No. 18
January 2020

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HHB Working Paper Series
hhbproject.com

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WORKING PAPER SERIES

Please cite this paper as:

A'Hearn, B., Chianese, S. and Vecchi, G. (2020). 'Aristocracy and Inequality in Italy, 1861-1931', *HHB Working Paper Series*, No. 18, January 2020, Rome.

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Aristocracy and Inequality in Italy, 1861-1931

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Abstract

A problem for both historical and contemporary research on inequality is a scarcity of high quality data on wealthy households. In this paper we explore a rich source of such data for historical periods: the account books of aristocratic households preserved in their family archives. We make three contributions: i) a survey of the nobility in Italy and of their publicly accessible archives; ii) an assay of the type and quality of budget data they contain; and iii) an assessment of the impact of adding upper-tail families to a household budget sample on inequality estimates. In a nutshell, our assessment is that the data are relatively abundant, accurate, and highly impactful. An enhanced sample of noble families will enable us to significantly improve estimates of Italian inequality right back to the country's founding in 1861. There is no reason to think the approach would be any less feasible or fruitful in other European countries.

JEL codes: N33, N34, I3.

Keywords: extreme values; outliers; inequality; household budgets; aristocracy; Italy.

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[1] We thank Federico Belotti, Luigi Cannari, Giovanni D'Alessio, Giovanni Federico, Giuseppe Ilardi, Giulia Mancini, and Daniel Waldenström for helpful suggestions. We thank Giacomo Gabbuti and Marcella Lorenzini for sharing unpublished data.

1 Family archives and economic history

Inequality is the issue of our time. And there seems to be general agreement that a long-run historical perspective is required to understand whether particular distributional dynamics are inherent in capitalism, specific to the process of industrialisation, or alternately dominated by the vicissitudes of technical progress, institutional change, and global integration. The challenge in historical work is the absence of household survey data, which has forced to researchers to work with social tables (Allen, 2019; Gómez León and De Jong, 2019), top income shares based on tax data for the wealthy (Atkinson and Piketty, 2007), and factor shares in national income (Bengtsson and Waldenström, 2018). Though all of these are reliably correlated with inequality when comparison is possible, and of interest in their own right, none provides an accurate overall measure of inequality equivalent to (for instance) the Gini index. And it has proved difficult to extend such measures far back in history with any continuity. A recent survey of historical top income estimates lists only five cases extending back before 1920 (Roine and Waldenström, 2015: 486).

In fact, historical household budgets are more abundant, and more amenable to systematic analysis, than is generally thought (A'Hearn et al., 2016). For Italy, a dataset of more than 20,000 historical household budgets has made it possible to construct estimates of inequality, at decennial frequency, right back to the country's unification in 1861: Gini indices, top income shares, even growth incidence curves (Vecchi, 2017). A degree of circumspection about these results is in order, however. The historical investigations yielding the largest collections of budgets - the 1904 enquiry of the British Board of Trade, to cite just one example - focussed on the living conditions of the working classes and omitted high-income households altogether (Gazeley and Newell, 2011). While this poses few problems for (absolute) poverty estimation, it is legitimate ground for concern about inequality estimates. This should not surprise us, given that even in modern data "… it is well-known that surveys do not capture income at the extreme top of the distribution very well. This problem ('survey under- coverage') means that survey-based estimates of overall income inequality are biased downwards" (Burkhauser et al., 2017). What is to be done?

In this paper, we explore the potential of an underused source to resolve this problem: the family account books of noble families. The aristocracy is of interest in its own right for social, and perhaps political historians, but our interest arises from the substantial overlap between "rich" and "noble." The nobility's overriding concern with the long-term continuity of the family inheritance line and identity is another advantage, for it meant careful attention to both preserving family wealth and documenting family history.[2] Family archives are common in aristocratic families, and typically contain account books that allow us to reconstruct income and expenditures in a detailed way: proper household budgets. And having been compiled for internal use, they are not subject to the under-reporting common in tax records. The family account books are also of interest to document the spread of new consumption patterns, to study portfolio management and the intergenerational transmission of wealth, and to construct times series of retail prices and asset returns, but our interest here is focussed on income and expenditure per capita in families from the upper tail of the income distribution.

The paper is organised as follows. In Section 2 we describe the structure of aristocratic family archives and estimate their geographic distribution across Italy, as well as the time period they cover. To illustrate their usefulness to economic historians, we discuss the example of the Pepi family of Florence in some detail. Section 3 describes the dimensions, social status, and wealth of the Italian nobility in the post-unification era.[3] In Section 4 we illustrate the impact of adding observations from the upper tail on parametric estimates of the distribution of income, from which we calculate several inequality measures; the effect is substantial. Section 5 summarises our conclusions.

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[2] Of course there is a selection effect at work here: we observe those noble families whose archives survived and have been catalogued. On balance this probably implies positive selection on wealth (There are forces working in both directions, however. A less affluent, noble family is more likely to have disappeared without a trace, but also more likely to have chosen to relinquish its archive to the state, given the legal requirement – and associated burden – of properly conserving and making accessible its contents.) For our purposes, the first order question is whether noble families were representative of the wealthy more broadly.

[3] The analysis in the paper covers the period 1861-1931. We stop in 1931 for three reasons: i) the evidence reviewed in Section 3 suggests the nobility were a declining economic force over time, making them less representative of the wealth; ii) the lack of a population census for 1941 makes it impossible to implement the post-stratification method described in Rossi et al (2001); and iii) for the period since World War II confidentiality issues arise which complicate access to and use of the records.

2 Family archives

Traditionally both historians and archivists took a sceptical view of family archives: a good source for anecdotes but poorly suited for discerning and documenting more general patterns (Bologna, 1997). With time, this view has changed.

On the one hand, the number of family record groups acquired by state archives has grown, both in Italy and in the rest of Europe (Bologna, 1997). This process has been driven by two factors: the logistical problems encountered by many families in properly safeguarding large collections of historical documents; and legislation aimed at developing the capabilities of public archives and promoting their broader social engagement (de Longis, 1997). On the other, this increase in supply has been matched by an increased demand by historians and social scientists with a new interest in multidisciplinary research. Historians, sociologists, anthropologists, historical demographers, and economic historians have discovered in family archives a rich source of information. Last but not least has been the growing interest in the history of the family, which broadened its evidentiary basis from sources such as parish registers, vital records, and censuses to also include sources that are less general but more rich in qualitative information and detail.

Economic historians have turned to family archives for information on the evolution of wealth, income, and consumption among what we might consider the main economic actors of the modern world. Much of this work consists of studies of individual families, for example the studies of Florentine noble families by Paolo Malanima (1977) and Valeria Pinchera (1999), who based their investigations on the archives of the Riccardi and Salviati families, respectively. The research of Andrea Moroni (1997) focuses on the Tuscan context and examines the archives of several families among the local nobility. Similarly several Bolognese noble houses have been studied: the Bolognini-Amorini (Martini, 1999), the Ghelli (Fornasari, 2002), and the Aldovrandi (Troilo, 2010). In the Trentino region, recent work has investigated the Salvadori and Bossi-Fedrigotti families (Lorenzini 2018). Finally, in the Veneto context, James Davis (1980) and Maria Luisa Ferrari (2012) examined the archives of the Donà and Dionisi families, respectively. What has *not* been attempted yet is a systematic, large-scale utilisation of family archives in the service of an analysis that goes beyond individual families – however important – to assess broader patterns.

The exercise carried out in Section 4 contributes to a debate among economic historians and welfare analysts about a question as important as it is difficult: how to estimate income inequality and its trend over time on the basis of data which for several reasons are particularly deficient in the upper tail of the distribution.

2.1 What is to be found in family archives?

From the 14th and 15th centuries, an increasing investment in literacy in wealthy and aristocratic families fuelled a great expansion of writing in a domestic context. The most salient evidence of this phenomenon are the so-called "*libri di famiglia*," which had begun to appear among both bourgeois and noble families as early as the 13th century. The *libro di famiglia* was a sort of compendium of information with records of births, marriages, and deaths, didactic texts for children and later descendants, practical advice on cures for common illnesses, chronicles of important events in the family history, and even recipes and guidance on hygiene.[4] Alongside such domestic writing grew a sense of urgency among rich and noble families about imposing and maintaining a proper order in their increasingly diverse and intricate business affairs and asset portfolios. The custom, indeed *necessity*, as it was perceived, of producing and retaining regular financial accounts continued right into the 19th and 20th centuries. This makes it possible, with due allowance for inevitable gaps in the surviving documentation, to reconstruct long-run historical accounts (in both the financial and narrative senses).

