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Socioeconomic mobility and inequality persistence. The area of Barcelona, 16th-19th centuries[3]

1. Introduction

In the last decade, with the advancement of the digital era in social sciences, the number of sources and studies devoted to preindustrial inequality increased significantly, and the current knowledge about income and wealth inequality is now vast. We have been learning that economic disparity before the onset of the Industrial Revolution was already high (Alfani 2021). The increasing literature brought evidence partially contradicting traditional views on preindustrial inequality related to Kuznets' well-known *modern economic growth*, which assumed inequality to increase only from the first stages of industrialization (Kuznets 1955; 1973; Van Zanden 1995). Moreover, thanks to studies on preindustrial inequality(Milanovic, Lindert, and Williamson 2011), the research community has also learned important methodological innovations to the topic, contributing to contemporary studies, such as the *inequality possibility frontier* (IPF).

A natural step forward in the field should then be knowing how persistent long-term inequality could be across generations, as some authors have recently pointed out for contemporary periods. Accordingly, higher socioeconomic mobility is related to lower levels of economic inequality (Corak 2013). Nevertheless, preindustrial social mobility is still primarily understudied in present times. Among the various reasons for this, we find the difficulty of obtaining sufficient quantitative and temporal data, given that apart from demanding time and budget-costing sources' digitalization, social mobility research also requires more significant amounts of nominal and (or) genealogical data. In this regard, different from inequality estimations, wisely pooled cross-sectional samples are not enough.

Additionally, most of the existing preindustrial and early-industrial social mobility research has focused strictly on occupational mobility, not fully capturing the important socioeconomic disparities within occupational groups that presumably always existed. In this paper, we attempt to contribute to the literature by estimating long-term trends in intergenerational social mobility in the area of Barcelona and by assessing likely disparities between socially and non-socially mobile individuals within occupational and social groups through unique data, the Barcelona Historical Marriage Database. Our preliminary results suggest that socioeconomic mobility

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increased since the beginning of the 18th, during the Catalan protoindustrialization. However, within-occupational groups, upward-mobile individuals would have always been disadvantaged in socioeconomic terms compared to immobile, a constant characteristic from the preindustrial periods until the end of the 19th century.

1.1 Preindustrial and early-industrial social mobility

Although social mobility is a well-researched topic in economics nowadays, sociologists were the first to devote attention to how individuals performed socioeconomically in their adult lives (destination) compared to their backgrounds, namely their parents' social positions (origin). According to the traditional sociological view, the new conditions prompted by industrialization transformed social mobility. Therefore, social mobility would have been much higher in industrial societies compared to preindustrial periods. In the early-industrial periods, it was first led by increasing downward mobility (occupational change from farming to factories). However, once industrialization consolidated, upward mobility rocketed as rising middle classes demanded more workers, usually born in the working class (Lipset and Zetterberg 1956; Grusky and Hauser 1984).

The growth of better-off white-collar occupations automatically increased absolute social mobility, but it did not always directly mean social openness in relative mobility. Some authors argue that social mobility does not necessarily have to be caused by the degree of industrialization of societies. Many countries with varying levels of modernization achieved similar levels of social mobility (Featherman, Jones, and Hauser 1975; Erikson, Goldthorpe, and Goldthorpe 1992). Still, in most traditional research, industrialization continues to be seen as a fundamental watershed in terms of the take-off of social mobility. In this regard, scholars argued that contrary to preindustrial periods, the industrial occupational structure progressively turned from a social status inheritance (ascription) to status achievement, easing social mobility (Treiman 1970).

Nevertheless, most of these studies were mainly based on wider groups' social class and/or occupational mobility. In recent years, thanks to a significant improvement in the collection and availability of historical demographic and socioeconomic data, new studies have changed the classical view of preindustrial and industrial social mobility. For example, research in the United States and England argues that social mobility would have increased well before the traditional Industrial Revolution calendar (Long and Ferrie 2013; Boberg-Fazlić and Sharp 2018). On the other hand, new studies in the field of sociology using marriage data from the Netherlands indicate that although social mobility increased during industrialization, it would have done so at a much slower and progressive pace than traditionally advocated by modernization theory (Knigge et al. 2014). Finally, authors such as Gregory Clark and Neil Cummins have provided the most innovative findings in the study of long-term social mobility in recent years. Thus, with studies based on surnames (Clark and Cummins 2015; Clark 2014) and more recent research on marriage records (Clark and Cummins 2022), the authors argue for a consistently low long-term social mobility from preindustrial times to the present day.

Moreover, most studies dealing with preindustrial social mobility have also marked a significant shift from the more traditional ones (in sociology). This change is mainly due to how the socioeconomic status of parents and children is measured. In this sense, although occupational information remains the primary source of status information, new studies have increasingly used more standardized and international classifications (e.g., HISCO) with the concept of prestige or occupational ranking (e.g. HISCAM or CAMSIS). In methodological terms, this change allowed linear regressions (OLS) to calculate the associations or elasticities between the status of parents and children in a manner more similar to that used by contemporary economists and sociologists today. This methodological change simplified the interpretation and comparability of the results, mainly concerning the traditional log-linear models based on mobility matrixes.

