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**LONG-TERM TRENDS IN
INCOME AND WEALTH
INEQUALITY IN SOUTHERN ITALY
THE KINGDOM OF NAPLES (APULIA),
SIXTEENTH TO EIGHTEENTH
CENTURIES**

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WORLD
INEQUALITY
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Abstract

This paper uses new archival sources to study the long-term tendencies in economic inequality in preindustrial southern Italy (Kingdom of Naples). The paper reconstructs long-term trends in wealth inequality for the period 1550-1800 for a sample of communities in the region Apulia and produces estimates of overall inequality levels across the region. These estimates are compared with those which have recently been published for other Italian and European regions or states. The article also reconstructs the total income distribution for the mid-eighteenth century, then comparing wealth and income inequality. Overall, the evidence for the Kingdom of Naples suggests a tendency for economic inequality to grow continuously over the early modern period. As this was mostly a period of economic stagnation or decline for the Kingdom, the article provides further insights to the debate on the long-run relationship between economic growth and inequality change.

Keywords

Economic inequality; income inequality; wealth inequality; early modern period; Kingdom of Naples; Apulia; Italy; poverty

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Introduction

Only recently has economic inequality in preindustrial societies become the object of systematic research. For a long time, the pioneering studies of Jan Luiten Van Zanden and Lee Soltow on the Low Countries (and particularly on the province of Holland) were the only attempt to cover a large area over a long time for the period preceding 1750 (Van Zanden 1995; Van Zanden and Soltow 1998). After that and until recently, most scholars focused on single years and/or on single communities. The tendency has now changed, partly due to the efforts of the ERC-funded project, *EINITE-Economic Inequality across Italy and Europe, 1300-1800*¹, whose main aim was to produce systematic and comparable data for large areas, and partly due to a renewal of interest in long-term changes in economic inequality fueled by the publication of Thomas Piketty's book *Capital in the Twenty-First Century* (2014). New studies covering preindustrial inequality in large or fairly large areas of Europe involved Italy (Alfani 2015; Alfani and Ammannati 2017; Alfani and Di Tullio 2019), Spain (Santiago-Caballero 2011; Santiago-Caballero and Fernandez 2014; García Montero 2015; Brea-Martínez and Pujadas-Mora 2019; Espín-Sánchez et al. 2019; Nicolini and Ramos Palencia 2021), Portugal (Reis and Martins 2012), the southern Low Countries (Ryckbosch 2014; Alfani and Ryckbosch 2016), Germany (Alfani, Gierok and Schaff 2022), and England (Alfani and García Montero 2022).

Almost all these recent studies reported a long-run tendency for economic inequality to grow—and, differently from what was suggested by Van Zanden (1995) for Holland, this cannot be explained solely as the consequence of economic growth, as for many areas and periods increases in economic inequality coupled with economic stagnation or decline have been reported (see Alfani 2021 for a synthesis). Southern Italy is a particularly good setting in which to assess the long-term connection between economic inequality and economic decline as overall, the economy of the Kingdom of Naples stagnated from the second half of the sixteenth century (De Rosa 1987). We focus specifically on the region for which the best and most abundant sources exist, Apulia, exploiting newly-collected archival information from the local *catasti*. The Apulian *catasti* include detailed information about different components of wealth: real estate (land and buildings), capital, credit and debt, and other movables (animals, boats, etc.). The information collected for a sample of communities is aggregated using the method introduced by Alfani (2015) to produce regional-level reconstructions, and it covers the period 1550-1800.

¹ www.dondena.unibocconi.it/EINITE.

The Apulian *catasti* also include a rough evaluation of labour incomes which, integrated with additional information, can be used to explore income inequality as well. Our study is almost unique in assessing at the same time the distribution of wealth and of income for a whole region of preindustrial Europe, although the data available only allow us to do this for the mid-eighteenth century. Due to limitations in the available historical sources, previous studies could look at wealth only or, much more rarely, at income only – but not at both. Our study is also the first to assess economic inequality, of either wealth or income, in any part of southern Italy before the eighteenth century.

For Apulia, we find a tendency for wealth inequality to grow across time that is entirely comparable to that reported for other areas of Italy and Europe for which we have similar information. As early modern Apulia was a relatively stagnant economy, this strengthens further the view that preindustrial inequality growth could not be simply seen as an unpleasant side-effect of increasing prosperity (Alfani 2021). We also report a tendency for poverty to increase during 1550-1800. Our study of income inequality completes the picture, allowing us to qualify Apulia *circa* 1750 as a society at the boundary of the inequality possibility frontier: that is, about as unequal as it could have been without condemning much of its population to fall below subsistence levels.

We begin by providing a brief overview of the Kingdom of Naples in early modern times, of its fiscal system, and of the historical sources which are available for a study of economic inequality (Section 1). Thereafter we explore developments in wealth inequality during 1550-1800, first at the level of each community in our sample (Section 2) then for Apulia as a whole, which we compare to other Italian and European areas (Section 3). Section 4 discusses the distribution of total income and its components (labour and capital income) *circa* 1750. Section 5 provides a final discussion and interpretation.

1. The Kingdom of Naples during the early modern period: history, sources and data

The Kingdoms of Naples and Sicily together constituted the largest of the pre-unification Italian states. Previously held by Angevine and Aragonese dynasties, from 1504 the Kingdom of Naples became part of the Spanish domains under the Hapsburg dynasty. In the context of the Spanish empire, it was recognized a prestigious position. In 1707, during the War of the Spanish Succession (1701-14), it was annexed by the Austrian branch of the Hapsburg family—albeit only briefly as in 1734, Charles of Bourbon conquered the kingdom. The Bourbons maintained their domain over the whole of southern Italy until the national unification in 1861, except for the Napoleonic period.