Three types of documents can typically be found in a family archive: i) administrative and judicial papers; ii) correspondence; and iii) financial accounts (Bologna, 1997). The first type of documentation is the most abundant and varied, comprising all the public and private documents relating to the organisation, management, and history of the family. Compiling an exhaustive list of the specific kinds of record found in this group is practically impossible: we find public records like notarial acts, wills, and dowries, contracts for sales and purchases, the extension of credit, and judicial and trial documents; but also private documents such as memoirs, reports, and discussions of the most widely

[4] The rediscovery of the *libro di famiglia* as a literary genre and historical source is due to research conducted in the 1970s by Alberto Asor Rosa, Angelo Cicchetti, and Raul Mordenti, who produced a substantial bibliography on the subject (Cicchetti and Mordenti, 1985).

varying issues concerning a single member or the entire family. The documents we find among administrative papers depend on the interests and the social, political, and economic position of the family. In the early modern era, noble families played a central role in society and economy, yielding documents that today we would expect to pertain to high ranking ministers or diplomats. A loan might be made to a minor local entrepreneur or to a foreign head of state; family memoirs can equally recount private domestic affairs or the major political events of the day.

The second type of family archive documents is correspondence. Though one might not expect correspondence to be a prominent part of a family's documentary production, in fact it has a central role in the reconstruction of networks of relationships and, above all, in determining the operational capabilities of the family. "Two elements are the basis of the economic and financial fortunes of these merchant-banker-oligarchs: group solidity and information. Solidity, or compactness, of the group could hardly be better guaranteed than by membership in one and the same family (…). The flow of information was ensured by a web of correspondents spread right across Europe. A corollary of this informational advantage was a well ordered and functional archive of correspondence sent and received" (Bologna, 1997: 575, our translation). The insatiable hunger for new information and the need to preserve it through time resulted in a gold mine of evidence for historians, even regarding developments far from a family's home region.

The third and final type of documentation is that of most direct interest to us in the present context: financial accounts. We can distinguish two general categories of accounts: those regarding management of family assets (or patrimony, to use the Italian term), and those relating to domestic and personal expenditures. For both categories the documents can be divided into (i) registers or account books, which have a widely varying frequency, and (ii) supporting evidence such as bills and receipts proving each item of expenditure or revenue. Bookkeeping was sometimes undertaken by a family member, but more often was delegated to a professional called an *economo* or *computista*. Typically, there were both a journal (*libro giornale*), in which individual items were recorded in chronological order on a frequent, even daily, basis, and a master account book (*libro mastro*), usually following double entry accounting practice, in which daily entries were grouped into categories of revenue and expenditure. These account books are often characterised by considerable technical sophistication, reflecting the fact that aristocratic families functioned much like a modern holding company, with diversified entrepreneurial and financial dealings. Management of family capital involved rental income from real property, extending credit to public and private borrowers, and entrepreneurial investments in manufacturing, agricultural production, and government contracts such as tax collection. The account books reflect this complexity, and as such require considerable care when used to estimate a family's real wealth and income. The journal of daily domestic expenditures is much more straightforward to use.

The potential uses of family archive records are manifold. Limiting ourselves to research topics in quantitative economic history we might cite the diffusion of new consumption patterns, the reconstruction of very-long-run time series of retail prices, wages, and rental rates, the allocation of wealth across different assets (land, securities, loans), and the intergenerational transmission of wealth.

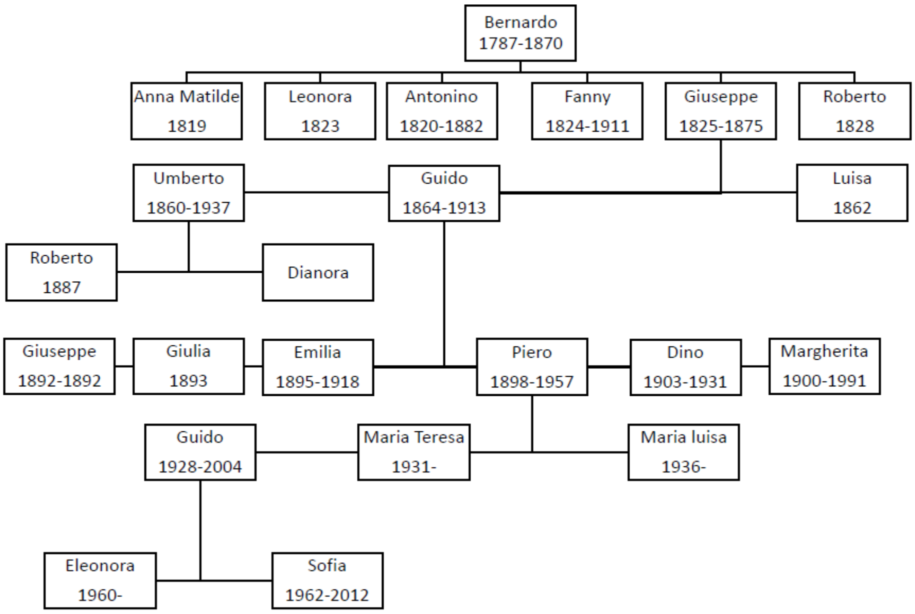
2.1.1 The Archive of the Pepi Family of Florence

As an example we describe in this section the family archive of the Pepi of Florence. The Pepi are an historic aristocratic family with roots that can be traced back as far as the 11th century. Probably originating from the island of Cyprus, the family takes its name from its involvement in the spice trade, more specifically in pepper. The family's history is tightly linked to that of the city of Florence, where they flourished for centuries.

Information about the most remote periods, before the 16th century, is scarce and mostly handed down orally. The family may be related to two of the most famous Florentine artists: Cimabue (1240-1302), the pseudonym of Cenni di Pepo, and Sandro Botticelli (1445-1510), whose true name was Alessandro di Mariano Filipepi (Sacchettini, 2015). The political activities of the family, whose members had important roles in the institutional hierarchy of the Florentine Republic throughout the 14th and 15th centuries, are well documented, by contrast. Family members were part of the *Signoria* on any number of occasions, especially as *priori* (guild representatives). A few individuals had important roles in the Florentine diplomatic corps as ambassadors to the Holy See and the Imperial Court.

The Pepi family archive covers roughly five centuries of history, starting in the second half of the 1500s and continuing through to the 1960s. It comprises of 164 elements (109 registers, 31 filze, and 24 buste), housed in a large Renaissance era cupboard on the first floor of the Palazzo Pepi in Florence.[5] Its contents correspond well to the description of the previous section, and include all three major document types: administrative papers, correspondence, and of course, financial accounts.

Figure 1 – The genealogical tree of the Pepi family, 1800-present



Source: Sacchettini (2015).

The historic accounts being from the first half of the 1600s with the bookkeeping of Ruberto Pepi. Following the available documentation, it would be possible to reconstruct the economic affairs and the welfare of the Pepi family for nearly four centuries. In this paper we concentrate on the post-1861 period of unified Italy. We have selected five registers. The oldest covers the period 1848-1870, the most recent the years 1904-37. To know the composition of the family at different points in time, we have made use of the family tree (Figure 1), reconstructed by archivist Riccardo Sacchettini during the process of indexing the archive.

[5] To preserve the history of the family for future generations, Maria Luisa, the last descendent bearing the surname Pepi, initiated a project to restore and reorganise the archive, which was entrusted to the archivist Riccardo Sacchettini and supervised by Professor Antonio Romiti. The project was completed in 2015 (Sacchettini, 2015).

2.2 How many family archives survive?

In this section we attempt to estimate, if only roughly, the number of publicly accessible family archives in Italy. A possible starting point is a guide to the state archives published from 1991 under the title *Archivi di famiglia e di persona: materiali per una guida.* This publication, in three volumes (the last published in 2009) covers as many as 4,462 archival collections, a number which however includes “personal archives,” which are an entirely different animal. They contain the documentary production of an individual who has distinguished himself or herself in some professional, scientific, or cultural field – writers, artists, academics, scientists, and politicians, whose papers have been deposited in a public archive or preserved by their descendants. Though related, they are fundamentally different from the family records in which we are interested.

