combined with high mortality, the incidence of fatality might suggest markers of social group and status. Some authors have found larger family sizes among the richest, while families of lower status would have been subject to many involuntary pressures that diminished their size (Boberg-Fazlic et al., 2011; Clark & Hamilton, 2006). Other authors argue that in spite of the high mortality in that period, larger families would generally have been preferred to dilution, particularly among peasants, in order to increase their available labour pool, which is understood as a multiplicative effect for generating resources (Caldwell, Caldwell, Caldwell, McDonald, & Schindlmayr, 2006; Harrell, 1997).

Other ways in which mostly male non-inheritor siblings and families in rural areas compensated for their unfavourable birth order and sought to improve their status comprised finding an economic activity to complement the one carried out in the parental home, for example cultivating pieces of land, owning small flocks or emigrating to the city in order to become artisans (Epstein, 2004; Ferrer, 2016; Iszaevich, 1975; Kurosu, 1996). These strategies can be understood as part of a so-called cooperative breeding[6] framework which aims to maximise the opportunities of all siblings or as deriving from an altruistic perspective involving not only parental tangible and intangible investments but also the participation of other kin (Kurzban, Burton-Chellew, & West, 2015), as could be the case with the single heir contributing towards the placement of siblings. The extra earnings would ease the family's economic burdens and facilitate the marriages of (all) siblings. Inter- and intra-generational cooperation would thereby determine the fate of (all) siblings. Some European examples from the nineteenth century showed that families would try their best to keep offspring at home in rural areas and to provide cooperatively for all of them. However, when constraints like unemployment at the macro level or disability at the micro level did not allow this, small-scale migration, undertaken as a family decision involving parents and siblings, would have been chosen as the agreed-upon option (Kesztenbaum, 2008; Kok, 1997).

This study explores the socio-occupational destinations for sons and daughters of peasants and artisans in the area of Barcelona in the period between 1547 and 1643, which corresponds with the early modern period. Their destinies are understood as a combination of both ascription and achievement or, in a nutshell, the influence of parents' socioeconomic position and individual improvements in relation to family background, especially with siblings who were not first-born. For such insights it is necessary to evaluate how the father's

social characteristics could condition the integration of children into the same group, controlling for demographic characteristics such as marriage order, a proxy of birth order, and sibship size of those who married.

Our analysis aims to shed light on competitive or cooperative strategies adopted by families in pre-industrial times in the Barcelona area, in order to provide for their descendants in a context of impartible inheritance. Moreover, we seek to determine whether there were certain patterns in the procedure of placing descendants in these groups, i.e. if there was a group behaviour. For this purpose, we use a unique ecclesiastical and fiscal marriage source called *Llibres d'Esposalles* (Marriage Licence Books) brought together in the Barcelona Historical Marriage Database (BHMD), which includes all marriages held in the Diocese of Barcelona between 1451 and 1905, and covering 250 parishes in 1900. For the period of our analysis, 1547 to 1643, this source captured the occupations of fathers and children concurrently. This is a significant feature due to the regular use of marriage contracts as a way of recording vital events during these periods. Parish registers were rare in Catalonia at the time; their widespread use dates from the Council of Trent onwards.[7] In fact, the Marriage Licence Books represent one of the few sources for this kind of analysis in this period.

During the early modern period, Catalonia showed a demographic recovery, after a century marked by many crises. Plagues and a civil war (1462–1472) accounted for a significant reduction of its population. From 1553 to 1623, the Catalan population increased from more than 250,000 to around 475,000 inhabitants (Nadal, 1978; Simon, 1992), thanks largely to a flow of immigrants from France (Nadal & Giralt, 1960) and burgeoning economic expansion (Junqueras, 2006; Lobato, 1995; Simon, 1992; Vilar, 1986). Scholars have attributed this economic vigour to the expansion of vineyards and the spread of the textile industry in the countryside, among other factors (García Espuche, 1998; Torras, 1993). This situation would change during and after the Thirty Years' War (1618–1648) and the outbreak of the revolution of 1640 (Elliot, 1963) because of a combination of commercial/industrial crisis, heavy tax pressure and bad harvests (Kamen, 1979; Serra, 2013; Yun Casalilla & Torras, 1999). In addition to these factors, the already limited disposal of fields was further restricted by rising land prices (Álvarez-Nogal & Prados de la Escosura, 2012). The single-heir inheritance system began to be used in Catalan society in the Middle Ages. It spread progressively from the north (Provence and today's French Catalonia) to the south and east throughout the tenth and thirteenth centuries and was eventually integrated in the Roman-Catalan legal code, which had Carolingian roots (To, 1997, 1993). The original purpose of these practices was to avoid land dissolution in a mainly rural society. By the early modern period, the inheritance system played an integral role in families' productive and reproductive dynamics (Comas d'Argemir, 1988; Ferrer, 2010a) and was widespread across centuries and social groups in Catalonia. In fact, this context could have been decisive in mitigating or increasing differences between siblings that were prefigured in the inheritance system.

Some of the initial hypotheses regarding this study can be stated as:

- A first-married male sibling would inherit occupation and status from his father. The fact that the eldest son would inherit most of the parents' tangible endowments could create an initial inequality of status ascription and opportunities among siblings, which might be mitigated by compensation strategies and could diverge from the original family social status and occupation. The likely effects of such compensatory strategies would entail the allocation of inter- and intra-generational resources (either human

or economic) to find an alternative path (social or occupational) for non-inheritor children in order to ensure the socioeconomic reproduction of families. In this sense, the non-first-married siblings might have the same occupation as the first-married sibling, or work in a similar/related occupation due to the fact that it would be easier for the family to use its relations/influences within its own economic sector/activity. Conversely, when the family was not able to use this kind of strategy, the non-first-married children (daughters and mostly sons) might show more mobility in status attainment in comparison with the elder sibling.

- Another plausible hypothesis is that when placement of non-first-married children failed, an alternative way of ensuring the social outcomes of at least some of their descendants would be sought. Among non-peasant families, there might be a preference for purchasing land as a way of securing a fixed asset. Accordingly, a non-first-married sibling of an artisan father in this period might have some chances of becoming a farmer. However, the fact that some farmers' sons could have been artisans responded to a context characterised by a significant expansion of manufacturing and limited land availability.

2. Data and methodology

The Barcelona Historical Marriage Database (BHMD) brings together the marriage licences recorded at the *Llibres d'Esposalles* covering the Diocese of Barcelona (formed by 250 parishes in 1900) from 1451 to 1905, accounting for more than 600,000 marriages. The origin of the source goes back to 1409, when Pope Benedict XIII (1328–1423, and considered an antipope during the Western Schism) visited Barcelona and granted the new cathedral the power to impose a marriage tax that would be charged for each union held in the diocese in order to fund the cathedral's construction and maintenance. Parishes were distributed from the city of Barcelona to rural villages at the periphery of the diocese. During the five centuries of the source's lifetime, the items commonly listed in each marriage record were names and family names of grooms (one family name[8] until 1876 and two family names[9] thereafter) and brides' names.[10] The source also includes the groom's occupation, the marital status of both parties (particularly brides and widowed grooms), and the tax paid, which was calculated in accordance with the socioeconomic status of the couple. Brides' surnames were not registered until 1643, and then surnames usually came from the father (if previously unmarried) or, if widowed, the late husband.

Names and surnames of parents were registered quite often, but the father's occupation was only registered in the period 1547 to 1643. Consequently, and given that the aim of this article is to analyse intergenerational transmission of social outcomes among farmers and artisans through sibling differences, this is the period under study and it could make a valuable contribution by shedding light on several facts. First, the (almost) century between 1547 and 1643 comes into the framework of the classical historiographical discussion about the general crisis of the seventeenth century in the Mediterranean area as a result of the inflationary Spanish Price Revolution (Fischer, 1996; Parker, 2013). Second, in this general context, Catalonia represented an exception in which the constraints of the time brought about an economic reconfiguration and the definitive integration of Barcelona and its hinterland into a new urban system. The city worked as the economic and geographic

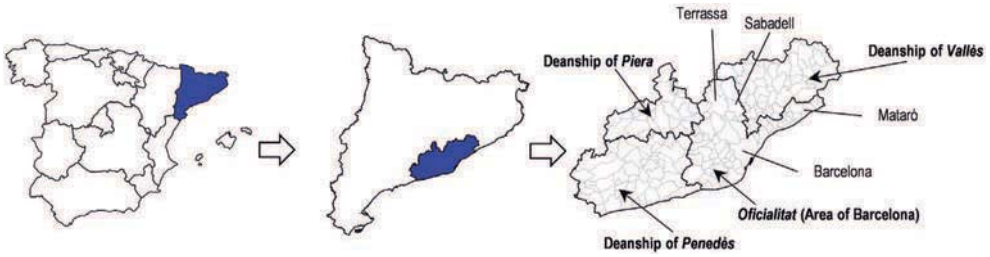
core, and these transformations were possible thanks to the decentralisation of Barcelona manufacturing and the reconversion of the city's activities to more specialised and commercial endeavours (García Espuche, 1998; Junqueras, 2006).

This economic reconversion located Barcelona and its hinterland in the trade routes of the Spanish empire (extending to the Americas) and in the Mediterranean trade together with major ports like Genoa, Marseille and Naples (Braudel, 1995; García Espuche, 1998; Junqueras, 2006), which makes the study of the family and intergenerational aspects of the social class transmission a matter of scientific interest. Moreover, the database with reconstructed genealogies of a remarkable sample size means that this study is one of the few contributions for the sixteenth and seventeenth centuries with regard to this topic and also for most of the area of study.

The taxation system covered the entire social hierarchy, from the nobility (the highest level) to the so-called poor (exempted). For the period of study, taxes were fixed in a seven-tiered scale: (1) nobility, (2) military citizens, (3) honoured citizens (those who could hold public offices), (4) merchants, lawyers and physicians, (5) masters of guilds, (6) farmers and small artisans and (7) the poor. Until 1715 the previous origin or residence of brides and grooms were included in the marriage licences, but this was suppressed afterwards in favour of the parish where the marriage was held. The main drawback of the source, mainly from a demographic point of view, is the non-registration of the partners' ages, which is a common feature of old parish marriage registers.

The Barcelona Diocese was divided into four main deanships: *Piera*, *Vallès*, *Penedès* and the *Oficialitat* of Barcelona, which is what we refer to as the Barcelona area. This Barcelona area represents a wide variety of locations, ranging from the most rural parishes through to the main towns of the period, for example Barcelona, Terrassa, Mataró and Sabadell. The *Oficialitat* deanship, or Barcelona area, accounted for 90% (556,318) of total marriages registered in the source, and is the only one showing impeccable continuity and data quality through the almost five centuries of the source's existence. Moreover, the *Oficialitat* was located in the most populated area of Catalonia, and remains so today (Map 1).

From 1547 to 1643, more than 80,000 marriage licences were recorded in the Barcelona area. In spite of the fact that the study is concerned with intergenerational transmission among peasants and artisans, the total social transmission will also be estimated. Only about 76,567 of those marriages, namely those in which occupations or status of grooms (sons and sons-in-law) and fathers at the time of the children's marriage were fully registered, can be taken into consideration.[11] Non-registration of information concerning fathers usually occurred in the cases of fathers of non-native or widowed grooms. In addition, when



Map 1. Area of Barcelona.

assessing the social destiny of siblings throughout this source, only families with at least two marrying siblings were taken into account. An accurate process of nominal record linkage was therefore required in order to bring together individuals (grooms/sons and brides/daughters) who shared the same parents. Nominal data have been harmonised according to language criteria to facilitate the record linkage to identify siblings (Jordà, 2016; Jordà, Valls-Fígols, & Pujadas-Mora, 2013). Origins and residences have been geolocated, and occupations have been coded using HISCO (Pujadas-Mora, Romero-Marín, & Villar, 2014; Van Leeuwen, Maas, & Miles, 2002).

In order to measure the status of each individual, the only available social marker in the Marriages Licence Books, as is common in demographic sources, is occupations, which have been ranked according to socio-occupational position and group by means of HISCLASS (Van Leeuwen & Maas, 2011) and HISCAM (Lambert et al., 2013), respectively. On the one hand, 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. This class differentiation allows us to distinguish the two main social groups under analysis – farmers and artisans – and measure intergenerational transmission or mobility among classes. On the other hand, HISCAM is an occupational stratification scale based on the Cambridge Social Interaction and Stratification scheme (Prandy, 2000). The main idea behind this scaling is that individuals who interact more (in terms of occupational and social relations) are closer in terms of social position, assuming that these interactions represent the occupational stratification structure. The result is a ranking of occupations that move theoretically from 0 to 99, showing not only closer social standing but also differences between occupations, which would make it possible to observe intergenerational intra-class mobility.

Furthermore, owing to contextual specificities in the period under study, an extra level has been included for both classifications, this concerning the nobility, due to its social class significance (score 100 on HISCAM and label 0 on HISCLASS). The 12 HISCLASS labels have been labelled in eight classes. This new grouping brings labels 3, 4 and 6 (*Lower manager*, *Lower professional* and *Clerical sales*, *Foremen*) under the heading of only one label (3). We have also united *Low-skilled* and *Unskilled workers* in label 7, and *Low-skilled farm workers* and *Unskilled farm workers* in label 8 (Table 1). These changes respond to the need for a better fit with the period's socio-occupational structure, which had less occupational variety and many cases concentrated in fewer occupations, which would have caused an overestimation of upward and downward social mobility, for instance. It is also important to take into account contextual specificities when applying international class schemes. A good example here is

Table 1. Adaption of the HISCLASS labels.

HISCLASS 8 + Nobility	Labels (HISCLASS 12)
0	Nobility (0)
1	High managers (1)
2	High prof (2)
3	Lower & prof manager (3, 4, 6)
4	Lower clerical sales (5)
5	Skilled workers (7)
6	Farmers (8)
7	Low-skilled workers (9, 11)
8	Low-skilled & unskilled farm workers (10, 12)

the occupation called in Catalan *paraire*, codified as Fibre Preparers in the HISCO (code 75,100), which, for the local context, could embrace anyone from simple wool fibre preparers to proto-industrial entrepreneurs in charge of all the production and commercialisation processes of woollen fabrics in both guilds and *putting-out* systems, as Torras (1993, 1998) has argued.

Since the aim of this study is to analyse social mobility among siblings by using marriage registers, it was necessary to carry out a family reconstitution due to the fact that information directly linking father and children was individual, which means that we must link individuals (siblings) sharing the same parents. For this purpose, two kinds of links were created, first to link siblings within the same family, and second to link siblings' marriages with their parents' marriages. The former type of record linkage was achieved through the three registered variables shared by siblings: names of both parents and surnames of fathers. The latter data-set linked groups of siblings to the marriage of their parents in order to complete missing information or to obtain more information on them over time. An additional unique restriction imposed on the former record linkage was setting a temporal lower bound based on Roman law, implemented since the fourteenth century by the Church, according to which males could not marry before the age of 14 and women before 12 (Gaudemet, 1987).

The record linkage was performed by means of the software programme *Busca Descendències* ('Looking for Offspring') developed within the 5CofM project in collaboration with researchers from the Computer Vision Centre (CVC) and the Centre d'Estudis Demogràfics (CED). The programme integrated two string distances, the Bag distance and the Levenshtein distance, together with a language model that palliated the effects of similarities in pronunciation and penalised typographic errors (Villavicencio, Jordà, & Pujadas-Mora, 2015).[12] There were 48,392 father–children matches out of approximately 78,000 valid marriage licences, although many signified over-links in which a groom or bride could have been assigned several potential parents. From this process, only 27% (13,160) of cases were kept and the rest were discarded. This significant decrease was due to repeated links and the fact that some surnames in Catalan with completely different etymological roots used to be written in a very similar way, as is clear when comparing strings, for example with surnames like *Roca* and *Roda* (Rock and Wheel), *Font* and *Pont* (Fountain and Bridge), and others. Another factor in data restriction was that when similarity indexes assessed by the Levenshtein and Bag distances increased and were more egalitarian between potential fathers, other additional variables present in the source were used to discard subsequent over-links. We selected only those licences in which all nominal information for father and mother was the same and filtered out those in which the time between parents' marriages and children's marriages was not more than 65 years.

We know from other studies using either nominative record linkage or marriage registers that some selection effects can influence the representativeness of the analysed samples (Bras et al., 2010; Knigge et al., 2014; Zijdeman, 2009). Hence, we used several steps in the linkage process in order to minimise these consequences as much as possible, which to some extent justifies the significant decrease (about 72%) in the total number of father–children matches, because of a considerable presence of over-links. Studying the intergenerational transmission or influence can therefore be biased if first marriages and remarriages are not distinguished, which is one reason we work only with first marriages. Another possible issue is related to the likely selection effects derived from dealing only with certain surnames and, in this case, among the 528 surnames found by the record linkage procedure, their

weight coincides with the total distribution of surnames in the entire source for the period under study.[13] Moreover, the likely migration of an individual could represent an aspect not covered in the reconstructed ever-married families (which we do not analyse). In fact, not all the marriage registers contained geographic information for both fathers and children. However, we accounted for the premise in accordance with the historical context of the period through the prominence of local movements that rarely exceeded distances of 15–20 km (Laslett, 1977; Moch, 2009; Postles, 2000), and that supposed a logical sequence of mobility trends in Catalonia (Nadal & Giralt, 1960; Simon, 1992). The territory under study (Barcelona area) has considerable coverage, including around 90 municipalities and 250 parishes in approximately 800 km^2, which would include potential migratory movements. In addition, the period analysed (1547–1643) featured a major influx of French migrants during a time of demographic recovery, a fact that would minimise the number of emigrants (Nadal & Giralt, 1960).

Once the record linkages were established, the total number of family units including at least two siblings was 2752, and consisted of 6686 individuals. However, for the total number of families, 52% (1330 families) brought together only sisters because, among the 76,567 marriage licences containing occupational information for both children and fathers, 62% provided information on occupations of grooms and their fathers-in-law. The likely reason for this might have been that it was a way of reporting the original social positions of brides because their own occupations were not registered. Thus, given that one of the main aims of this study was precisely to assess the status attainment of non-inheritor siblings in comparison with inheritors, it is necessary to include families with male siblings, mainly because the single-heir system usually followed a primogenital and patrilineal logic.[14] The total number of families including brothers and sisters was 1242, with 3480 individuals in sibships ranging from two to eight (Table 2), including 2726 males and 754 females. Due to the absence of female occupations, occupational information for sisters is approached through the socio-occupational position of their future husbands.

Our analytical strategy was to apply the so-called sibling models by nesting siblings in their families, using a multilevel regression approach. The benefit of this kind of model lies in the possibility of analysing how similar siblings were in status attainment in view of the relatively high level of ascription assumed in pre-industrial periods. In addition, these models take into account the fact that siblings share a series of characteristics and constraints (Jencks et al., 1972). In a pre-industrial society like Catalonia during this period, family and parental social background would have affected individuals. The technical choice of a multilevel approach allows us to control for between-family variance and statistical non-independence of individuals, which in ordinal regressions are not taken into account, probably generating spurious results (Hox, 2002).

In order to analyse the intergenerational aspects of social status transmission or mobility from a sibling's perspective, we individuated a set of variables for both fixed and random

Table 2. Number of families including brothers and sisters at the area of Barcelona, 1547–1643.

Number of siblings	Number of families
2	656
3	321
4+	265
Total	1242

effects in our multilevel models. A group of control variables regarding the siblings' marriage order, the sibship size of those ever married, distance in years between parent and offspring marriage, as well as the interval among marriage siblings, the parental social and occupational group, the sex of the child, and if the father was deceased at the time of the child's marriage were considered (Table 3). Among those variables, it is noticeable that the mean distance in years between father's and child's marriage was 35 years, although its mode was 33, and the distribution is left-skewed towards 24 to 29 years of difference between the events. As might be expected, females (31 years) have a lower mean difference in years than males (36 years), because women married earlier. Moreover, a set of hierarchical linear models is used to identify the extent to which the occupational status attainments of children were linked to those of their parents, and how individuals were different among their siblings and by social groups. Finally, multilevel logistic regressions dealing with occupations, status and social groups of siblings were used to assess children's socioeconomic destinations, based on data about the dynamics of social and occupational destinations between siblings of artisan and farmer fathers.

Our study has a number of limitations. The first is that we had to approach the social group destination of daughters through the occupations of their future husbands, and this is due to an inherent limitation of our source for this study (Marriage Licence Books), which did not record female occupations, as was usually the case with parish registers. A second drawback comes from having to measure sibship size only in terms of married children, which is likely to give a biased view of real family dynamics since not all siblings married – some entered religious orders, some stay unmarried, and some died before reaching marriageable age. The data would be more reliable if they included complete life courses, but for the time period and the area covered, it is almost impossible to obtain such data, due to the non-existence and non-conservation of parish registers and huge territorial extension. Certainly, unmarried siblings could be important agents for helping and providing for

Table 3. Descriptive statistics.

Descriptive statistics				
Continuous variables	Mean	Std. deviation	Min.	Max.
Dependant				
Children status (HISCAM)	53.04	7.33	45	100
Independent				
Father status (HISCAM)	52.34	5.76	45	100
Sibship size (ever-married)	3.2	1.24	2	8
Marriage order	2.1	1.14	1	8
Distance in years	35.11	8.95	15	63
Categorical variables	Proportion			
Dependant				
Same occupation	0.69			
Same status (HISCAM)	0.73			
Upper HISCAM	0.16			
Same status (HISCLASS)	0.74			
Upward mobility (HISCLASS)	0.14			
Downward mobility (HISCLASS)	0.13			
Independent				
Deceased father	0.51			
Children of farmer fathers	0.67			
Children of artisan fathers	0.27			
Females	0.22			
Males	0.78			

siblings, cousins, nephews and so on. Moreover, we have to be cautious about assimilating marriage order and birth order, since they are not always the same. It seems clear, however, that the first-married child had more advantage in terms of intergenerational social status transmission (presumably) within the inheritance system and, as explained previously, this also impeded their benefitting directly from other economic activities then in expansion, and which could have been more profitable than their own 'inherited' activities. By contrast, these more advantageous activities were attainable for non-inheritor siblings.