Charles of Bourbon also launched a sweeping program of fiscal reforms which had important consequences for the historical sources available for our study.

In recent years, the property tax records common in Italian pre-unification states and usually called *estimi* or *catasti* have become the basis for a large-scale, coordinated attempt to reconstruct trends in economic inequality from the Middle Ages until ca. 1800, led by the EINITE project and then continued by the SMITE project.² For Italy, new studies have covered the Northwest (Alfani 2015), the Northeast (Alfani and Di Tullio 2019), and parts of the centre (Ammannati 2015; Alfani and Ryckbosch 2016; Alfani and Ammannati 2017) of the Italian peninsula. They have renewed a tradition in the use of sources of this kind to study preindustrial economic inequality, a tradition whose forerunner was David Herlihy (1967; 1978). These sources have largely similar characteristics across Italy, and consequently allow for relatively easy comparisons across regions.

According to an opinion widespread among Italian economic historians, a study of pre-eighteenth century inequality in southern Italy would be impossible due to the lack of any good-quality documentation preceding the so-called *catasto onciario*, the new accounting system introduced in 1741 (see below). Southern Italian regions are usually considered to lack the late Medieval and early modern property-tax registers (the *estimi* or *catasti*) that were widespread in central-northern Italy. This idea, however, is at least partly false. Systematic checks conducted in local city and town archives led us to discover that those areas of southern Italy where feudal property was less prevalent in fact had local fiscal systems, and consequently fiscal sources, entirely comparable to those found in the North.

To be fully understood, the Apulian *catasti* need to be placed in the broader context of the fiscal system of the Kingdom of Naples (Mafri 1984; Bulgarelli 1993). They were first introduced in the Angevin period (1282-1442), with just a slight delay compared to other central-northern Italian areas, and continued to be used in the following centuries. An edict published by Ferdinand of Aragon in 1467, *De appretio seu bonorum aestimatione*, established rules about how to compile the *catasti*, which did not change until the eighteenth century (Marrone 2002; Salvati 1983; Bulgarelli 2004).

Only traces of the medieval *catasti* survive. Moreover, in the early modern period the *catasti* were not used by all communities of the Kingdom of Naples. The central authorities of the State only established the amount due by each community on the basis of the *numerazioni dei fuochi*, that is,

² Generally, from the mid-eighteenth century fiscal reforms led in many parts of Italy to the disappearance of this kind of documentation. Consequently, it would be impossible to pursue an analysis of nineteenth-century inequality trends based on the *estimi*.

periodic censuses of the number of households. In other words, the criterion for the distribution of the fiscal burden among the communities was purely demographic, although fiscal reductions could also be granted to some of them (Bulgarelli 1993, 93-4). In their turn, the communities could decide whether to distribute the amount due according to the *catasto* (the system that the central state encouraged, at least since the Aragonese period) or in other ways, for example per head (*per focolaio*) or through the imposition of trade and/or consumption taxes (*dazi* and *gabelle*). Many communities tried to avoid the *catasti* because (they claimed) they were an unpopular and painful way of raising taxes (Bulgarelli 2004, 66). Another reason for this is that the equitable and ‘egalitarian’ principles to which the rules for redacting the *catasti* were inspired were deeply disliked by the Church and by the nobility, who in southern Italy were by far the largest owners. The nobility actively opposed the use of this kind of system for raising local taxes, while the Church managed to get total exemption from taxation on its property until 1741.

As a matter of fact, in the Kingdom of Naples during the early modern period the *catasti* system was applied mostly in the largest urban centres, where the high value of buildings (houses, shops, storehouses) led to the consideration of direct taxation of property as the more equitable system. In smaller, rural centres the *catasti* were rarely used, also due to the high prevalence of feudal lands in many areas. In most instances, the lords had jurisdiction over the rural communities, managing their administration from the political, civil, military, and juridical point of view. In these cases, the lords (and their lands) were subject to another fiscal system, based on a patrimonial tax known as *relevio*, which was paid at the moment of the enfeoffment or in the case of succession or sale.³ Feudal property is never recorded in the existing *catasti*, and ‘feudal’ communities of the aforementioned kind never drew up *catasti*. Our extensive archival research revealed that of all the southern Italian regions, Apulia is the one where the use of *catasti* was more widespread and continuous in time, precisely due to the low prevalence of feudal property.

The *catasti* recorded values expressed in *once*, a money of account. The procedures regulating the evaluation process involved local commissions, which included representatives of the two main social categories to be taxed—nobility and commoners (*popolani*). First, the sworn declarations of each head of household were collected. Then, the *commissario* (the local representative of the central administration of the State), together with the evaluating officers (*accatastatori*) and the local commissions, verified all questionable cases and validated the declarations (Bulgarelli 1993, 126-7).

³ For a general compendium about southern Italian feudality in the early modern period, see Ago 1994.

A central institution, the *Camera della Sommaria* based in Naples, supervised the drafting of the fiscal records across the state.

The *catasti* of the Kingdom of Naples record the capital value of property, including immovables (lands and buildings) and movables (beasts, boats, financial assets). Interest on debts and other burdens were deducted—the aim being to tax households based on their ‘net worth’. These burdens include the (very low) rents weighing on lands held by households through emphyteusis contracts (a kind of hereditary long term, and often perpetual, leaseholding); in practice, those working these lands were recorded for the corresponding capital value, net of the rent. Overall, the definition of taxable wealth applied by the *catasti* is remarkably comprehensive. From this point of view, southern Italian sources compare favourably with those common in central-northern Italy and in other parts of Europe which often restrict the assessment to real estate only. However, they exclude the house of residence from the evaluation. Overall, this procedure is not dissimilar from that used in the famous Florentine *catasto* of 1427 (Herlihy and Klapisch-Zuber 1985; see further discussion below), which is usually considered to be a fiscal assessment of exceptional ambition and quality, and consequently has focused the attention of generations of economic historians.