For our purposes two public databases are more useful: the *Sistema Informativo degli Archivi di Stato* (SIAS) and the *Sistema Informativo delle Soprintendenze Archivistiche* (SIUSA). The first reports family archives that have been donated to or acquired by the Italian state archives; the second reports those under the supervision of the *Soprintendenze* (“superintendancies”) but kept in municipal, provincial, organisational, or private archives.[6] The numbers revealed by this research can be summarised as follows. The entire state archive system contains 940 family archives, while the *Soprintendenze* supervise in total 842. The two systems together thus have responsibility for 1,782 family archives. At present we can only give the geographic distribution of the archives supervised by the *Soprintendenze* (Table 1).

[6] There are 103 *Archivi di Stato* in Italy, one in every provincial capital, as well as subsidiary offices in other cities. Their primary purpose is the conservation of documents produced by the local branches of the central government, such as prefect’s offices or (state) police stations and by the court system. In addition they maintain the archives of the pre-unification states, and in many cases historic notarial archives. Over time, the state archives have acquired a wide range of materials, among them many family archives. The *Soprintendenze Archivistiche* (archival “superintendencies”) are organised on a regional basis. They supervise and safeguard the archives of public entities such as the Regions, Provinces, and Municipalities, as well as Chambers of Commerce and the *Aziende Sanitarie Locali* (ASL, “local health authority”). They are also responsible for private archives considered to be of significant historic interest. The Pepi family archive falls into this last category, being preserved in the family home but placed under the supervision of the *Soprintendenza*.

Table 1 – The geographic distribution of family archives under the supervision of the *Soprintendenze*.

Region	Family archives	%
Abruzzo	5	0.6
Basilicata	5	0.6
Calabria	25	3.0
Campania	8	1.0
Emilia Romagna	23	2.7
Friuli Venezia Giulia	3	0.4
Lazio	61	7.2
Liguria	11	1.3
Lombardia	142	16.9
Marche	35	4.2
Piemonte e Valle d'Aosta	14	1.7
Puglia	7	0.8
Sardegna	15	1.8
Sicilia	6	0.7
Toscana	358	42.5
Trentino	3	0.4
Umbria	114	13.5
Veneto	7	0.8
Italia	*842*	*100.0*

Source: our calculations based on data available at http://siusa.archivi.beniculturali.it/

Table 1 shows a marked imbalance between the various regions. Toscana all by itself has more than 40% of the total, while the southern regions all together do not reach 10%. This imbalance has implications for the overall design of a research project aiming at a nationally representative sample, but the problem might be mitigated by archives housed in the state archives.

Finally, to reach a comprehensive estimate, we need to consider documents preserved in the homes of thousands of Italian families, noble and commoner alike, not yet transferred to state archives or catalogued by the *soprintendenze*. The challenge is to find a way of making these resources available to the academic community. Who might possess a family archive? The preservation of family documents, especially accounts, is often linked to economic activity or substantial wealth, thus *i)* entrepreneurs, *ii)* landowners, and *iii)* aristocrats. In the first two of cases, family archives may largely coincide with business archives, which were often managed as a family affair. The third case is the focus of this article. We begin with this type since aristocrats were often also landowners and entrepreneurs, so that, in a sense, they cover all three categories. A second, more practical motive, is that noble family archives are rich and often easy to identify.

3 The nobility in post-1861 Italy

The role of the aristocracy in the difficult passage between the early modern and modern periods has been the subject of much debate in European historiography. The 1800s have always been considered the century of the definitive ascendancy of the bourgeoisie and the steep decline of the dominant classes of the ancien régime. This paradigm was questioned starting with the studies of Arno Mayer, which demonstrated the continuing economic, political, and cultural power of the aristocracy right up to the First World War (Mayer, 1981; Higgs, 1987; Cannadine, 1991).

Italian historians were active participants in this debate, contributing a number of studies on the aristocracy and other élite groups in the nineteenth century (Macry, 1988; Banti, 1994; Jocteau, 1997; Cardoza, 1997). In the Italian context the following complication arises: "Neither before nor after the unification can one find an *Italian* nobility. There are several, defined by their various origins in historic states or cities (…) not linked by a shared national identity" (Jocteau, 1997: p. VIII, our translation, emphasis added). This peculiarity makes it difficult to trace the boundaries, even in simple demographic terms, of the nobility in post-unification Italy. Who were the nobles? How numerous were they? How were they distributed across the national territory? What was their role and their status in society?

To outline and fill in a profile of the Italian aristocracy, we can begin by appealing to the prevailing norms, in the first place the Albertine constitution, which defined the criteria for recognition of noble titles, as well as the role of the aristocracy, in the new Kingdom of Italy.[7] Article 79 read: "Noble titles are maintained for those who have a right to them. The King may grant new titles." This regulation, concise to a fault, did not resolve the problems surrounding recognition of titles. To bring some order to the situation, in 1869 the *Consulta Araldica* (Heraldic Council) was established, with the task of providing the government with expert opinions on the issue. In fact, rather than a consultative body, the Council became a sort of final court of appeal for the recognition of noble titles. In

[7] The Albertine constitution was the constitution adopted by the Kingdom of Sardinia in 1848. With the birth of the Kingdom of Italy in 1861, it became the legal foundation of the new state. It would remain in force until the end of the Second World War, when it was first suspended and then definitively abrogated with the adoption of the new republican constitution of 1948.

principle, all titles existing in the pre-unification states were to be maintained. But anyone making a request for recognition was required to present detailed documentation, and follow a complicated sequence of procedures, which included a significant economic burden. Law 3,279, passed in 1923, set out a clear schedule of fees for the granting of noble titles by the government (Jocteau 2004). Payment varied with the title; Table 2 shows that the sums were considerable – from 9,600 lire (roughly 9,400 euros in today's prices) for a generic title of "noble" to 72,000 lire (ca. 71,000 euros) for the title of prince.

Table 2 – Fees for the granting or confirmation of noble titles, 1923

Title	Italian lire (1923)	Euro (2018)
Principe	72,000	70,510
Duca	60,000	58,758
Marchese	36,000	35,255
Conte	30,000	29,379
Barone	18,000	17,628
Visconte	18,000	17,628
Other titles	9,600	9,401

Source: Royal decree of 30 December, 1923, n. 3,279.

Should the bureaucratic process lead to a successful outcome, the petitioner was officially enrolled in the *Libro d'oro della nobiltà italiana* (Golden Book of Italian Nobility), the official register of the Italian state specifying all recognised noble families, their place of origin, title, and habitual residence. The constitution of the Italian Republic abrogated noble titles and directed that a specific law should suppress the Heraldic Council, which in fact ceased activity in 1944 (though an office charged with winding up the Council's affairs remained active until 1959).

The documentation produced by the Council is the principal source for a quantitative reconstruction of noble population of Italy after unification. A significant problem is the fact that *i)* recognition of a title was not automatic, but required an official request followed by a long and costly bureaucratic procedure, and *ii)* a recognised title did not carry with it any privileges under the new post-unification legislation. Those making an application to the Heraldic Council therefore did so for reasons of social status. Furthermore, given the cost of the procedure, applicants had to be well-off economically. For both reasons, we can guess that the nobles on the register of the Council are an underestimate of the actual number of aristocratic families in the pre-unification states.

It was the *Consulta* itself, in a publication of 1934, that provided more accurate data on the demographic size of the Italian nobility: there were counted 7,750 noble families, or not quite 42,000 individuals (Presidenza del Consiglio dei Ministri, 1934). As a share of the Italian population, nobles would come to something like 0.1 per cent of the total. Reliable estimates exist for the 1920s, 1909 and 1878 as well. In the first two cases we rely on the calculations of Gian Carlo Jocteau, based on regional lists of "noble and titled families" produced by the Heraldic Council (Jocteau, 2004 and 1997), while for 1878 the data have been drawn from a publication by Leone Carpi, a well-known nineteenth-century economist and political figure.

Table 3 summarises these estimates, which have a few simple messages. First, demographically the nobility were without doubt a very small group, between 0.1 and 0.2 per cent of the population. Second, the demographic weight of the aristocracy was falling over time, a negative trend documented in previous research (Delille Bocconcelli, 1986; Jocteau 2004).