Another important issue when it comes to interpreting the results is the use of sibship size or even sibling order as explanatory variables since this risks endogeneity (Öberg, 2017). Establishing endogenous explanatory variables is highly likely in historical studies since we usually have to count on a small number of variables in ancient sources. This may obviously give rise to biased causalities from sibling composition which could be caused and affected by the same outcome being examined (social status and social class). However, in our results we saw that sibship size and sibling marriage order were not substantial factors and were only a matter of the situation between first-married children and all the remaining siblings, which was probably caused by the existing universal legal inheritance system, which can be considered as being an exogenous variable. Finally, we should point out that the presence of a selection effect problem in our source is likely to be of small impact, considering that in the period and geography studied, marriage would be widespread due to the fact that it was a phase of economic and demographic expansion (Bengtsson, 2014; García Espuche, 1998; Nadal & Giralt, 1960).

3. Total intergenerational transmission in the Barcelona area, sixteenth–seventeenth centuries

In order to better understand intergenerational transmission among farmers and artisans, respectively, we assessed the total social/occupational transmission and computed the observed frequencies and standard residuals of fathers–sons and fathers–sons-in-law. This analysis provides an insight into the patterns of intergenerational inheritance among social groups. Between 1547 and 1643, the period covered by the study, there are 28,763 marriage licences reporting father and son occupations and 47,804 for fathers and sons-in-law (daughters).[15] The total intergenerational transmission among fathers and sons is about 66% and, for fathers and daughters (sons-in-law), is 53%. These different levels of transmission show a greater degree of social status inheritance among sons, which is typical of patrilineal pre-industrial societies (Kertzer & Laslett, 1995). Females would be included in strategies of heterogamous marrying up. Inheritors tended to have a greater likelihood of marrying upwards than non-inheritor brothers, who formed downward unions (Goody, 1973; Ferrer, 2004). This occupational structure is best exemplified by farmers and artisans, where fathers show a higher percentage of farmers (about 55% of the total), while among sons and sons-in-law the total is 39% (Table 4).[16] The drop in number of farmers across two generations is absorbed by an increase in artisans (labels 5 and 7 in HISCLASS), from 34% among fathers to 47% for sons (Table 4).

Moreover, the same trends occur in the father–son-in-law comparison, which shows that, in intergenerational terms, the figure for farmers dropped from 54% to 41% and that for artisans rose from 36% to 47% (Table 5). These trends may suggest that, apart from the likely differences between sons and sons-in-law, the transition from the mid-sixteenth to the

Table 4. Observed frequencies for occupations of fathers and sons, area of Barcelona, 1547–1643.

0	1	2	3	4	5	6	7	8
Nobility	High managers	High prof	Lower & prof manager	Lower clerical sales	Skilled workers	Farmers	Low-skilled workers	Low-skilled farm workers

		SON SOCIAL CLASS										
Observed		0	1	2	3	4	5	6	7	8	Total	%
FATHER SOCIAL CLASS	0	283	2	24	6	1	5	0	3	1	325	1%
	1	6	6	15	3	0	1	3	1	0	35	0%
	2	19	1	360	94	3	43	11	50	4	585	2%
	3	10	1	161	706	8	174	27	199	7	1293	4%
	4	0	1	8	5	5	9	2	14	0	44	0%
	5	0	2	121	263	17	2561	247	825	51	4087	14%
	6	1	2	181	548	41	1862	10,675	2367	154	15,831	55%
	7	0	3	159	311	33	979	358	4123	91	6057	21%
	8	0	0	4	8	3	47	18	87	339	506	2%
	Total	319	18	1033	1944	111	5681	11,341	7669	647	28,763	
	%	1%	0%	4%	7%	0%	20%	39%	27%	2%		

mid-seventeenth century gave rise to a higher assimilation of farmers' children into crafts. This phenomenon could in turn reflect a response to economic and urban growth for the Barcelona area, which is usually ascribed in the literature to the growing textile sector in the last decades of the sixteenth century and the decentralisation of that sector from Barcelona to other towns in the hinterland, among them Mataró, Sabadell and Terrassa (García Espuche, 1998; Torras, 1998).[17] In fact, this decentralisation process is observed to a certain extent in the Marriage Licence Books, given that the widespread growth of textile activities was not concentrated in Barcelona alone.[18] The records also reflect the economic recovery that worked as a pull factor for many French migrants (Amengual-Bibiloni & Pujadas-Mora, 2017; Capdevila, 2014; Millàs, 2005; Nadal & Giralt, 1960).

Shifting to analysis of standardised residuals, it is possible to draw trends of positive or negative status association among social groups.[19] For fathers and sons, the standardised residuals show a clear picture of social stratification where, among the higher social classes (HISCLASS labels 0 to 4), positive associations occur only within this group, while for the social majority – composed of farmers, artisans and unskilled workers – the positive associations occur only in matches between the same classes (Table 6). Among fathers and daughters (sons-in-law), the elite shows the same trends in positive association as for fathers and sons. Conversely, in the case of artisan fathers-in-law, HISCLASS labels 5 (skilled workers) and 7 (low-skilled workers) show positive associations between them (Table 7).[20] Hence, we see that daughters of artisans show a kind of mobility into other artisan activities that can be compared with the mobility of sons. This might be understood as a marital strategy, which we tested and show in the next section's models. In the case of farmers, the only positive associations occurred between farmers and all the other matches were negative and statistically significant, which demonstrates the aforementioned high degree of intergenerational transmission among peasants.

Analysis of standardised residuals also provides information about an association's strength, either negative or positive. The highest values are connected with matches between classes, which can be explained by the importance of intergenerational transmission in social status, and here the two social extremities of nobility and unskilled workers present the

Table 5. Observed frequencies for occupations of fathers and sons-in-law, area of Barcelona, 1547–1643.

0	1	2	3		4	5	6	7	8		
Nobility	High managers	High prof	Lower & prof manager		Lower clerical sales	Skilled workers	Farmers	Low-skilled workers	Low-skilled farm workers		
			SON-IN-LAW SOCIAL CLASS								
Observed			0	1	2	3	4	5	6	7	8	Total	%
FATHER-IN-LAW SOCIAL CLASS		0	258	11	73	63	2	9	12	15	0	443	1%
		1	25	3	14	10	0	12	8	8	0	80	0%
		2	51	5	402	231	8	119	68	134	3	1021	2%
		3	72	5	344	812	13	501	286	530	24	2587	5%
		4	4	0	12	16	2	40	26	44	4	148	0%
		5	4	5	168	437	32	2688	1240	2167	130	6871	14%
		6	10	12	123	636	61	3439	15,707	5241	395	25,624	54%
		7	2	3	152	488	45	2282	2047	4987	223	10,229	21%
		8	0	0	6	26	2	132	141	241	253	801	2%
		Total	426	44	1294	2719	165	9222	19,535	13,367	1032	47,804	
		%	1%	0%	3%	6%	0%	19%	41%	28%	2%		

Table 6. Standard residuals for occupations of fathers and sons, area of Barcelona, 1547–1643.

0	1	2	3	4	5	6	7	8
Nobility	High managers	High prof	Lower & prof manager	Lower clerical sales	Skilled workers	Farmers	Low-skilled workers	Low-skilled farm workers

		SON SOCIAL CLASS								
Stand. Residual		0	1	2	3	4	5	6	7	8
FATHER SOCIAL CLASS	0	147.2	4	3.6	−3.4	−0.2	−7.4	−11.3	−9	−2.3
	1	9	40.4	12.3	0.4	−0.4	−2.2	−2.9	−2.7	−0.9
	2	4.9	1	74	8.7	0.5	−6.7	−14.5	−8.5	−2.5
	3	−1.1	0.2	16.8	66.2	1.3	−5.1	−21.4	−7.8	−4.1
	4	−0.7	5.9	5.1	1.2	11.7	0.1	−3.7	0.7	−1
	5	−6.7	−0.3	−2.1	−0.8	0.3	61.7	−34	−8	−4.3
	6	−13.2	−2.5	−16.3	−16	−2.6	−22.6	56.1	−28.5	−10.7
	7	−8.2	−0.4	−4	−4.9	2	−6.3	−41.5	62.4	−3.9
	8	−2.4	−0.6	−3.3	−4.5	0.7	−5.3	−12.9	−4.1	97.1

Table 7. Standard residuals for occupations of fathers and sons-in-law, area of Barcelona, 1547–1643.

0	1	2	3	4	5	6	7	8
Nobility	High managers	High prof	Lower & prof manager	Lower clerical sales	Skilled workers	Farmers	Low-skilled workers	Low-skilled farm workers

		SON-IN-LAW SOCIAL CLASS								
Stand. Residual		0	1	2	3	4	5	6	7	8
FATHER-IN-LAW SOCIAL CLASS	0	127.9	16.6	17.6	7.5	0.4	−8.3	−12.6	−9.8	−3.1
	1	28.8	10.8	8	2.6	−0.5	−0.9	−4.3	−3	−1.3
	2	13.9	4.2	71.2	22.7	2.4	−5.6	−17.1	−9	−4.1
	3	10.2	1.7	32.7	54.8	1.4	0.1	−23.7	−7.2	−4.3
	4	2.3	−0.4	4	2.6	2.1	2.1	−4.4	0.4	0.5
	5	−7.3	−0.5	−1.3	2.3	1.7	37.4	−29.6	5.6	−1.5
	6	−14.4	−2.4	−21.7	−21.5	−2.9	−21.4	51.2	−22.7	−6.7
	7	−9.3	−2.1	−7.5	−3.9	1.6	6.9	−33	39.8	0.1
	8	−2.7	−0.9	−3.4	−2.9	−0.5	−1.8	−10.3	1.1	56.7

highest values, as was expected. However, this intergenerational transmission is much stronger for sons than for daughters (sons-in-law) and, in fact, in some social groups among the elite, father–son-in-law associations were also noticeable in heterogeneous matches, in which nobles (label 0) show positive associations with other social groups such as merchants and doctors of law or medicine (labels 1, 2 and 3), suggesting once again the importance of the female's upwards marital strategy for some classes, as the literature has described for Catalonia (Amelang, 1986; Boone, 1986; Ferrer, 2004, 2008).

In these general trends, one sees the importance of intergenerational status inheritance, especially for fathers and sons (and, as expected, less strictly for daughters). In the next section, taking into account the single-heir system in Catalonia and the likely differences among sibling sizes and marriage order, we discuss family aspects and their interactions with the occupations of farmer and artisan. Taking into account only the reconstructed sample of 1242 family units (fathers and sons/daughters), the mean sibship size for farmers is 3.3 and for artisans it is 2.8. Could this difference influence the social attainment of sons and daughters?

4. Family as the core of the intergenerational transmission in the Barcelona area, sixteenth–seventeenth centuries

As shown above, the family is expected to play an important role in conferring similarities or disparities in status attainment among siblings. Characteristics of the place where brothers and sisters grow up may also affect status attainment (Knigge et al., 2014; Zijdeman, 2009). The first attempt to show the impact of families on individuals' socio-occupational status adopted a three-level clustering, in which individuals from all the different social groups in the sample were nested in families and, in turn, were nested in geographical units (E1). However, given that, in many cases, the geographical information for father and children was not recorded, only cases in which parishes could be distinguished have been included. Hence, only 520 families out of 1242 were taken from 85 different geographical divisions. An only-intercept model (empty model)[21] was therefore adopted, having as its random part two kinds of clusters – family unities and geographical units. In E1 the only-intercept model is defined in the following way, where Y_{ijk} is the occupational status of children *i* in family *j* and geographical placement *k*. The term γ_{000} is the intercept, $u_{00\,k}$ is the error term at the geographic level, u_{0jk} is the error term at the family level, and ε_{ijk} is the error term at the individual level. The three-level Intra-class Correlation Coefficient (ICC) variance between groups explained 59% of total variability, determined mainly by the family aspects (56%).[22]

$$Y_{ijk} = \gamma_{000} + u_{00k} + u_{0\,jk} + \varepsilon_{ijk} \tag{E1}$$

$$ICC_{3-level\ clustering} = \frac{\sigma^2_{family} + \sigma^2_{geography}}{\sigma^2_{child} + \sigma^2_{family} + \sigma^2_{geography}} \tag{E2}$$

Accordingly, the variance clustered at the geographical level was almost non-existent. A two-level analysis with individuals nested in families was preferred, using the whole sample composed of 3480 individuals distributed among 1242 families. As can be seen in E3, the quotient between the family variance and total variance shows that the family impact was 56%, which confirms what we know so far about the significant influence of families on individuals in pre-industrial periods (Treiman, 1970, 1977; Zijdeman, 2009). These numbers are also coherent with the logic of greater family influence in pre-industrial periods when compared with the findings of Knigge et al. (2014) in which the average 'family impact' in nineteenth-century Netherlands was 51.8%.[23] Another major finding for the Barcelona area analysis is that the contribution from families was higher than from individuals, meaning that if the between-groups variance (family's influence) was 56%, the within-family variance (individual's behaviour) was just 44%. This suggests that, during these periods, the family influence surpassed individuals' importance in the achievement of status, as might be expected when analysing a pre-industrial society.

$$Y_{ij} = \gamma_{00} + u_{0\,j} + \varepsilon_{ij} \tag{M0}$$

$$ICC_{2-level\ clustering} = \frac{\sigma^2_{family}}{\sigma^2_{child} + \sigma^2_{family}} \tag{E3}$$

Moreover, from Model 1 it can also be observed that the average predicted status for children, measured with HISCAM, was 53.26, which came close to the occupational statuses scored in the 50s, which were the majority of occupations recorded, and consisted of farmers (51) and most artisans (50, 52, 53, 54 and 55). In order to assess how different or unequal families could be regarding the status of children, we adjusted the average status predicted (53.18) according to lower and upper status families, two standard deviations above or below the mean. Thus, in families below the mean, the predicted status of children was 47, while for families above the mean, it was 60. This gives an insight into the variability within the social spectrum as a whole and specifically within the group of farmers and artisans. The second step in the modelling process added the parental socio-occupational status (X_{1j}) as a covariate in order to see its influence on outcomes for children. From Model 2, using HISCAM, it can be argued that the father's occupation was indeed related to his offspring, given that for every 10 points of increase in the father status score, children had on average an increase of more than seven points. These data suggest high levels of intergenerational status ascription. In other words, the higher the parental status, the higher the children's statuses for all social and occupational groups in the sample studied.

$$Y_{ij} = \beta_{00} + \beta_{01}X_{1j} + u_{0j} + \varepsilon_{ij} \quad \text{(M1)}$$

The insights provided by the hierarchical linear models show significant presence of family and intergenerational aspects, such as the social status of fathers, in shaping children's outcomes, as might be expected in pre-industrial periods. However, given that the main aim in this article is assessing differences and the strategies adopted by farmers' and artisans' offspring, we also use the multilevel logistic regression approach controlling for three different outcomes, if sons had lower, higher or the same social status (HISCLASS) as the father. The dynamic of the logistic multilevel regression works as in the hierarchical linear models, the only difference being that it is derived as the conditional probability (n_{ij}) of the population proportion (π_{ij}).

$$\eta_{ij} = \ln\left[\frac{\pi_{ij}}{1-\pi_{ij}}\right] \beta_{00} + \beta_{01}X_{1j} + \beta_{0\ldots n}X \cdots_{nij} \quad \text{(M2)}$$

Models 1 and 2. Hierarchical linear models estimating the family impact.

	Model 1			Model 2		
Fixed part	*β*	*s.e.*		*β*	*s.e.*	
Intercept	53.18***	0.18		53.1***	0.12	
Father's status				0.74***	0.02	
Random part	*β*	95% C.I.		*β*	95% C.I.	
Family level						
var (intercept)	32.22	28.92	35.88	11.36	9.58	13.45
var (father's status)						
Individual level						
var (intercept)	25.23	23.78	26.78	24.48	23.02	26.03
ICC	56%			32%		

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

In the random part, which takes into account the difference among family units, the between-family variance in occupational inheritance is computed through the intra-class correlation, which explains (as in E3) how different families were in terms of social mobility and how similar siblings inside one family can be in social outcomes or, in other words, how big the family impact was on children. For assessing this family impact when logistic regression is used, the intercept error estimate is assumed to have a logistic cumulative density function, which is scaled to 1 (the maximum value in logistic/probability distributions). Hence the individual's variation has a fixed value of 3.29 (Evans, Hastings, & Peacock, 2000), as can be seen in the equation below (E4). The variance explained by families in social status transmission was about 18% for those sons who attained a higher status, 26% for those who showed a lower status, and 20% for those with the same HISCLASS label as their fathers. This value is lower when compared to the ICC computed in the hierarchical linear models because the estimate measures a variable (HISCLASS change or continuity) with fewer possible outcomes than HISCAM.

$$ICC\ (occupational\ inheritance) = \frac{\sigma^2_{family}}{3.29 + \sigma^2_{family}} \quad \text{(E4)}$$

The configuration of our database (BHMD) allows us to know not only the occupation fathers had when their son/daughter married, but also the father's occupation at the time of his own marriage. This kind of information makes it possible to inquire whether parental mobility along their life course could stimulate intergenerational class mobility. Hence, in Model 3 we add for the three different possible outcomes for children (higher, lower or same social/occupational status) information on parental intra-mobility along with other family variables and controls for artisans and farmers as well as the children (Model 3).

Comparing the three different outcomes, intergenerational transmission of social class was strikingly high, given that, when all the independent variables are kept constant and computing the probabilities of each outcome, it is shown that it was much more likely that children, independently of their gender, would stay in the same class as their parents (0.82) than experience upwards (0.1) or downwards (0.08) mobility. When parental intra-mobility is added, it can be seen that upward class mobility for sons/daughters is positively influenced, so that the chance of children attaining a higher status than the father is almost 60% more if the latter experienced intra-mobility beforehand (significant at 99%) (Model 3).

Another way to demonstrate the influence of fathers on social attainment is to consider the distance in years between the father's marriage and the child's as a sign of a marriage postponement strategy. Upward and downward mobility for sons and daughters had a positive effect when the time in years between parents' and children's marriage was greater. For every extra year, mobility towards a higher status increased by 1% and towards a lower status by 3%. However, the effect was negative when parents and their offspring had the same social/occupational status. Moreover, the fact of having a farmer father was clearly related to the trend of intergenerational transmission of the same social status among these groups, which may be explained by a higher intergenerational occupational inheritance among farmers when compared with all other social groups. Conversely, females tended to show upward mobility with a figure of 83% more than men in a pattern that would confirm the tendency of women to marry up by comparison to their non-heir siblings, as we observed earlier (Tables 5 and 6).

Models 3–6. Logistic models on intergenerational social transmission and mobility among farmers' and artisans' children.

Fixed part	UP	*exp*(↑)	DOWN	*exp*(↓)	SAME	*exp*(=)
			Model 3			
Intercept	−2.19***	0.11	−2.5***	0.08	1.55***	4.72
	(0.36)		(0.4)		(0.3)	
Parent intra-mobility	.46***	1.58	−.06	0.94	−0.28*	0.75
	(0.18)		(0.20)		(0.15)	
Sibling's marriage order	.21	1.02	−0.05	0.95	0.16	1.02
	(0.07)		(0.66)		(0.05)	
Sibship size	−0.03	0.97	−.07	0.93	0.45	1.04
	(0.07)		(0.06)		(0.05)	
Distance in years	.01*	1.01	0.03***	1.03	−0.02***	0.97
	(0.01)		(0.008)		(0.006)	
Deceased father	−.02	0.99	−.12	1.13	−0.05	0.94
	(0.11)		(0.12)		(0.09)	
Farmer father	−.42*	0.66	−.43	0.65	.53***	1.7
	(0.24)		(0.27)		(0.19)	
Artisan father	−.02	0.98	−.23	0.79	.13	1.14
	(0.25)		(0.28)		(0.2)	
Female	.60***	1.83	.32**	1.37	−.59***	0.55
	(0.13)		(0.14)		(0.11)	
Random part	*β*		*β*		*β*	
Family level						
var (intercept)	.71		1.14		.83	
ICC	18%		26%		20%	
			Model 4			
Intercept	−1.82***	0.16	−2.01***	0.13	1***	2.71
	(0.1)		(0.11)		(0.8)	
Farmer						
X 1st child	−0.57***	0.57	−0.29*	0.75	0.55***	1.73
	(0.15)		(0.16)		(0.12)	
X 2nd child	−0.22*	0.80	−0.2	0.82	0.28**	1.33
	(0.14)		(0.16)		(0.12)	
X 3rd+ child	−0.36**	0.70	−0.16	0.36	0.34**	1.4
	(0.16)		(0.18)		(0.13)	
Artisan						
X 1st child	0.36**	1.44	0.05	1.05	−0.28	0.76
	(0.15)		(0.17)		(0.13)	
X 2nd child	0.44***	1.56	0.16	1.02	−0.32	0.72
	(0.15)		(0.18)		(0.14)	
X 3rd+ child	0.25	1.28	0.23	1.26	−0.35	0.7
	(0.2)		(0.23)		(0.16)	
Females	0.54***	1.71	0.14	1.15	−0.46***	0.63
	(0.13)		(0.13)		(0.11)	
Random part	*β*		*β*		*β*	
Family level						
var (intercept)	.70		1.14		.82	
ICC	18%		26%		20%	
			Model 5			
Intercept	−1.76***	0.17	−2.04***	0.13	0.98***	4.72
	(0.1)		(0.11)		(0.3)	
Parent intra−mobility	.37**	1.45	−.06	0.94	−.22	0.16
	(0.18)		(0.20)		(0.15)	
Farmer						
X Dif in years	.0	1	0.1	1.01	.0	1
	(0.0)		(0.05)		(.0)	
X Sibship size	−0.04	0.96	−.15	0.86	0.11***	1.11
	(0.05)		(0.05)		(0.04)	
Artisan						
X Dif in years	.01	1.01	0.08	1	−0.07	0.99
	(0.01)		(0.008)		(0.006)	

(*Continued*)

Models 3–6. (*Continued*).