The *catasti* of the Kingdom of Naples, however, had an exceptional feature: they also taxed the income from the economic activity of the household members, the so-called *industria*. This was done in an approximate way, based on ad-hoc tables defining a fixed amount of *once* for each occupation (liberal arts were excluded, as they were occupations based on knowledge—*scienza*— and knowledge was considered a gift from God, hence un-taxable).⁴ Overall, the *industria* recorded for each household accounts for the presumed income from labour generated by its members, considering their occupation and their ability to work (the old, the underage, and those unable to work were partially or totally exempted. Women were not considered). Some communities could also obtain from the *Camera della Sommaria* temporary reductions of the taxation on the *industria*, especially to help them cope with agrarian crises. The *industria* due by each household also included a small poll tax (*testatico*).⁵

⁴ As argued by a guide to the administration of the communities of the Kingdom of Naples composed in 1756: «the Doctors in law, Medical doctors, Surgeons, Notaries, Judges proposed to Contracts, and any other knowledge-based professions are not taxed for the income of their profession, and this for the reason that knowledge is a gift from God» («alli Dottori, Medici, Chirurghi, Notari, Giudici a Contratti, e qualsivoglia professione di scienza non si tassa quell'industria della loro professione e si assegna la ragione perchè quella è scienza, che è dono di Dio»). *Direzione, ovvero Guida delle Università di tutto il regno di Napoli per la sua retta amministrazione composta dal dottor Lorenzo Cervellino*, Naples 1756, p. 67.

⁵ Only from the eighteenth century was the *testatico* recorded separately from the *industria*.

Together, the sum of the capital value of assets and the *industria* defined the alleged fiscal capacity of each household recorded in the *catasti*, measured in *once*. The estimated fiscal capacity was then used to calculate the amount due by each taxpayer, by distributing the fiscal burden (whose total amount was pre-determined by the central state, as seen above) among the households, proportionally to their *once*. Although this preindustrial fiscal system did not make any reference to modern concepts such as that of “stock” or “flow”, when the *catasto* was drafted all the items of taxation were calculated based on the presumed yearly incomes from capital and from labour of the entire household. So, in practice, the taxes distributed on the base of the *catasto* worked in a way roughly comparable to modern taxes on total incomes (although the evaluations were not renewed every year). Also note that for the mid-eighteenth century, a period for which we analyze the distribution of total income and not only that of wealth, as capital values were obtained by applying a fixed rate of 5% to yearly net rents from land and other items of wealth, in distributional terms there is no difference between capital values (wealth) and capital incomes (meaning, the top 10% share of wealth and of capital income will be the same, etc.).

A specific advantage of the *catasti* of the Kingdom of Naples, compared to most other Italian and European sources with similar purposes, is that they included everybody, since even the propertyless might be called to pay for the *industria* and the entirely destitute, the 'miserables' (*miserabili*), were duly recorded although exempted from paying any tax. The nobles and individual members of the clergy were also included, and taxed based on their personal lay property. Importantly, for the properties controlled by the nobility and the clergy what led to fiscal exemptions were not the characteristics of the owner, but those of the property itself. In particular, feudal property was not included in the evaluation, as was the rule across Italy and elsewhere during the early modern period (Alfani 2015; Alfani and Ammannati 2017), as well as the property formally owned by religious institutions even when its use was assigned to specific members of the clergy (*beni canonicali*). However, from the seventeenth century, across Italy rulers tried to reduce the fiscal advantages enjoyed by the Church. The Kingdoms of Naples and Sicily were relatively late in joining this tendency, until Charles of Bourbon, in 1741, forced the Church to accept an ‘agreement’ (*concordato*). This was part of an encompassing project of fiscal reform, which started with the edict *De Catastis* published the same year. The new system—commonly known as *catasto onciario*, although technically all earlier *catasti* were also ‘*onciari*’ in the sense that their reported evaluations were expressed in *once*—applied criteria entirely analogous to the earlier *catasti* while introducing some fundamental innovations:

- 1) the *catasti* system was extended to all the communities of the Kingdom of Naples, establishing for the first time fiscal uniformity across the state;
- 2) the property of the Church was subject to taxation, although only for half its value. For the first time, the property of monasteries, nunneries, churches, bishoprics, etc., appeared in southern Italian fiscal records and became ‘visible’.

Interestingly, the same kind of agreement with the Church was applied in Spain in 1753, as part of a fiscal reform, begun in 1749, very similar to the Neapolitan one of 1741. It was developed by Zenón de Somodevilla y Bengoechea, the Marquis of the Ensenada, who not by chance had been in the service of Charles of Bourbon during the War of the Polish Succession of 1733-38 (Abad León 1981. Note that Charles of Bourbon became King of Spain in 1759, leaving the crown of Naples to his third-born son Ferdinando).⁶ The commonalities between the fiscal reforms introduced by the Bourbons in Kingdoms of Spain and Naples, which resulted in the production of exceptionally homogeneous historical sources (the *catastro de la Ensenada* and the *catasto onciario*), allow for some interesting comparisons between our results and those produced by recent research on various areas of Spain (Espín-Sánchez et al. 2019; Nicolini and Ramos Palencia 2021).

