

# Online Appendix

## Appendix A

### SAMPLING STRATEGY AND REPRESENTATIVENESS OF THE DATABASE

As a rule, Piedmontese *estimi* are preserved in city or town historical archives. This means that no truly complete inventory of these sources covering the whole of the region exists, and that in each case, the actual availability of usable sources needs to be locally verified. Consequently, our first step was to complete an exhaustive survey of the Piedmontese city and town archives, in order to identify the communities where the sources we needed to build our long time series of economic inequality measures existed. Only for a small part of all the Piedmontese communities was the available documentation ancient and complete enough to be eligible for inclusion in our database.

As briefly indicated in the article main text, our sampling strategy was to select the communities to study according to four criteria: (1) antiquity of the earlier usable sources, (2) completeness of the time series, (3) territorial coverage, and (4) representation of both cities and rural communities. Each of these aspects is described in greater detail below.

#### 1. *Antiquity of the Earlier Usable Sources*

We decided to include in the sample all cities for which usable pre-Black Death *estimi* are available: Chieri and Cherasco, to which Moncalieri was added as the related documentation started immediately after that plague. We are aware of no other community in Piedmont—either urban or rural—which has this characteristic. The decision to include these three cities affected the general composition of the urban sample (see next point), and we took it because the post-Black Death dynamics are particularly interesting and relevant for our general reconstruction.

Regarding rural communities, only a few of them preserved *estimi* and we could find none for which usable sources were available before circa 1450 (we included San Giorgio in the sample due to the presence of an *estimo* dated 1400, however, after analyzing it in detail we discovered that it was too incomplete to be usable). Also in the case of rural communities, however, we decided to include those for which the most ancient documentation was available, and particularly Vigone, Borgo San Martino, and Cumiana.

As a general rule, we decided not to do any new research on communities whose *estimi* series started after 1600. Only the Canavese rural series start later (in 1629) but they were acquired from earlier research projects and as they record values using the same *lira* as Ivrea, they proved particularly useful when estimating the aggregate Piedmontese time series.

Note that as well as the availability of ancient *estimi*, also that of very recent ones (dating from the late eighteenth or early nineteenth centuries) was scarce. One of the reasons why we included the city of Saluzzo in the database is that it preserves the most recent urban *estimo* usable for our aims, and for the same reason we decided to continue working on San Giorgio (where the most recent usable *estimo* of all, dated 1809, is to be found) upon discovering that the 1400 *estimo* was unusable.

## 2. *Completeness of the Time Series*

When deciding which community to include, we needed to consider whether the available sources allowed us to follow them over a long period. In some cases, communities having pre-1600 *estimi* were totally devoid of later ones, or the number of observation points was very limited. We applied this criterion in particular to cities, as the available cases regarding rural communities were so few that we also had to include fairly fragmented time series, like that of Borgo San Martino or San Giorgio (while another good reason to include Cumiana and Vigone, beside the antiquity of the earlier *estimo* available, was the exceptional completeness of their time series). The most notable consequence of the application of this selection criterion is the exclusion from the database of the city of Turin. Although in the Middle Ages this city was not the main center of Piedmont (Chieri, for example, was a much more important city than Turin up until the mid-fifteenth century at least, and was only surpassed in size from the mid-sixteenth: Barbero 1997, p. 375; Allegra 1987, p. 19), from the late fifteenth century it gradually became the administrative center of the whole of the Sabaudian State, a process which was mostly completed by 1518 (Barbero 1997, p. 414) although the ducal court was officially moved from Chambéry in Savoy to Turin only in 1563. Although Turin had preserved potentially usable *estimi* since the fourteenth century, the series is discontinued after 1558, due to the fact that the status of capital city involved privileges, in particular the exemption from many tributes. This is also the reason why other prominent northern Italian cities like Milan or Venice, which were the capitals of pre-unification states, do not have early modern *estimi*. Since Turin becomes particularly relevant precisely with the acquisition of the status of capital, we saw no good reason to include its medieval sources in the database. Inadequate completeness of the available documentation prevented us from including in the sample also other important cities of Savoy Piedmont, and particularly Vercelli and Mondovì (the latter presenting the added problem of difficulties in dating precisely the existing *estimi*, whose series presumably starts in the mid-sixteenth century).