Table 3 – Noble families and individuals in the Italian population, 1878-1934

Year	Families	Individuals	% pop.	Source
1878	9,751	52,000	0.18	1
1909	9,321	50,337	0.14	2
1920s	-	-	< 0.20	3
1934	7,750	41,853	0.10	4

Source: 1: Carpi(1878), 2: Jocteau (1997); 3 : Jocteau (2004) ; 4: Consulta Araldica (1934).
Note: For 1878 and 1909 Carpi e Jocteau report only the number of families. To estimate the number of individuals we apply the same ratio of individuals per family found in the data for 1934.

Based on the reconstructions of Jocteau (1997) we can also describe the distribution of the nobility across different regions and ranks (Table 4). The regions with the greatest number of noble houses are Toscana, Veneto, and the Neapolitan region. The most high ranking titles (princes, dukes, and marquis) are concentrated primarily in the South and in Rome, "thanks to the Papal and Spanish grants" (Jocteau, 1997: 24), while the North-Centre is where we find a type of nobility with urban, rather than feudal origins.

Table 4 – Noble houses by region and title, 1909

Region	Houses	Princes	Dukes	Marquis	Counts	Barons	Signori	Patricians	Nobili di Città	Nobili	Knights	Nobili dei	Other	Total
Liguria	326	4	4	98	47	15	10	227	27	17	1	22	6	478
Lombardia	767	6	5	77	241	16	141	169	29	464	27	82	16	1,273
Marche	519	30	14	63	121	2	10	235	538	2	0	4	28	1,047
Modena	344	1	1	35	109	1	15	237	120	34	6	20	2	571
Napoli	1,132	169	236	294	119	44	10	514	120	254	0	185	186	2,131
Parma	276	1	0	41	94	10	3	8	1	145	2	2	0	307
Piemonte	974	1	1	163	557	132	293	52	8	133	1	247	7	1,595
Roma	448	86	52	98	104	9	83	82	387	8	2	23	67	1,101
Romagna	506	9	9	56	184	3	14	368	255	16	2	18	7	941
Sardegna	327	1	4	38	38	29	10	0	0	294	293	17	296	1,020
Sicilia	823	137	104	195	69	555	249	12	1	79	7	79	8	1,495
Toscana	1,438	9	6	82	141	28	4	610	859	15	1	7	3	1,765
Umbria	412	11	6	54	92	2	7	156	443	3	1	12	20	807
Veneto	1029	8	1	31	407	17	90	210	617	132	33	39	188	1,773
Italia	9,321	473	443	1,325	2,323	863	939	2,980	3,,405	1,596	376	757	834	16,304

Notes and sources: The number of noble houses is smaller than the number titles, since a single family could have several titles (Jocteau, 1997).

What then was the political, economic, and social role of the aristocracy in post-unification Italy? An answer to the question starts from the text of Article 24 in the Albertine constitution, which affirms the substantive equality of all the King's subjects in terms of civil and political rights, as well as civilian and military responsibilities. In short, a noble title carried no meaningful privileges in the new Kingdom, and represented a symbolic honour without prerogatives. Nor was any accelerated career path in politics, for example entry into the Senate, the military, or even the Royal Court provided for in law. The Kingdom of Italy thus seems to have adopted quite restrictive legislation, sweeping away the last caste privileges of the ancien régime. This lack of special treatment under the law extended to inheritance, an issue of existential importance to the aristocracy, for the new Kingdom abolished the practices of *maggiorascato* (primogeniture) and *fedecommesso* (entail).[8] Now the nobility too were subject to the restrictions of the civil code defining legitimate heirs and minimum shares to which they were entitled, effectively requiring partible inheritance.

Despite this egalitarian legislation, the aristocracy continued to make up a considerable share of Italy's *classe dirigente* – the individuals holding positions of power and influence in business, government, and society. The share of ministers from an aristocratic background varied between 43%, in the early governments of the right, and 21%, in the years just before the First World War. On average, in the Chamber of Deputies one in four members was a noble between 1861 and 1915, army generals of aristocratic extraction made up 30-35% of the total, and in the diplomatic corps roughly half of ambassadors were titled.

It remains to assess the share of wealth and income concentrated in the hands of noble families after unification. At this stage we can offer only partial answers, based on studies of quite restricted geographic scope. A broader analysis covering

[8] Primogeniture and entail were forms of inheritance that helped families avoid division of their patrimony by concentrating it in the hands of a single heir, who was legally enjoined by the terms of the will from selling or giving it away, in part or in full, before his own death, when it was to pass, as a whole, to his designated heir.

the entire nation is difficult to carry out at the moment, but remains a task of some urgency. The American historian Anthony Cardoza has studied the concentration of wealth in Torino in the period up to the First World War, a period that turns out to have witnessed rapid change (Cardoza, 1995). In the decade 1862-73, more than half of inheritances exceeding 750,000 lire passed between the generations of aristocratic families, amounting to 64% of the total value. Already in the succeeding decade (1874-85) the proportions reversed, with "bourgeois" inheritances reaching an identical 64% of total value. In Naples, something similar seems to have been occurring. Studying inheritance tax declarations, Macry (1990) shows a sharp fall in the average value of inheritances among aristocratic families, from 634,179 lire in 1876 to 211,767 lire in 1906. Romanelli (1995), meanwhile, has shown that in Florence between 1862 and 1904 only 96 of 300 large declared inheritances (exceeding 500,000 lire) were left by nobles, the remaining two-thirds by "bourgeois" families. Finally, in the more peripheral context of Piacenza, the trend was the same. Banti (1989) shows that the total value of noble inheritances fell from nearly 5 million lire in the three years 1876-79 to just over 3.5 million in 1902-05.

The available evidence thus suggests that in the decades following unification the political and economic power of the aristocracy was waning. To keep this in perspective, though, we must take account of the demographic dimensions of Italy's nobility. As we have shown, it was a very small, and declining, share of the population, just 0.1-0.2 per cent. The nobility were thus a very narrow minority, which still had a disproportionate socio-economic weight in the country and a natural predisposition to preserve and perpetuate its social status.

4 Noble families and the distribution of income

The starting point for any reconstruction of the distribution of income and estimate of inequality is a sample of households that represents the entire population: the data must cover the entire spectrum of incomes, from the left tail where the most indigent families languish to the right tail were the most affluent are found, including those (very few) that we might call rich or "super-rich" (Waldenstrom, 2017). In practice, the construction of representative samples is a major challenge in historical research, one that is more difficult, the further back in time the period of interest. For many countries, data that would meet the standards of a modern statistical analysis simply do not exist. In these cases the choice can only be to make do with alternatives, the most popular being the use of fiscal data (Roine et al. 2009; Roine and Waldenström, 2015).

In this panorama, Italy is an exception.[9] Vecchi (2011, 2017) has reconstructed the distribution of income for benchmark years a decennial frequency, for the entire century and a half that runs from unification (17 March, 1861) to 2011. The foundation for this work is a database comprising more than 20,000 household budgets, harmonized with and linked to the Bank of Italy's Survey of Household Income and Wealth (SHIW) data, which are available from the second half of the 1970s (Baffigi et al 2016; Chianese and Vecchi, 2017). The historical sources uncovered in this research are *i*) relatively rich in information about the left tail of the distribution – due to the numerous investigations focussed on documenting the living conditions of "the common people," and in particular of "the poor," and *ii)* decidedly poor in information about the right tail: data on the incomes and expenditures of the rich are rare.

One possible solution to this imbalance relies on the population censuses. Census data make it possible to construct a system of weights (*expansion factors*) with which sample data can be "post-stratified," following procedures quite commonly used when problems of representativeness arise with samples (Holt and Smith, 1979; Lohr, 2010). Post-stratification is often effective: it is relatively straightforward to inflate or deflate particular segments of the sample so that their weight is congruous with that in the population. But post-stratification cannot work

[9] The household budget approach, championed by the Historical Household Budgets (HHB) Project has begun to be applied in other countries. See Boukaka et al. (2018).

miracles; it cannot make rich and super-rich families appear where they are entirely absent from the original sample.[10] A second possibility is to turn to a parametric model rather than work directly with the original data: the raw income data can be used to estimate the parameters of a mathematical function, which acts like a "smoother" and offers protection against anomalies often found in real-world, post-stratified distributions, including those in the right tail (Cowell, 2011). Parameterisation ensures that the estimated distribution will have an upper tail, but to presume this adequately substitutes for actual data and will yield an accurate estimate of inequality would be folly.