However, despite methodological progress, the new generation of studies on historical social mobility continues to be characterized by a significant limitation that also existed in previous studies. This limitation comes from using only occupational data, which by default treats any individual in the same occupational group homogeneously, ignoring socioeconomic disparities that always existed within each occupational group. Thus, we know that any study of social mobility should ideally have socio-occupational information and economic variables.

In short, analyses should consider occupational prestige and economic mobility, as they reflect different aspects of a person's relative position in society. Conversely, in our study, we benefit from the unique data in the Barcelona Historical Marriage Database (BHMD), which has both occupational information (measured with HISCO, HISCAM, and HISCLASS) and an economic variable measured through marriage taxes. This allows us to create an indicator of socioeconomic capacity that reflects occupational prestige but simultaneously captures inequality within the same occupations.

1.2 The long-term socioeconomic context in the area of Barcelona (16th-19th centuries)

The city of Barcelona and its hinterland, which we refer to as the area of Barcelona, have been Catalonia's social and economic center since medieval times, apart from being the most populated area. Since the 16th century, this territory faced the progressive consolidation of an agrarian structure composed of the medium-sized farm—the *mas*—based in family units (Gifre 2012). Throughout the 17th and 18th centuries, land transmission functioned through the universal inheritance, in which eldest sons were usually the heir. Marital strategies contributed to the formation of a new landowning class. This intermediate peasant group accumulated large land areas, resulting in more limited access to land (García Espuche 1998).

Hence, in order to increase production and income, many landowners, rather than hiring additional workers, hired out part of their estates. It prompted the establishment of emphyteutic lease, one of the most common forms of which was

the '*rabassa morta*'[4]. However, this latter option did not solve the problem of land access, and, in many cases, non-heirs opted for artisan careers (Torras 1998; J.-M. 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 also marked an early change in the occupational structure in previously rural zones, thanks to a considerable presence of proto-industrial activities in the Barcelonese hinterland. Besides, since the 17th century, the demand for wine in urban centers and Atlantic areas led to the expansion of vineyards in the coastal zones (Badia-Miró and Tello 2014), a project requiring new sharecropper families for slash-and-burn land preparation for planting vines. The expansion of vineyards in Catalonia occurred in several waves between the 17th-19th centuries.

Moreover, among the growing industries, woolen textile production had, since the 18th century, begun to expand in the Barcelona area, driven by the crisis in some sectors of guilds in urban areas like Barcelona. The expanding industry moved from Barcelona into the hinterland surrounding the city and zones in the pre-coastal area. The resulting boost to proto-industrial activities and the associated proto-industrial population was fundamental for industrial development in Barcelona and its hinterland (Torras, 1998). Finally, as early as 1830, the Barcelona area was a groundbreaker in Spanish industrialization (Nadal Oller 1975). This sets the region as a forerunner in socioeconomic stratification and inequality changes.

Some studies have shown that this region had already faced a significant increase in economic inequality since the 16th century, with a specific downward trend during the early 18th century and rocketing towards the industrial era. However, preindustrial social mobility research in the area is much more scarce. In this regard, (J.-M. Pujadas-Mora et al. 2018) studies of the occupational mobility of farmers and artisans during the 16th-17th centuries showed an overall high social inheritance, which was higher among first-married sons because of the single-heir system.

2. Data and Methods

2.1 The Barcelona historical marriage database (BHMD)

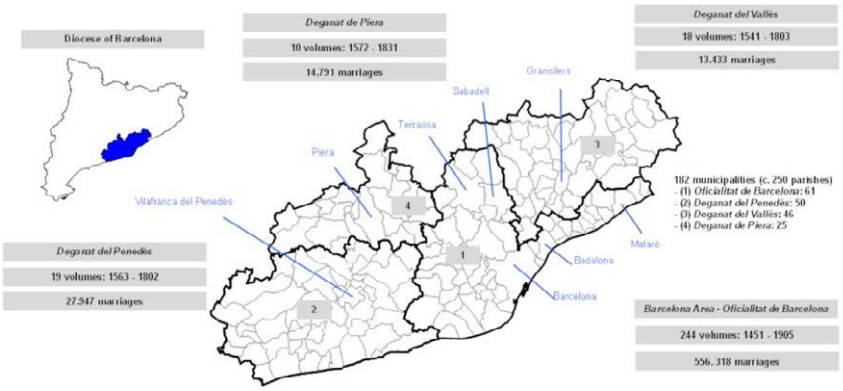
The BHMD brings together the 612,487 marriages recorded in the so-called Marriage Licenses Books of the *Ius Tabulae* of the Cathedral of Barcelona, covering the Diocese of Barcelona (made up of 250 parishes in 1900) between 1451 and 1905. This is a unique data source dating back to 1409, when Pope Benedict XIII (1328–1423) visited Barcelona and granted the new cathedral the power to impose a tax on marriage following the socioeconomic status of the couple to fund the cathedral's construction and maintenance (J. M. Pujadas-Mora et al. 2022).