Fixed part	UP	*exp*(↑)	DOWN	*exp*(↓)	SAME	*exp*(=)
X Sibship size	.04	1.04	−.04	0.96	−0.3	0.97
	(0.09)		(0.1)		(0.07)	
Random part	*β*		*β*		*β*	
Family level						
var (intercept)	.67		1.12		.76	
ICC	17%		25%		19%	
				Model 6		
Intercept	−1.96***	0.14	−2.12***	0.12	1.17***	3.24
	(0.07)		(0.08)		(0.06)	
Parent intra-mobility	.46*	1.59	−.01	0.94	−0.3**	0.73
	(0.18)		(0.20)		(0.15)	
Farmer X						
Interval between						
1st-2nd child	.11	1.01	.0	1	−.008	0.99
	(0.11)		(0.14)		(0.01)	
1st-3rd+ child	−.007	0.99	.006	1,006	.0	1
	(0.01)		(0.01)		(0.08)	
2nd-3rd	−.05**	0.95	−.002	0.9	.02	1.02
	(0.02)		(0.11)		(0.01)	
Artisan X						
Interval between						
1st-2nd child	.02	1.02	.009	1,009	−.01***	0.98
	(0.01)		(0.01)		(0.01)	
1st-3rd+ child	−.04*	0.96	−.008	0.99	.02	1.02
	(0.02)		(0.01)		(0.01)	
2nd-3rd	.10**	1.10	.06	1.05	−.09***	0.91
	(0.04)		(0.01)		(0.01)	
Females	0.78***	2.19	−0.1	0.9	−.91***	0.39
	(0.22)		(0.16)		(0.19)	
Random part	*β*		*β*		*β*	
Family level						
var (intercept)	.70		1.14		.79	
ICC	18%		26%		19%	

Standard error in parentheses: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Sibling marriage order in general is shown not to be significant in any outcome, as is also the case if the father was not alive when children were marrying. Another variable added was family size according to the number of married siblings and, although this was not significant, it can be seen that mobility is negatively associated with greater sibship size, while it is positive with sons and daughters showing the same social class as their fathers. This might suggest that children from larger families would experience less status increase, which would match with some aspects of the resource dilution theory (Gibbs, Workman, & Downey, 2016; Van Bavel et al., 2011). Furthermore, this effect of the number of siblings would also be extended to other outcomes like stature, where many studies have also found negative associations between sibship size and height. This, once again, is in line with the resource dilution framework in different places like the Netherlands (Stradford, van Poppel, & Lumey, 2017), Italy (Mazzoni, Breschi, Manfredini, Pozzi, & Ruiu, 2017) and sixteenth-century Germany (Fox, Willführ, Gagnon, Dillon, & Voland, 2017).

Nevertheless, we should point out that, in our reconstructed sample, farmers were the social group with the largest sibships, and also showed the highest levels of intergenerational transmission of the same social position, which indicates the importance of the different contextual/cultural factors giving rise to the total number of siblings in a family (Dribe et al., 2017). This last point introduces an important issue regarding the use of

sibship size and order of siblings as explanatory variables when looking for associations and causality in different social outcomes, since these may be a source of confusion and could introduce problems of endogeneity (Öberg, 2017). Hence, in order to better control these issues, and also taking into account the legal system of inheritance prevailing in Catalonia, in the next section we have interacted birth order with the father's social class in keeping with one of the main aims of this article, which is observing farmers and artisans.

5. The social destinations of farmers' and artisans' children

We now focus on farmers and artisans considering their weight in law-governed societies. It is plausible that both groups could have designed strategies in line with the prevailing legal system and tried to compensate the other, not-primogenital, children.[24] In the case of farmers, the possibility of employing younger siblings in agricultural work or other occupations before marriage, as well as trying to place them with other rural families, were some of the strategies families also used in the south of Europe (Dribe & Lundh, 2005; Ferrer, 2004). For artisans, who belonged to guilds, usually with controlled access within corporations, transmission of the same occupation and means of production was perhaps usually conferred on the first-born (inheritor) son, given that most workshops were small. Conversely, strategies for the remaining siblings could have been to place them in guilds of similar or related economic activities (Zofio Llorente, 2005; Ros, 2006).

First, we tested how the like-demographic variables, such as the number of married siblings and their marriage order, influenced outcomes for farmers and artisans. We introduced an interaction to the relationship between father's social class and siblings' marriage order, by adding the HISCLASS label of the father (only for farmers and artisans). For farmers' children, this analysis revealed that those who were first in marriage order continued the parental occupational category to the highest degree by comparison with other social classes (73% more than any other), while the second and third or more married children of farmer fathers showed lower values. Likewise, artisans' children showed lower levels than farmers' children, although this was in keeping with a hierarchy in terms of sibling order in which higher values were obtained for first-married children. Conversely, when observing parameters for cases where children attained higher status than the father, farmers' children show the opposite results, in which second- and third-married (or more) children tended to have more chances of achieving upward social mobility than first-married siblings. The pattern is similar when comparing first- and second-married children of artisans (Model 4). However, although the results are not significant, third-married (or more) artisans' children tended to show less upward mobility and more downward mobility. These results could confirm previous findings presented by Marfany (2006) for Igualada (an inland proto-industrial town) throughout the eighteenth and early nineteenth century where heirs tended to be the first sibling to marry. However, studies by Ferrer (2010a) and Barrera-González (1992) of other Catalan populations show that some heirs married later than their younger siblings. This might have occurred in order to provide dowries and some share of the deceased's estate for the rest of the siblings. Thus, heirs would use the dowry of their spouses to support their brothers and/or sisters. The dowry would be of considerable value and this model was probably the one most characteristic of peasants who were relatively well off.[25]

Models 5 and 6 again include the distance in years for both parent-child and between-sibling marriages by means of showing interactions with the father's social class (farmer or artisan). For the estimates in Model 5, it can be argued that farmers' children did not show any substantial difference among them as a result of the distance between their marriage and their parents' marriage. However, in the case of sibship size among farmers, the chance of each child attaining the parental class was 11% greater for each added offspring (Model 5). In the case of artisans' children, although not to a significant degree, the greater the temporal distance between father and children, the more negatively affected status attainment was. Conversely, increasing sibship size brings out a slight positive relation with the upward mobility. This is perhaps in line with the limited options that artisans had to transmit their own occupation due to stringent access to guilds, and this represents a clear difference from farmers (Dambruyne, 1998). While the parameters are not significant, these results for artisans might suggest that younger sons, though not inheriting parental occupations, could find employment related to or close to that of their fathers and older brothers.

In addition, Model 6 demonstrates that, for each year's increase in the interval between the first- and second-married siblings, there were no substantial or significant changes in any outcome among farmers, and only a small negative effect for status attainment among artisans. This latter result may imply that, in the specific case of artisans, spacing the marriage between the first and the second child could benefit social reproduction by means of reducing the effects of resource dilution.

When accounting for the interval between second and third children in marriage order, in the case of artisans the timing of a subsequent marriage could have been important for ensuring a better position for those married later, thus diminishing the likelihood of their keeping the parental social/occupational status, which is exactly the opposite result to that for farmers' children in the same situation. We might also infer, then, that artisan fathers chose to engage their non-inheritor children in similar or related crafts because of likely ties with other activities, or as a future investment for their own trades. Moving to artisan careers with a higher status could mean spending more time as apprentices, and that would delay marriage. Several authors have explained that, for Spain and Catalonia during the *ancien régime*, the boundaries for guild activities were not clearly marked, so that people engaged in different occupations in different guilds but within branches of the same wider productive activity could perform similar tasks (Alberch, 1984; Mocarelli, 2008; Soly, 2008; Zofío Llorente, 2011).

The different trends observed in occupational attainment among farmers and artisans by marriage order have required further refinement in order to disentangle the implications for both groups. In this case, we have identified having the same occupation as fathers (occupational inheritance), showing the same occupational status (HISCAM), and belonging to the same social group (HISCLASS), as dependent variables for Model 7. The aim of differentiating these three variables was to assess the extent of intergenerational transmission by order of marriage. Starting from the maximum value, which represents inheritance of the same occupation, a mid-level value represents achieving a different occupation but with a similar status to the father's and, finally, the minimum value is given to sharing the same social class but with a different status.

In Model 7, these three dependent variables were controlled for the parental social group (artisan or farmer) separately from the siblings' marriage order. From this standpoint, we see that farmers transmitted their occupation and socioeconomic status at much higher levels

Models 7–8. Logistic models on intergenerational inheritance of occupation and social class.

Fixed part	Occupation	*exp*	HISCAM	*exp*	HISCLASS	*exp*
	Model 7 – Having the same paternal:					
Intercept	−.14***	0.87	0.19		0.12	
	(0.21)		(0.29)		(0.20)	
Farmer	0.89***	2.44	0.842***	2.32	0.88***	2.41
	(0.19)		(0.18)		(0.18)	
Artisan	−0.13	0.87	0.44*	1.56	−0.157	0.85
	(0.19)		(0.19)		(0.19)	
3rd+ child (ref)						
1st child	0.17*	1.18	0.19	1.2	0.18	1.19
	(0.1)		(0.1)		(0.1)	
2nd child	0.05	1.05	0.02	1.03	0.04	1.04
	(0.9)		(0.9)		(0.9)	
Deceased father	−0.2*	0.82	−0.11	0.9	−0.13	0.87
	(0.9)		(0.9)		(0.89)	
Males	0.6	1.89	0.49***	1.63	0.48*	1.62
	(0.1)		(0.1)		(0.1)	
	Model 8 – Having the same paternal:					
Intercept	0.25***		0.41***		0.81***	
	(0.07)		(0.07)		(0.07)	
Farmer						
X 1st child	1.02***	2.77	1.08***	2.96	0.57***	1.77
	(0.11)		(0.11)		(0.11)	
X 2nd child	0.85***	2.35	0.87***	2.38	0.34***	1.41
	(0.11)		(0.11)		(0.11)	
X 3rd+ child	0.91***	2.48	0.91***	2.49	0.4***	1.5
	(0.12)		(0.12)		(0.12)	
Artisan						
X 1st child	−0,82***	0.44	−0.85***	0.42	−0.28*	0.75
	(0.12)		(0.12)		(0.12)	
X 2nd child	−0.88***	0.41	−0.89***	0.41	−0.33*	0.72
	(0.12)		(0.12)		(0.14)	
X 3rd+ child	−1.1***	0.33	−1.04***	0.35	−0.39*	0.67
	(0.16)		(0.15)		(0.19)	
Males	0.56	1.75	0.46***	1.59	0.44*	1.56
	(0.1)		(0.1)		(0.1)	

Standard error in parentheses: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

than others did. Conversely, when estimating the transmission of the same social class, the differences between farmers and other groups (artisans, elite, and unskilled workers) diminished. We ascribe this to the fact that artisans (the second most numerous group) presented mobility in occupations and HISCAM statuses but remained within the artisan social group. Secondly, the marriage order per se was not statistically significant. Nevertheless, marrying after the father's death signified a greater likelihood of having a different occupation, and females tended to marry someone with a different occupation, status or social class from that of their (deceased) fathers (Dribe & Lundh, 2009).

Consequently, in Model 8, the same modelling typology of occupational, status and social class inheritance is tested, relating farmer fathers and artisan fathers with the children's marriage order categories. Farmers showed higher rates of occupational and socioeconomic status inheritance but a lower level of social class inheritance, mainly because artisans also tended to remain in the same class. Moreover, for farmers' children, second-married sons were those who least shared the parental occupation by comparison with the rest of the brothers, although the differences with the third and subsequent children in marriage order were not significant.

Model 9. Logistic model on occupational and social class destination for farmers' and artisans' children.

Model 9	M8: Upper HISCAM			M8: Farmer			M8: Artisan		
Fixed part	*β*	*s.e.*	*exp(β)*	*β*	*s.e.*	*exp(β)*	*β*	*s.e.*	*exp(β)*
Intercept	−1.72***	0.28		1.83***	0.12		1.18***	0.14	
Farmer	0.008	0.25	1,008						
Artisan	0.52*	0.26	1.68						
3rd+ child (ref)									
1st child	−0.13	0.12	0.1						
2nd child	0.001	0.11	0.23						
Artisan									
X 1st child	0.43***	0.14	1.54	−4.05***	0.25	0.01			
X 2nd child	0.58***	0.14	1.80	−3.68***	0.21	0.02			
X 3rd+ child	0.63***	0.19	1.87	−3.59***	0.29	0.03			
Farmer									
X 1st child	−0.49***	0.13	0.6				−2.79***	0.13	0.61
X 2nd child	−0.34***	0.13	0.71				−2.56***	0.13	0.77
Males	−0.18*	0.11	0.831	0.13***	0.11	1.18	−0.16	0.11	0.85

Standard error in parentheses: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

In the case of artisans' children, there was a certain hierarchy in the marriage order, where the first-married were those showing higher degrees of inheritance in all three measured variables (occupation, status and social class), while those who married third or later in the marriage order showed less. The pattern for artisans is more complex since their children also tended to be artisans, even if not in the same occupation as their parents. It is plausible that artisans' children did not inherit the same occupation but, rather, inherited the same condition. The likely reasons for this entail several factors. One has to do with the trade size of the craft, which was usually relatively small, a factor that could restrict entrance into the parental *métier*. In addition, becoming a master with one's own workshop meant a significant outlay of resources, which was not possible for the great majority of families (Torras, 1998). Expansion and diversification of the family trade could have been seen as an option for non-inheritor siblings, as well as more time spent on production, which was made possible either by occupational inheritance or diversification. All these components would have propitiated the use of compensatory strategies, leading offspring into other closely allied occupations sharing similar skills or apprenticeship in different branches of the same economic activity, as noted above.

The desired destination for offspring might then have involved strategies to diversify the family economy or social position. This would have been useful in strengthening social relations and building up a solid network in order to protect resources in cases of economic uncertainty affecting the family's main economic activity, or to construct opportunities for future investment. Other plausible strategies for children of artisans could have included securing access to land. Following from this premise, we tested the crossed probability of farmers' and artisans' children falling into one of these two groups or of attaining upward status mobility. Model 9 consists of three parts. The first involves having a higher socioeconomic score than the father (HISCAM), the second is becoming a farmer (only for artisans' children), and the third is becoming an artisan (only for farmers' children), and both parental social classes (artisan or farmer) interact with marriage-order categories.

Artisans' children were much more likely to achieve upward social mobility than farmers' children (mainly because the latter exhibited higher intergenerational transmission). However, among farmers, the second-married children were those with a greater likelihood of upward mobility[26] and the same phenomenon was true for artisans with second and third or later children in the marriage order. Moreover, observing the crossed likelihoods of being a farmer or artisan, the results show that farmers were much more likely to have artisan children than the contrary, conceivably because access to artisans' careers was more affordable than obtaining land (Clark, 1996).

A review of economic development in the Barcelona area during this period helps to explain why accessing crafts was a more likely event for farmers than farming was for artisans. The economic recovery, characterised by an expansion of the textile sector throughout Barcelona's hinterland, increased the demand for secondary-sector activities as well (García Espuche, 1998; Torras, 1998). The increase in productivity of croplands and exportation of its derivative goods, as in the case of vineyards, explains why prices for both buying and renting land increased (Álvarez-Nogal & Prados de la Escosura, 2012; Ferrer, 1983, 2014; Vilar, 1986). Finally, Torras (1998) and others have argued that many people in the textile guilds, such as the fibre preparers (*paraires*), moved to rural areas in order to develop their trades and avoid high taxes and guild regulations, thus forming the roots of proto-industrialisation in many rural areas of Barcelona's hinterland, and these new prospects might have attracted some non-inheritor children of farmers.

For the final section of our analysis, the precise destination for siblings exhibiting mobility was assessed by cross-tabulating occupations and order of marriage for children of farmers and of artisans. The four main occupations of artisan fathers in the sample were also highlighted, including textile occupations such as fibre preparers[27] and weavers, as well as other clothing manufacture crafts including tailors and shoemakers. The percentages shown in Table 8 distinguish first of all between those sharing the same occupation as the father or father-in-law, and those in other occupations in the case of not inheriting the parental occupation. For artisans' children, intergenerational occupational mobility was higher than for farmers, given that for the former, occupational inheritance ranged from 58% to 50%, as compared to 77% to 75% for the latter group. Among children not inheriting the father's occupation, the main destination for artisans' offspring was other craft occupations, in the order of more than 70%, and the second option was attaining either similar farming work or higher-status occupations, for example as traders. Among farmers' children, intergenerational mobility mainly involved artisan occupations. Again, these proportions indicate that accessing craft careers meant, perhaps, a more affordable investment than landed property or leasehold, and that both occupational groups (farmers and artisans) preferred the wider range of economic activities offered by the crafts.

Although we cannot assess precisely the economic capacity of the different families studied, the occupational labels provided by the source may provide some insights. For example, those registered as farmers (*pagès* in Catalan) could be identified as landholders or crop holders, as Comas d'Argemir (2006) suggested for other regions of Catalonia. Those with no access to the land were recorded as day labourers (*treballadors* in Catalan). We do not believe that all farmers had the same economic capacity, yet the marriage tax registered in the Marriage Licence Books was always 4 shillings (*sous*) for peasants, the lowest fee of the economic scheme (see the section on data and methodology). The likely majority of landholders among peasants' offspring could indicate some degree of ease of access to croplands

Table 8. Siblings' destinations by father's occupation in the Barcelona area, 1547–1643.

		n = 926	Siblings' order		
Father's class		Artisan	1	2	3+
Children's occupational destination		Same occupation	58%	56%	51%
		Upper status	14%	12%	10%
		Artisan	69%	64%	67%
		Farmers	10%	15%	15%
		Lower status	7%	8%	9%
Father's class		Farmer	1	2	3+
Children's occupational destination		Same occupation	77%	74%	75%
		Upper status	9%	13%	14%
		Artisan	73%	76%	74%
		Other farmers	8%	3%	4%
		Lower status	11%	8%	8%

	n = 208	Siblings' order				*n* = 86	Siblings' order		
Father's occupation	Fibre preparer	1	2	3+	Father's occupation	Tailor	1	2	3+
Children's occupational destination	Same occupation	68%	72%	66%	Children's occupational destination	Same occupation	53%	45%	29%
	Upper status	8%	13%	20%		Upper status	12%	17%	–
	Artisan	77%	74%	53%		Artisan	71%	67%	80%
	Farmers	15%	4%	13%		Farmers	12%	6%	10%
	Lower status	–	9%	13%		Lower status	6%	11%	10%
	n = 99	Siblings' order				*n* = 64	Siblings' order		
Children's occupational destination	Same occupation	62%	58%	64%	Children's occupational destination	Same occupation	44%	35%	40%
	Upper status	21%	7%	–		Upper status	13%	13%	0%
	Artisan	79%	67%	67%		Artisan	80%	53%	33%
	Farmers	0%	27%	22%		Farmers	–	13%	67%
	Lower status	–	–	11%		Lower status	7%	20%	–

by means of acquisition or leasehold, especially in the mid-seventeenth century, due to an increasing number of sharecropper and emphyteusis contracts in vineyard farming in the form of *rabassa morta* contracts (Ferrer, 1983, 2014; Carmona & Simpson, 1999).[28]

We have looked in more detail at the occupational destinations arising from the four main occupations among artisan fathers, and noticed that occupational inheritance prevailed for fibre preparers and weavers, with a figure exceeding 60% while, among tailors and shoemakers, inheritance barely reached a figure of 50% (Table 8). All in all, the attainment of crafts differing from those of fathers and eldest brothers was the main employment destination of the occupation's non-inheritors, as described earlier. For instance, fathers who declared their occupation as weavers tended to have children engaged in fibre preparation (*paraires*), and vice versa, and the same pattern held with tailors and shoemakers. However, children married last in the marriage order (third or later) tend to show some downward mobility by comparison with the social group of fathers. It is also worth noting that last-married children of shoemaker fathers mostly became farmers.

6. Discussion

High levels of intergenerational status inheritance and ascription are observed in the Barcelona area due to the family impact on individual trajectories, as would be expected in a pre-industrial society. This impact was closely linked to the effect of the parents' social class, a plausible fact in a law-governed society with an inheritance system based on

impartibility of properties. The pattern among farmers, whose children also tended to be farmers (behaviour that was promoted among the elite as well), accounts in part for the high levels of intergenerational transmission. Artisans also contributed to raising the total intergenerational transmission, since sons of artisans mainly inherited the condition but not the occupation. First-married children were the main inheritors of parental status in all social groups, especially farmers and artisans, the former being more linked to ascription than the latter. However, some second- or third-married farmers' children were able to follow artisan careers. The difference within orders would then help to explain the disparity in attainment behaviour between first-married and subsequently married children.

Sibship sizes, inter-marriage intervals between father and children and between children showed small and not statistically significant effects on status attainment for farmers. However, artisans' offspring show negative effects for greater sibship sizes and positive effects for younger siblings marrying with greater inter-marriage intervals. The likely reason behind this effect would be more time spent waiting for marriage because of a longer apprenticeship cycle, which was associated with higher-status crafts.

The likely negative effects for bigger sibship sizes among artisans could erroneously be assumed to take the form of an early resource dilution situation. Rather, we see mobility in different occupations of craft-related activities (weavers – fibre preparers; tailors – shoemakers). Farmers' families therefore presented more homogeneity in same-occupation inheritance and status scores. However, these differences with other groups drop substantially when social class attainment is controlled, mainly because artisans' families practised mobility for non-first-married children within class boundaries. As a result, the proportions of their destination confirm that, in spite of higher intergenerational class attainment for farmers, artisans showed higher levels of intergenerational class transmission through their children gaining access to different artisan occupations.

Overall, the notable intergenerational transmission of occupation or social position observed among farmers and artisans does not necessarily imply transmission of well-being but, rather, suggests an alternative mechanism used within families to ensure the social reproduction of their offspring, especially males. From this premise, it is plausible to wonder about adoption of strategies mitigating the likely effects on non-heir children deriving from an impartible inheritance system by means of providing alternative channels for children so that they could manage their own destinies. In fact, the absence of day workers or labourers among sons or sons-in-law in the families studied is striking. Moreover, there is no evidence that farmers' children would have had access to upward social mobility, which would clearly be explained by the social barriers that typically characterise law-governed society throughout the sixteenth and seventeenth centuries.