Some clarification about the nature of the information recorded in southern Italian fiscal sources is needed. In the *catasti*, the taxable value of property is a capitalized value, which must be considered indicative of the ability of property to generate income. In this sense, southern Italian sources are similar to the Florentine 1427 *catasto*, which also records capitalized values. Traditionally, the information coming from the *catasto* has been used to proxy the wealth distribution (Herlihy 1978; Herlihy and Klapisch-Zuber 1985), and this is also true for recent works (Alfani and Ammannati 2017). However, with due caution and by means of a number of hypotheses regarding labour income, the Florentine *catasto* has also been used to estimate income inequality (Milanovic, Lindert, and Williamson 2011; van Zanden and Felice 2022). Also in the case of the Neapolitan *catasti*, it seems natural to use the *once* values (after having subtracted the *industria*) as representative of wealth distribution. However, here too, in principle (but with some important practical limitations) it is possible to integrate the information about the *industria* in order to obtain proxies of income distribution, similarly to what has been attempted for some parts of Spain based on the *catastro de la Ensanada* (Nicolini and Ramos Palencia 2016). This will be done in Section 4.

Before proceeding, some additional information is needed about our sampling strategy and the archival sources that we collected. As a first step, we explored the general availability of early modern

⁶ About the Marquis of the Ensenada, see Abad León 1981.

catasti throughout the Kingdom of Naples. The current administrative region of Apulia stood out as the one for which usable sources were more abundant. We then conducted an extensive survey of Apulian archives and identified all the communities for which a series of *catasti* covering the early modern period was available. To our knowledge, no complete and usable sources survived for the Middle Ages. As a rule of thumb, we included in our study all the communities for which at least three *catasti* survived: Bari, Carovigno, Lucera, and Ostuni. To these we added Monopoli, for which, however, only two *catasti* were available (dating 1627 and 1754). We also included in our analysis Maglie, although in this case we had to integrate the information coming from the eighteenth-century *catasto onciario* with that collected from a different kind of source: a set of three ad-hoc *apprezzi* compiled in view of the enfeoffment of the community, which, however, record only wealth and not the *industria*. Also as a consequence of this, these sources for Maglie do not include the propertyless systematically.⁷

Our database covers all three ancient provinces comprised in what is now Apulia (see Figure 1): Capitanata (Lucera), Terra di Bari (Bari, Monopoli), and Terra d'Otranto (Carovigno, Maglie, and Ostuni). Bari and Monopoli were among the main coastal cities of the region, and stand out for their large population (exceeding 10,000 inhabitants in the case of Bari), their wealth, and their involvement in local and international trade. In fact, they were among the main trading centres for the oil, wine, and horticultural products of the Terra di Bari. Not by chance, many important merchant families from Lombardy, Veneto, and Tuscany had agents and representatives here, to organize provisioning of export goods from the Apulian hinterland. Particularly numerous were the merchants from Bergamo (then part of the Republic of Venice), attracted by the abundant production of oil, which was in high demand in northern Italian regions also as lubricant for use in textile production. Local artisan production of both textiles and leatherworks were also substantial in these cities. Lucera and Ostuni are representative of the agro-towns particularly widespread in Apulia, that is, large settlements having a size not too dissimilar or even entirely analogous to cities, but whose functions were essentially agricultural (Blok 1969; Curtis 2013). Finally, Carovigno and Maglie are representative of more typical (and much smaller) rural communities, often (as in the case of Maglie) subject to enfeoffment.

To the six aforementioned communities we added another three located in the Capitanata province for which we had access to pre-existing information, although this refers to the mid-eighteenth century only: Ascoli Satriano (an agro-town), Manfredonia (the main harbour of the Capitanata, particularly active in the export of grain), and Trinitapoli (a rural community close to Barletta, which

⁷ The complete archival references of the sources that we used are provided in Appendix A1.

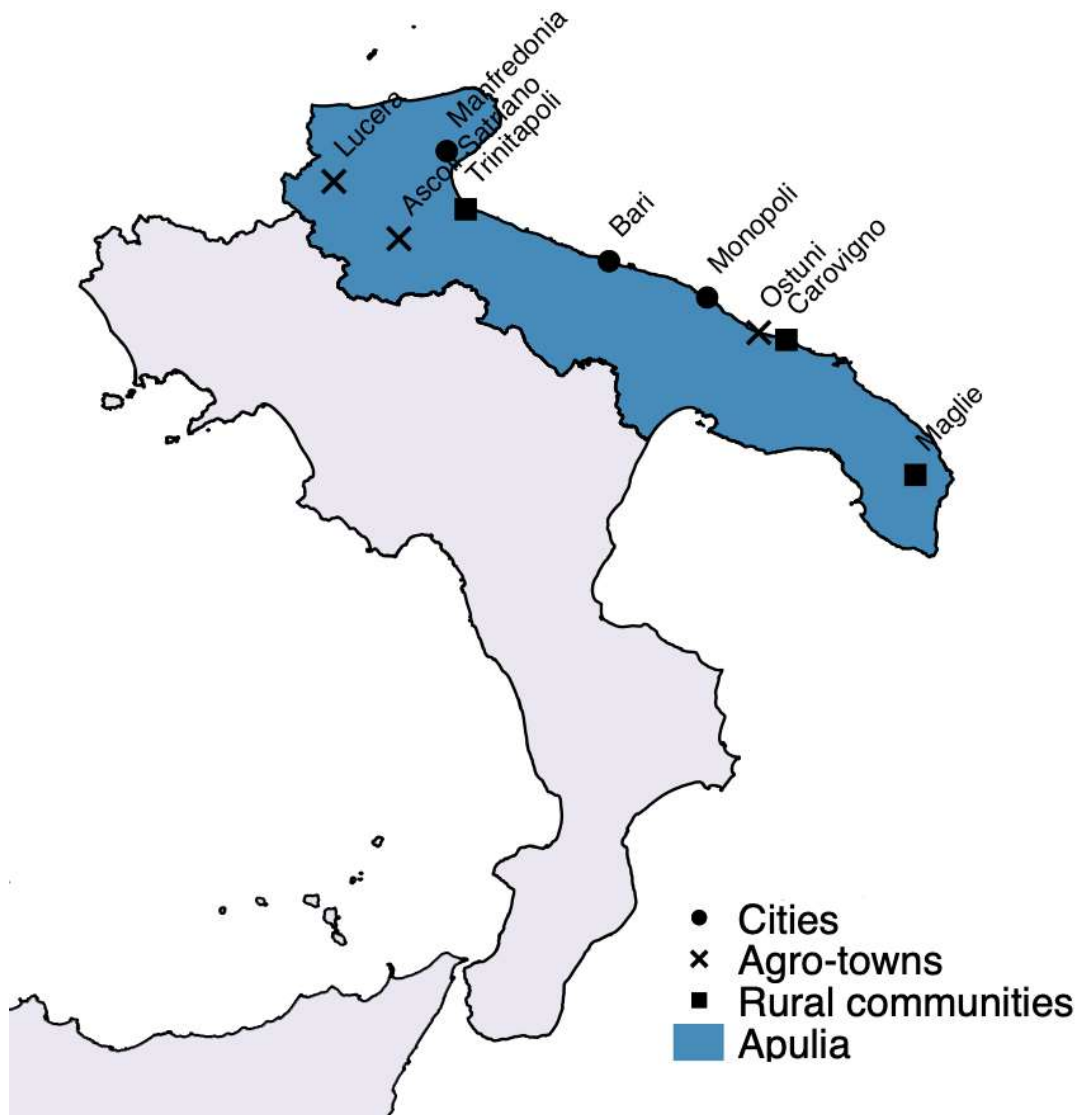
at that time was owned by the Order of the Knights of Malta who managed it as a commandery or *commenda*). Table 1 summarizes the observations available for each community and also provides additional information, in particular about their estimated population at the time. Figure 1 shows their geographic position.