## 3. *Territorial Coverage*

We aimed to select our case studies from different parts of Piedmont, paying particular attention to the areas under Savoy dominion from early on. Regarding the urban sample, the selection of Moncalieri, Chieri (situated on the plain south and south-east of Turin) and Cherasco (even further south, in the hilly areas bordering the Piedmontese Apennines) led us to add a city from western Piedmont (Saluzzo), one from the north (Ivrea) and another right in the middle of the central Piedmontese plain (Carmagnola). These cities are representative of different environments: the hilly areas close to the Alps (Ivrea and Saluzzo) or the Apennines (Cherasco) and the open plain (Chieri, Moncalieri, Carmagnola). When selecting rural communities, we also tried to cover different environments and agrarian contexts: hilly areas bordering the Alps to the north (all the Canavese communities plus San Giorgio) and west (Cumiana) as well as the central Piedmontese plain (Vigone). In the case of rural communities, the scant availability of sources severely limited the range of eligible cases, however, we thought it important to also include rural communities from the low Po plain of eastern Piedmont (Borgo San Martino and Frassineto Po), even though they belong to an area (the Marquisate of Monferrato) only fully incorporated into the Sabaudian State in 1708.

Overall, our sample covers fairly well the varied Piedmontese environments. The main shortcoming is the absence of a time series representative of the Alpine rural communities, but unfortunately we could not find any such community for which adequate archival sources were available. However, only a small part of the total population of Piedmont lived in the Alps and moreover, different environments

seem to be characterized by broadly similar long-term trends in economic inequality (see also discussion following).

#### *4. Representation of Both Cities and Rural Communities*

To date, most research on the Piedmontese *estimi* has focused on urban communities, possibly due to the availability of much better documentation for the cities, the main exception being the study of the Canavese area by Alfani (2009), which was incorporated into the database. However, in order to be able to reconstruct a comprehensive picture of the general trends in economic inequality across Piedmont, we made great efforts to find rural communities suitable for inclusion in our database. Overall, the database includes six cities and 12 rural communities, although the rural time series are fewer—nine—as seven rural communities of the Canavese are grouped by the sources into three aggregates. Only five of our rural time series, though, begin in 1600 or earlier. This is mostly the consequence of scant availability of usable sources for rural communities, however, the limitation seems to be of little consequence as all the rural time series we could compare seem to tell us the same story (see Figure 2b in the main text and the relative discussion).

Apart from the four above-mentioned criteria, we also had to take into consideration the very considerable investment of resources and the time needed to research and develop each case study. Although our choices were influenced mainly by the actual availability of sources, in many instances we were selective. For example, we chose to study Saluzzo, on account of the presence of a late-eighteenth century *estimo*, rather than Susa, another city of western Piedmont bordering the Alps—although we could have researched both cities. Since the database is a sample, a discussion of its representativeness is necessary.

As briefly explained in the main text, the most powerful argument in favor of our database being effectively representative of Piedmont, is that if we consider the underlying secular trends, all the communities seem to head in the same direction. In view of the fact that we used a very large part of what is available, we have no reason to suspect that including extra case studies would lead to any conclusion other than that in the very long run, and with the exception of the post-Black Death period, inequality tended to grow. Moreover, we found no significant differences in the behavior of cities and rural communities placed in different parts of the region and in different environments (plain or hilly/pre-Alpine areas). Also in this case, as (almost) all the different Piedmontese environments are represented in the database and we found no difference in the related behavior, we can assume that the sample is adequately representative. The exceptions are the Alps proper, which are not included in the sample due to unavailability of usable information (a situation which, to our knowledge, is common to most of the Italian Alps, from Piedmont to Friuli, the notable exception being a few alpine communities of northern Lombardy). In theory, it is possible that the Alpine areas diverged from the general Piedmontese path (even though the communities bordering the Alps, like Saluzzo, Ivrea and the Canavese or Carmagnola, did not), however, even if they had done so, there were so few people living there that we can be reasonably sure that including the Alps would scarcely affect our reconstruction of the general trend.