We do not believe that farmers constituted a homogeneous social group or that the artisans' group did either, although with the data available from the marriage licence taxes no substantial differences appeared, since 97% of farmers paid the same fee, around 4 *sous* (shillings), and so did 90–95% of artisans. However, in the case of artisans paying more than the ordinary tax, the proportion increased from 5% in the sixteenth century to 10% in the seventeenth. In fact, for this period Catalonia showed processes of social differentiation within the artisan group, as was the case with the *paraires* (fibre preparers) who, with the textile expansion across the territory, benefited from incipient proto-industrial activities by gaining control of the production and commercialisation of wool fabrics through the *putting-out* system and ascending socially, as mentioned above. In the case of farmers, land

accumulation or beneficial ownership could have been goals to be achieved in order to prosper within the social group, although the circumstances of the period did not propitiate this. It would explain why differences in taxes among farmers were almost non-existent, while they increased among artisans.

We have then gone on to argue that both fathers and sons/sons-in-law who declared themselves farmers would have had access to land, either by property or leasehold. Likewise, these farmers (mainly non-inheritors) joined the then-existent waged rural labour market which could sometimes be used as a way of complementing the earnings from their own land. However, low availability of cropland, accompanied by the expansion of the textile sector through early modern Catalonia, could have prompted families to encourage some of their children (usually the non-first-married) to move into artisan activities. We can conceive of an apprenticeship in an artisan career, usually starting at an early age, as another long-term compensatory and strategic mechanism favouring children's positioning. Hence, rather than a model of sibling competition over family resources, we see a pattern of family economic diversification, and probably the most paradigmatic example of this is the significant number of farmers with fibre preparer (*paraire*) children.

For artisans, the risk of sibling rivalry among non-inheritor children was ameliorated by their ability to move into different but similar artisanal branches of the economy, where they could contribute towards the creation of an economic and family network. In fact, the significant increase in craft trades during this period undoubtedly reflects an ease of mobility into other artisans' occupational groups, given the almost-total absence of artisans' children in other social groups. Moreover, there can be no doubt that entering an artisan's apprenticeship circuit was much more affordable than buying land, which was expensive and scarce. The tendency for artisans to establish heterogeneous social relations, in which fathers handled family affairs in accordance with known social norms and constructs in order to secure a better position for their children, would have enlarged their network and in many cases provided new economic opportunities. We argue that resource dilution due to competition among siblings was far from the case in the Barcelona area. Rather, we find compensatory effects deriving from cooperative ties that come not from the parental agency alone but also from other relatives, including siblings and other kin from the extended family.

Notes

1. Intergenerational transmission of occupation and/or social position ranged in an order of 50% to 70% in some European societies. Our own calculations using the data published by Boberg-Fazlic et al. (2011) show levels of 50% in total transmission, 60% for artisans, and 51% for farmers in eighteenth-century England. According to data published by Bearman and Deane (1992), during the sixteenth and seventeenth centuries in the East Midlands, the total intergenerational transmission ranged between 65% and 70%.
2. Apart from Catalonia, other regions such as southern France and Germany also presented single-heir practices, although some instead used ultimogeniture (Willenbacher, 2003).
3. Here, house (*casa* in Catalan) refers to the family universe conceived as a unit of production and reproduction to be safeguarded within and across generations.
4. The sibling competition model derives from the biology of animal species and has been approached in fields of human evolutionary studies as a set of conflictive behaviour among siblings in a low-resource context (Voland, 1990).

5. Here, adults are deemed to be those who are at a marriageable age. For the Roman legislation, which dates from the fourteenth century, males could not marry before the age of 14 and women before 12, a restriction generally followed by Christian churches (Gaudemet, 1987).
6. The concept of cooperative or mutual breeding is taken from biology and evolutionary studies to explain the influence on offspring of *helpers* that are neither fathers nor mothers and can be kin or non-kin (Kramer, 2010).
7. Throughout its history, the Barcelona Diocese has shrunk significantly in historical parochial archives. Among the parishes that comprised the *Oficialitat* of Barcelona (corresponding to the Barcelona area), the same area covered by the Marriage Licence Books, only the registers from nine small parishes still have data going back to the establishment of the Council of Trent and continuing through to the present day. Records from another nine small parishes are preserved only from the seventeenth century onwards, even if they existed since the tenth and eleventh centuries. Besides these, two other parish books were conserved only from the eighteenth century, and six others from the nineteenth century, although they date back to the Middle Ages. It is worth noting that in the city of Barcelona, only three out of eight parish registers were kept. Finally, the records of the remaining 22 parishes from the area of Barcelona were completely lost. This information has been drawn from the *Inventari dels arxius sagramentals a Catalunya. Segles XV-XIX*, which was compiled in the research project *La población de Cataluña. Estudio histórico y territorial, 1787–1996*, funded by the Ministerio de Educación y Cultura, Dirección General de Enseñanza Superior, Programa de Promoción General del Conocimiento for 1997–2000.
8. The first (or only) surnames are usually patrilineal.
9. Identification of people by two family names, the first usually handed down by fathers and the second by mothers, is the result of the Civil Registration Law (1871) (De Salazar, 1991; Salinero, 2010).
10. Inclusion of brides in the licences began in 1485.
11. Although the taxes were categorised in socioeconomic terms, all registered marriages of farmers and artisans (the two majority groups) were charged exactly the same amount. Hence, owing to the lack of variability, this does not allow us to study differences, although this does not affect the wide variety of occupations reported in the source.
12. The most common changes in the spelling of family names found in the Marriage Licence Books are the removal of the final etymological *r*, e.g. *Ferrer/Ferré* (Smith), and confusion between *b* and *v*, e.g. *Rivera/Ribera* (Riverside). There were also miswritten letters, among them *s*, *c*, *ç*, *z* and *ss*, e.g. *Serra/Çerra* (Hills/Mountains), and confusions between the letters *y* and *i*, *j* and *g*, *l* and *ll*. We also saw the use of *c* instead of *ch* at the word's end, e.g. *Bosch/Bosc* (Woods), as well as *h* at the beginning of words starting with vowels, e.g. *Homs/Oms* (Elms). The software-generated algorithm also accounted for similarities in the Catalan pronunciation which could lead to different ways of writing the vowels *a* and *e*, e.g. *Ferrer/Farrer* (Smith), and *o* and *u*, e.g. *Bofi/Bufi*, a variation of *Bonfill* (Good Son).
13. Between 1547 and 1643, 6555 different surnames were registered, and these, divided by quartiles, share the same distribution as the 528 surnames from the father–children sample.
14. Although the inheritance system was skewed towards first-born sons, there were also female inheritors known as *pubilles* in Catalonia (Ferrer, 2005).
15. This disparity in parental occupation for males and females is due to a larger register of women's fathers because of the absence of feminine occupational reporting.
16. Here, the 12 original HISCLASS codes were condensed into eight groups joining occupations that tended to be similar and less frequent during the period under study in our region. Moreover, nobles were considered and labelled separately.
17. Decentralisation of the textile industry brought about the movement of many fibre preparers and weavers into the hinterland, while occupations devoted to the finishing processes of clothing production remained in Barcelona (Torras, 1998).
18. For cases where the parish was reported in the marriage licences, we found that among the 589 sons and sons-in-law occupied in crafts, 42.3% were from urban centres such as Barcelona, Mataró, Sabadell and Terrassa, while the other 57.7% were from rural parishes.

19. Values lower than -2 reflect statistically significant negative associations, while numbers greater than 2 (marked in bold in the tables) represent positive associations.
20. In label 7 we include fibre preparers (HISCO 75100) and weavers (HISCO 75432), while label 5 includes other crafts such as carpenters (HISCO 95410), tailors (HISCO 79120) and shoemakers (HISCO 80110).
21. This kind of model includes only the fixed and random intercepts of the measured dependent variable. Its main interest resides in the random variance for explaining how similar or non-independent individuals within families and geographic units were.
22. In order to decompose the variance explained by the geographic level only, the geographical variance is kept in the numerator of the ICC equation.
23. The family impact is approached quantitatively in a few studies. Knigge, Van Leeuwen & Mandemakers (2014) found family impacts in the order of 50%.
24. It should be remembered that an important assumption has been made when treating first-married sons as first-born.
25. Unfortunately, the information on taxes provided in the Marriage Licence Books is linked to the occupational and social group. From this we can determine which groups paid more taxes, but we cannot establish within-class differences, because it is impossible to determine who among the peasants were richer or poorer.
26. Mainly towards crafts of higher status such as tailors, shoemakers and carpenters, among others.
27. The Catalan fibre preparers known as *paraires* were, according to the literature, engaged not only in a textile occupation specialising in wool manufacturing, but also in a kind of management position in the textile industry in charge of production coordination as well as commercialisation. Moreover, they can be credited as being the founders of this proto-industrial activity in Catalonia (Torras, 1998).
28. *Rabassa morta* refers to leasehold contracts of long duration which were based on the life cycle of grapevines. A sharecropper could work the land as long as the plant lasted.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Advanced Grant 'Five Centuries of Marriages' (PI Anna Cabré) from the European Research Council [ERC-2010-AdvancedGrant-269796]

References

Alberch, R. (1984). *Gremis i oficis a Girona: Treball i societat a l'època pre-industrial* [Guilds and trades in Girona: Work and society in the pre-industrial era]. Girona: Ajuntament de Girona.

Álvarez-Nogal, C., & Prados de la Escosura, L. (2012). The rise and fall of Spain (1270–1850). *The economic History Review, 66*(1), 1–37.

Amelang, J. S. (1986). *Honored Citizens of Barcelona: Patrician culture and class relations, 1490–1714*. Princeton: Princeton University Press.

Amengual-Bibiloni, M., & Pujadas-Mora, J. M. (2017). Orígens i destins de la immigració francesa a l'àrea de Barcelona (1481-1643). Aportacions a partir de la Barcelona Historical Marriage Database [Origins and destinations of French immigration in the area of Barcelona (1481–1643): Contributions from the Barcelona Historical Marriage Database]. *Manuscrits. Revista d'història moderna, 34*, 35–61.

Angrist, J., Lavy, V., & Schlosser, A. (2010). Multiple experiments for the causal link between the quantity and quality of children. *Journal of Labor Economics, 28*(4), 773–824.

Arrizabalaga, M. P. (2005). Succession strategies in the Pyrenees in the 19th century: The Basque case. *The History of the Family, 10*(3), 271–292.

Barrera-González, A. S. (1992). Eldest and younger siblings in a stem-family system: The case of rural Catalonia. *Continuity and Change, 7*(03), 335–355.
Bearman, P. S., & Deane, G. (1992). The structure of opportunity: Middle-class mobility in England, 1548-1689. *American Journal of Sociology, 98*(1), 30–66.
Beise, J., & Voland, E. (2008). Intrafamilial resource competition and mate competition shaped social-group-specific natal dispersal in the 18th and 19th century Krummhörn population. *American Journal of Human Biology, 20*(3), 325–336.
Bengtsson, T. (2014). The influence of economic factors on first marriages in historical Europe and Asia. In C. Lundh and S. Kurosu (Eds.), *Similarity in difference. Marriage in Europe and Asia, 1700–1900* (pp. 121–168). Massachusetts: MIT Press.
Berkner, L. K. (1972). The stem family and the developmental cycle of the peasant household: An Eighteenth-Century Austrian Example. *The American Historical Review, 77*(2), 398–418.
Berkner, L., & Mendels, F. (1978). Inheritance systems, family structure and demographic patterns in Western Europe. In C. Tilly (Ed.), *Historical studies of changing fertility* (pp. 209–223). Princeton: Princeton University Press.
Black, S. E., Devereux, P. J., & Salvanes, K. G. (2005). The more the merrier? The effect of family size and birth order on children's education. *The Quarterly Journal of Economics, 120*(2), 669–700.
Blake, J. (1986). Sibship size and educational stratification: Reply to Mare and Chen. *American Sociological Review, 51*(3), 413–417.
Boberg-Fazlic, N., Sharp, P., & Weisdorf, J. (2011). Survival of the richest? Social status, fertility and social mobility in England 1541–1824. *European Review of Economic History, 15*(3), 365–392.
Boone, J. L. (1986). Parental investment and elite family structure in preindustrial states: A case study of late medieval-early modern Portuguese genealogies. *American anthropologist, 88*(4), 859–878.
Bourdieu, P. (1976). Marriage strategies as strategies of social reproduction. In R. Forster & O. Ranum (Eds.), *Family and society. Selections from the Annales, Économies, Sociétés, Civilisations* (pp. 117–144). Baltimore, MD: The Johns Hopkins University Press.
Bras, H., Kok, J., & Mandemakers, K. (2010). Sibship size and status attainment across contexts: Evidence from the Netherlands, 1840–1925. *Demographic Research, 23*(4), 73–104.
Braudel, F. (1995). *The Mediterranean and the Mediterranean world in the age of Philip II* (Vol. 2). Berkeley and Los Angeles: Univ of California Press.
Caldwell, J., Caldwell, B., Caldwell, P., McDonald, P., & Schindlmayr, T. (2006). *Demographic transition theory*. Dordrecht: Springer.
Capdevila, A. (2014). *Quan la terra promesa era al sud. La immigració francesa al Maresme als segles XVI i XVII* [When the promised land was to the south. French immigration in the Maresme in the 16th and 17th centuries]. Rubí: Fundació Iluro, Publicacions de l'Abadia de Montserrat.
Carmona, J., & Simpson, J. (1999). The "Rabassa Morta" in Catalan viticulture: the rise and decline of a long-term sharecropping contract, 1670s–1920s. *The Journal of Economic History, 59*(2), 290–315.
Ciuffreda, A. (1997). Lo zio Prete. Individui, famiglie e parentela nella trasmissione dell'ufficio sacerdotale in una comunità pugliese in età moderna [The oncle is priest. Individuals, families and relatives in the transfer of sacerdotal affairs in a 'pugliese' community in modern age Disaggregations: Stratifications and social mobility in the Italian population]. *Diseguaglianze: Stratificazioni e mobilità sociale nella popolazione italiana* (Vol. 2, pp. 551–574). Bologna: Convegno italo-iberico di demografia storica.
Clark, G. (1996). Survival of the richest: The Malthusian mechanism in pre-industrial England. *The Journal of Economic History, 66*(3), 707–736.
Clark, G., & Hamilton, G. (2006). Survival of the richest: the Malthusian mechanism in pre-industrial England. *The Journal of Economic History, 66*(3), 707–736.
Comas d'Argemir, D. (1988). Household, family, and social stratification: Inheritance and labor strategies in a Catalan village (Nineteenth and Twentieth Centuries). *Journal of Family History, 13*(1), 143–163.
Comas d'Argemir, D. (2006). Casa, familia y estratificación social: Estrategias de herencia y de trabajo en una población rural catalana [Home, family and social stratification: inheritance and work strategies in a Catalan rural population]. In X. Roigé (Ed.), *Familias de ayer, familias de hoy: Continuidades y cambios en Cataluña* [Families yesterday, families of today: Continuities and changes in Catalonia] (pp. 141–176). Barcelona: Icaria.

Dambruyne, J. (1998). Guilds, social mobility and status in sixteenth-century Ghent. *International Review of Social History, 43*(1), 31–78.
De Salazar, J. (1991). *Génesis y evolución histórica del apellido en España* [Genesis and historical evolution of the surname in Spain]. Madrid: Real Academia Matritense de Heráldica y Genealogía.
Dillon, L. (2010). Parental and sibling influences on the timing of marriage, xviith and xviiith century Québec. *Annales de démographie historique, 119*(1), 139–180.
Downey, D. B. (1995). When bigger is not better: Family size, parental resources, and children's educational performance. *American Sociological Review, 60*(5), 746–1761.
Dribe, M., & Lundh, C. (2005). Finding the right partner: Rural homogamy in nineteenth-century Sweden. *International Review of Social History, 50*(S13), 149–177.
Dribe, M., & Lundh, C. (2009). Partner choice and intergenerational occupational mobility: The case of nineteenth-century rural Sweden. *Continuity and Change, 24*(03), 487–512.
Dribe, M., & Lundh, C. (2010). Marriage choices and social reproduction: The interrelationship between partner selection and intergenerational socioeconomic mobility in 19th-century Sweden. *Demographic Research, 22*, 347–382.
Dribe, M., Breschi, M., Gagnon, A., Gauvreau, D., Hanson, H. A., Maloney, T. N., & Mazzoni, H. (2017). Socio-economic status and fertility decline: Insights from historical transitions in Europe and North America. *Population Studies, 71*(1), 3–21.
Elliot, J. H. (1963). *The revolt of the Catalans: A study in the decline of Spain, 1598–1640*. Cambridge: Cambridge University Press.
Epstein, S. R. (2004). Property rights to technical knowledge in premodern Europe, 1300–1800. *The American Economic Review, 94*(2), 382–387.
Erola, J., & Kilpi-Jakonen, E. (2017). Compensation and other forms of accumulation in intergenerational social inequality. In J. Erola & E. Kilpi-Jakonen (Eds.), *Social inequality across the generations* (pp. 3–24). Cheltenham: Edward Elgar Publising.
Evans, M., Hastings, N., & Peacock, B. (2000). *Statistical distributions*. New York, NY: Wiley.
Fauve-Chamoux, A. (2005). A comparative study of family transmission systems in the central Pyrenees and northeastern Japan. *The History of the Family, 10*(3), 231–248.
Ferrer, L. (1983). Censals, vendes a carta de gràcia i endeutament pagès al Bages (s. XVIII) ['Censals', sales by letter of grace and peasant indebtedness in the Bages (18th century)]. *Estudis d'història agrària, 4*, 101–128.
Ferrer, L. (2003). Segundones y actividad económica en Cataluña (siglos XVIII-XIX): Reflexiones a partir de la familia Berenguer de Artés ['Segundones' and economic activity in Catalonia (XVIII-XIX centuries): Reflections from the case of the Berenguer de Artés family]. *Revista de Demografía Histórica, 21*(2), 93–126.
Ferrer, L. (2004). Kinship as a mechanism in the social structuring of rural Catalonia (eighteenth and nineteenth centuries). *Journal of Family History, 29*(2), 135–152.
Ferrer, L. (2005). When there was no male heir: The transfer of wealth through women in Catalonia (the pubilla). *Continuity and Change, 20*(1), 27–52.
Ferrer, L. (2007). *Hereus, pubilles i cabalers: El sistema d'hereu a Catalunya* ['Hereus, Pubilles i Cabalers' The heir's system in Catalonia]. Catarroja: Afers.
Ferrer, L. (2008). Placing sons and daughters in the church: Strategies used by the gentry of Central Catalonia to maintain social status in the 17th and 18th centuries. *The History of the Family, 13*(1), 26–41.
Ferrer, L. (2010a). Achieving well-being in Spain through the single heir system (18th -19th Centuries). In M. Duraes, A. Fauve-Chamoux, L. Ferrer & J. Kok (Eds.), *The transmission fo Well-being. Gendered marriage strategies and Inheritance systems in Europe (17th-20th Centuries)* (pp. 259–290). Bern: Peter Lang.
Ferrer, L. (2010b). Matrimonial regimes in Catalonia and Spain. The logic of family systems. In M-P. Arriazabalaga, I. Bolovan, M. Eppel, J. Kok & M. L. Nagata (Eds.), *Many paths to happiness? Studies in population and family history. A festschrift for Antoinette Fauve* (pp. 347–361). Amsterdam: Aksant.
Ferrer, L. (2014). Derechos de propiedad y mercado de la tierra en la Cataluña Vieja (s. XV-XIX). El caso de Artés (Bages) [Property rights and land market in Old Catalonia (15th-19th century). The case of Artés (Bages)]. *Revista de Historia Agraria, 33*, 35–47.

Ferrer, L. (2016). La formació d'una estructura de la propietat de la terra a la Catalunya Vella (segles XVI-XIX) [The formation of an agrarian structure of land ownership in the Old Catalonia (16th-19th centuries)]. *Manuscrits. Revista d'història moderna, 33*, 67–93.
Fischer, D. H. (1996). *Great wave: price revolutions and the rhythm of history*. New York: Oxford University Press.
Fox, J., Willführ, K., Gagnon, A., Dillon, L., & Voland, E. (2017). The consequences of sibling formation on survival and reproductive success across different ecological contexts: A comparison of the historical Krummhörn and Quebec populations. *The History of the Family, 22*(2-3), 364–423.
Ganzeboom, H., Treiman, D., & Ultee, W. C. (1991). Comparative intergenerational stratification research: Three generations and beyond. *Annual Review of Sociology, 17*(1), 277–302.
García Espuche, A. (1998). *Un siglo decisivo: Barcelona y CataluÃ±a, 1550–1640* [A decisive century. Barcelona and Catalonia, 1550–1640]. Madrid: Alianza editorial.
Gaudemet, J. (1987). *Le mariage en Occident. Les moeurs et le droit* [Marriage in the West Morals and the law]. Paris: University of Notre Dame Press.
Gibbs, B. G., Workman, J., & Downey, D. B. (2016). The (conditional) resource dilution model: State-and Community-Level Modifications. *Demography, 53*(3), 723–748.
Gjerde, J., & McCants, A. (1999). Individual life chances, 1850-1910: A Norwegian-American example. *Journal of Interdisciplinary History, 30*(3), 377–405.
Goody, J. (1973). Strategies of heirship. *Comparative Studies in Society and History, 15*(01), 3–20.
Harrell, S. (1997). *Human families*. New York, NY: Avalon Publishing.
Hox, J. J. (2002). Sample sizes for multilevel modeling. In J. Jorg Blasius, J. Hox, E. deLeeuw & P. Schmidt (Eds.), *Proceedings of the fifth international conference on logic and methodology* (pp. 1–19). Opladen, Germany: Leske & Budrich Verlag.
Iszaevich, A. (1975). Corporate household and ecocentric kinship group in Catalonia. *Ethnology, 20*(4), 277–290.
Jencks, C., Smith, M., Acland, H., Jo Bane, M., Cohen, D., & Gintis, H. (1972). *Reassessment of the effect of family and schooling in America*. New York, NY: Basic Books.
Jordà, J. P. (2016). *Aproximación a las migraciones históricas a través del estudio de la información nominal* [Approaching historical migrations through the study of nominal information]. (PhD), Universitat Autònoma de Barcelona, Bellaterra.
Jordà, J. P., Valls-Fígols, M., & Pujadas-Mora, J. M. (2013). Apellidos y migraciones. Estudio a través de los fogatges catalanes de 1497 y 1553 [Surnames and migration. Study through the Catalan household counts of the 1497 and 1553]. *Revista de demografía histórica, 31*(1), 105–130
Junqueras, O. (2006). *Economia i pensament econòmic a la Catalunya de l'alta edat moderna (1520–1630)* [Economy and economic thought in Catalonia of the modern age (1520–1630)]. Bellaterra: Universitat Autònoma de Barcelona, Serve de Publicacions.
Kamen, H. (1979). Una insurrecció oblidada del segle XVII: L'alçament dels camperols catalans de l'any 1688 [A forgotten insurrection of the 17th century: The rise of the Catalan peasants of the 1688]. *Recerques: Història, economia cultura, 9*, 11–28.
Kertzer, D., & Laslett, P. (1995). *Aging in the past: Demography, society, and old age*, Vol. 7. Berkeley: University of California Press.
Kesztenbaum, L. (2008). Cooperation and coordination among siblings: Brothers' migration in France, 1870–1940. *The History of the Family, 13*(1), 85–104.
Knigge, A., Maas, I., van Leeuwen, M. H., & Mandemakers, K. (2014). Status attainment of siblings during modernization. *American Sociological Review, 79*(3), 549–574.
Kocka, J. (1984). Family and class formation: Intergenerational mobility and marriage patterns in nineteenth-century Westphalian towns. *Journal of Social History, 17*(3), 411–433.
Kok, J. (1997). Youth labor migration and its family setting, The Netherlands 1850–1940. *The History of the Family, 2*(4), 507–526.
Kramer, K. L. (2010). Cooperative breeding and its significance to the demographic success of humans. *Annual Review of Anthropology, 39*, 417–436. doi:10.1146/annurev.anthro.012809.105054.
Kurosu, S. (1996). Leaving home in a stem family system: Departures of heirs and non-heirs in pre-industrial Japan. *The History of the Family, 1*(3), 329–352.