Table 1. Composition of the database (Apulia)

Community	Urban / Rural	<i>Catasti</i> used (year)	Population (year of reference between parentheses)
Ascoli Satriano	U/R	1754	3,749 (1754)
Bari	U	1598; 1619 (nobles)*; 1636 (commoners)*; 1753	10,882 (1598); 289 (1619, nobles only); 9,935 (1636); 18,011 (1753)
Carovigno	R	1602; 1710; 1742; 1790	1,041 (1602); 1,228 (1710); 1,615 (1742); 2,670 (1790)
Lucera	U/R	1621; 1685; 1754	3,472 (1621); 3,773 (1685); 5,479 (1754)
Maglie	R	1578; 1608; 1674; 1752	1,948 (1752)
Manfredonia	U	1749	3,278 (1749)
Monopoli	U	1627; 1753	7,704 (1627); 8,968 (1754)
Ostuni	U/R	1578; 1615; 1737	4,035 (1578); 5,084 (1615); 5,400 (1737)
Trinitapoli	R	1754	584 (1754)

Notes: For the city of Bari *circa* 1650, we obtained an overall distribution by merging two distinct *catasti*: one dated 1619-21 and covering only the (non-feudal) property of nobles, and one dated 1636 and covering only commoners. For the city of Monopoli, the 1627 *catasto* is incomplete as the part regarding non-residing foreigners was lost. In order to compare like with like, in our analysis of time trends in inequality we removed this category from the 1753 *catasto* of Monopoli as well. Agro-towns are classified as ‘U/R’.

Figure 1. Communities in the database



2. Wealth inequality in Apulia

In this section we provide a descriptive analysis of wealth inequality, community by community. This is a preliminary step before proceeding to a regional-level inequality reconstruction (Section 3). We start with an analysis of the source that provides the most complete information about overall economic inequality: the mid-eighteenth century *catasto onciario*, which is also the only source covering all of the 9 communities we consider. Table 2 summarizes our measures of inequality levels conducted on different aggregates. We use standard Gini indexes⁸, where 0 corresponds to a

⁸ The Gini index is calculated by using the following formula: $G = (2/(n-1)) * \sum_i (F_i - Q_i)$, where (in our case) n is the number of declarants/households; i is the position of each individual in the ranking sorted by increasing wealth; the sum goes from 1 to $n-1$; F_i is equal to i/n ; Q_i is the sum of wealth of all individuals comprised between position 1 and i divided by the total wealth of all individuals.

hypothetical situation of perfect equality, and 1 to a situation of perfect inequality: one household owns everything.

We first measured Gini indexes on the overall wealth distributions, including the wealth owned by institutions. We exclude from the analysis the assessments of labour incomes (*industria*), so that what we observe is the distribution of net wealth. Overall, we found that inequality was higher in cities than in rural communities, with agro-towns in between: the average Gini value is about 0.9 in cities, 0.85 in agro-towns (excluding Ascoli Satriano), and 0.79 in rural communities. This finding is consistent with all other available studies of economic inequality across different kinds of communities in a given period (Herlihy 1978; Herlihy and Klapisch-Zuber 1985; Van Zanden 1995; Alfani 2010a; 2015; 2021; Alfani and Ammannati 2017). The exception is Ascoli Satriano, which is characterized by extremely high inequality (0.969). Interestingly, although the exceptional position of Ascoli Satriano somewhat declines if different aggregates are considered, in all instances it appears to be the most unequal community of all. This is due to the presence of a local seigneurial family (the Marulli, Dukes of Ascoli) whose various members owned large amounts of non-feudal property in the territory, as well as to the presence of very rich religious institutions, like the *badia* (nunnery) of San Lionardo della Mattina, the richest of all owning 32,372 *once* of property (about 22% of the overall property registered in the *catasto*).⁹

⁹ Also see Curtis 2013, 391-2; 2014 for a detailed discussion of the exceptional case of Ascoli Satriano.