The territorial coverage of the BHMD is the Diocese of Barcelona was made up of four deanships: Barcelona's Oficiality (The area of Barcelona) the main one, Piera,

[4] *Rabassa morta* refers mainly to 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.

Vallès, and Penedès. This territory covered the main population centers of the time, including Barcelona, Mataró, Sabadell, and Terrassa, and a conglomerate of rural towns located in the current counties of Baix Llobregat, Barcelonès, Maresme, and Vallès Occidental (figure 1). In 1900, the diocese was comprised of 250 parishes. This source is extraordinary for its territorial coverage and chronological amplitude, starting a few centuries before the parish marriage books, and its state of preservation compared with the low conservation of the parish archives in Catalonia, especially in the study area.

Fig 1. **Territorial coverage of the BHMD**



The names and surnames of the grooms were registered (one surname up to 1876 and two surnames thereafter), while the names of the brides started to be registered from 1481 onwards. Previously, unmarried brides were related to their fathers and widows to their late husbands. Grooms' occupations, spouses' nominal information, and the tax paid were also recorded throughout the source's entire duration, as were the first and surnames of the spouses' parents, except for the period 1645 – 1715. However, the BHMD also carry some important limitations, as the lack of systematic recording of parental occupations upon their children's marriage, except for 1545-1643, and a rare recording of female occupations, meaning information about women's work refers to their husbands' occupations, and birth dates or ages were not recorded, given that by its fiscal nature, the source was not so focused in demographic aspects.

The occupational titles in the source were subsequently codified using the Historical International Classification of Occupations (HISCO). This classification enables a specific codification based on a historically adapted version of ILO's ISCO68 (Van Leeuwen, Maas, and Miles 2002). HISCO occupations have also been

classified using two international schemes of social stratification widely used with historical demographic data, HISCAM and HISCLASS (Van Leeuwen and Maas 2011; Lambert et al. 2013). The former works as a ranking ranging from 0 to 99, where the most advantaged occupations have the highest scores. Each occupation's individualized score is assigned as a continuous variable. On the other hand, the latter establishes social categories based on the degree of skill and more classical divisions such as manual and non-manual occupations.

From 1570 onwards, marriage taxes were organized on a proposed guideline on a seven- or eight-tiered scale, ranging from the highest tax paid by the nobility to an exemption from tax for those declared poor. In this 7-level system, the first level corresponded to the titled nobility and the next two to the knights and honored citizens, or those who could hold public office. The fourth and fifth payment levels corresponded to the commercial bourgeoisie, liberal professionals, and masters of guilds. Farmers and artisans paid the sixth; the last group was exempted. The highest tax level was 120 times higher than the lowest and 40 times more than the average tax. Throughout the source's existence, taxes were always charged in unities of accountancy of Carolingian origin, namely *Lliures* (pounds) and *Sous* (shillings). However, they were always paid with the currency in circulation at each period. Having the same fiscal values across four centuries is an advantage for long-term studies, as we can conceive BHMD's fiscal information as something similar to contemporary economic variables adjusted for the Consumer Price Index (see table 1)[5].

Tab 1. **Proposed tax categories' guidelines in the Marriage license books**

Category	Tax	Tax in Sous
Nobility	24 *lliures*	480
Military citizens	4 *lliures* and 16 *sous*	96
Honored Citizens	2 *lliures* and 8 *sous*	48
Merchants, Lawyers, Physicians	1 *lliura* and 4 *sous*	24
Guild Masters	12 *sous*	12
Farmers and Small artisans	8 *sous*	8
The Poor	*Amore Dei*	0

Note: Calculations are based on all marriage license fees available in the Barcelona area. Source: Same as Figure 1

[5] For more details on the fiscal information of the BHMD and its distribution see (Brea-Martínez and Pujadas-Mora 2019; J. M. Pujadas-Mora et al. 2022)

However, although the source had, by default, a guideline proposing specific taxes to specific grooms' occupations, the clergy members responsible for charging taxes usually had certain flexibility in adequating it to the economic capacity of the to-be-married couples. Table 2 shows on its left part the main occupations by social groups (classified with HISCLAS) and the proposed taxes for each occupation in *sous* between parentheses. In the right part of the table, we see the actual distribution of taxes for each occupation instead, divided into three categories: taxes lower than the proposed, same as the proposed, and higher. As seen, among all the most common occupations, there was a remarkable disparity in paid taxes. For instance, only about 25% of physicians paid the proposed tax of 24 *sous*, while around 37% paid lower or higher than the one assigned in the guideline. The same happened to all other occupations in the source, denoting the existing economic heterogeneity within occupations and validating the use of the BHMD's fiscal information for capturing it.