Kurzban, R., Burton-Chellew, M. N., & West, S. A. (2015). The Evolution of Altruism in Humans. *Annual Review of Psychology, 66*(1), 575–599.
Lambert, P., et al. (2013). The Construction of HISCAM: A Stratification Scale Based on Social Interactions for Historical Comparative Research. *Historical Methods: A Journal of Quantitative and Interdisciplinary History, 46*(2), 77–89.
Laslett, P. (1977). *Family life and illicit love in earlier generations*. Cambridge University Press.
Laslett, P. (1983). A one-class society. Social divisions and power relations amongst nobility, gentry, townsmen and peasants. In P. Laslett (Ed.), *The World We Have Lost: Further explored* (3rd ed., pp. 22–52). London: Routledge.
Leibowitz, A. (1974). Home investments in children. *Journal of Political Economy, 82*(2, Part 2), S111–S131
Lobato, I. (1995). *Capital mercantil y actividad económica en la Cataluña preindustrial, compañias y negocios en Barcelona en la segundad mitad del siglo XVII* [Commercial capital and economic activity in pre-industrial Catalonia. Companies and business in Barcelona in the second half of the seventeenth century]. Barcelona: Publicacions de la Universitat de Barcelona.
Low, S. (1991). Family patterns in nineteenth-century Sweden: Impact of occupational status and landownership. *Journal of Family History, 16*(2), 117–138.
Marfany, J. (2006). Choices and constraints: Marriage and inheritance in eighteenth-and early-nineteenth-century Catalonia. *Continuity and Change, 21*(01), 73–106.
Mazzoni, S., Breschi, M., Manfredini, M., Pozzi, L., & Ruiu, G. (2017). The relationship between family characteristics and height in Sardinia at the turn of the twentieth century. *The History of the Family, 22*(2-3), 291–309.
Millàs, C. (2005). *Els altres catalans dels segles XVI i XVII: La immigració francesa al Baix Llobregat en temps dels Àustria* [The other Catalans from the 16th and 17th centuries: French immigration in the Baix Llobregat in the period of the Habsburg]. Barcelona: Publicacions de l'Abadia de Montserrat.
Mocarelli, L. (2008). Guilds reappraised: Italy in the early modern period. *International Review of Social History, 53*(S16), 159–178.
Moch, L. P. (2009). *Moving Europeans: Migration in western Europe since 1650* (2nded.). Bloomington: Indiana University Press.
Nadal, J. (1978). La població catalana als segles XVI i XVII [The Catalan population in the seventeenth and eighteenth centuries]. In J. Nadal & P. Wolf (Eds.), *Història de Catalunya* (pp. 257–273). Barcelona: Salvat.
Nadal, J., & Giralt, E. (1960). *La Population catalane de 1553 à 1717: L'emmigration française et les autres facteurs de son développement* [The Catalan population from 1553 to 1717: The French emigration and the others factors of its development]. Paris: SEVPEN.
Nitsch, A. (2014). *The evolution of sibling interactions in Humans* (PhD Thesis). University of Sheffield.
Öberg, S. (2015). Sibship size and height before, during, and after the fertility decline: A test of the resource dilution hypothesis. *Demographic Research, 32*, 29–74.
Öberg, S. (2017). Too many is not enough: Studying how children are affected by their number of siblings and resource dilution in families. *The History of the Family, 22*(2–3), 157–174.
Parker, G. (2013). *Global crisis: War, climate change and catastrophe in the seventeenth century*. New Haven, CT: Yale University Press.
Platteau, J. P., & Baland, J. M. (2001). Impartible inheritance versus equal division: A comparative perspective centered on Europe and Sub-Saharan Africa. *Notre-Dame de la Paix, Sciences Economiques et Sociales Papers, 209*.
Postles, D. (2000). Migration and mobility in a less mature economy: English internal migration, c. 1200-1350. *Social History, 25*(3), 285–299.
Prandy, K. (2000). The social interaction approach to the measurement and analysis of social stratification. *International Journal of Sociology and Social Policy, XIX*, 215–249.
Pujadas-Mora, J. M., Romero-Marín, J., & Villar, C. (2014). Propuestas metodológicas para la aplicación de HISCO en el caso de Cataluña, siglos XV-XX. *Revista de Demografía Histórica, 32*, 181–219.
Ros, C. (2006). Les estratègies familiars i la mobilitat social dels menestrals a Catalunya en els segles XVII-XIX: El cas de Mataró [Familial strategies and social mobility of crafts in the seventeenth and eighteenth centuries]. *Butlletí de la Societat Catalana d'Estudis Històrics* [The case of Mataró]*, 16*, 171–190.

Salinero, G. (2010). Sistemas de nominación e inestabilidad antroponómica moderna [Nomination systems and modern anthroponomic instability]. In I. Testón (Ed.), *Un juego de engaños: Movilidad, nombres y apellidos en los siglos XV a XVIII* [A game of deceptions: Mobility, names and surnames in the XV to XVIII centuries] (pp. 9–27). Madrid: Casa de Velázquez.

Schlomer, G., Ellis, B., & Garber, J. (2010). Mother-Child Conflict and Sibling Relatedness: A Test of Hypotheses From Parent-Offspring Conflict Theory. *Journal of Research on Adolescence, 20*(2), 287–306.

Serra, E. (2013). La crisi del segle XVII a Catalunya [The Crisis of the 17th Century and Catalonia]. *Butlletí de la Societat Catalana d'Estudis Històrics, 24*, 297–315.

Shenk, M. K., Borgerhoff Mulder, M., Beise, J., Clark, G., Irons, W., & Leonetti, D. (2010). Intergenerational wealth transmission among agriculturalists: Foundations of agrarian inequality. *Current Anthropology, 51*(1), 65–83.

Simon, A. (1992). La població catalana a l'Època Moderna. Síntesi i actualització [The Catalan population in the Modern Era. Synthesis and update]. *Manuscrits: Revista d'Història Moderna, 10*, 217–258.

Soly, H. (2008). The political economy of European craft guilds: Power relations and economic strategies of merchants and master artisans in the medieval and early modern textile industries. *International Review of Social History, 53*(S16), 45–71.

Stradford, L., van Poppel, F., & Lumey, L. H. (2017). Can resource dilution explain differences in height by birth order and family size? A study of 389,287 male recruits in twentieth-century Netherlands. *The History of the Family, 22*(2-3), 214–235.

Suanet, B., & Bras, H. (2014). Sibling position and Marriage timing in the Netherlands, 1840–1922. A comparison across social classes, local contexts, and time. *Journal of Family History, 39*(2), 126–139.

Thirsk, J. (1976). The European debate on customs of inheritance, 1500–1700. In J. R. Goody, J. Thirsk, & E. P. Thompson (Eds.), *Family and Inheritance: Rural society in Western Europe, 1200–1800* (pp. 177–192). Cambridge: Cambridge University Press.

To, L. (1993). Le mas catalan du XIIe s.: Genèse et évolution d'une structure d'encadrement et d'asservissement de la paysannerie [The Catalan 'Mas' of the twelfth century: Genesis and evolution of a structure of supervision and enslavement of the peasantry]. *Cahiers de civilisation médiévale, 36*(142), 151–177

To, L. (1997). *Familia i hereu a la Catalunya nord-oriental (segles X-XII)* [Family and heir in north-eastern Catalonia (10th to 12th centuries)]. Barcelona: Abadia de Montserrat.

Torras, J. (1993). From craft to class. The changing organization of cloth manufacturing in a catalan town. In T. Safley & L. Rosenbaund (Eds.), *The workplace before the factory. Artisans and Proletarians (1500–1800)* (pp. 165–179). London: Cornell University Press.

Torras, J. (1998). Small Towns, Craft Guilds and Proto-Industry in Spain. *Jahrbuch für Wirtschaftsgeschichte/ Economic History Yearbook, 39*(2), 79–96

Treiman, D. J. (1970). Industrialization and social stratification. *Sociological Inquiry, 40*(2), 207–234.

Treiman, D. J. (1977). *Occupational prestige in comparative perspective*. New York: Academic Press.

Trivers, R. L. (1974). Parent-offspring conflict. *Integrative and Comparative Biology, 14*(1), 249–264.

Van Bavel, J., Moreels, S., Van de Putte, B., & Matthijs, K. (2011). Family size and intergenerational social mobility during the fertility transition: Evidence of resource dilution from the city of Antwerp in nineteenth century Belgium. *Demographic Research, 24*(14), 313–344.

Van de Putte, B., Van Poppel, F., Vanassche, S., Sanchez, M., Jidkova, S., & Eeckhaut, M. (2009). The rise of age Homogamy in 19th century western Europe. *Journal of Marriage and Family, 71*(5), 1234–1253.

Van Leeuwen, M. H. D., & Maas, I. (2011). *HISCLASS: A historical international social class scheme*: Universitaire Pers Leuven.

Van Leeuwen, M. H., Maas, I., & Miles, A. (2002). *HISCO: Historical international standard classification of occupations*. Leuven: Leuven University Press.

van Poppel, F., & Nelissen, J. (1999). The proper age to marry: Social norms and behavior in nineteenth-century Netherlands. *The History of the Family, 4*(1), 51–75.

Vilalta, M. J. (2006). La atracción de los iguales. Sociedad, migraciones y alianzas matrimoniales en la Lleida del siglo XVI [The attraction of the equals. Society, migrations and matrimonial alliances Lleida in the sixteenth century]. In J. A. Salas Auséns (Ed.), *Migraciones y movilidad social en el Valle*

del Ebro (siglos XVI-XIX) [Migrations and social mobility in the Ebro Valley (centuries XVI–XIX)] (pp. 13–37). Bilbao: Servicio Editorial de la Universidad del Pais Vasco.

Vilar, P. (1986). *Catalunya dins l'Espanya moderna: Recerques sobre els fonaments econòmics de les estructures nacionals* [Catalonia within modern Spain: Research on the economic foundations of national structures]. Barcelona: Ariel.

Villavicencio, F., Jordà, J. P., & Pujadas-Mora, J. M. (2015). Reconstructing lifespans using historical marriage records of Catalonia from the 16th and 17th centuries *Population reconstruction* (pp. 199–216): Springer International.

Voland, E. (1990). Differential reproductive success within the Krummhörn population (Germany, 18th and 19th centuries). *Behavioral Ecology and Sociobiology, 26*(1), 65–72.

Voland, E., & Dunbar, R. (1995). Resource competition and reproduction. *Human Nature, 6*(1), 33–49.

Wall, R. (1996). Marriage, residence, and occupational choices of senior and junior siblings in the english past. *The History of the Family, 1*(3), 259–271.

Willenbacher, B. (2003). Individualism and traditionalism in inheritance law in Germany, France, England, and the United States. *Journal of Family History, 28*(1), 208–225.

Yun Casalilla, B., & Torras, J. (1999). *Consumo, condiciones de vida y comercialización: Cataluña, Castilla, siglos XVII-XIX* [Consumption, living conditions and marketing: Catalonia, Castilla, XVII–XIX centuries]. Valladolid: Junta de Castilla y León, Consejería de Educación y Cultura.

Zijdeman, R. L. (2009). Like my father before me: Intergenerational occupational status transfer during industrialization (Zeeland, 1811–1915). *Continuity and Change, 24*(3), 455–486.

Zofio, J. C. (2005). *Gremios y artesanos en Madrid, 1500–1650: La sociedad del trabajo en una ciudad cortesana preindustrial* [Guilds and artisans in Madrid, 1500–1650: The society of work in a courtesan preindustrial town]. Madrid: Instituto de Estudios Madrileños.

Zofío Llorente, J. C. (2011). Reproducción social y artesanos. Sastres, curtidores y artesanos de la madera madrileños en el siglo XVII [Social reproduction and artisans. Tailors, tanners, and joiners of Madrid in the 17th century]. *Hispania, 71*(237), 87–120.

4.4 Pujadas-Mora, J. M., Brea-Martínez, G., Valls-Fígols, M. & Cabré, A. (2018). ***Windows of opportunity for status attainment in Southern Europe: Family impact and industrialization on the individual career in Catalonia (nineteenth and twentieth centuries)***. *Papers de demografia:1-26.*

PAPERS DE DEMOGRAFIA

CED
Centre d'Estudis Demogràfics

2018

Bellaterra (Barcelona)

Pujadas-Mora, J. M., Brea-Martínez, G., Valls-Fígols, M. & Cabré, A. (2018). Windows of opportunity for status attainment in Southern Europe: Family impact and industrialization on the individual career in Catalonia (nineteenth and twentieth centuries). *Papers de Demografia*: 1-28. Bellaterra: Centre d'Estudis Demogràfics.

Abstract

The role of the family in both individual social status attainment and labor careers during industrialization was questioned by the Modernization theory. Accordingly, familial nuclearization was argued to be one of the causes. However, little has been said on this topic regarding societies in which stem or joint families were important as in the case of Southern Europe. This article studies the industrialization effects on the familial influence for the individuals' social destinations and labor career progressions on cohorts born between 1860 and 1909 in Catalonia in an area of early industrialization and fertility decline, through the *Sant Feliu de Llobregat Longitudinal Demographic Database*.

The results show that family influence on occupational attainment decreased during the industrialization in Catalonia, albeit did not vanish totally. Moreover, this loss of familial influence was concomitant with the fertility decline, entailing an interdependent relationship between the effects of industrialization and shrinking number of offspring. In contrast to societies with a prevalence of nuclear families, Catalonia faced changes in family influence and fertility decline without losing the strong presence of stem families.

The youngest cohorts facing industrialization's consolidation attained higher levels of occupational status, while the oldest cohorts within the initial stages of industrialization achieved less career progression and faced social immobility, which is explained by the proletarianization effect. Nevertheless, this general enhancement over time did not break the social stratification caused by social background, which demonstrates that inequality in accessing opportunities is linked to the capacity to generate progress or demotion within societies.

Key words: Industrialization; family influence; labour careers.

WINDOWS OF OPPORTUNITY IN SOUTHERN EUROPE:

FAMILY IMPACT AND INDUSTRIALIZATION ON INDIVIDUAL CAREERS IN CATALONIA (19TH-20TH CENTURIES)[1]

Joana-Maria Pujadas-Mora (jpujades@ced.uab.es)

Gabriel Brea-Martínez

Miquel Valls-Fígols

Anna Cabré

(Centre d'estudis Demogràfics)

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

[1] *This research has been supported by the project* NETWORKS 'Tools and procedures for the large scale digitization of historical sources of population' (http://dag.cvc.uab.es/xarxes/) funded by Recercaixa program (2017-2019) (PI Joana-Maria Pujadas-Mora and Alicia Fornés). The team includes researchers from the Universitat Autònoma de Barcelona, the Center for Demographic Studies (CED), and the Computer Vision Center (CVC).

(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 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; AUTHOR, 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; AUTHOR, 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 (AUTHOR, 2017; Martínez-Galarraga and Prat, 2016), while sharing with France one of the earliest fertility declines in Western Europe (Author, 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.[2] 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

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

(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 Classification of Occupations (HISCO) (Van Leeuwen et al., 2002; AUTHOR, 2014) as well as with schemes of social status as HISCAM[3] and HISCLASS[4].

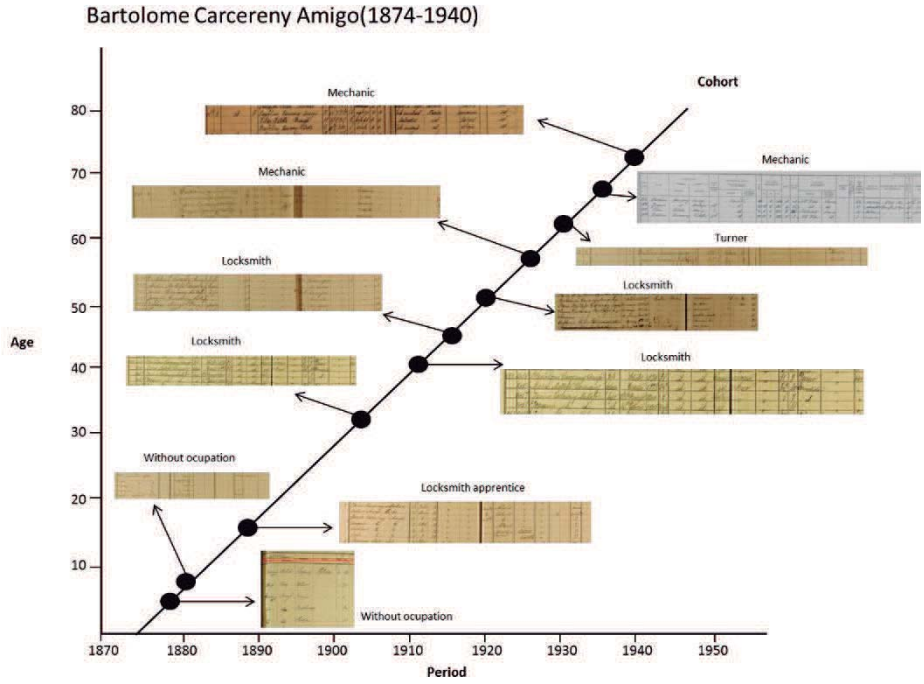
Once the standardization process was done, a record linkage using nominative information was performed in order to follow the individuals across time. Therefore, parts of the life courses of 10,405 individuals with at least 2 different observations in 2 different censuses have been traced, standing for 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.

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).

[3] 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)

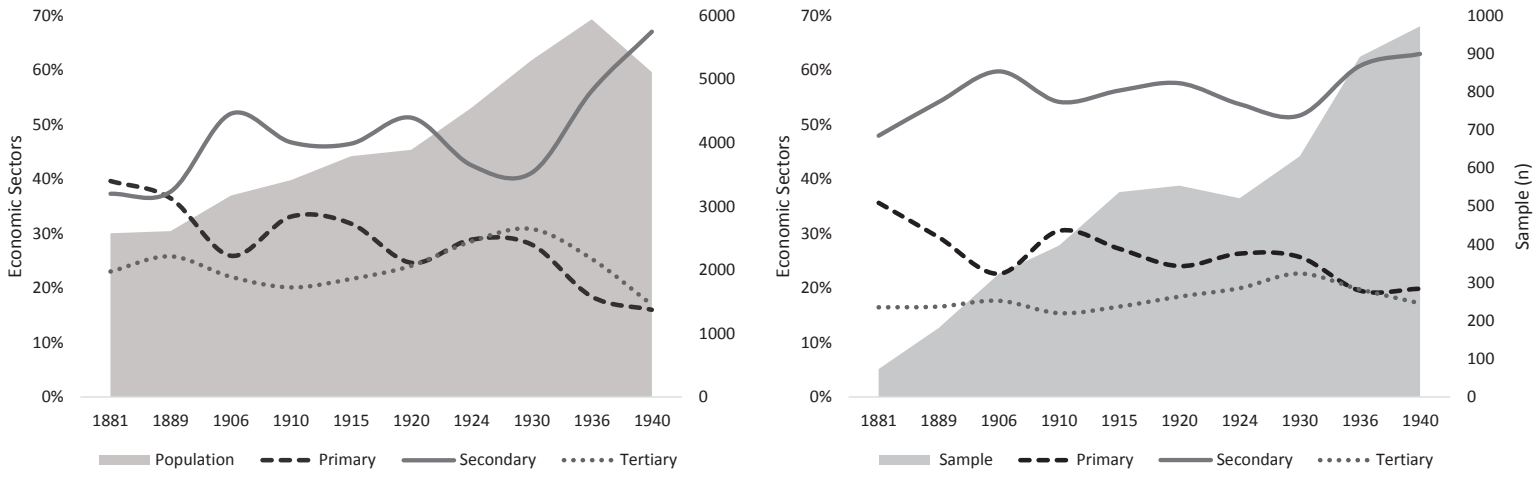
[4] HISCLASS differentiates individuals in consonance with the social group to which they belonged according to dimensions like manual/non-manual division, skill level, degree of supervision and economic sector, which gives 12 different classes, going from unskilled rural workers at the bottom to higher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

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



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 (AUTHOR, 2017; Martínez-Galarraga and Prat, 2016).

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



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.

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

Descriptives				
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			
	Minimum	Maximum	Mean	SD
Period	1881	1940		
Observations per individual	2	12	3.25	2.047
Individual Status-HISCAM	37.18	99	54.18	10.20
Background (Father)-HISCAM	38.59	99	53.24	11.78
Labour experience in years	0	59	12.58	12.16
Birth Order	1	10	2.21	1.37
Sibship size	1	14	3.58	1.69
Categorical Variables	%			
Father's Social Class				
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			

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).

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[5]. 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; AUTHOR, 2018).