Table. 2. Wealth inequality in Apulia, ca. 1750: Gini indexes calculated on different aggregates

	Bari	Manfredonia	Monopoli	Ascoli Satriano	Lucera	Ostuni	Carovigno	Maglie	Trinitapoli
	Cities			Agro-towns			Rural communities		
Overall wealth (all owners: households and institutions)	0.908	0.947	0.886	0.969	0.828	0.88	0.85	0.851	0.676
Household wealth (excluding institutions)	0.886	0.94	0.831	0.902	0.828	0.869	0.848	0.853	0.629
Overall wealth (excluding propertyless)	0.833	0.874	0.845	0.916	0.731	0.867	0.827	0.771	0.602
Household wealth (excluding institutions & propertyless)	0.788	0.851	0.769	0.88	0.724	0.851	0.824	0.772	0.542

Notes: The actual dates of the mid-eighteenth century *catasti onciari* we used vary slightly; see Table 1 for details. Note that for Ostuni, we use a *catasto* slightly preceding the so-called *catasto onciario*, which, however, already incorporated the criteria of the 1741 edict *De Catastis*, notably, regarding the inclusion of the property of religious institutions in the evaluations.

As noted earlier, the *catasto onciario* is exceptional, among the fiscal sources available for the Kingdom of Naples, because it also records the property of the Church, although only at half its value. To account for this, we amended the distributions doubling the *once* recorded for religious institutions. However, in all earlier *catasti* the property of religious institutions was not recorded—a limitation that is common to almost all property records of this kind existing in Italy and elsewhere in Europe. Consequently, to build homogeneous time series of wealth inequality we removed institutional property entirely, a choice which also allows us to focus on the distribution of household wealth. This usually led to a decline in the Gini values, one that was particularly pronounced in Ascoli Satriano (from 0.969 to 0.902) for the aforementioned reasons. This empirical finding is reasonable given the nature of Church property in Apulia, where some religious institutions amassed huge amounts of real estate, but it is not a statistical necessity: where religious property was overall limited and/or very fragmented among many specific institutions, removing it from the distributions could

lead to an increase in the corresponding Gini values. This is for example the case for the province of Padua in the Republic of Venice (northeastern Italy) during the seventeenth century, where adding the religious institutions to the distributions leads to a slight decline in the Gini indexes (Alfani and Di Tullio 2019, 124-6). In another case, that of the city of Saluzzo in northwestern Italy in 1772, removing religious property leads to a slight increase of the Gini index, from 0.771 to 0.777 (Alfani 2015). Also in our database, a slight increase is found in Maglie (from 0.851 to 0.853), while in Lucera nothing changes.¹⁰

Removing Church property allows for the production of the best possible measures of inequality covering the whole of the early modern period, as they represent the overall household wealth distribution, including the property-less. Unfortunately, however, these measures are not as comparable as we would like. In fact, within our database, in the case of Maglie where we have to rely on sixteenth- and seventeenth-century *apprezzi*, we do not have systematic information about the propertyless before the eighteenth century (see Section 1). Moreover, all other earlier regional studies of inequality for central and southern Europe standardized sources by removing the propertyless: a forced decision, given that in the property tax records used in those areas the households entirely devoid of even tiny morsels of real estate were recorded in exceptional circumstances only (Alfani 2015; Alfani and Ammannati 2017; Alfani and Di Tullio 2019; Alfani, Gierok and Schaff 2022). As a consequence, we also consider changes in other aggregates that exclude the propertyless. As can be seen in Table 2, if we take them out from the overall (i.e., religious institutions included) wealth distributions, the Gini declines everywhere. This is a statistical necessity, as we are removing the bottom of the distribution (the zero values). The ‘egalitarian’ impact of this kind of standardization is usually higher than that resulting from the removal of religious institutions (for example in Bari, the Gini declines by 0.024 points when religious institutions are removed, and by 0.073 when the propertyless are removed). The most interesting aggregate, though, is that which excludes both the religious institutions and the propertyless (final line in Table 2), as this (i) allows coverage of the whole of the early modern period; (ii) allows inclusion of Maglie in the analysis; and (iii) allows for direct comparison with research led on other Italian areas. Figure 2 represents graphically the time

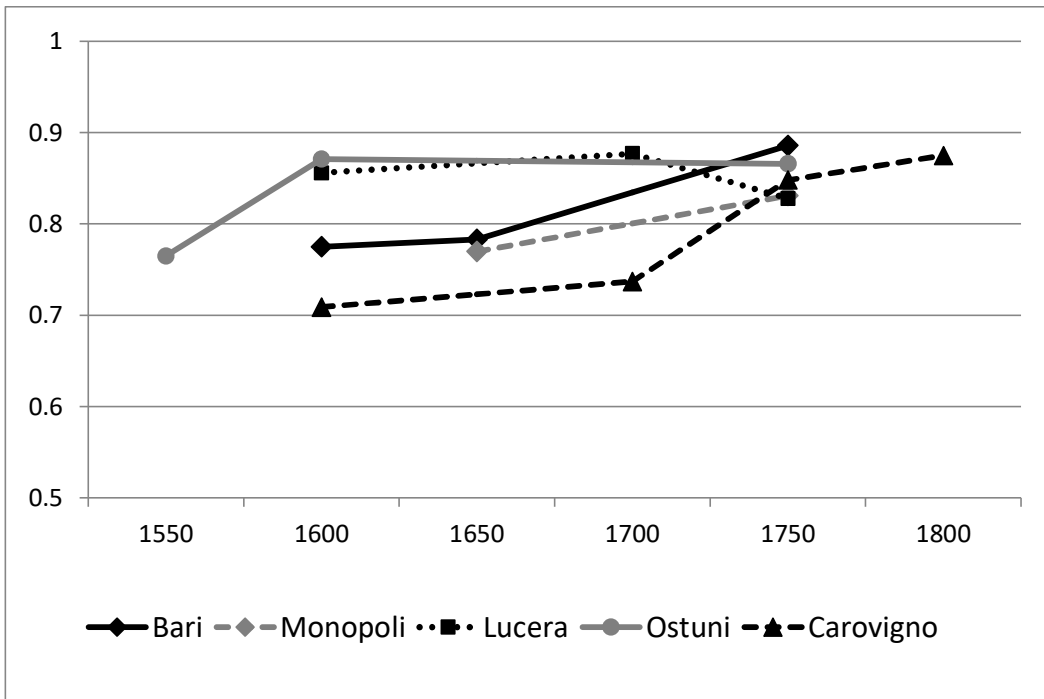
¹⁰ On principle, an alternative approach would be to distribute the religious property among their “members”, at least for those institutions (such as nunneries and monasteries) that hosted clearly-identifiable communities. This approach, however, presents two shortcomings, one theoretical and one practical. The theoretical shortcoming is that, to obtain household-level distributions of wealth, institutional wealth *should not* be distributed. The practical shortcoming is that we don’t usually have any information about how many the members of religious institutions were. The notable exception is that of Monopoli in 1754, where (for unknown reasons) the source included a summary list of the population of religious institutions. In total, the monasteries and nunneries of Monopoly, plus the local seminary, hosted 309 people. If we divide among these people the wealth of the institutions to which they belonged, our estimate of overall wealth inequality drops from the Gini of 0.886 reported in Table 2 to a Gini of 0.848 (still above the Gini of 0.831 obtained when institutional wealth is removed entirely from the analysis).