Tab 2. **Proposed taxes by main occupations in each social class in the Marriage license books and their actual distribution between 1570-1880 (N=328,456)**

HISCLASS	Occupation (Tax proposed in the source)	Less	Proposed	More
Non-manual	Trader (24) *sous*	44.99%	53.64%	1.38%
Non-manual	Physician(24) sous	37.05%	25.34%	37.90%
Skilled	Blacksmith (12) *sous*	56.70%	28.64%	37.21%
Low-skilled	Weaver (8) *sous*	20.99%	77.42%	1.59%
Farmer	Farmer (8) *sous*	23.17%	76.40%	0.43%
Unskilled	Day laborer (8) *sous*	46.13%	53.79%	0.08%

Source: Same as Figure 1

2.2 Aim and genealogical reconstitution

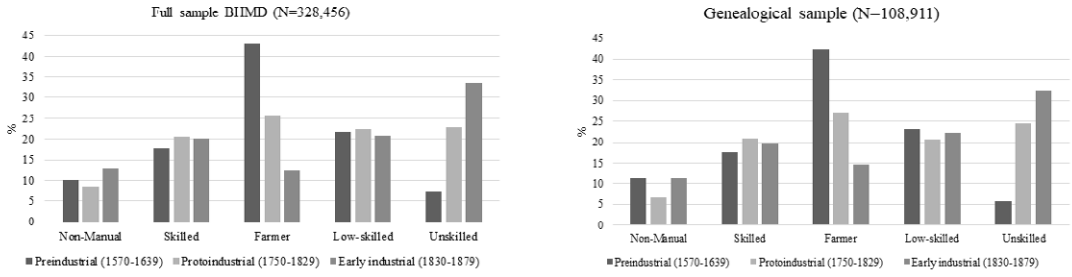
In this paper, we had a twofold aim. First, we wanted to measure long-term social mobility (parents-children) from the 16th to the 19th to place southern Europe in the context of new studies of historical social mobility. Second, given the optimal characteristics of the data available in the BHMD, we set out to assess the presence of inequalities between socially mobile and immobile individuals. For example, would the son of a weaver (low-skilled) in the 18th century who managed to become a Merchant (Non-Manual) have had the same socioeconomic capacity as a merchant son of a merchant? We hypothesize that social mobility, mainly between classes, would have increased in the long run. Still, it would hide substantial inequalities, which cannot be seen only with socio-occupational information.

To attain such aims, we followed a record linkage strategy to reconstruct genealogical links of two levels, connecting parents and children. We used two string distance measures (*Bag* and *Levenshtein),* linking the names and surnames of grooms' and brides' parents with their marriage licenses (Villavicencio, Jordà, and Pujadas-Mora 2015). Therefore, from the 458,752 marriages recorded between 1570-1649 and 1750-1880, we found around 377,500 links parent-children. Our genealogical reconstitution focuses solely on individuals at their first marriage, excluding remarriages. A conservative approach handles potential false positives, retaining only children with a single-parent connection.

Once we selected only those with a single link parent-children, our sample decreased by 50%, totalling 192,292 single links. A potential issue in record linkage involves the differential recording of sons' and daughters' parental information. This discrepancy in the 18th and 19th centuries, with more detailed data for grooms than brides, resulted in a higher proportion of daughters in the earlier period, although this discrepancy exists, the socio-occupational structure's similarity between the whole and genealogical samples mitigates potential bias. However, in any case, given that their husbands' occupations implied women's socioeconomic and occupational status, we only studied men (sons) in the main analysis, leaving the inclusion of daughters only as robustness checks. In this regard, our sample ended up with information on 108,911 father-son links.

Finally, following the historiographical economic phases in Catalonia, we focused on three divisions, each one encompassing two periods. The **Preindustrial phase**: 1) Early (1570-1609) and 2) Late (1610-1640). The **Protoindustrial phase**: 3) Early (1750-1779) and 4) Late preindustrial (1780-1830). The **Industrial phase**: 5) Early Industrial (1820-1849) and 6) Industrial culmination (1850-1880). Overall, in socioeconomic terms, the genealogical and full samples in the 16th-19th centuries had similar shares of social classes (see figure 2). Moreover, by periods, the linked parents and children marriage distributed relatively uniform (see figure 3).

Fig 2. **Social classes in the BHMD's full sample and in the genealogical sample (16th-19th centuries)**



2.3 Methods

For capturing occupational prestige and same-occupational heterogeneity in economic terms, we considered that the combination of inherent taxes and HISCAM could provide a proxy for socioeconomic capacity. Hence, a multiplication of tax paid and the HISCAM score gives the result shown below, where C_i is the individual's socioeconomic capacity, T_i is the tax paid by a certain individual and H_i is the HISCAM score.

$Ci = T_i * H_i$

To calculate social mobility, we classified the socioeconomic capacity of children in percentiles by their annual marriage cohort and the socioeconomic capacity of their parents in percentiles (by the children's marriage cohort). Next, for calculating the long-term trends of socioeconomic persistence, we employed rank-rank associations in a similar method as in (Chetty et al. 2014):

$y(Children\ SES)_i = a + \beta_1\ father\ SES_i + \varepsilon_i$

Finally, to assess inequalities between classes, especially comparing socially mobile and immobile, we computed the socioeconomic capacity quartiles within classes for children and parents to know each individual's relative socioeconomic position within its own class. In this regard, we believe that traditional class social mobility should be complementary to occupational prestige and economic capacity. Class mobility implies other essential factors in shaping SES, such as class identity and networks (Kocka 1984; Curtis 2016) and the transmission of tangible and intangible assets and traits, e.g. Bourdieu's Social Reproduction concept (Bourdieu and Passeron 1999).