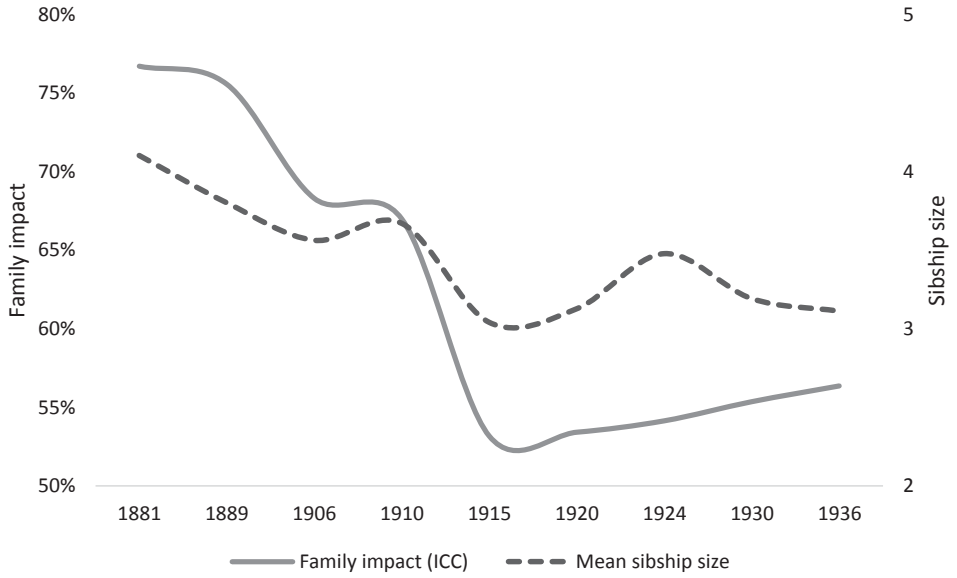
The family impact, measured through the ICC for each year, fell over time in Sant Feliu from 75% to around 55% (See Figure 2). The similarities between siblings in occupational attainment plummeted from the end of the nineteenth century to the first quarter of the twentieth century by more than 20%, 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[6]. 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 (Author, 1999).

[5] 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.

[6] 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).

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



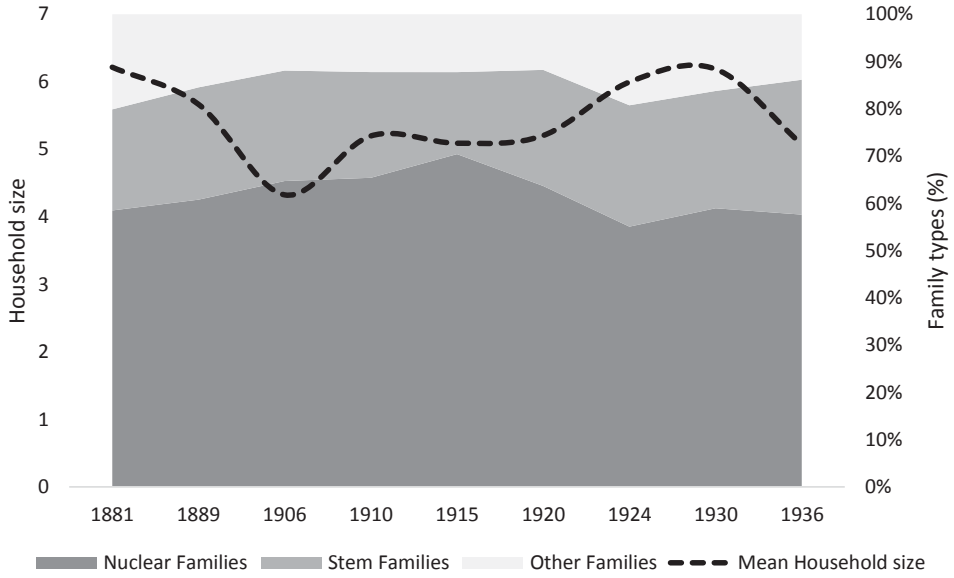
Authors' elaboration (Sant Feliu de Llobregat Longitudinal Demographic Database)

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

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, 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: 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

Individual labor career progressions in Sant Feliu (1881-1940)[7]

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

[7] 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.

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 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 (AUTHOR, 2018; 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 (AUTHOR, 2018; 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).

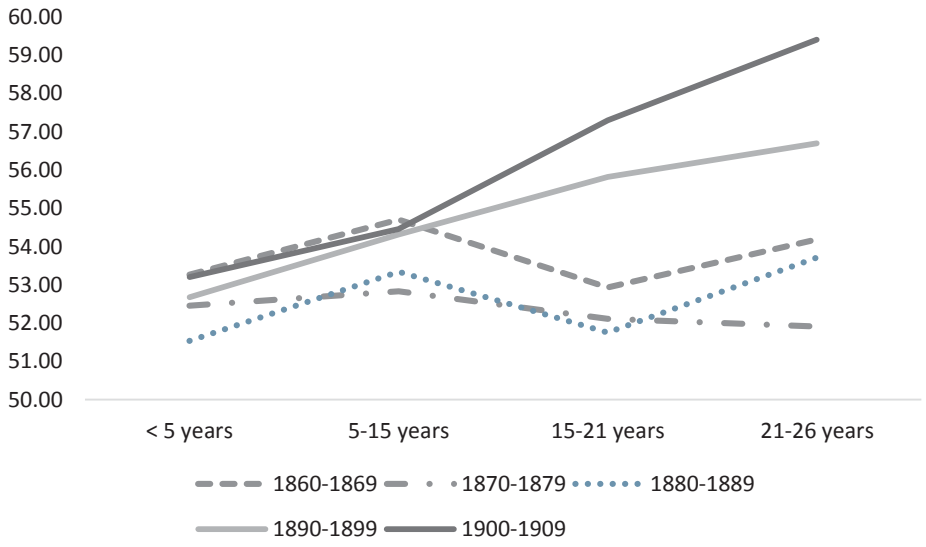
Table 2: Models 1-5 in individual career progression in *Sant Feliu* (1881-1940)

	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	***	2.12	***	2.23	***	1.12	***
3rd born			1.13	*	1.38	***	1.64	***	0.60	***
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

Interactions	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*.

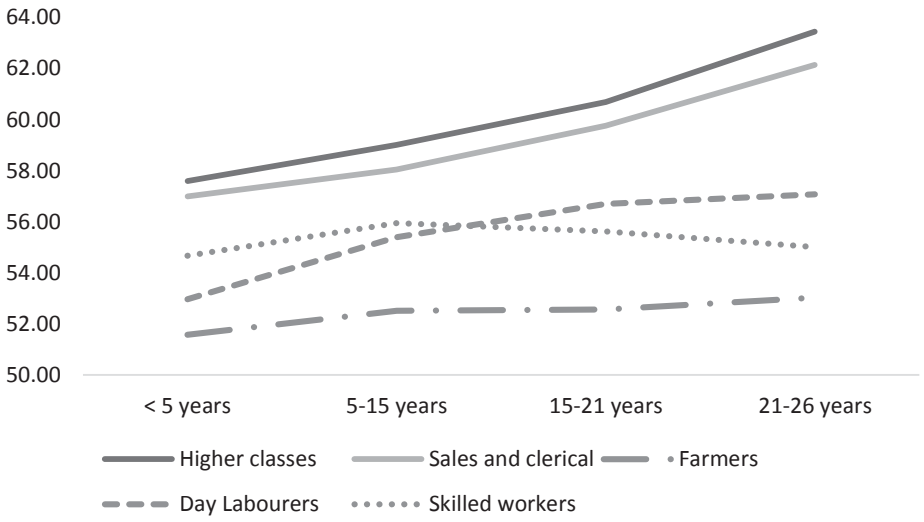


Authors' elaboration based on Model 4 through Stata's package Margins (Sant Feliu de Llobregat Longitudinal Demographic Database)

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.

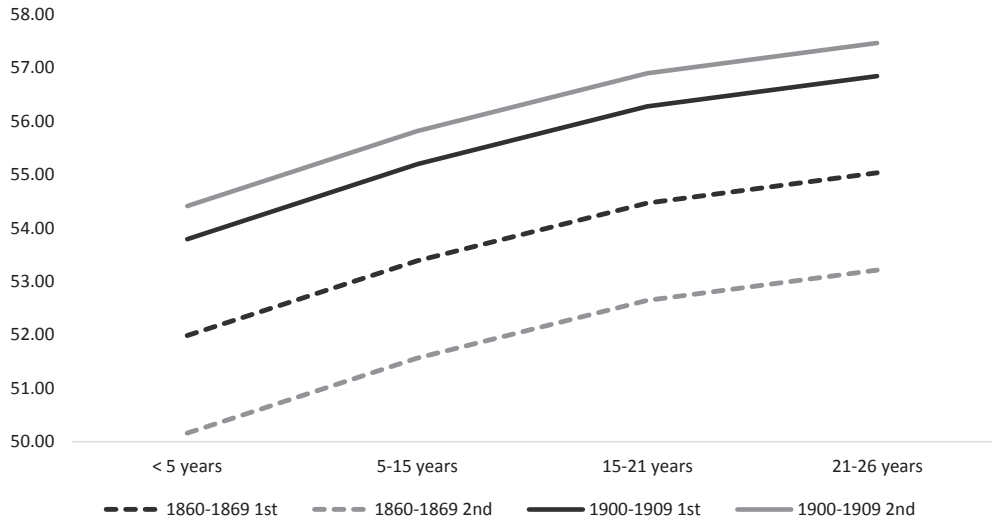
Figure 6: Average predicted status from the interaction between father's social class and labour experience in years in *Sant Feliu*.



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

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 (AUTHOR, 2018; 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)

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



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.

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.

References

Alesina, Alberto, and Giuliano, Paola. (2010). The power of the family. *Journal of Economic Growth*, 15, 93–125.

Aracil, Rafael, Valverde Joaquin, Mas Antoni, Ferrer Llorenç. (1996). La inmigración en la Catalunya rural (1860-1940): estructura demográfica y componentes espaciales. *Los movimientos migratorios en la construcción de las sociedades modernas*, 281-314.

Barone Carlo, Lucchini Mario, Schizzerotto Antonio. (2011). Career mobility in Italy: A growth curves analysis of occupational attainment in the twentieth century. *European Societies*, *13*(3), 377-400.

Becker, Gary (1965) *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: National Bureau of Economic Research.

Bengtson, Vern (2001). Beyond the nuclear family: The increasing importance of multigenerational bonds. *Journal of marriage and family*, *63*(1), 1-16.

Berkner, Lutz and Mendels, Franklin (1978). Inheritance systems, family structure and demographic patterns in Western Europe. In C. Tilly (Ed.), *Historical studies of changing fertility* (pp. 209–223). Princeton: Princeton University Press.

Blau, Peter and Duncan, Ortis (1969). *The American Occupational Structure*. New York: John Wiley and Sons.

Borderías, Cristina and Ferrer, Llorenç. (2016) The stem family and industrialization in Catalonia (1900–1936), The History of the Family, 22:1, 34-56, DOI: 10.1080/1081602X.2016.1242083

Bourdieu, Pierre and Passeron, Jean-Claude (1970). La reproduction: Éléments d'une théoriedu système d'enseignement. Paris: Les Éditions de Minuit.

Bourdieu Jerôme, Ferrie, Joseph, Kesztenbaum, Lionel. (2009). Vive la difference?Intergenerational social mobility in France and the United States during the nineteenth and twentieth centuries. Journal of Interdisciplinary History, 39, 523–557.

Bras, Hilde, Kok, Jan, Mandemakers, Kees. (2010). Sibship size and status attainment across contexts: Evidence from the Netherlands, 1840–1925. *Demographic Research, 23*(4), 73–104.

Brown John, Van Leeuwen Marco, Mitch David (2004) The history of the modern career: An introduction. In: Mitch D, Brown J and Van Leeuwen MHD (eds) Origins of the Modern Career. Aldershot: Ashgate, pp.3–41.

Carbonell i Porro, Joan (1995) Desenvolupament de la indústria textil a Sant Feliu de Llobregat (1861-1923), *El pas de la societat agrària a industrial al Baix Llobregat. Agricultura intensiva i industrialització.* Barcelona: Publicacions de l'Abadia de Montserrat: Centre d'Estudis Comarcals del Baix Llobregat, p. 405-425.

Chandler, Alfred. (1990) Scale and Scope, The Dynamics of Industrial Capitalism (The Belknapp Press of Harvard University Press, Cambridge, Mass).

Christen, Peter. (2012). Data matching Concepts and techniques for record linkage, entity resolution, and duplicate detection. Heidelberg: Springer.

Clark, Gregory and Cummins, Neil. (2015). Intergenerational wealth mobility in England, 1858–2012: Surnames and social mobility. *The Economic Journal*, *125*(582), 61-85.

Coale, Ansley. (2017). *The decline of fertility in Europe*. Princeton University Press.

Congost, Rosa, Ros, Rosa, Saguer, Enric. (2015). Beyond life cycle and inheritance strategies: The rise of a middling social group in an Ancien Régime society (Catalonia, eighteenth Century). *Journal of Social History*, *49*(3), 617-646.

Dribe, Martin, Helgertz, Jonas, Van de Putte, Bart (2015). Did social mobility increase during the industrialization process? A micro-level study of a transforming community in southern Sweden 1828–1968. *Research in Social Stratification and Mobility*, *41*, 25-39.

Erola, Jani, Kilpi-Jakonen, Elina (2017). Compensation and other forms of accumulation in intergenerational social inequality. In J. Erola and E. Kilpi-Jakonen (Eds.), *Social inequality across the generations* (pp. 3–24). Cheltenham: Edward Elgar Publising.

Esping-Andersen, Gosta. (1999). *Social Foundations of Post-Industrial Economies* (Oxford, UK: Oxford University Press.

Fauve-Chamoux, Antoinette. (2009). *The stem family in Eurasian perspective: Revisiting house societies, 17th-20th centuries* (Vol. 11). Peter Lang.

Featherman, David, Jones, Lancaster, Hauser, Robert (1975). Assumptions of social mobility research in the US: the case of occupational status. *Social science research*, *4*(4), 329-360.

Feinstein, Charles H. (1998). Pessimism perpetuated: real wages and the standard of living in Britain during and after the industrial revolution. *The Journal of Economic History*, *58*(3), 625-658.

Ferrer, Llorenç. (2004). Kinship as a mechanism in the social structuring of rural Catalonia (eighteenth and nineteenth centuries). *Journal of Family History, 29*(2), 135–152.

Ferrer, Llorenç. (2005). Indicios de cambio en el sistema de heredero único en Cataluña en el siglo XIX. *Historia contemporánea*, *31*, 481-504.

Ferrer, Llorenç. (2008). Placing sons and daughters in the church: Strategies used by the gentry of Central Catalonia to maintain social status in the 17th and 18th centuries. *The History of the Family, 13*(1), 26–41.

Fertig, Christine. (2017): Stem families in rural northwestern Germany?: Family systems, intergenerational relations and family contracts, The History of the Family, DOI:10.1080/1081602X.2016.1265571

Franck Raphael and Galor, Oded (2015), "Industrialisation and Fertility Decline", Brown University Working Paper, No. 6.

Ganzeboom, Harry B, Luijkx, Ruud, Treiman, Donald. J. (1989). Intergenerahonal class mobility in comparative perspective. *Research in social Stratification and Mobility*, *8*, 3-84.

García Ruipérez, Mariano. (2008) Manual de Hacienda para archiveros municipales. *Tres Fronteras*. Murcia.

Grau, Ramon, and López, Marina. (1974). Empresari i capitalista a la manufactura catalana del segle XVIII. Introducció a l'estudi de les fàbriques d'indianes. *Recerques: història, economia, cultura*, (4), 19-57.

Gruber, Siegfired., and Szołtysek, Mikolaj. (2012). Stem families, joint families, and the European pattern: what kind of a reconsideration do we need?. *Journal of Family History*, *37*(1), 105-125.

Grusky, David. (1983). Industrialization and the status attainment process:The thesis of industrialism reconsidered. American Sociological Review,48, 494–506.

Grusky, David and Hauser, Robert. (1984). Comparative social mobility revis-ited: Models of convergence and divergence in 16 countries. American Sociological Review, 49, 19–38.

Humphries, Jane and Sarasúa, Carmen. (2012). Off the record: Reconstructing women's labor force participation in the European past. *Feminist Economics*, *18*(4), 39-67.

Hobsbawm, Eric. (1964) The labor aristocracy in 19th-century Britain. In: Hobsbawm EJ (ed) Labouring. Men. London: Weidenfeld and Nicolson, pp.272–315.

Jorda, Joan-Pau. (2016). *Aproximacion a las migraciones historicas a traves del estudio de la informacion nominal*. (PhD), Universitat Autonoma de Barcelona, Bellaterra.

Kaelble, Hartmut. (1985) Social Mobility in the 19th and 20th Centuries. Leamington Spa: Berg.

Karlsson, Tobias and Stanfors, Maria. (2011). In the footsteps of fathers: Occupational following among Swedish tobacco workers. *Continuity and Change, 26*(1), 45-68

Kerr, Clark (1973).Industrialism and industrial man: The problems of labour and management in economic growth; with a postscript, Penguin Books, London.

Knigge, Antonie. (2016) Beyond the Parental Generation: The Influence of Grandfathers and Great-grandfathers on Status Attainment. *Demography*, 53(4): 1219-1244.

Knigge, Antonie, Maas, Ineke., Van Leeuwen, Marco, Mandemakers, Kees. (2014). Status attainment of siblings during modernization. *American Sociological Review, 79*(3), 549–574.

Kurz, Karin and Müller, Walter. (1987). Class mobility in the industrial world. AnnualReview of Sociology, 13, 317–442.

Lambert, Paul, Zijdeman, Richard, Van Leeuwen, Marco, Maas, Ineke, Prandy, Kenneth (2013). The Construction of HISCAM: A Stratification Scale Based on Social Interactions for Historical Comparative Research. *Historical Methods: A Journal of Quantitative and Interdisciplinary History, 46*(2), 77–89.

Lipset, Seymour and Zetterberg, Hans (1956). A theory of social mobility. In *Social Mobility in Industrial Society*, edited by S. M. Lipset and R. Bendix. Berkeley: University of California Press.

Lundh, Christer and Kurosu, Satomi. (2014). *Similarity in difference: Marriage in Europe and Asia, 1700-1900*. MIT Press.

Maas, Ineke and Van Leeuwen, Marco. (2004). Occupational carrers of the total male labor force during industrialization: the example of nineteenth-century Sweden. In D. Mitch, J. Brown and M. H. D. Van Leeuwen (Eds.), *Origins of the modern career* :227-258. Aldershot: Ashgate.

Maas, Ineke and Van Leeuwen, Marco. (2016). Toward open societies? Trends in male intergenerational class mobility in European countries during industrialization. *American Journal of Sociology*, *122*(3), 838-885.

Maas, Ineke and Van Leeuwen, Marco, Pélissier, Jean-Pierre, Rébaudo, Danièle. (2011). Economic development and parental status homogamy: a study of 19th century France. *The history of the family, 16*(4), 371-386

Manfredini, Matteo and Breschi, Marco (2008). Socioeconomic structure and differential fertility by wealth in a mid-nineteenth century Tuscan community. In *Annales de démographie historique* (No. 1, pp. 15-33). Belin.

Manzoni, Anna, Härkönen, Juho, Mayer, Karl Ulrich. (2014). Moving on? A growth-curve analysis of occupational attainment and career progression patterns in West Germany. *Social Forces*, *92*(4), 1285-1312.

Mas, Joan, Fornés, Alicia, Lladós, Josep. (2016) An Interactive Transcription System of Census Records using Word-Spotting based Information Transfer. In *Document Analysis Systems (DAS), 2016 12th IAPR Workshop on*. IEEE, 2016, 54-59.

Martínez-Galarraga, Jon and Prat, Marc. (2016). Wages, prices, and technology in early C atalan industrialization. *The Economic History Review*, *69*(2), 548-574.

Mendels, Franklin (1976). Social mobility and phases of industrialization. *The Journal of Interdisciplinary History*, *7*(2), 193-216.

Moch, Leslie. (1992) Moving Europeans. Migration in western Europe since 1650. Indiana University Press, Bloomington

Nadal, Jordi. (1992).*Moler, tejer y fundir: estudios de historia industrial*. Barcelona, Ariel.

Piketty, Thomas. (2014). *Capital in the 21st Century*. Harvard University Press,

Reher, Davis Sven. (2004.), Family Ties inWestern Europe. U: G. D. Zuanna and G. A.Micheli (ur.), *Strong Family and Low Fertility: A Paradox*? (str. 45-76), New York, Kluwer Academic Publishers.

Ryczkowska, Grazyna. (2003). Access au mariage et structures de l'alliance á Genève, 1800–1880 (Unpublished thesis). University of Geneva.

Ruggles, Steven. (2010). Stem families and joint families in comparative historical perspective. *Population and Development Review*, *36*(3), 563-577.

Schulz, Wiebke and Maas, Ineke. (2010). Studying historical occupational careers with multilevel growth models. *Demographic Research*, *23*, 669-696.

Schulz, Wiebke, Maas, Ineke, Van Leeuwen, Marco. (2015). Occupational career attainment during modernization. A study of Dutch men in 841 municipalities between 1865 and 1928. *Acta Sociologica*, *58*(1), 5-24.

Simkus, Albert. (1984). Structural transformation and social mobility: Hungary 1938-1973. *American Sociological Review*, 291-307.

Sneijders, Tom and Bosker, Roel. (1999). *Multilevel analysis: An introduction to basic and applied multilevel analysis.* London: Sage Publications.

Thernstrom, Stephan. (1968). Notes on the historical study of social mobility.Comparative Studies in Society and History, 10, 162–172.

To, L. (1993). Le mas catalan du XIIe s.: Genese et evolution d'une structure d'encadrement et d'asservissement de la paysannerie [The Catalan 'Mas' of the twelfth century: Genesis and evolution of a structure of supervision and enslavement of the peasantry]. *Cahiers de civilisation medievale, 36*(142), 151–177

Treiman, Donald. J. (1970). Industrialization and social stratification. *Sociological Inquiry, 40*(2), 207–234.

Tribo, Gemma. (1989). *Evolució de l'estructura agrària del Baix Llobregat (1860-1931).* Universitat de Barcelona, Barcelona.