The main shortcoming of our sample, however, is definitely the absence of Turin. As explained above, this is due to the total unavailability of *estimi* covering the period after it became the administrative center of the Sabaudian State and the seat of the Savoy court. This is a severe limitation as, from the seventeenth century at least, it is the city to which the richest people of Piedmont flocked. The consequences of the omission of Turin are briefly described in the main text,

however, it should be recalled here that its inclusion would very probably result in an urban aggregate series even more orientated towards inequality growth from 1600 ca., and similarly (although with a softened effect) for the general aggregate series representing the whole of Piedmont (Figure 7).

More generally, one could wonder if our urban sample is representative of the main cities of Piedmont—as among our case studies only Chieri, Carmagnola, and Saluzzo reached the 10,000 inhabitants threshold in the period under consideration. Here, a general distinction should be made among three different periods: the earlier centuries, from 1300 ca. up until about 1563 when the capital was officially moved to Turin; 1564–1750 ca.; 1750–1800.

1300–1563: the database includes some of the largest cities under Savoy rule (Chieri, Ivrea, and Moncalieri). The other main cities under Savoy rule (Cuneo, Pinerolo, Savigliano, Mondovì, Turin, and Vercelli) were no larger and as a matter of fact, in the fourteenth century Chieri was probably the main urban center of the entire State. Our database also includes Saluzzo (acquired by the Savoys in 1588), which in the earlier centuries was a sizeable and important city in itself, as the capital of an independent Marquisate. Our urban sample is therefore truly representative of the main cities of the Sabaudian State, at least up until the promotion of Turin to capital.

1563–1750 ca: the database continues to cover a very large part of the urban population of Piedmont. Although it includes only one of the cities under Savoy rule which in 1612 exceeded 10,000 inhabitants, Chieri—the others being Cuneo, Vercelli, Mondovì, and Turin—this does not seem to be a major issue as the excluded centers are of a similar size to those we included, with the exception of Turin, which was already approaching 25,000 inhabitants and would exceed the 57,000 mark little more than a century later. As already mentioned, there are no usable sources for Turin covering this period, nonetheless, the urban sample still seems to be adequately representative of the Sabaudian State and Piedmont.

1750 ca.–1800 ca.: the eighteenth century, and particularly the second half, is a period when the urban population of Piedmont grew exceptionally quickly, due to different factors which undoubtedly include the boom of the textile industry there, particularly that of silk (Barbero 2008, pp. 307–13). Some cities were affected by this much more than others, and their population bulged accordingly: the most spectacular case being Mondovì, which grew from about 7,000 inhabitants to more than 17,500 between 1734 and 1774. Although our database does include cities growing vigorously in the period (the population of Saluzzo grew by 49.5 percent, that of Carmagnola by 34.7 percent), few of the most dynamic Piedmontese cities are included in the urban sample and furthermore, by the end of the eighteenth century the sample no longer includes any of the largest cities of the region. This is certainly a significant shortcoming, however: (1) it involves a very short part of the long time period we cover, and (2) as already mentioned, usable *estimi* dating to the late eighteenth century are extremely rare in Piedmont, especially in the cities, so that this is not a problem which could have been overcome by a different sampling strategy. In fact, we included Saluzzo precisely because it had exceptionally late usable sources. As explained in the main text, this is due to the early introduction of the “modern cadastre” in Piedmont (1731), which discontinues the *estimi* time series. Table A1 summarizes the long-term population change in the main cities of the region.

TABLE A1  
POPULATION OF THE MAIN CITIES OF PIEDMONT, FOURTEENTH–  
EIGHTEENTH CENTURIES

	1363/1377	1571	1612	1734	1774
Alessandria				11,619	18,581
Asti		8,339	9,592	13,269	14,365
<b>Carmagnola</b>			<b>7,205</b>	<b>8,856</b>	<b>11,933</b>
<b>Cherasco</b>	<b>3,570</b>		<b>3,997</b>	<b>7,658</b>	<b>8,635</b>
<b>Chieri</b>	<b>6,700</b>	<b>9,511</b>	<b>10,710</b>	<b>8,387</b>	<b>10,374</b>
Cuneo	3,295	6,154	10,566	12,701	13,106
<b>Ivrea</b>	<b>5,300</b>	<b>3,031</b>	<b>4,467</b>	<b>5,380</b>	<b>7,221</b>
<b>Moncalieri</b>	<b>3,830</b>	<b>4,576</b>	<b>5,041</b>	<b>5,794</b>	<b>7,025</b>
Mondovì			10,903	6,975	17,614
Pinerolo	3,830		8,145	6,445	8,291
<b>Saluzzo</b>			<b>5,581</b>	<b>7,326</b>	<b>10,956</b>
Savigliano	6,700		9,586	11,101	13,363
Turin	4,200	14,244	24,410	57,566	91,846
Vercelli		8,645	10,257	7,842	12,556

Note: Cities included in the database in bold.