We run two different linear probability models (LPM) on the probability of an individual (i) being in the socioeconomic capacity of the top quartile of his own HISCLASS *(k)*. The first model focuses on capturing likely intergenerational transmission of advantages within classes and looking at the association between social mobility direction and the probability of being in the top 25% of the socioeconomic position at the social class destination group.

$y(top\ quartile)_{i,k} = \beta_1\ (father's\ top\ quartile\ in\ his\ own\ HISCLASS)_i + \beta_2\ Social\ Mobility_i + \Sigma\beta_3\ (family)_i + \varepsilon_j$

Finally, in order to compare if socially mobile had differences in SES capacity when compared to immobile, we separate our sample into subsamples by social class of destination *c*:

$y(top\ quartile)_{i,k,c} = \beta_1\ (father's\ top\ quartile)_i + \beta_2\ HISCLASS\ Origin_i + \Sigma\beta_3\ (family)_i + \varepsilon_j$

Table 3 summarizes the main demographic and socioeconomic variables in the genealogical sample.

Tab 3. D**emographic and socioeconomic composition of the genealogical sample by periods**

	1570-1609			**1610-1640**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**
Marriage year G1	1562	1482	1594	1596	1560	1626
Marriage year G2	1591	1506	1609	1625	1610	1641
SES index G1	246.43	0	4800	257.88	0	4800
SES index G2	280.31	0	4800	276.95	0	4800
Marriage difference in years (G2-G1)	29.32	15	50	29.25	15	50
Sibship size	1.55	1	8	1.47	1	8
Class Upward Mobility G2	0.29	0	1	0.27	0	1
Class Downward mobility G2	0.26	0	1	0.25	0	1
Within-class top quartile-G1	0.05	0	1	0.13	0	1
Within-class top quartile- G2	0.14	0	1	0.14	0	1
Within-class bottom quartile-G1	0.66	0	1	0.59	0	1
Within-class bottom quartil- G2	0.55	0	1	0.55	0	1
N	6,134			6,381		
	1750-1779			**1780-1819**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**
Marriage year G1	1733	1700	1764	1766	1730	1804
Marriage year G2	1765	1750	1779	1799	1780	1819
SES index G1	414.37	0	47520	405.97	0	48000
SES index G2	416.03	0	48000	423.34	0	48000
Marriage difference in years (G2-G1)	31.42	15	50	33.25	15	50
Sibship size	1.81	1	9	1.88	1	12
Class Upward Mobility G2	0.23	0	1	0.24	0	1
Class Downward mobility G2	0.26	0	1	0.23	0	1
Within-class top quartile-G1	0.21	0	1	0.16	0	1
Within-class top quartile- G2	0.19	0	1	0.19	0	1
Within-class bottom quartile-G1	0.18	0	1	0.47	0	1
Within-class bottom quartil- G2	0.50	0	1	0.50	0	1
Traditional Occupation	0.68	0	1	0.54	0	1
N	17,719			21,394		

	1820-1849			1850-1880		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**
Marriage year G1	1802	1770	1834	1834	1800	1865
Marriage year G2	1835	1820	1849	1867	1850	1880
SES index G1	433.64	0	48000	422.40	0	48000
SES index G2	436.53	0	48000	394.24	0	9600
Marriage difference in years (G2-G1)	32.92	15	50	32.59	15	50
Sibship size	1.98	1	15	1.85	1	15
Class Upward Mobility G2	0.27	0	1	0.28	0	1
Class Downward mobility G2	0.28	0	1	0.33	0	1
Within-class top quartile-G1	0.19	0	1	0.18	0	1
Within-class top quartile- G2	0.16	0	1	0.17	0	1
Within-class bottom quartile-G1	0.52	0	1	0.51	0	1
Within-class bottom quartil- G2	0.48	0	1	0.42	0	1
Traditional Occupation	0.05	0	1	0.09	0	1
N	23,867			33,416		