Van Bavel, Jan, Moreels, Sarah, Van de Putte, Bart, Matthijs, Koen. (2011). Family size and intergenerational social mobility during the fertility transition: Evidence of resource dilution from the city of Antwerp in nineteenth century Belgium. *Demographic Research, 24*(14), 313–344.

Van Leeuwen, Marco and Maas, Ineke. (2011). *HISCLASS: A historical international social class scheme*: Universitaire Pers Leuven.

Van Leeuwen, Marco, Maas, Ineke, Miles, Andrew. (2002). *HISCO: Historical international standard classification of occupations*. Leuven: Leuven University Press.

Weir, David (1993). Parental consumption decisions and child health during the early French fertility decline, 1790–1914. *The Journal of Economic History*, *53*(2), 259-274.

Zijdeman, Richard. (2009). Like my father before me: Intergenerational occupational status transfer during industrialization (Zeeland, 1811–1915). *Continuity and Change, 24*(3), 455–486.

5. Conclusions and Discussion

5.1 Conclusions

This thesis has approached the main mechanisms of social reproduction and its contextual determinants through the estimation of economic inequality in a long-term view in the Barcelona area. Thus, contributions at both *macro level* and *micro level* at both preindustrial and industrial societies should be highlighted:

1) The inequality indexes computed through the fiscal data contained in the Marriage Licence Books offers a good thermometer for assessing the historical socioeconomic cycles in the Barcelona area between the late fifteenth century and the end of the nineteenth century. In this way, the long-term overall inequality trends have shown that preindustrial societies were more unequal than early-industrial ones.

2) The inequality decomposition methods applied to social and occupational groups in the Barcelona area revealed different factors driving disparity among preindustrial and industrial periods. Accordingly, while inequality in preindustrial societies was featured mainly by the existence of a marked unequal social structure, for industrial societies disparity was driven by rising inequality within economic and occupational sectors, chiefly the secondary sector devoted to the industrial factory-system. However, some similarities also existed among preindustrial and industrial periods in terms of unequal socioeconomic patterns, mainly by changes in the occupational structure and degrees of urbanisation driving inequality up. Accordingly, inequality tended to rise when activities involved in the secondary sector increased in the Barcelona area. This was the case for protoindusrialisation in the second half of the seventeenth century and the industrial factory system in the nineteenth century.

3) The family influence in the status attainment of individuals was important in preindustrial societies due to the high rates of intergenerational transmission during the sixteenth and seventeenth centuries in the Barcelona area. However, this transmission functioned with different mechanisms depending on social class as well as defined strategies caused by contextual constraints in the macro level. These contextual constraints comprised mainly the historical period, the legal system as the universal inheritance practices followed in Catalonia and difficulties in land access. However, families used strategies among siblings to compensate the legal differences in terms of

inheritance between heirs and non-heirs or by gender, rather than fostering inequality within a sibling competition model.

4) The family influence on the first occupational status attainment during the industrialisation decreased over time, albeit not vanishing. This process was accompanied by the decline in fertility, which favoured better familial investments on children following a resource dilution framework. However, all these facts occurred in a society that did not lose the strong presence of stem families, granting evidences against the classical concept of familial nuclearisation within the modernisation theory. Younger cohorts, mainly born around the turn of the twentieth century benefited more from career progression than older ones born since the second half of the nineteenth century. The reasons behind it were the industrial consolidation and more opportunities for human capital investments, which made possible relative social mobility across the lifetime. Moreover, concerning the single-heir inheritance system, second-born child in the youngest cohorts faced more upward mobility, while in the oldest cohorts this was exclusive to firstborn siblings. However, despite all these advancements, the social class barriers were not broken; individuals from upper class families started their careers in advantaged positions, while children from families with lower social status were in disadvantaged positions, which was fact occurring in a chronologically transversal way.

Long-term overall inequality trends in the Barcelona area

Inequality has been proven as a good and straightforward thermometer of the socioeconomic cycles in the Barcelona area. Estimating inequality using the fiscal data present in the Marriage Licence Books together with a more detailed social and occupational classification (HISCAM) has made possible identifying tax progressivity over a long period when this is rarely achievable. In this regard, establishing a long-term yearly analysis has made crucial to bring up the human capital dimension through the ability-to-pay principle as an alternative way to compare preindustrial and early-industrial societies given the tax features in the source are based on unities of accountancy and a proportional socioeconomic fiscal data.

An overall view of the phases of the Catalan economy matched with the estimated general trends in socioeconomic inequality, except when the inequality levels dropped or were interrupted by the effects of the Peninsula War (1808-1814). In this sense, four main

periods coincided with the established patterns of economic development in Catalonia over four centuries:

The first period covered from the late fifteenth century until the first half of the seventeenth century was a time of economic stagnation after the Catalan Civil War (1462-1472) and the Rebellion of the *Remences* (*Guerra dels Remences*) featuring the decreasing importance of Barcelona and the progressive decline of the Catalan international trade in the fifteenth century. All this period was characterised by important downturn signals for the Catalan economy, when the inequality trend computed with Gini indexes first plummeted, then leveled-off and finally decreased progressively until the end of the 1650's.

The declining levels of inequality in this period might have been influenced by mortality crises, as those closely related with outbreaks of the plague. For instance, decreasing levels of inequality coincided with plague reported in 1501, 1507, 1515, 1520, 1528, 1530, 1558, 1564, 1589 and 1614 (Betrán, 1996). Furthermore, the sharp drop in inequality concluding the period was concomitant with the worst episode of the plague (1647-1652), which had taken approximately 40% of Barcelona's population (Nadal and Giralt, 1960). This relationship between mortality crisis affecting preindustrial societies and declining levels of inequality have been argued also in other countries as Italy (Alfani, 2010).

The second period lasts from the second half of the eighteenth century until the mid-eighteenth century, when throughout this period disparity levels increased importantly. This worsening inequality coincided with transformations of the rural economy in Catalonia during the last decades of the seventeenth century through the establishment of new sharecropping contracts (*Rabassa Morta*) and the increase in the exports of wine products. The ascendant trend in inequality reached its peak around the 1740s, when the revival of the Catalan economy after the eighteenth century took it to unprecedented heights owing to its expanding trade. These trends in inequality occurs within an early proto-industrialization taking place in many rural areas, together with a considerable demographic growth and the introduction of the first calico-printing establishments in Barcelona.

Nevertheless, the general impression that inequality would always augment in periods of economic increase presents an important exception in the case of the Barcelona area. The

third period, taking place from the second half of the eighteenth century until the Peninsula war outbreak in the beginning of the nineteenth century showed a general trend of inequality decline. Paradoxically, these years were argued in the historiography to be of economic expansion. This peculiarity also coincides with other cases described for other countries in Europe, where the relationship between economic growth and increasing inequality is not always visible. For instance, in Portugal between the sixteenth and eighteenth centuries (Reis 2016), or in preindustrial Florence, where inequality increased in times of economic stagnation (Alfani and Ammanati, 2017).

Finally, the fourth and last cycle in the overall inequality in the Barcelona area coincides with the traditional industrial take-off in Catalonia from the first half of the nineteenth century until 1880. During this period the inequality trend rocketed, almost doubling in only fifty years, fostered by the important levels of tax exemptions (*Amore Dei*) among day labourers and workers involved with industrialisation, which recalls an effect of proletarianization.

At the first glance, the patterns of general economic inequality in the Barcelona area would have been higher after the traditional calendar of industrialisation take-off in Catalonia, which could seem the initial part of an inverted 'U' shaped relation of inequality with industrialisation as classically argued by Kuznets. However, the estimations done using different scenarios regarding the tax exemptions (*Amore Dei*) have helped in nuancing these first impressions, which points to a unique interpretation. Inequality was indeed higher on preindustrial societies, mainly during the second half of the seventeenth century and the first half of the eighteenth century than in the 'strictly' industrial period. The reason for this would seem to be the preindustrial ordered social structure contributing to a more unequal society than the industrial one based on skilled and unskilled occupations. However, industrialisation brought about a new situation, where likely processes of proletarianization induced a new kind of inequality.

Factors driving inequality in preindustrial and industrial societies

The overall disparity among individuals in the Barcelona area informed well about trends in the long run and gave also some insights of long-term differences. However, the only use of this perspective failed in assessing the likely factors that drove inequality in both preindustrial and industrial periods. Therefore, inequality decomposition methods and the

reconstruction of the social and occupational structure were also applied to shed light on the different conditioners featuring inequality at each period. In this sense, the socioeconomic inequality in preindustrial societies was shaped by an important disparity caused by the rigid social structure rather than internal differences within social groups. The most important driver during preindustrial periods was the inequality between social groups, where nobles represented concentration in the top of the fiscal distribution, while farmers and small artisans were in the lower tails.

Conversely, the years under industrialisation had features on inequality, due to the transformation in the occupational structure playing a major role. The levels of inequality from the beginning of the nineteenth century increased in a pace that accompanied the transformation of the occupational structure. This process was characterised by the decrease of the primary sector and the consolidation of the secondary sector (textile) predominance. The textile activities became the main employer sector in the Barcelona area with a growth characterised by the turn from the balance between garment tailoring and manufacturing of textile fabrics to the almost exclusive presence of the latter in the second half of the nineteenth century. The breakdown of this equilibrium represents the expansion of a local economy to another supplying trade in Spain and in the American colonies. Consequently, individuals working within the factory-system were those with higher levels of tax exemptions (*Amore Dei*) only compared with day labourers, which demonstrates that industrial low-skilled occupations largely meant the workers' impoverishment.

The differences observed with the economic inequality that came with industrialisation, when the effects of tax-exemption and low-skilled and unskilled industrial workers were taken into account showed that the deskilling occupational industrial structure and the emergence of a new working-class would have given rise to a new kind of mounting inequality, probably by the *proletarianization* effect. In this sense, differently than during preindustrial periods, the trends in economic disparity estimated across the industrialisation process in the Barcelona area responded to an increasing inequality within sectors and occupational groups than between them.

Altogether, the abovementioned elements display how socioeconomic inequality is sensitive to the different contextual constraints at each period. However, trends in inequality also presented similar determinants that were constant in the long-term. In fact, the overall trends observed in the Barcelona area throughout the entire studied period

match with international historiography on the subject, for instance with higher levels of inequality in urban areas while rural zones tended to be less unequal (Alfani, 2010; García-Montero, 2015). Moreover, transitional economic cycles observed through the change in the share of economic sectors within the occupational structure tended to escalate inequality. In the Barcelona area, this was true during the nineteenth century by the secondary sector growth within the factory-system expansion. However, it has also been the case in the peak of inequality during the second half of the seventeenth century and the first half of the eighteenth century, when the increase in lands price and an early proto-industrialization took place in many rural areas increased shares in the secondary sector (Torras, 1998; Marfany, 2012).

Finally, in the case of declining levels of inequality during periods of economic growth in the Barcelona area, in the absence of evidence of this mismatch, the only possible response seems to be the combination of two constraints. In preindustrial societies, taking into account the peculiarity of Catalonia regarding the universal (impartible) inheritance system, together with the rural occupational structure, non-inheriting individuals could have been contributing to rising inequality due to their lack of resources. Conversely, during the industrialisation process, a possible reason for the decline in socioeconomic inequality in a period well-known for economic growth could have been a more dynamic occupational structure, and also those non-inheritors who were able to find new and different occupations (presumably in the secondary or tertiary sectors), thus allowing better balance in economic dispersion.

Family and the intergenerational status attainment in preindustrial periods

The information provided on occupations and social positions of fathers and children in the Marriage Licence Books (Barcelona Historical Marriage Database), from the sixteenth and seventeenth centuries, made it possible to analyse intergenerational social status attainment with two different dimensions. On the one hand, information about the spouses' parents permitted evaluating intergenerationally social reproduction in a sample of 76,567 marriages, something rarely accessible in sources from the sixteenth and seventeenth centuries. On the other hand, the use of nominative record linkage and genealogical (family) reconstruction allowed associating siblings, which adds a new

dimension of study in the preindustrial Catalan history in order to evaluate the likely constraints caused by the universal inheritance system.

The general analysis of intergenerational status attainment in the preindustrial Barcelona area demonstrates that the levels of intergenerational status transmission were remarkably high. This responds to the important influence exercised by families on the individuals' lives as expected due to the rigid ordered social structure in the Ancient Regime. However, this influence tended to be different according to the family social class and by gender. In this way, it can be argued that important levels of endogamy existed within social groups, as the nobility and the elite, artisans or farmers. The total transmission of status between fathers and sons was about 66%, while between fathers and daughters (son-in-law) was barely 53%. These different levels of transmission show a greater degree of social status inheritance among sons, which is typical of patrilineal pre-industrial societies, while females would be included in strategies of heterogamous marrying up (hipergamous marriages).

Through the genealogical reconstructions, it was possible to disentangle the different mechanisms used by families in consonance with the legal system (inheritance) as macro level constraint. In this way, first-married children were the main inheritors of parental status in all social groups, an evidence that marriage order coincided with birth order and that the practice of the universal inheritance system was widespread. In turn, non-first married siblings were those with greater likelihood of having a different occupation than their fathers. Moreover, sibling relations were assessed comparatively between the two most representative social groups in terms of population in the Barcelona area – artisans and farmers – which status transmission implied different aspects.

Farmers used to transmit their same occupation to children with a similar extent to the trends of the elite, a group well known by its high social homogamy. However, artisans although passing on their same social class (condition of artisan) did not necessarily transmit their same occupation. The reason for this divergence is found on the inherent characteristics of the guild system, which usually presented entrance restrictions to occupations. For instance, an artisan father could be able to transmit his occupation to one child but perhaps not others, inducing the need for helping their offspring finding another occupation. Thus, the tendency for artisans would be establishing heterogeneous social relations within a closer social network of artisans from different kind of activities, which could enlarge their network and provide new economic opportunities. However,

some non-first married farmers' children were able to follow artisan careers. The explanation for these differences is found on the macro level. In the period under study, Catalonia showed processes of textile expansion across the territory on incipient proto-industrial activities, while there was low availability and high prices of cropland, which could have prompted families to encourage some of their children (usually the non-first-married) to move into artisan activities.

In this context, families from both social groups would have practiced different mechanisms within their offspring. Farmers' families would usually consider important having had access to land, either by property or leasehold. However, among these farmers (mainly non-inheritors) without land access, joining the waged rural labour market which could sometimes be used as a way of complementing the earnings from their own land. Additionally, for both farmers' and artisans' families sending their non inheritors to an apprenticeship in an artisan career, usually starting at an early age, would be seen as another long-term compensatory and strategic mechanism favouring children's positioning.

Thus, it can be argued that the universal inheritance system, although being structurally unequal did not create remarkable inequalities between siblings for families of artisans and farmer in the Barcelona area. One of the reasons for that would be the absence in the results of any effect regarding constraints as the sibship size inducing resource dilution. Families adopted strategies mitigating the likely effects on non-heir children deriving from an impartible inheritance system by means of providing alternative channels for children so that they could manage their own destinies. Hence, in the Barcelona area, the existence of the universal inheritance system during the sixteenth and seventeenth centuries did not represent a model of sibling competition over family resources. Conversely, such inheritance system constraint could have been seen as an opportunity for family economic diversification.

Family and status attainment across the life course during the industrialisation

The use of a longitudinal approach as the one granted by the *Sant Feliu de Llobregat Database* gave to this thesis the opportunity of linking the two most important mechanisms of social reproduction within families, namely the intergenerational and intragenerational status attainment. In this sense, it was possible to evaluate the family

influence over individuals on their occupational debut across their labour trajectories during most part of the industrialisation process (1881-1940).

It can be argued that family influence on the first occupational attainment decreased during the industrialisation process in Catalonia with a change from status adscription to status achievement as argued in the modernisation theory, albeit it did not vanish totally. Furthermore, the analysis provides insights pointing out that the loss of familial influence in social and occupational terms was concomitant with the fertility decline, which would entail an interdependent relationship between industrialisation and families with less children, as has been argued in studies on resource dilution hypothesis. Accordingly, the new occupational structure emerged within industrialisation would offer best options as higher the investments in human capital, thus larger family sizes became an obstacle to this.

Nevertheless, these changes in family influence and fertility decline occurred in Sant Feliu without decreasing the strong presence of the traditional Catalan stem families. The likely reasons for this are unlike what has been traditionally argued about the importance of nuclear families in the industrialisation process (Featherman et al., 1975), other familial typologies were not a barrier to modernisation (Boderías and Ferrer, 2016; Alesina et al, 2010). Moreover, the lack of family types other than nuclear ones in places with important industrialisation as in North-western European societies during the nineteenth century has been argued to be inaccurate, which would automatically point out that the predominance of nuclear families is not a crucial feature on modernisation (Ruggles, 2010; Reher, 2004).

When moving towards the analysis of labour trajectories in Sant Feliu in the period 1881-1940, it has been seen that time was determinant for the occupational career progression. In this regard, occupational status augmented as increased the number of years in the labour, granting elements to confirm that social status grows with labour experience. Additionally, different generation had divergent levels of career progression, which is explained by the contextual factors of the different industrial phases. The youngest birth 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 seems to be a result of the significant share of day labourers and unskilled secondary workers during these years, as well as by the likely proletarianization effect. These aspects would recall the idea of

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 statuses to their parents along their occupational careers.

The abovementioned 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, for individuals born within the turn of century, the process of change in fertility would have been advanced and families would have allocated their tangible or intangible assets among fewer children. Additionally, this would mean the existence of fewer competitors in the labour market, while among siblings the universal inheritance system based on impartibility and primogeniture was showing signs of decrease over time. Moreover, second-born child in the youngest studied cohorts (1900-09) performed better than firstborn siblings, which represents a clear shift in comparison to the oldest cohorts (1860-69). This shift grants evidences of an important decline in the effects of the single-heir inheritance system.

Nevertheless, these advancements over time by cohorts did not break the inequalities in the social stratification through differences between the social class background (family). Thus, individuals always started their careers in advantaged or disadvantaged positions, a fact that occurred in a chronologically transversal way.

General assessment of sources and applied methodology

This section deals with the most important limitations regarding this thesis, the used sources and methodology. In first place, it has to be highlighted that although the thesis framework referred to the relationship between the micro and micro level, the analyses were conducted separately. Therefore, the findings at the macro level in terms of socioeconomic inequality may serve as insights of how the context could influence families in social reproduction; however, causation obviously cannot be claimed.

The two different sources used in this thesis, namely the Marriage Licence Books and the Local Censuses, have undoubtedly contributed to the long-term study of social reproduction and socioeconomic inequality in the Barcelona area, either by its important amount of individual-level data and variety of information available at each one of the databases. However, as it might be expected whenever using historical primary sources,

the information registered within was not thought for an analysis in historical social sciences, an aspect that gave rise to some limitations affecting this dissertation. In the following lines, limitations in the sources as well as in the different methodology applied shall be presented.

The Marriage Licence Books (Barcelona Historical Marriage Database)

The main used source for this thesis has been the Marriage Licence Books (Barcelona Historical Marriage Database), present in three out of the four included publications. The entire process of digitisation and database construction conducted within the project 'Five Centuries of Marriages' (5CofM) provided a unique tool for research. In this sense, this process resulted in the scientific product of a turning point towards interdisciplinarity within digital humanities, being nowadays one of the most important historical and demographic databases in Europe. Moreover, it has also led to one of the major contributions in the Catalan and Spanish historical demography over recent years, mainly by its geographic, demographic and socioeconomic coverage in a continuous and similar structure in the long run. Nevertheless, despite the richness of information in this source, there are also important constraints that shall be highlighted.

In first place, the main weaknesses in terms of historical demography are found in the lack of ages, a common aspect due to its original fiscal aim. This feature has not been an impeding element within this thesis, but having access to ages would have given more dimensions of analysis. The second element deriving by the original purpose of the source regards including only population that could marry, although there are evidences of a constant and high nuptiality historically in the Barcelona area, which also implies the most important characteristics regarding social reproduction.

Additionally, another important limitation is the lack of feminine occupations, an unfortunately common issue in most part of historical sources, which represents the typical deliberate behaviour of making women invisible within patriarchal societies (Humphries and Sarasúa, 2012). In this way, in the analyses restricted information about important agents in historical labour markets as women, child or elder in the occupational structures reconstructed in two of the publications. Moreover, the omission of female occupational records has implied the use of an assumptive approach as the husband's occupation for assessing intergenerational status attainment between fathers and daughters, which loses important insights about the woman's role in social reproduction.

Finally, another important aspect regards the inherent characteristics of the tax information in the Marriage License Books on the way in which inequality was measured. The marriage taxation depended mainly on the socio-occupational position or status of grooms due to the inexistent feminine occupational records or the information from parents just in some periods. However, this fiscal information about grooms did not represent direct information about wealth or income. For this reason, disparity trends refer more to a socioeconomic approach to inequality rather than dealing with economic inequality itself.

Additionally, the taxes registered in the Marriage Licence Books were based on unities of accountancy and were kept mostly constant throughout the studied period, only changing (doubling) around 1649 as response to an important inflationary trend caused by the price of silver in Spain (Hamilton, 1934; Feliu, 1992). In this sense, it is important to remark that the used unities of accountancy (*lliures, sous* and *diners*) seemed to be used by church officials in many periods simply as a marker, so it would be reasonable to guess that their values changed over four centuries and depending on the currencies used to its payment at each period. In this sense, statements must be cautious about assuming a total relationship between income and church taxes, but this does not prevent observation of the evolving trends of economic inequality between individuals and pinpointing the pattern of inequality as well as the main economic and demographic circumstances during the period being studied.

Finally, another issue may involve the meaning of the tax exemption (*Amore Dei*) over time. The *Amore Dei* tax exemptions were granted by church officials to individuals considered to be in impoverished states, although tax exempted grooms always declared an occupation. In this sense, the important growth of *Amore Dei* in the nineteenth century during a period of economic increase could bring doubts about its economic validity and points out other reasons behind it as changes in the eligibility criteria of exempted individuals. However, as previously explained unities of accountancy did not mean same monetary levels in currencies, which may define that the taxes increased importantly over time. Therefore, the process of proletarianization seems to be the most plausible reason for the *Amore Dei* increase during the nineteenth century.