Sources: G. Prato, 'Censimenti e popolazione in Piemonte nei secoli XVI, XVII e XVIII', *Rivista Italiana di Sociologia*, X (fasc. 3–4), 1906, pp. 308–76 with some integration and amendment from K.J. Beloch, *Storia della popolazione italiana*, Le Lettere, Firenze 1994, p. 578

Basically, what is missing from the urban sample is Turin, the most demographically (and economically) dynamic city of all since the mid-sixteenth century, as well as those cities, which have grown more vigorously since the mid-eighteenth century. Under the hypothesis that demographic and economic growth is one of the factors which stimulate inequality growth (although, as the case of Piedmont demonstrates, only one among others), and considering that from 1550 on inequality growth is clearly prevalent in the urban sample as it is (see Figures 2a and 7), our conclusion is that including Turin and some other particularly dynamic city would only make steeper the aggregate curves representing inequality trends in cities and in Piedmont as a whole. Of course, the inequality levels would change, but our general conclusions regarding the long-term tendency of inequality to grow would not be overturned: on the contrary, they would become even stronger.

Although population size is surely a fundamental variable in assessing the representativeness of the urban database, institutional factors should also be taken into consideration. In view of this, it should be underlined that our database covers very well the main administrative centers of Savoy Piedmont. Of the 16 “capitals” of a Sabaudian province existing in 1634, we cover six, two of which were also important for the religious administration of the region, being the center of a bishopric (Ivrea and Saluzzo). Table A2 summarizes some relevant institutional characteristics of the urban sample.

TABLE A2  
 INSTITUTIONAL COMPOSITION OF THE URBAN SAMPLE

City	Year of Incorporation in Sabaudian State	Bishopric	Administrative Center of Sabaudian Province (at 1634)
Carmagnola	1588	no	yes
Cherasco	1529	no	yes
Chieri	1347	no	yes
Ivrea	1313	yes	yes
Moncalieri	<1300	no	yes
Saluzzo	1588	yes	yes

As a final consideration, possibly the most powerful evidence demonstrating that our conclusions are not the result of a sample bias, is that overall *all* our time series follow the same general trend in economic inequality—which seems to imply that a larger sample could not but confirm our current findings.

*Appendix B*

ARCHIVAL SOURCES

In the following, I provide the archival details of all the original sources used in the article. If it is not specified differently, all sources are property tax records (*estimi*) used to produce the measures presented in Tables 1, 2, and 3 and in Figures 2, 3, 4, and 7. The sources are organized per archive. The exact archival reference (in Italian) is provided. Note that each local archive uses its own standard to index sources.

*Borgo San Martino Historical Archive*

- Sezione I, Catasto, Volume 185 (for year 1485)
- Sezione I, Catasto, Volume 186 (for year 1561)
- Sezione I, Catasto, Volume 190 (for year 1770 and 1801)

*Carmagnola Historical Archive*

- Titolo XXV, Categoria 1, Catastazione e allibramento, Registro 1 (for year 1461)
- Titolo XXV, Categoria 1, Catastazione e allibramento, Registro 4 (for year 1491)
- Titolo XXV, Categoria 1, Catastazione e allibramento, Registro 14 (for year 1579)
- Titolo XXV, Catastazione e allibramento, Categoria 2, registri 29–33 (for year 1734)