How severe are the consequences of failing to estimate the upper tail of a distribution accurately? Not all indicators of interest are affected to the same degree. Poverty measures, for example, are fairly robust, in the statistical sense, to what happens to the right of the poverty line, even more so to events in the upper tail (Cowell e Victoria-Feser 1996a). At the other extreme are measures of inequality, which are extremely sensitive to the presence (or absence) of data on the rich (Cowell e Victoria-Feser 1996b; Cowell e Flachaire 2007, 2015; van Kerm 2007). Unbiased estimation of inequality requires a solution to the missing data problem. What remedies are available?

Jenkins (2017) has surveyed the approaches adopted in the recent literature. He shows that the best statistical results are obtained not by combining *data* from surveys (typically studies of household consumption or income) and fiscal sources, but by combining *estimates* separately obtained from the two sources. Alas, this is not likely to be feasible for most long-run historical analyses, once again due to a lack of appropriate data.

[10] The situation is not entirely dissimilar to that in modern studies, which face a growing problem of non-participation by rich families in surveys (under-coverage), as well as a tendency to deliberately report figures lower than the true values (under-reporting). See Meyer, Mok, and Sullivan, 2015.

In this section we explore an alternative approach, exploiting the availability of high quality data on the richest families in society. The account books preserved in the family archives aristocratic houses discussed in Section 2 are perfectly suited to our needs. Although it is clear that membership in the aristocracy need not, *ipso facto*, imply great wealth, in practice noble families in Italy were typically rich. As we shall see, their incomes and expenditures were high, often extremely high, relative to those observed on average for the mass of the population.

It is precisely the extreme nature of these noble incomes that makes them so useful. Ordinarily, the analyst faced with a small number of extreme values must question whether they are "contaminants," erroneous, or genuine (Barnett and Lewis, 1978; Cox et al. 2011). The most common practice is to subject extreme values to some treatment that forestalls their having an undue influence on the estimates of interest. One possibility is to simply exclude anomalous values (trimming); another is to substitute them with imputed values obtained using one of several methods commonly employed in the literature (Little and Rubin, 2019). In this paper, we adopt exactly the opposite strategy, namely to take advantage of extreme values that we know to be genuine. The anomalous character of noble incomes is what gives them value, allowing us to accurately reconstruct the upper tail of the distribution, the range that is most tricky to model but which has the most influence on the final estimates.[11]

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[11] We emphasise that data from aristocratic family accounts offer a solution not only to the problem of under-coverage, but also that of under-reporting. As described in Section 2.1, it was the "*maestro di casa*" who kept the books, an accountant with the necessary expertise to correctly enter items of income and expenditure (one could argue that the resulting figures do not suffer from the classic measurement error present in modern surveys), who had no interest in reporting misleading numbers (ruling out the problem of under-reporting). Partly offsetting these virtues is the problem that the accounts can be incomplete, as we shall discuss, especially regarding notional values such as the housing services provided by the family home.

4.1 The sources and the data

The collection and processing of income and expenditure data from aristocratic families should be a relatively straightforward operation, given the results of an initial implementation of the approach on a set of noble households for the period 1861-1931. Table 5 summarises the resulting dataset. For each family, we have collected both incomes and expenditures, as well as net assets (where available) and the demographic composition of the household.[12] In the remainder of our analysis here we focus on incomes, harmonising the newly collected archival data in such a way as to be compatible with those available from the work of Amendola and Vecchi (2017).[13]

The dataset of aristocratic households comprises 15 families, each observed for several years, for a total of 140 family-years distributed geographically across all five "macro-areas" of Italy and the several ranks of nobility, from "noble" *tout court* to prince. In many ways, it is an incomplete sample, but sufficient to carry out an initial evaluation of the empirical strategy we are proposing.[14]

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[12] Reconstructing the household size for aristocrat households is not a straightforward task, due to *i)* the complexity of their genealogical trees, *ii)* the (temporary or permanent) absence of household members, and *iii)* the presence of servants, boarders, but also friends and relatives visiting the family for extended periods. We have adopted a standard modern definition of 'household', which includes a residency requirement (household members share the same dwelling), common food consumption and common intermingling of income. All the archives checked so far provide the information needed to identify and count household members consistently.

[13] For not quite half of our noble families the account books report only expenditures. In these cases we imputed a value for income equal to 150% of expenditure, the median ratio observed in the cases for which we observe both income and expenditure.

[14] Reconnaissance in several Italian state archives turned up evidence of a wealth of domestic account books that will soon allow for a significant expansion of the sample presented here..

Table 5 – Sample aristocratic families, 1861-1931

Family	Title	City	Years	Source
Pepi	Noble	Firenze	1857-1932	1
Nunziante	Count	Napoli	1925-1940	2
Saluzzo	Count	Napoli	1912-1915	3
De' Medici-Carmignano	Prince	Napoli	1887-1893	4
Del Drago	Prince	Roma	1861-1881	5
Sforza-Cesarini	Duke	Roma	1870-1919	6
Antonelli	Count	Roma	1885-1889	7
Cenci Bolognetti	Prince	Roma	1861-1909	8
Giustiniani - Odescalchi	Prince	Roma	1909	9
dell'Aracoeli - Colonna	Prince	Roma	1918-1919	10
Fatta del Bosco	Duke	Palermo	1889-1906	11
Crivelli	Marquis	Milano	1859-1870	12
Biumi	Duke	Milano	1861-1864	13
Consolati	Count	Trento	1879-1882	14
Della Porta	Count	Gubbio	1925-1927	15
Amarelli	Count	Cosenza	1919-1922	16
Bossi Fedrigotti	Noble	Rovereto	1855-1864	17

Source 1: AP, registri 84, 136, 137, 138, 159. Source 2: ASN, famiglia Nunziante, busta 62. Source 3: ASN, famiglia Saluzzo, busta XIII. Source 4: ASN, Famiglia De' Medici-Carmignano busta 50. Source 5: ASR, Famiglia Del Drago, parte 2 busta 407, parte 2 busta 412. Source 6: ASR, Famiglia Sforza Cesarini, serie II n. 46, serie VIII n. 113, serie VIII n. 118. Source 7: ASR, Famiglia Antonelli, busta 25. Source 8: ASR, Famiglia Cenci Bolognetti, serie D3 n. 17-21, n. 34-41, n.72-77. Source 9: ASR, Famiglia Giustiniani – Odescalchi n. 312. Source 10: Famiglia Massimo dell'Aracoeli, Appendice n. 22 e 31 Source 11: ASP, Famiglia Fatta del Bosco, n 123-127. Source 12: ASMi, Famiglia Crivelli-Giulini, reg. 9. Source 13: ASMi, Famiglia Biumi, registro 10. Source 14: ASTn, Famiglia Conti Consolati n. 18r. Source 15: ASPG-sezione di Gubbio, Famiglia della Porta scatola 19. Source 16: Museo Giorgio Amarelli, Famiglia Amarelli n. 37-39. Source 17: ASCR, Famiglia Bossi Fedrigotti, f. 46

Legend: AP: Archivio Pepi; ASN: Archivio di Stato di Napoli; ASR: Archivio di Stato di Roma; ASP: Archivio di Stato di Palermo ASMi: Archivio di Stato di Milano. ASTn: Archivio di Stato di Trento. ASPG: Archivio di Stato di Perugia. ASCR: Archivio storico comunale di Rovereto.

Table 6 illustrates the distance, in terms of income per capita, that separates the noble households from the mass of ordinary families. To render our aristocratic incomes comparable to those for the mass of the population in Amendola and Vecchi (2017), two adjustments to the accounting data are necessary. The first concerns imputed rent. How can we estimate use value of housing provided by the historic family *palazzo* (as well as additional seasonal residences in Italy or abroad, in many cases)? The implicit use value of the home, whether luxurious apartment or castle, must be included in a proper measure of consumption or income (Deaton and Zaidi, 2002). It was a common practice that families rented out a wing of their palace: in this situation a rental rate can be calculated from the area rented out and income received, which can be applied to the area inhabited by the family.[15] In other cases we have the value of the property, typically reported in the "Assets and Liabilities" section of the accounts. Supposing a discount rate in the range 3.5 – 5 per cent, we can obtain an approximate use value for the home (Balcazar et al., 2017). Imputed rent calculated in this way, for the families with the requisite data, comes to approximately 25% of total income. Accordingly, we have increased household income by a factor of 1.25 for all families. The second adjustment has to do with purchasing power, which we have adjusted using the spatial deflators estimated by Amendola and Vecchi (2017b). In this way we arrive at a measure of income per capita, in current nominal values, adjusted for geographic differences in the cost of living, comparable to the benchmark estimates of Amendola and Vecchi (2017a).