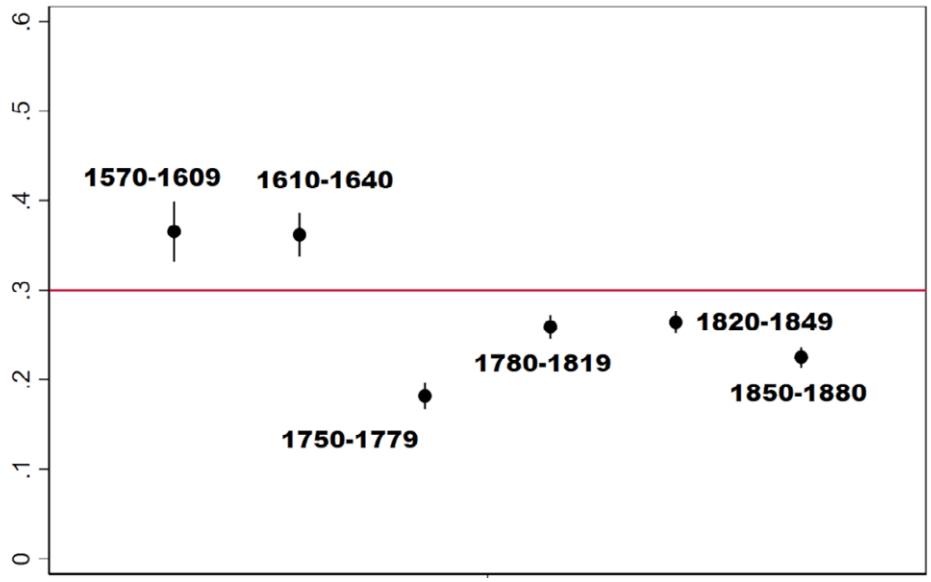
3. Results

3.1 Socioeconomic persistence across generations

Figure 3 presents the long-term trends of intergenerational social mobility calculated as the socioeconomic association between fathers and sons in different models for the periods in which the G2 marriages took place. The results are read in terms of the higher the value, the higher the socioeconomic association between parents and children (i.e. the more similar the status of children to their parents), and therefore the lower the social mobility, higher intergenerational socioeconomic persistence).

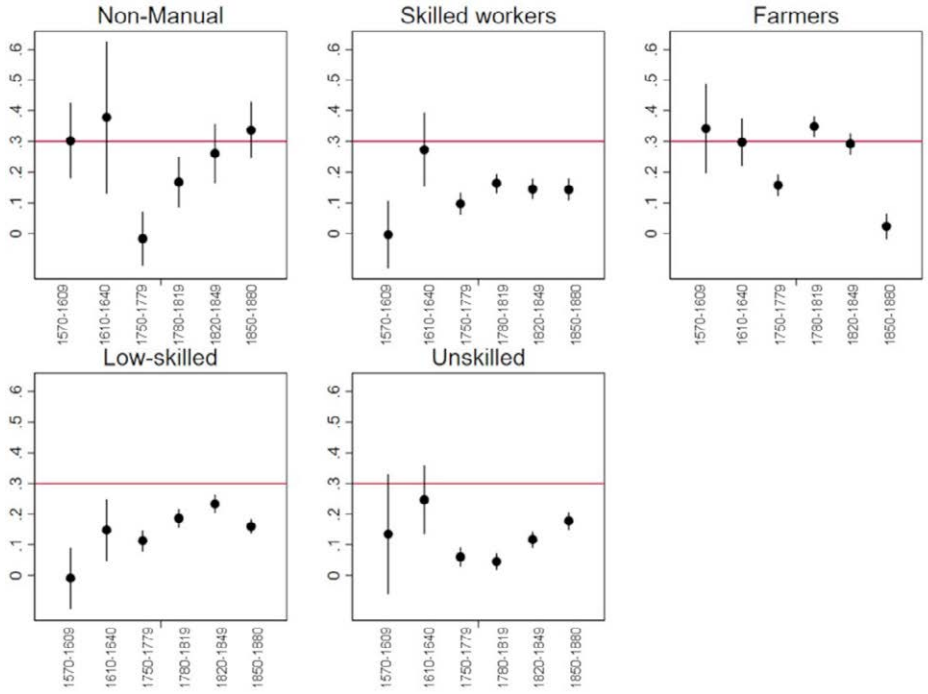
Figure 3 results suggest that social mobility had increased before the industrial phase, as originally suggested in the most classical literature. More specifically, since the 1750-1779, the intergenerational association was between 0.2, while between 1580-1640, it was between 0.4. Moreover, the differences between the proto-industrial and industrial periods are minimal. Therefore, social mobility would have already increased before industrialization, but the industrial period did not mean a sizeable increase in social mobility. Overall by periods, the rank-rank estimations would show a similar to class.

Fig 3. **SES intergenerational persistence (Rank-Rank) by sons' marriage period (1580-1879)**



Additionally, the trends in social mobility hide significant disparities between social groups. Focusing only on the proto-industrial and early industrialization periods, we repeated in figure 4 the association models separately for social origin (parents' HISCLASS). In that case, we see that since 1830 trends in social mobility have been very different. Socioeconomic persistence would have increased among parents and children of parents of Non-manual groups. Conversely, mobility would have remained the same for children of artisans; and would only continue to rise for children of peasants (which would be mainly due to a structural fact due to the reduction of people in rural occupations). This contradictory insight regarding an increase in social mobility, albeit with remarkable social class differences, suggested the need for a more profound look into within-class differences, as shown in the next section.

Fig 4. **SES intergenerational persistence (Rank-Rank) by children's marriage decade separated by social class of origin (1750-1879)**



3.2 Socioeconomic inequality between mobile and immobile

We first run a linear probability with a dummy variable that marks individuals in the top quartile (top 25%) socioeconomic capacity within the destination social class. This helps us target those who could presumably be better off within similar social networks or social environments. First, we can see that being children of a father in the top 25% of his social class would increase the probability of children being class advantaged with similar levels regardless of the period (Figure 5).