trends, community per community, calculated on distributions of household wealth including or excluding the propertyless. To ease comparisons between communities, we organize measures around reference years (50-year breakpoints from 1550 to 1800).¹¹

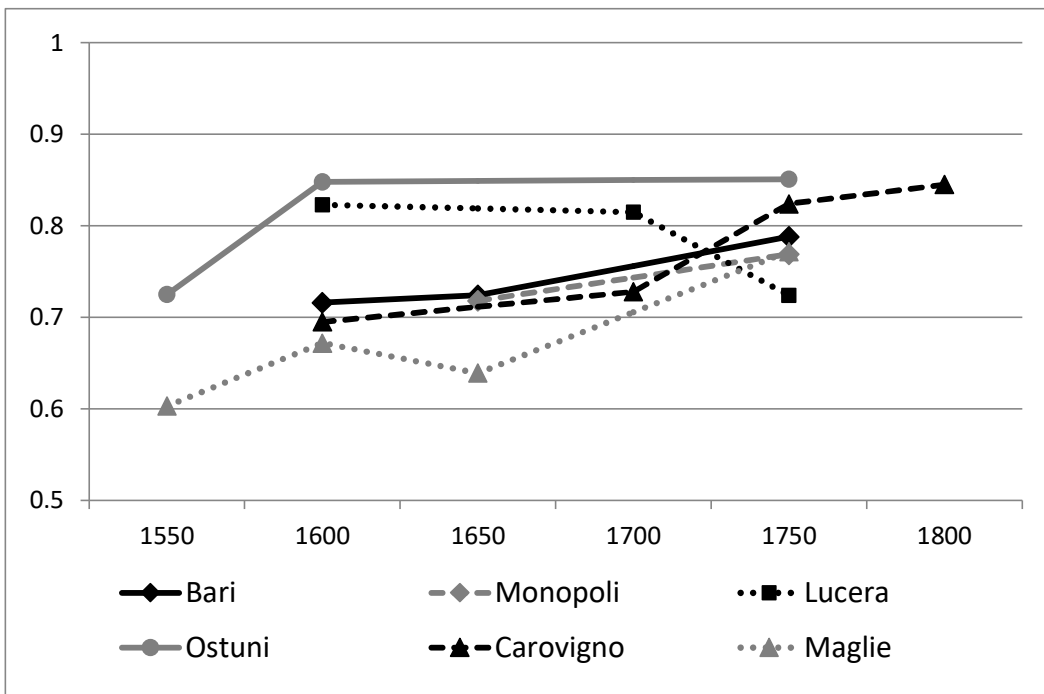
¹¹ Note that for Monopoli ca, 1750, we calculated the Gini after having removed the non-residing foreigners from the distribution, as they were missing from the catasto of ca. 1650 (see notes to table 1 for details). As a consequence, the value of the Gini is slightly different from that presented in table 2.

Figure 2. Long-term trends in household wealth inequality in Apulia (Gini indexes)