*Cherasco Historical Archive*

- Estimi, cart. 56.1, fasc. 2 (for year 1347, quarter of St. Martino)
- Estimi, cart. 56.2, fasc. 2 (for year 1350, quarter of St. Pietro)
- Estimi, cart. 56.2, fasc. 1 (for year 1354, quarter of St. Margherita)
- Estimi, cart. 56.4, fasc. 2 (for year 1395, quarter of St. Iffredo)
- Estimi, cart. 56.4, fasc. 3 (for year 1395, quarter of St. Martino)
- Estimi, cart. 57, fasc. 1 (for year 1402, quarter of St. Margherita)
- Estimi, cart. 57, fasc. 3 (for year 1415, quarter of St. Pietro)
- Estimi, cart. 57.1, fasc. 1 (for year 1447, unidentified quarter)
- Estimi, cart. 57.1, fasc. 2 (for year 1450, quarter of St. Iffredo)
- Estimi, cart. 58, fasc. 3 (for year 1530, quarter of St. Iffredo)
- Estimi, cart. 60 (for year 1548, quarters of St. Pietro and St. Martino)
- Estimi, cart. 60.1, fasc. 1 (for year 1585, quarter of St. Iffredo)
- Estimi, cart. 60.2, fasc. 1 (for year 1585, quarter of St. Margherita)
- Estimi, cart. 60.3, fasc. 1 (for year 1585, quarter of St. Pietro)
- Estimi, cartt. 60.1, 60.2, 60.3 (for year 1648, quarters of St. Iffredo, St. Margherita and St. Pietro)
- Estimi, cartt. 62 (vol. I.) e 63 (vol. II) (for year 1711, all quarters)

*Chieri Historical Archive*

- art. 143, par. 1, Catasto, voll. 14–17 (for year 1311)
- art. 143, par. 1, Catasto, voll. 35–38 (for year 1437–1442)
- art. 143, par. 1, Catasto, voll. 47–50 (for year 1514)
- art. 143, par. 1, Catasto, voll. 72, 75, 78, 80 (for year 1582)
- art. 145, par. 4, Catasto (for year 1707)

*Cumiana Historical Archive*

- Catasto, Faldone 225 (for year 1496)
- Catasto, Faldoni 226–227 (for year 1558)
- Catasto, Faldone 236 (for year 1614)
- Catasto, Faldone 238 (for year 1664)
- Catasto, Faldone 240 (for year 1694)
- Catasto, Faldone 245 (for year 1749)

*Frassineto Po Historical Archive*

- Fondo catasto, Faldone 741 (for year 1600)
- Fondo catasto, Faldone 747 (for year 1741)
- Fondo catasto, Faldone 768 (for year 1805)

*Ivrea Historical Archive*

- Categoria 11 (Catasto) nn. 1438-1439 (for year 1466)
- Categoria 11 (Catasto) n. 1444 (for year 1518)
- Categoria 11 (Catasto) n. 1449 (for year 1544)
- Categoria 11 (Catasto) n. 1470 (for year 1593)
- Categoria 11 (Catasto) n. 1485 (for year 1629). Includes the Canavese rural communities
- Categoria 11 (Catasto) n. 1486 (for year 1649). Includes the Canavese rural communities

*Moncalieri Historical Archive*

- Serie A, voll. 31–34 (for year 1366)
- Serie A, voll. 42–45 (for year 1412)
- Serie A, voll. 50–53 (for year 1452)
- Serie A, voll. 62–65 (for year 1504)
- Serie A, voll. 73, 75, 76, 77 (for year 1542)
- Serie A, voll. 95–99 (for year 1639)
- Serie A, voll. 134, 135, 142–145 (for year 1707)

*Saluzzo Historical Archive*

- Categoria 59, faldoni 7-10, fascicoli 85-88 (for year 1577)
- Categoria 59, faldoni 16–17, fascicoli 108–111 (for year 1685)
- Categoria 59, faldone 19, fascicolo 118 (for years 1729 and 1739)
- Categoria 59, faldoni 27–30 (for year 1772)

*San Giorgio Historical Archive*

- Faldone 379, Fascicolo 1281 (for year 1523)
- Faldone 380 (for year 1657)
- Faldone 402 (for year 1809)

*Vigone Historical Archive*

- Catasto, Faldone 2 (for year 1454)
- Catasto, Faldone 4 (for year 1483)
- Catasto, Faldone 8 (for year 1570)
- Catasto, Faldone 12–13 (for year 1612)
- Catasto, Faldone 14 (for year 1637)
- Catasto, Faldone 27 (for year 1717)
- Catasto, Faldoni 36-37 (for year 1764)

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