Local censuses (Padrones) (Sant Feliu de Llobregat Longitudinal Demographic Database)

The use of Local censuses (*Padrones*) have a large tradition in the Spanish historiography. However, the enhancement of the nowadays historical research in the so called Big Data Revolution have undoubtedly permitted widening the analysis within this particular source. In this sense, thanks to the conjunction of Historical Demography and Computer Sciences, this thesis has benefited from an innovative longitudinal demographic data approach that is amongst the few in kind in Spain. Moreover, it also allowed assessing in a crucial period as industrialisation an intragenerational social mobility analysis.

Nonetheless, in spite of the great analytical potentiality provided by linked local censuses in the *Sant Feliu de Llobregat Longitudinal Demographic Database*, the source also presented limitations. For instance, likewise in the Marriage Licence Books, local censuses also largely omitted women's occupations, usually recording instead the sexist term "*sus labores*" (her own tasks). The only exception in this fashion took place during the 1936 local census.

Applied methodology

All the methodology applied in this thesis handled the only social status marker available in both used sources, namely occupations and social positions. This constraint implied the use of occupational and social classifications in order to simplify and convert single titles on comparable and meaningful social status. Hence, first of all, classifications like the 'Historical International Classification of Occupations' (HISCO) (Van Leeuwen et al., 2002), the 'Historical Cambridge Social Interaction and Stratification scales' (HISCAM) (Lambert et al., 2013) or the 'Historical International Social Class Scheme' (HISCLASS) (Van Leeuwen and Maas, 2011) were the used tool for the scope of this dissertation.

However, these classifications have been originally designed for periods as the late eighteenth century, the nineteenth century and the early twentieth century, which of course implies an important assumption of constant social statuses by occupations across time, mainly for the sixteenth and seventeenth centuries. In this way, the dissertation uses an historical adaption to HISCO based on Catalan historical occupations, which was done partly with data from the Barcelona Historical Marriage Database (Pujadas-Mora et al., 2014). Likewise, another limitation from HISCLASS and HISCAM regards treating all

the same occupations as having the same status. It would be far-fetched to think that all the individuals sharing the same occupational title would be at the same socioeconomic level in any historical period, as it has been observed in the variation among paid taxes within occupations.

The main methodological tool for estimating the overall trends of inequality in this dissertation were Gini indexes. It has been used because is the most popular inequality index in the entire world. In this sense, Gini indexes have a remarkable capacity of comparability between distributions of income, wealth or socioeconomic scores from any kind of population regardless of size. Moreover, 'Ginis' are easily understandable by experts and the not-so-expert public. However, this specific index also has several limitations, including non-differentiation of several kinds of inequalities, with the result that different patterns of distribution, from the top or the bottom distribution, can give similar Gini coefficients. Additionally, this kind of index is hardly decomposable and usually fail in reflecting changes in the tails of a given distribution, as for instance in the highest or lowest two deciles, which means that Gini is more sensitive to middle transfers in the distribution (Cowell, 2011). For these reasons, the potential limitations from Gini were controlled also by measuring other comparable indexes, namely Kakwani, Piesch and Mehran. Moreover, decomposable Theil Indexes were also used in the analysis although its interpretation is not simple or intuitive as with Gini coefficients.

Finally, the applied methodology used to find determinants of causality within the different mechanisms of social reproduction were multilevel models. In this way, intergenerational social status attainment was modelled through linear and logistic models while for assessing intragenerational occupational trajectories this study used multilevel modelling for repeated measures, the so-called growth models. This particular methodological choice has allowed handling the within similarities among families, which hampers the statistical independence of the analysed individuals. However, methodologically it failed with a common aspect among historical sources and that represents a major issue to any multivariate analysis, the availability of few explanatory variables creating some risks of endogeneity.

Future research agenda

The different findings on social reproduction determinants and socioeconomic inequality trends showed interesting insights about the preindustrial and industrial societies, despite the previously listed limitations. However, the findings within this thesis have given rise to several other questions and research challenges for the future. Therefore, future research should address the following arguments:

The next steps will include the use of models where contextual factors may be included as explanatory variables in multilevel models. Among these contextual variables, following studies would add extensive data of macroeconomics and social changes, for instance those regarding modernisation during industrialisation through indicators of educational progress, urban and technological expansion. In this way, for instance georeferenced information controlled by time at the macro level may inform of the individuals' exposition to elements of modernisation, as the availability in access to transport channels (better roads, railway lines), to institutions of secondary or tertiary education, agricultural productivity or industrial technology (Knigge et al., 2014).

Additionally, the period indicators of economic inequality (either overall or decomposed) should also be included as explanatory variables as well as other time and period effects. In this way, causality would be much better assessed in a long-term comparative basis, because in multilevel modelling the use of time constant context-level explanatory variables would reduce embedded context-level error variance through simply extending models to a third level instead of two as currently done (Windzio, 2006). Moreover, given the genealogical reconstruction within the Barcelona Historical Marriages Database reaches up to 5-6 generations, the intergenerational approach to social mobility will be expanded to a multigenerational focus on the influence deriving from other kin as grandparents, great grandparents or uncles (Knigge, 2016; Mare and Song, 2014).

A further research step will be including fiscal data on the *Sant Feliu de Llobregat Longitudinal Demographic Database* that was used for estimating occupational trajectories. Apart from the local censuses (*Padrones*), Sant Feliu also counts with rich fiscal data at the individual level that were conducted periodically in the nineteenth and twentieth century with a concomitant calendar to local censuses. Among these sources there are the 'Territorial contributions' (*Contribuciones territoriales*) informing about individual income data from real estate, croplands and livestock in rural areas. For urban

zones *Sant Feliu* counts with the 'Industrial contributions' (*Contribuciones territoriales*) with individual income on urban properties and productive capital goods. These two sources also registered individual nominative data as names, surnames, occupation and addresses from a representative part of the population (Vallejo Pousada, 2010). Finally, the third fiscal source for the same period in Sant Feliu for estimating levels of economic concentration are the lists of Identity cards (*Cédulas personales*) existing since 1874. This source consisted on an indirect tax applied to all inhabitant older tan fourteen years old according to a personal income level data criteria spread among up to eleven different ordered economic categories (García Ruipérez, 2008).

Thus, through record linkage methods on the nominative data it would be possible assembling a wider database based on various socioeconomic and income information, which would allow a longitudinal approach to the estimation of economic inequality in historical periods (nineteenth and twentieth centuries). Additionally, this approach would add a demographic dimension into the economic inequality study informing for instance if the individual contribution to inequality may vary with age or as a consequence capital accumulation over time (O'Rand and Henretta, 1999). In this sense, apart from inequality indexes and multilevel modelling, this study could use other methodologies as APC (*Age, Period and Cohort*) models for establishing each dimensions were more relevant for inequality, if the period in the macro level, age in the micro level or cohort as interaction in macro-micro (Yang and Land, 2006).

Last but not least, (and perhaps most importantly), the author has the commitment to integrate into analysis the role played by women in social reproduction as well as to evaluate their likely positions of advantage or disadvantage on society. For doing so, a plausible strategy would be focusing on the 1936 local census that contains records on women's occupations. Thus, from this starting point it would be assessed a complete image of the occupational structure on society that may inform about the familial, demographic and socioeconomic determinants of gender gap over history. Secondly, a more ambitious approach would be finding the women's role on the intergenerational social status attainment and family influence on their children, which would be found in the successive censuses to 1936 as 1940, 1945, 1950 and 1955.

5.2 Discussion

Historians have always made efforts towards conceptualising what history as subject is about and which should be the duties of a historian. In this regard, perhaps one of the most interesting definitions of it encompassed understanding history as a continuous process, between history and the narrative of making history, a dialectic relationship between history and historians (Ortega y Gasset, 1971 [1935]). In other words, such convoluted word game stress on the idea that there are no historical facts, historiography instead deals with the interpretation of historians, whose are influenced by different factors as the lived period, the social environment and the own life course. Moreover, paraphrasing Josep Fontana (1982), the study of history and its interpretations have a clear function as an integrated social project. Analogously, history is also the result of a process of social reproduction from each historian, where the environment, the social inheritances and the cultural capital are crucial.

Hence, from the findings of this dissertation, it can be said that historical demography represents a valuable approach for studying social reproduction, stratification and inequality across the historical Barcelona area. This thesis brings elements for understanding better the functioning of the universal inheritance system, one of the classical themes within social and economic history in Catalonia. The most important contribution in this regard has been using the data from the Marriage Licence Books and Local Censuses as well as methods of genealogical reconstitution for instrumentalising all the arguments raised about the single-heir system. The thesis delivers strong evidences to confirm that both first-born and first-married children indeed used to be the single heir. Moreover, it has been also observed that this inheritance system declined over time, which was possible thanks to the large amount of data and the long-term coverage contained in the two sources used in this thesis.

Before industrialisation the single-heir system would have signified a clear inequality generator between siblings and, albeit familial strategies of compensation, non-heir siblings would always face downward social mobility within the same social class in comparison to heirs. Moreover, non-heir sisters would also achieve similar statuses to the heir through marriage. Conversely, with the industrialisation take-off, the situation would turn into a complete different reality with social upward mobility emerging for non-heirs, usually attaining urban professional careers while their heir sibling would attain the same parental occupational.

The results along this thesis have shown that the familial strategies during the sixteenth and the seventeenth centuries were able to find alternatives for non-heir, which were not always socially downward. Moreover, the direction of this social mobility could even be upwards through marry-up strategies for sisters, which would be explained by the importance of the dowry system in the family economy (Barrera González, 1992).

The use of divergent mechanisms among farmers and artisans indicates that the inheritance system was considered an important matter across different social classes and not only for peasants. This also involved a different meaning of the impartible inheritance system for each social group, because while for farmers it could be a potential constraint for non-heirs, in the case of artisans it seems to have been an opportunity of diversification in the family economy. In the periods under the industrialisation process, this thesis corroborates that the inheritance system reverted its logic in general terms, due to better social outcomes across the life course for non-heirs than for heirs granting strength to the industrial extinction of such inheritance system. This would go in line with arguments about the interaction between industrialisation and familial strategies of compensation largely benefited non-heir siblings (Ferrer, 2005; Borderías and Ferrer, 2016). However, the social class background coming from the family always used to be more important in driving the extent of downwards and upwards mobility than sibling's order or the sibship size.

The use of valuable continuous information allowed the occupational structure reconstruction together with the long-term economic inequality trends. On the one hand, apart from contextualising the rich historiographical knowledge about economic cycles in the territory, the thesis also introduces the importance of changes in the occupational structure in economic transitional periods. In this sense, the appearance and increase of some occupational titles at preindustrial or industrial periods, as for instance in the case of rural or urban day labourers, stresses the important presence of labour supply and demand shaping the labour market formation (Jover et al., 2017). Additionally, reconstructing the occupational structure during the eighteenth and nineteenth centuries added new elements to an already classic debate in Catalonia regarding when the industrialisation exactly started. Traditionally, important economic historians as J. Nadal (1975) claimed the industrial take-off between the second and third decades of the nineteenth century, driven by the decisive technological changes. However, younger generations of historians widened the boundaries of the industrial beginning, conceiving

the Catalan industrialisation as a longer and progressive process, were the productive organisation as the factory-system and occupational changes played a major role (Martínez-Galarraga and Prat, 2016; Mora-Sitjà, 2011). In this sense, this dissertation grant elements supporting a longer and earlier process of industrialisation in Catalonia, dating back at least to the last decade of the eighteenth century. The effects of the Peninsula War (1808-1814), however, dramatically stopped this process, which just restarted from the 1830's onwards.

The assessment of demographic data for analysing the mechanisms of social reproduction as well as trends in socioeconomic inequality suggests the importance of including more extensively the demographic dimension into studies of this kind. For instance, the information provided at the family level, observed through the shrinking sibship sizes in Sant Feliu de Llobregat points out the socioeconomic relevance of the early Catalan fertility decline (Cabré, 1989). Therefore, remarkable aspects, as the evidences on families avoiding resource dilution, should also add the demographic transition to the list of determinants on social mobility, which is likely to be not only a side effect within industrialisation. Furthermore, the demographic dimension has also been shown important for estimating socioeconomic inequality levels. When comparing inequality indexes with other studies in Spain and Europe during the same periods, it has been seen that the levels of disparity calculated from the Marriage Licence Books tended to be lower. The reason for this divergence was found in the homogenous age structure of the sample, which gathered individuals facing early life-cycle stages (marriage). In this way, taking into account also the human capital approach for defining inequality among individuals, age may be fundamental. It will not be the same looking for unequal contexts comparing older and younger individuals with different levels of capital (financial and human) accumulation, than comparing people at the same stages of the life-cycle, which presumably share more features and constraints. All these elements display arguments for considering the demographic dimension and population dynamics in the analysis of historical economic inequality (Alfani, 2010).

Finally, there is a path ahead in order to better understand and define the demographic and social interactions with economic inequality due to the fact that either at historical or contemporary periods, these elements may contribute enormously to disentangle determinants in social mobility.

This last part refers to the main topic tackled in this thesis, which highlighted some important aspects concerning the role played by families in social mobility, the position of South Europe within the main theoretical claims about the topic and last but not least the relevance of historical evidences on today's concerns.

There are long-term evidences for accepting some of the claims within the Modernisation theory. In the Barcelona area, the family influence obviously decreased in the long run, from being fundamental in preindustrial societies to higher degrees of fluidity, where opportunities and/or constraints in the labour market granted increasing relevance to status achievement through human capital accumulation across the lifetime. Nevertheless, the family influence decreased but not vanished, and the importance of the family can be compared to some extents in the same way between the 1650's or 1930's for example. Thus, social reproduction and social mobility always coexisted before and after the take-off of industrialisation, there is not only preindustrial inmobility or status achievement fostered by industrialisation, differences resided in different adopted mechanisms by families.

Additionally, the validity of a straightforward claim about increasing upward social mobility on industrial societies, either intergenerational or intragenerational, should be nuanced. In this way, we must be aware once more of the source limitations, which made invisible the social and occupational contribution from women. Accordingly, results and interpretations at the socioeconomic level can change remarkably, if a correct definition of the socioeconomic role played by women is done (Solsona, 1989). Therefore, upward social mobility could refer to a masculine social mobility, benefiting from an unequal situation of feminine disadvantage.

As a matter of fact, the overall conclusion about social reproduction and mobility in the long-term in the Barcelona area leads to two elements chronologically transversal. Families were the main mean of social reproduction throughout all the studied period and the barriers in social mobility among upper classes and lower classes have been always substantial. This recalls studies about the persistent endurance of families from the highest and most advantaged social classes, which lasted in the same lineages for extremely long time periods in places as Florence or England, where the same families remained in the Elite for more than 600 years or during 28 generations respectively (Barone and Mocetti, 2016; Clark and Cummins, 2015). In a certain way, the continuity of important social barriers despite the remarkable socioeconomic transformations in the

society across four centuries seems to evoke a paradox that can be paraphrased with the most famous quote of Giuseppe Tomasi di Lampedusa (1959) in his well-known novel *Il Gattopardo* (The Leopard):

"If we want things to stay as they are, things will have to change."

To conclude, these evidences on historical social mobility show to be contemporarily linked to current problems in our societies, which demonstrates that knowing the determinants from the past, may help us to understand what may happen in the present. In this sense, after the global economic crisis in 2008, there are increasing evidences and a growing perception around many countries and societies that social mobility has been declining and that the opportunities to maintain and improve certain socioeconomic standards have been limited (OECD, 2018). According to the OECD 2018 report "A Broken Social Elevator? How to Promote Social Mobility", in most OECD countries it would take around four to five generations for children from lower social status to reach mean levels of earnings and socioeconomic positions.

6. Quoted references in the conclusions and discussion

Alesina, A. et al. (2010). The power of the family. *Journal of Economic Growth*, 15, 93–125.

Alfani, G., & Ammannati, F. (2017). Long-term trends in economic inequality: the case of the Florentine state, c. 1300-1800. *The Economic History Review* (doi:10.1111/ehr.12471).

Alfani, G. (2010). Wealth inequalities and population dynamics in early modern northern Italy .*Journal of interdisciplinary history, 40*(4), 513-549.

Barone, G. and S. Mocetti (2016). Intergenerational mobility in the very long run: Florence 1427-2011. Working Papers 1060, Bank of Italy.

Barrera-González, A. s. (1992). Eldest and younger siblings in a stem-family system: the case of rural Catalonia. *Continuity and Change, 7*(03), 335-355

Betrán, J. L. (1996). *La peste en la Barcelona de los Austrias* (Vol. 2). Barcelona: Milenio.

Borderías, C. & Ferrer, L. (2016) The stem family and industrialization in Catalonia (1900–1936), The History of the Family, 22:1, 34-56, DOI: 10.1080/1081602X.2016.1242083

Cabré, A. (1989). *La Reproducció de les generacions catalanes, 1856-1960*. Doctoral thesis directed by J. Nadal. Universitat de Barcelona.

Clark, G., & Cummins, N. (2015). Intergenerational wealth mobility in England, 1858–2012: Surnames and social mobility. *The Economic Journal*, *125*(582), 61-85.

Cowell, F. (2011): Measuring inequality. Oxford: Oxford University Press.

Featherman, D., Jones, L., Hauser, R. (1975). Assumptions of social mobility research in the US: the case of occupational status. *Social science research*, *4*(4), 329-360.

Feliu, G. (1992). Precios y salarios en la Cataluña moderna Vol. II: Combustibles, productos manufacturados y salarios. Madrid. Banco de España.

Ferrer, L. (2005). Indicios de cambio en el sistema de heredero único en Cataluña en el siglo XIX. *Historia contemporánea*, (31).

Fontana J., "Historia. Analisis del pasado y provecto social", Editorial Critica, Barcelona, 1982.

García Ruipérez, M. (2012). El empadronamiento municipal en España: Evolución legislativa y tipología documental. *Documentalia & Instrumenta*, 10:45-86.

García-Montero, H. (2015): "Long-term Trends in Wealth Inequality in Catalonia, 1400-1800: Initial Results". Dondena Working Papers, no. 79.

Hamilton, E. (1934). American treasure and the price revolution in Spain, 1501-1650. *Harvard Economic Studies*. Harvard University Press.

Humphries, J. & Sarasúa, C. (2012). Off the record: Reconstructing women's labor force participation in the European past. *Feminist Economics*, *18*(4), 39-67.

Jover, G., Pujadas-Mora, J. M., & Suau, A. M. (2017). ¿Quiénes eran los mozos en las regiones mediterráneas?: y movilidad de los mozos en el mercado de trabajo de Mallorca, 1654-1680. *Mundo agrario*, *18*(39), 00-00.

Knigge, A., Maas, I., Van Leeuwen, M. H., & Mandemakers, K. (2014). Status attainment of siblings during modernization. *American sociological review, 79*(3), 549-574

Knigge, A. (2016). Beyond the parental generation: The influence of grandfathers and great-grandfathers on status attainment. *Demography*, *53*(4), 1219-1244.

Lambert, P., Zijdeman, R., Van leeuwen, M. H., Maas, I., & Prandy, K. (2013). The construction of HISCAM: A stratification scale based on social interactions for historical comparative research. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, *46*(2), 77-89.

Mare, R. D., & Song, X. (2014). Social mobility in multiple generations. *UCLA CCPR Population Working Papers*.

Marfany, J. (2012). *Land, proto-industry and population in Catalonia, c. 1680-1829: an alternative transition to capitalism?* London: Ashgate.

Martínez-Galarraga, J., & Prat, M. (2016). Wages, prices, and technology in early Catalan industrialization. *The Economic History Review*, *69*(2), 548-574.

Mora-Sitjà, N (2011). El primer proletariat català. Mà d'obra i relacions laborals a les fàbriques d'indianes de Barcelona. *Barcelona quaderns d'història*, (17), 237.

Nadal, J., & Giralt, E. (1960). *La Population catalane de 1553 à 1717: l'emmigration française et les autres facteurs de son développement*. Paris: SEVPEN.

Nadal, J. (1975): El Fracaso de la Revolución industrial en España, 1814-1913. Barcelona, Ariel.

OECD (2018), *A Broken Social Elevator? How to Promote Social Mobility*, OECD Publishing, Paris, https://doi.org/10.1787/9789264301085-en.

O'Rand, A. M & Henretta, J. C. (1999). *Age and inequality: Diverse pathways through later life*. Westview Press.

Pujadas-mora, J. M. et al. (2014): "Propuestas metodológicas para la aplicación de HISCO en el caso de Cataluña, siglos XV-XX." Revista de Demografía Histórica 32(1): 181-220.

Reher, D. (2004.), Family Ties in Western Europe. U: G. D. Zuanna and G. A.Micheli (ur.), *Strong Family and Low Fertility: A Paradox*? (str. 45-76), New York, Kluwer Academic Publishers.

Reis, J. (2017). Deviant behaviour? Inequality in Portugal 1565–1770. *Cliometrica*, *11*(3), 297-319.

Ruggles, S. (2010). Stem families and joint families in comparative historical perspective. *Population and Development Review*, *36*(3), 563-577.

Solsona, M. (1989). El problema de la medición del trabajo de la mujer. *Documents d'anàlisi geogràfica*, (14), 149-169.

Tomasi di Lampedusa, G. (1959). *Il gattopardo*. Feltrinelli editore.

Torras, J. (1998). Small Towns, Craft Guilds and Proto-Industry in Spain. *Jahrbuch für Wirtschaftsgeschichte/Economic History Yearbook*, *39*(2), 79-96.

Vallejo Pousada, R. (2010) La Estadística territorial española desde 1845 a 1900. ¿ Por qué no se hizo un Catastro en el siglo XIX?, CT/*Catastro, 68*: 81-115

Van Leeuwen, M. & Maas, I. (2011). *HISCLASS: A historical international social class scheme*: Universitaire Pers Leuven.

Van Leeuwen, M., Maas, I., Miles, A. (2002). *HISCO: Historical international standard classification of occupations*. Leuven: Leuven University Press.

Windzio, M. (2006). The problem of time dependent explanatory variables at the context-level in discrete time multilevel event history analysis: A comparison of models considering mobility between local labour markets as an example. *Quality and Quantity*, *40*(2), 175-185.

Yang, Y., & Land, K. C. (2006). A mixed models approach to the age-period-cohort analysis of repeated cross-section surveys, with an application to data on trends in verbal test scores. *Sociological methodology*, *36*(1), 75-97.