[15] The members of the Pepi family of Florence paid an actual monthly rent for their apartments in the Palazzo Pepi, identified in the account books, which flowed back into the family *patrimonio*.

Table 6 – Household per capita income of aristocratic and ordinary families (current lire per person per year)

	1861	1871	1881	1891	1901	1911	1921	1931
					Italy			
Q1	114	138	164	172	153	201	1061	875
Q2	170	208	238	244	240	313	1516	1436
Q3	205	252	284	288	294	382	1787	1778
Q4	251	306	342	344	363	468	2125	2202
Q5	421	497	557	549	613	769	3327	3615
maximum	3,416	3,580	7,063	7,008	5,509	10,079	31,170	12,653
					Aristocrats			
median	8,928	28,246	7,084	22,525	16,490	20,644	33,435	45,231
maximum	41,120	90,422	67,969	49,054	27,826	149,496	456,886	234,845
					Ratio of median aristocrat to national quintiles			
Q1	79	205	43	131	108	103	32	52
Q2	53	135	30	92	69	66	22	31
Q3	44	112	25	78	56	54	19	25
Q4	36	92	21	65	45	44	16	21
Q5	21	57	13	41	27	27	10	13
maximum	2.6	7.9	1.0	3.2	3.0	2.0	1.1	3.6

Source: the figures in top panel are our elaboration from Vecchi (2017), Table 8A.1, the rest is our own calculation.

Table 6 contextualises our aristocratic families' incomes, verifying that they are indeed extreme values. The upper panel reports mean income per capita by quintile in the (post-stratified, parameterised) national distribution at benchmark years, along with the maximum value observed in each sample. The middle panel reports the median and maximum values observed in our sample of aristocratic households (which in any benchmark year number from 3 to 6). The bottom panel reports the ratio of the median aristocratic household's income to that of families at different points in the national distribution as set out in the table's top panel. Aristocrats were on average 2-3 times richer than the very richest families observed in the Amendola and Vecchi sample, or 50-100 times as rich as the average Italian. When the comparisons involve the wealthiest among the noble families, the ratios become quite impressive: incomes 20-25 times greater than the richest in the Amendola and Vecchi sample, or 200-300 times that of the families in the middle (Q3) of the Italian distribution of income.

The new data on aristocratic household incomes enable us to make another interesting comparison, this time with top income data from fiscal sources. The remarkable source that makes this possible is a list of top income tax payers published in 1872 by the Ministry of Finance with the goal of limiting tax evasion by subjecting declared incomes to public scrutiny (Italy, 1872).[16] The tax in question was the *imposta sulla ricchezza mobile*, or tax on mobile wealth, which as the name suggests was not payable on incomes from real property – a significant omission, for wealthy families. The compilers of the 1872 lists addressed this omission only partly, enumerating top payers of the land tax for properties held as share tenancies (*fondi colonici*).[17] An additional complication is that the *ricchezza mobile* tax was always to be withheld "at source." This meant that, for instance, interest income on bank deposits was declared only by the bank, which also remitted the tax to the Treasury, while interest income on private loans was declared and paid by the individual lender. Similarly, profits of a business partnership were declared, and tax paid, by the jointly-owned legal business entity, not by the individual partners.

Our data include three aristocratic families in or near 1871: the Pepi of Florence, the Crivelli of Milan, and the Del Drago of Rome. Their total household incomes were 38,605, 127,997, and 116,549 lire, respectively. All three families can be located in the top taxpayer lists as well, where their declared taxable incomes were much lower. The totals we can recover from the 1871 lists are only 5,059, 4,000, and 11,519 lire, respectively. At least in the case of the Pepi, we can say that the

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[16] The source is analysed in depth by Gabbuti (2019), whom we thank for locating the Pepi, Crivelli, and Del Drago families and providing us with their incomes.

[17] Included on the list were all individuals and entities with a taxable income of at least 1,000 lire, or paying property tax on *fondi colonici* of at least 150 lire. Different types of income subject to the *ricchezza mobile* were treated differently in terms of exemptions. This, together with the declaration of income and payment of tax "at source," meant that income was declared separately according to whether it derived strictly from financial wealth ("capital"), from labour alone (in practice mostly professionals), or from capital and labour jointly (in practice entrepreneurs). Payers of tax on these distinct income types are reported separately in the source (and separately by each municipality in which the income was earned), but cross references make it possible to locate all entries for a given individual or entity.

discrepancy arises not from evasion, but because most of the family's income was either not subject to the *ricchezza mobile* tax (e.g. rents on urban property), or was taxed and declared at source (e.g. interest on government bonds, or the salaries of the brothers, who worked for the state as a museum director, army colonel, and navy captain).[18] It would seem that the fiscal data, though useful in other ways (perhaps allowing a correct ranking of individuals, for example), are not suitable for estimating the level of household incomes. For that, we need real household budgets, such as those recovered from noble family archives. Roine and Waldenström (2015: 491) asked, regarding fiscal sources, "Can we trust the top income data?" Our answer for 19th century Italy is "maybe not."

4.2 Results

Grafting the incomes of aristocratic families onto the existing samples for Italy complicates post-stratification procedures. What weight should be applied to the noble households? In our case, the aristocratic families will need to stand in not only for the nobility (a segment comprising some 0.2 per cent of the population according to the calculations in Section 3) but also for the well-to-do, the rich, and the super-rich. How large might this group have been? If we define membership in the group as having at least 1,000 lire of taxable income under the *ricchezza mobile* tax, we can attempt a back of the envelope calculation for the province of Bergamo,

[18] In calendar year 1871 the Pepi account books indicate outgoing payments of 514.16 lire in *ricchezza mobile* tax. (On the income side we see that the family charged some of its debtors simple interest of 6% plus an incremental charge to cover the tax due.) At a tax rate of 8%, with no exemption, 514.16 lire of tax payments imply 4,113.28 in taxable income, more than that declared in the tax list. In other words, the Pepi appear to have been overpaying, relative to their declared income; evasion is not a natural explanation for this. As for incomes not subject to the *ricchezza mobile* tax, the single most important source of income for the family in the years around 1871 was rent on urban properties (including parts of the Palazzo Pepi). Total income from real property (adding farm income and rents on limestone furnaces) not subject to the tax was roughly twice as important as interest income on loans and other financial assets. As noted in the text, we impute in-kind rental income from the family home, not subject to tax, equal to 25% of recorded income.

for which preliminary results are available in Gabbuti (2019). Without data on the upper tail – the very data we are looking for – we cannot be precise. A suggestive indication can be drawn from the province of Bergamo in 1871, for which Gabbuti (2019) has digitised the entire *ricchezza mobile* taxpayer list mentioned earlier, comprising all individuals with at least 1,000 lire of income subject to the tax. In 1871 just over 1,000 households were in this group, relative to a provincial total of perhaps 75,000 families.[19] This implies a population share of 1.3 per cent, a likely overestimate both because some business partnerships are included in the top taxpayer lists, and because the 1,000 lire threshold is not very high.[20] (Though twice the mean top-quintile household income in Table 6, is well below the maximum of 3,058 in the Amendola and Vecchi sample.)

Our strategy is to experiment with three alternative weights: 0.25 per cent, corresponding to the figures in Table 3, or about 50,000 individuals in 1861; 1.0 per cent corresponding by construction to the so-called "top 1 per cent" (Atkinson, Piketty, and Saez, 2010), and close to our guess for Bergamo province; and finally an intermediate, compromise value of 0.5 per cent. For each of these choices, we adjust the weights for other groups (technically, strata), rescaling them proportionately so that the sum remains unchanged.[21]

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[19] Provincial population in 1871 was 368,152. Assuming 5 individuals per household leads to an estimate of 73,360 households. The top taxpayer lists identify nobles by title: there are 144 in the Bergamo lists. 144/75,000 yields a 0.2 per cent noble share in the population, neatly matching the national level estimates reported in the text.

[20] Gabbuti (2019) purges larger corporate entities (joint stock companies, charitable institutions, municipalities, etc.) from the lists but leaves partnerships. In some cases these correspond to households: a widow and her sons, say. In others, the income ought to be split between the partners but is not.