Next, in figure 6 we inquire on the association between the direction of the class social mobility children faced. In this regard, only coming from a higher background during the preindustrial era, although meaning downward mobility, would still be positively associated with being in the top 25% of SES capacity during most periods, only changing in the last industrial period (1820-1880). However, interestingly when looking at class upwardly mobile individuals, there is a clear period gradients, while facing upward mobility (being in a higher class than fathers) was beneficial for sons during preindustrial periods, it becomes progressively negative towards the last protoindustrial periods and industrial ones. This suggests that class mobility actually became a negative factor for being better-off among peers within the same social class (See figure 6).

Fig 5. **Linear probability models (LPM) coefficients on the sons' (G2) probability of being in the within-class top quartile of SES index conditional of fathers (G1) also being in the within-class top quartile of SES index themselves by periods**

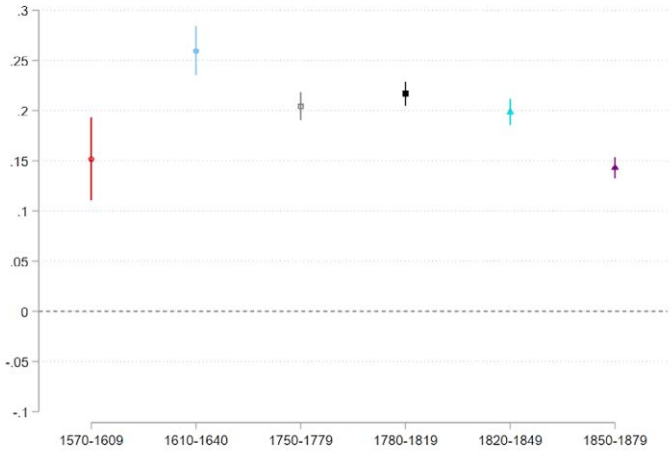
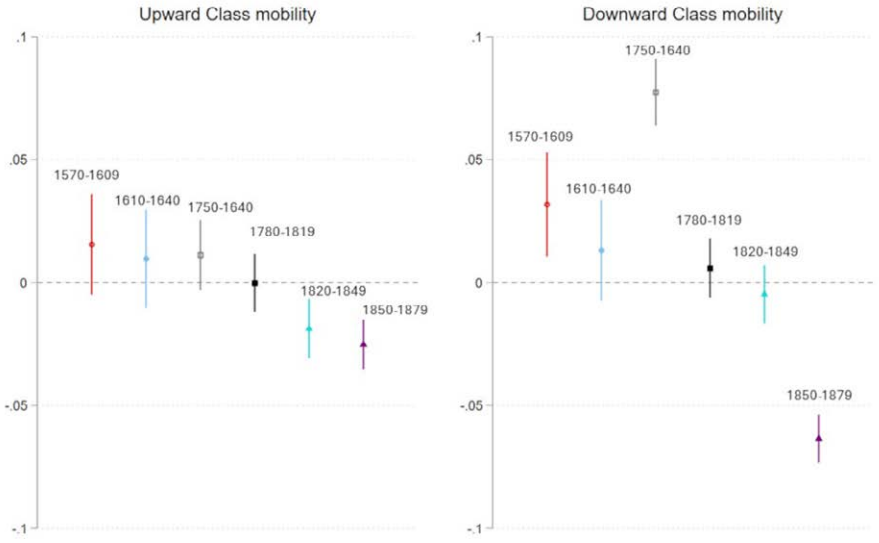


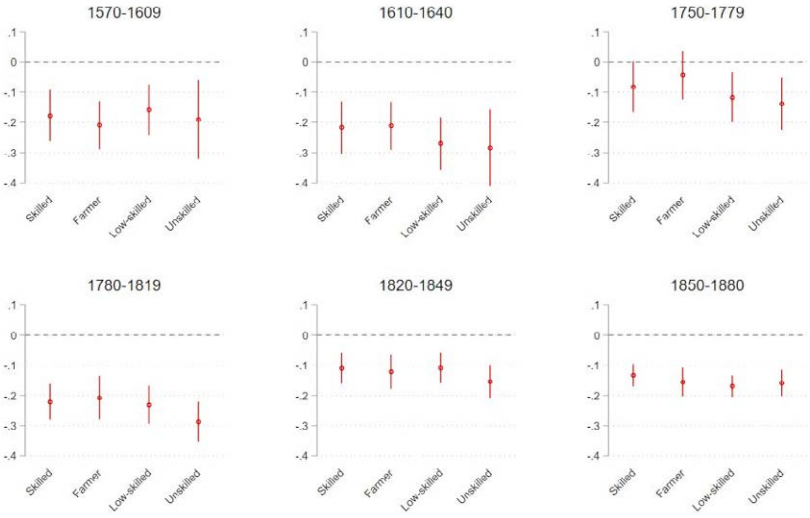
Fig 6. **Linear probability models (LPM) coefficients on the sons' (G2) probability of being in the within-class top quartile of SES index conditional whether they had upward or downward class mobility in comparison to their fathers by periods**



Finally, in order to understand how social mobility could also entail the existence of important inequalities, we see how socioeconomic origin could mark these differences. The model presented in figure 7 calculates the probability of a child being in the upper quartile (top 25%) of the socioeconomic capacity of individuals in the group of non-manual occupations (Liberal Professionals; Merchants; the elites). As independent variables, we have information on their socioeconomic origin. Firstly, the social class of the father. Here, only the children of non-manuals are individuals who did not have upward social class mobility, while coming from a different group means they all experienced upward social mobility.