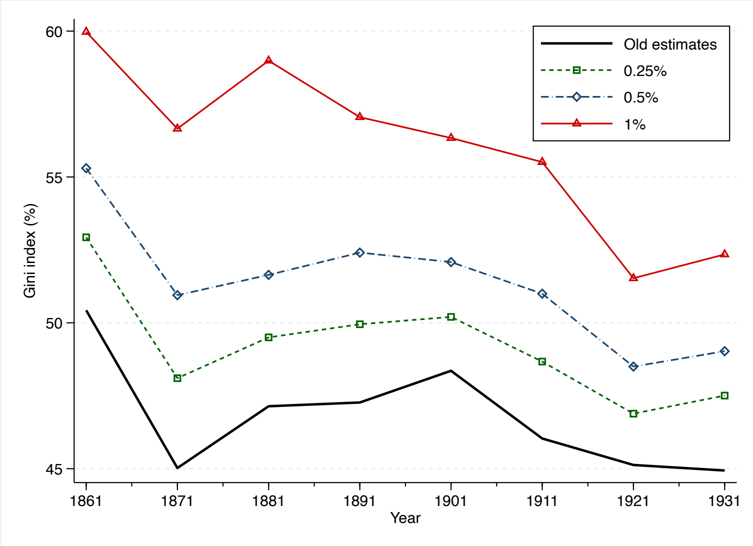
[21] The other groups number 15: five geographic areas intersected with three economic sectors. We treat the nobility as a unitary 16th group, not distributed across regions or sectors. The weights can be thought of as summing to one, or to the total population in the census year.

Figure 2 plots previous estimates of the Gini index (Vecchi 2017, labelled "old estimates") alongside the new estimates based on the augmented sample including noble families. Two important results are immediately apparent. The first concerns the level of inequality. The top panel of Figure 2 shows that adding a few observations with extremely high incomes has a big impact on measured inequality: not less than 5 Gini points, but more realistically 10-15 points (or an increase of 20-30 per cent relative to the OUP level). The previous estimates clearly suffer from a significant downward bias. The sample (of rich households) is too small at this stage to quantify the extent of this distortion precisely, but the revision is certainly important.[22] The second result involves the trend, which is more clearly revealed in Panel B, where the value of the index is normalised to 100 in 1861. It is clear that not only the level but also the trend is affected by the inclusion of rich households. Overall, the falling trend for the whole period is robustly identified. For the years 1911-1921 the steep reduction in the new series is consistent with the idea that the war is 'among the greatest levelers in history' (Scheidel 2017: 6) – we do see a 'great compression' in the aftermath of WWI. Caution is required in interpreting Panel B, in as much as the evolution of the index can be affected by the different number and composition of aristocratic families in each sample, and how this varies over time. This sensitivity should be reduced in future as the noble family database is expanded.

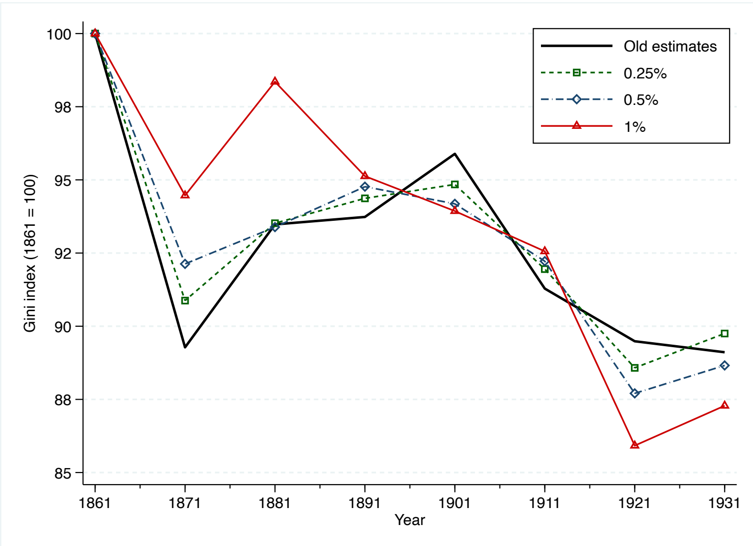
[22] We obtain analogous results with alternative inequality measures. A sensitivity analysis using several indicators belonging to the class of generalised entropy indices shows similar increases to those we describe for the Gini.

Figure 2 – The Gini index revised, Italy 1861-1931

(a) Levels



(b) Trend



Source: our estimates.

Cowell and Flachaire (2007) showed how great is the potential impact of extreme values on measures of inequality in theory; Figure 2 shows it in practice. More generally, the introduction of extremely rich families into the sample can affect the entire estimated distribution, and not necessarily in a uniform way. In Table 7 we assess the impact of extreme values on the top 1, 5, and 10 per cent income shares. Here too the aristocratic families lead to a substantial upward revision of the previous estimates. Taking a weight of 1% (the rightmost column of Table 7) as plausible, we can see that the top 1% share of income roughly *doubles* compared with the previous estimates (those in Column 2). The share of the top 10% increases by 10 percentage points and more.

Table 7 – Top income shares, Italy 1861-1931

year	old	0.2%	0.5%	1%
		top 1%		
1861	13.9	16.4	18.9	24.4
1871	9.0	11.4	14.2	20.6
1881	12.1	14.3	16.3	25.4
1891	13.6	16.3	18.9	24.1
1901	10.4	11.9	13.6	18.6
1911	8.9	11.5	13.9	18.8
1921	11.8	13.5	15.1	18.1
1931	6.9	8.4	9.6	11.9
		top 5%		
1861	30.1	33.1	35.9	41.7
1871	23.7	27.1	30.5	37.6
1881	27.5	30.1	32.6	42.0
1891	28.8	32.0	34.9	40.4
1901	26.1	28.2	30.4	35.9
1911	23.9	27.2	30.1	35.7
1921	26.4	28.5	30.4	33.8
1931	21.2	23.6	25.4	28.8
		top 10%		
1861	41.5	44.3	47.0	52.4
1871	35.2	38.6	41.9	48.5
1881	38.7	41.3	43.6	52.2
1891	39.6	42.6	45.3	50.5
1901	38.0	40.1	42.2	47.3
1911	35.6	38.8	41.5	46.8
1921	37.2	39.2	40.9	44.3
1931	33.1	35.7	37.6	41.0

Source: our estimates.

The estimates in Table 7 can be compared with estimates based on fiscal data in the World Inequality Database. Italy is poorly represented in the WID: altogether absent from the first work based on the project (Atkinson et al., 2010), and appearing in a study covering only the years 1974-2004 in the second volume (Alvaredo and Pisano, 2010). Estimates of top income shares based on fiscal data have not been extended back before the 1970s: “unfortunately, as tax returns tabulations are only available since 1974, it is not feasible to provide an account of the long-run evolution of top shares” (Alvaredo and Pisano, 2010: 643).[23] The approach taken here circumvents this obstacle, allowing us to compare the long-run evolution of top income shares in Italy with estimates for other countries.

Table 8 presents top income shares for Italy (based on a 1% weight for noble families) with those for other countries drawn from the WID website. For the period under study, few comparisons are possible, indeed none at all for the first twenty years. To the extent that a general pattern can be discerned, incomes appear to have been unusually concentrated in 19th century Italy, but a downward trend over time brings top shares down to quite unremarkable levels after 1900.

What of the other extreme of the income distribution, the lower tail? To investigate the impact on poverty estimates of adding rich families to the sample, we use the absolute poverty lines of Amendola et al. (2017) and calculate the class of indices introduced by Foster et al. (1984). None of these measures (the headcount ratio, the poverty gap ratio, etc.) is meaningfully affected (Table A2), a result confirming the theoretical predictions of Cowell and Victoria Feser (1996b).[24]

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[23] An effort is underway, however: Gabbuti (2019b).

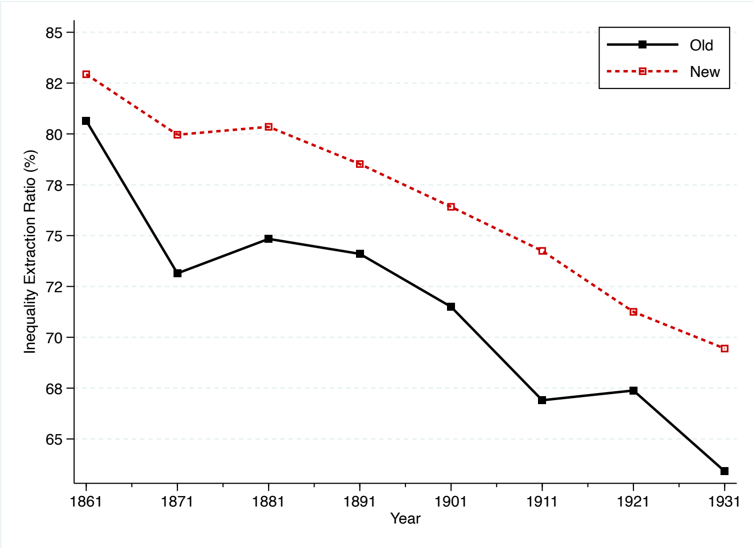
[24] In principle, poverty measures which satisfy the focus axiom should not vary at all with changes in observations to the right of the poverty line. In the present study, however, the estimates are not nonparametric, but based on (maximum likelihood estimates of) a Generalised Beta of the Second Kind distribution. Imposing this functional form minimises the impact of post-stratification on the original data, but has the consequence that extreme high incomes can induce small changes in parameter estimates that affect the entire shape of the distribution. Changes in the upper tail can thus be transmitted right through to the lower tail. The results in Table A2 show that such effects are tiny.

Table 8 – Top income shares in Italy and other selected countries, 1861-1931

						top 1%					
	Italy	**France**	**USA**	**Japan**	**Prussia**	**Canada**	**South Africa**	**Australia**	**New Zealand**	**Indonesia**	**India**
1861	24.4	-	-	-	-	-	-	-	-	-	-
1871	20.6	-	-	-	-	-	-	-	-	-	-
1881	25.4	-	-	-	15.8	-	-	-	-	-	-
1891	24.1	-	-	13.2	17.5	-	-	-	-	-	-
1901	18.6	-	-	16.9	18.3	-	-	-	-	-	-
1911	18.8	-	18.8	18.0	16.7	-	-	-	-	-	-
1921	18.1	19.1	18.1	18.5		17.6	21.8	11.6	11.3	11.8	
1931	11.9	16.5	15.0	17.4		16.6	20.3	9.3	10.6	20.0	13.3
						top 5%					
1861	41.7	-	-	-	-	-	-	-	-	-	-
1871	37.6	-	-	-	-	-	-	-	-	-	-
1881	42.0	-	-	-	-	-	-	-	-	-	-
1891	40.4	-	-	-	-	-	-	-	-	-	-
1901	35.9	-	-	-	-	-	-	-	-	-	-
1911	35.7	-	-	31.4	-	-	-	-	-	-	-
1921	33.8	-	-	31.5	-	40.6	-	19.4	-	-	-
1931	28.8	-	-	-	-	36.0	-	-	-	-	-
						top 10%					
1861	52.4	-	-	-	-	-	-	-	-	-	-
1871	48.5	-	-	-	-	-	-	-	-	-	-
1881	52.2	-	-	-	37.7	-	-	-	-	-	-
1891	50.5	-	-	-	37.7	-	-	-	-	-	-
1901	47.3	-	-	-	37.7	-	-	-	-	-	-
1911	46.8	51.7	42.3	-	37.0	-	-	-	-	-	-
1921	44.3	46.2	46.5	-	-	-	-	-	-	-	-
1931	41.0	42.6	45.0	-	-	-	-	-	38.4		-

Source: column 1 is from Table 7 (top panel), all other estimates are from the WID, consulted on October 2019.

Figure 3 – The inequality extraction ratio, Italy 1861-1931



Source: our estimates.

The last exercise that we undertake is to calculate the 'inequality extraction ratio,' originally introduced by Milanovic et al (2011). The underlying intuition is that inequality is constrained by a country's per capita resources, relative to basic subsistence requirements. In the extreme case of a country with per capita income just equal to this minimum, there is no surplus to be consumed by an elite with higher incomes, hence no scope for inequality. The inequality extraction ratio compares actual inequality to its theoretical maximum, given per capita income, and captures "how powerful, repressive and extractive the ruling groups, their institutions and policies were" (p. 268). Figure 3 displays our estimates.[25] The upward revision of actual inequality, while per capita income and thus potential inequality remain constant, inevitably raises the inequality extraction ratio. The level in the first post-unification decades is undoubtedly high: inequality was at least 80% as high as it possibly could have been, meaning Italy had an unusually

[25] Our calculations are based on the formulation proposed by Amendola and Vecchi (2017: 332), in which subsistence income is set at the absolute poverty line, rather than arbitrarily assumed to be a fraction of mean income.

extractive elite in international comparative perspective.[26] The trend over time is clearly negative after 1881, indicating that economic and political elites were not able to appropriate all of the gains of an accelerating economic growth. Yet the level remained quite high even in 1931 at roughly 70%. For comparison, an estimate for 2012 puts the inequality extraction ratio at 38% (Amendola and Vecchi, 2017: 316).

5 Conclusions

The archives of noble families contain precious information on upper tail household incomes and expenditures. In Italy, these families were numerous – on the order of 10,000 in the late nineteenth century – and many of their archives have been identified, preserved, and made accessible to the public: we estimate in excess of 800 at present. The information they record, intended for internal, private use, was not distorted by fiscal incentives, and is more comprehensive and accurate than what can be gleaned from historical tax records. As proper household budgets, they reveal not only total income, but also its diverse sources; not only total expenditure, but the detail of what was spent for rent, fuel, domestic servants, charitable giving, basic foodstuffs, clothing, and so on. Of course, there are challenges to working with the family account books. Without recourse to other sources it can be difficult to ascertain household composition, an appropriate imputed value for housing services from family properties, or incomes not connected with the family patrimony, for example. More work needs to be done to develop routine procedures for dealing with such issues. And, though there is no reason to think Italy is unusual, more work needs to be done to map the aristocratic landscape of other countries.

[26] Milanovic et al. (2011) report 28 estimates for pre-industrial societies ranging from ancient Rome to British India in 1947. The average value is 77%, lower than what we observe for Italy despite the group including extreme cases such as colonial Kenya (97% in 1914, 100% in 1927). The authors report a value of 54% for the Kingdom of Naples in 1811.

Noble family accounts are such a rich source of data that this work should have a high payoff.

Adding observations from the upper tail has a significant impact on parametric estimates of the income distribution. Poverty estimates are very little affected, but both top income shares and the Gini index can jump 10 points (!) with a weight of 1% for the stratum represented by the noble families. That is enough to push Italy closer to the theoretical maximum for inequality, given its level of development, to change its rank relative to other countries, and to alter our perceptions of society at the time. Interestingly, the time trend is much less affected. If anything, the downward trend in inequality – hence also our interpretation of Italian industrialisation as relatively benevolent – is accentuated. But interpretation is premature: with never more than six noble families in a benchmark year (just three in 1931), our estimates are subject to a large dose of random sampling variability. Our task now is therefore to expand the sample of aristocratic household budgets. Our exploratory work indicates that this is both feasible and important. Prospectors of other countries, take up your picks and spades!

Statistical appendix

Table A1 – Sensitivity of estimated Gini indices to the presence of extreme values

year	old	s.e.	0.25%	s.e.	0.50%	s.e.	1.00%	s.e.
1861	50.4	2.0	52.9	2.6	55.3	2.7	60.0	3.2
1871	45.0	1.2	48.1	2.7	50.9	1.8	56.7	2.5
1881	47.1	1.9	49.5	2.0	51.6	2.1	59.0	4.3
1891	47.3	1.8	50.0	2.0	52.4	2.2	57.1	2.5
1901	48.4	1.3	50.2	1.6	52.1	1.8	56.3	2.4
1911	46.0	1.2	48.7	1.6	51.0	1.9	55.5	2.4
1921	45.1	1.8	46.9	2.0	48.5	2.1	51.5	2.3
1931	44.9	0.6	47.5	1.0	49.0	1.0	52.3	1.3

Source: our estimates

Table A2 – Sensitivity of the headcount poverty ratio to the presence of extreme values

year	old	0.25%	0.50%	1%
1861	43.9	44.1	44.2	44.3
1871	39.1	39.7	39.9	40.0
1881	36.1	36.4	36.6	37.1
1891	35.6	35.7	35.8	35.8
1901	33.7	34.0	34.2	34.2
1911	30.4	30.4	30.4	30.4
1921	27.3	27.2	27.0	26.9
1931	29.7	30.3	30.8	31.3

Source: our estimates

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