By focusing on the differences between the social classes of origin (HISCLASS of the parents), we compare the socially immobile children (individuals in the elite who had parents in the elite) with those who had class mobility upward. In this sense, the difference between the preindustrial and early industrialization eras remains almost the same. Having a father in the elite always gave socioeconomic advantage. The coefficients show that even if an individual had social mobility upward in terms of class and were part of the occupational elite, they would always have a lower probability (between 30 and 20 percentage points on average) than the elite children. Accordingly, the class barriers would have remained intact despite industrialization's great change in occupational structure.

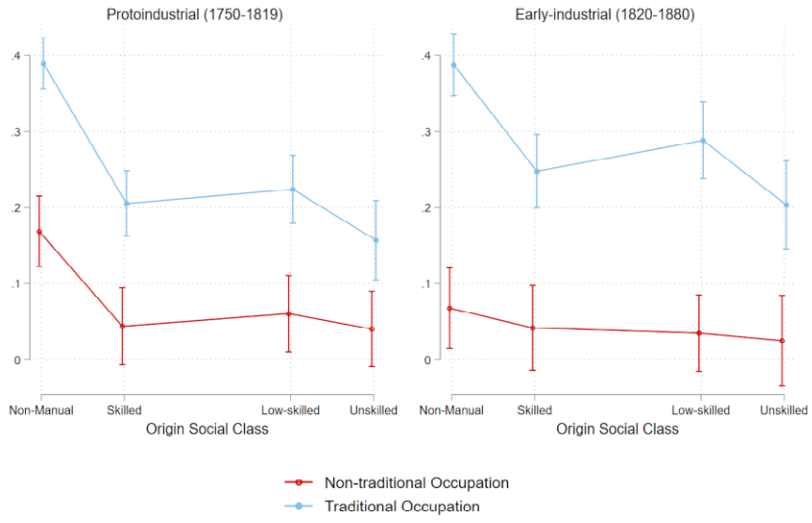
Fig 7. **Linear probability models (LPM) coefficients on the sons' (G2) probability of being in the within-class top quartile of SES index among sons who had a Non-manual occupational class comparing socially mobile sons to immobile sons (fathers who were also Non-manual)**



Finally, in order to test likely mechanisms explaining the difference between mobile sons and immobile sons, the latter always having a much higher advantage than the former in the within SES indexes, we have focused again on the case of non-manual occupations only. We define a set of dummy variables to indicate whether sons within the non-manual classes had a traditional occupation. In this regard, having a traditional occupation during proto-industrial periods would mean that the same occupational title was already found during preindustrial periods. Likewise, the same way of categorizing traditional occupations would be used for the industrial periods; traditional occupations would be considered as such if they already existed during protoindustrial periods.

As shown in Figure 8, when looking at sons with non-manual occupations, those traditionally regarded as 'traditional' consistently had a much higher probability of being in the top quartile of the SES index within the non-manual group. These differences were substantial across periods and regardless of social class origin. This difference might explain why even social mobility (when compared to class immobility) was always associated with a lower likelihood of attaining the top quartile of the SES index within non-manual groups. High intergenerational class transmission (immobility) levels were more prevalent within traditional occupations. In fact, as seen in Figure 9, we calculated the probability of having a traditional occupation by social origin, and as expected, traditional occupations were associated with higher levels of intergenerational transmission than new occupations.

Fig 8. **Predicted probabilities of being in the top quartile of SES index conditional on whether they had a traditional occupation (already existing in previous periods) among Non-manual sons**



4. Conclusions and future agenda

From the results of our study, we found some interesting insights. First, using a combined SES approach (occupational prestige and economic capacity), we can capture class differences and within-occupation disparities. Second, by looking at socioeconomic persistence, it seems that social mobility has increased from the pre-industrial periods. However, looking in more detail, we also saw that since industrialization's take-off (in 1830), social mobility had different directions and magnitudes by different social classes. SES persistence would have increased for Non-Manuals' children, stagnated for Artisans' children, and declined for Farmers'.

Besides, class mobile individuals would have uneven performance in SES capacity over the whole studied period depending on their destination. Such inequality was substantial among the Non-Manual group. These results suggest that much more still needs to be researched when dealing with the long-term trends in social mobility, especially during preindustrial and early industrial periods. Specifically, the rise in social persistence and clear advantage for immobile children with non-manual backgrounds seems to recall the concept of class ceiling coined by (Friedman and Laurison 2020). In this regard, these authors show the social barriers individuals from lower-class backgrounds face to become or establish themselves in advantaged positions among higher classes. We see that socially immobile (intergenerationally) would perform better than mobile, independent of the period. Accordingly, by having a look at traditional and non-traditional occupations, it seems that a likely mechanism explaining class ceiling (class immobile with better SES attainment within the Non-Manual class). Traditional occupations usually had a better SES attainment within the Non-Manual groups, and those occupations were also much more endogamic, being intergenerationally transmitted.

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