a. Propertyless included



b. Propertyless excluded



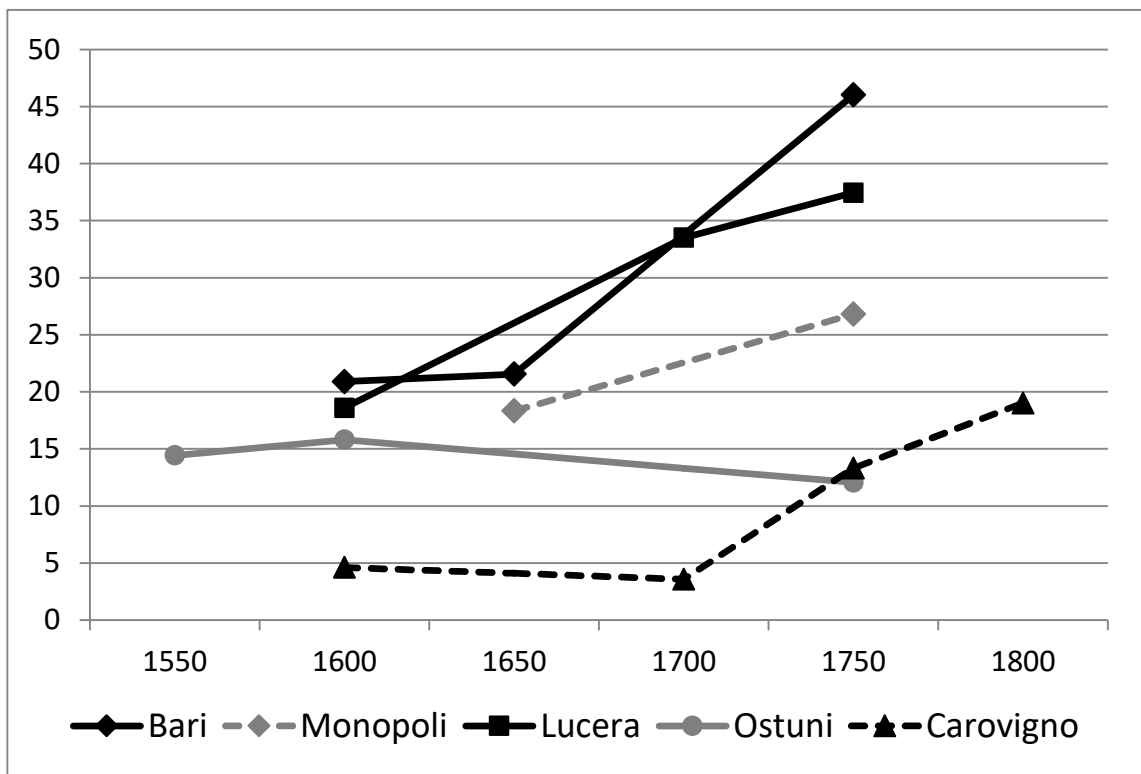
Overall, the data presented in Figure 2 suggests a general tendency for wealth inequality to grow during the early modern period. Focusing on the figures that include the propertyless, this is especially apparent for the period 1550-1700 (note that in Ostuni, inequality seems to remain stable across the period 1600-1750, but this could be due to the fact that we miss in-between observations). In the period 1700-1750 the situation is somewhat more complex and in at least one community (Lucera) there seems to be a clear tendency for wealth inequality decline. If we consider the series excluding the propertyless, the tendency for inequality to grow becomes less steep—as generally speaking, the prevalence of the poor was increasing over time (see Figure 3). In Bari, for example, the prevalence of propertyless households grew from 20.9% in 1600 to 21.6% in 1650, and reached a peak of 46% in 1750. The exception is Ostuni, where removing the propertyless changes the trend from stable to slightly increasing—and this because Ostuni is the only community where the prevalence of the propertyless seems to be reducing over time, although not by much (from 15.9% in 1600 to 12.1% in 1750).

Technically, not all the propertyless were poor: consider for example the case of a recent immigrant, with a decent job in the city but living in a rented house, who has had no opportunity (yet) for acquiring taxable goods. However, there is no doubt that most of the propertyless were, indeed, poor. For example, in Bari ca. 1600, out of 152 household heads recorded with zero taxable wealth, three-quarters (114) were women (and of these, 79% were widows), 7 (6%) were underage children, and three were explicitly singled out as beggars (note that lone women, widows especially, and orphans always accounted for a large share of the preindustrial poor: Pullan 1978; Lanaro 1982; Alfani 2020). Of all the households with no taxable wealth, 131 (86%) were also recorded with no *industria* and/or no occupation whatsoever (apart from begging). In 1750, out of 373 propertyless households, 198 (53%) were led by women, of which 84% were widows, 51 (14%) were underage children, and 39 (10%) were recorded as unable to work (*inabile*; most of them were indicated as blind). Of all these households, 312 (84%) were also recorded with no *industria* and/or no occupation: basically, the same prevalence as one and a half centuries earlier (in preindustrial societies, as in today ones, joblessness is a strong predictor of poverty).

The tendency for propertyless (and usually poor) households to increase during the early modern period has also been found by studies of other Italian areas, such as the Republic of Venice. Indeed, it appears to have been a general process across the Italian peninsula, as well as across much of Europe (Alfani 2020; Alfani, Ammannati and Ryckbosch 2023; Alfani, Gierok and Schaff 2023). The case of Apulia is in fact exceptional considering that good-quality information about the prevalence of the poor is systematic in time, and the sources often distinguish between the propertyless (those whose

wealth is evaluated at zero) and the entirely destitute. This exceptional information will be analyzed in greater detail elsewhere. Here it will suffice to note that the case of Apulia provides strong support to the hypotheses made by the earlier literature about the distortion in inequality measures determined by the absence of the propertyless from the observed distributions—that is, that if during the early modern period the trend in inequality measures excluding the propertyless is already oriented to growth, adding the propertyless would only reinforce such a trend (Alfani 2021). On the other hand, the prevalence of propertyless households in Apulia appears to have been much higher than that reported for other parts of early modern Italy and Europe (usually in the range 3-7%: Alfani 2021, p. 9). This is surely due in part to the fact that the southern Italian *catasti* did not include an assessment of the house of residence, but it might also be that the prevalence of poverty in this area was higher than elsewhere.

Figure 3. Prevalence of the propertyless in Apulia, 1550-1800 (% of overall households)



3. Regional trends in wealth inequality and international comparisons

In order to compare the case of Apulia with the other Italian regions for which long-term trends in economic inequality have been reconstructed, we focus on distributions of wealth, propertyless

excluded. To ease comparison across regions, we need to aggregate the community-level data in order to produce inequality measures representative of broader environments/areas. We employ a method introduced by Alfani (2015) in his case study of Piedmont. The same method has also been applied to other Italian and European areas during preindustrial times and currently constitutes the standard in the field, which considerably eases comparison (see for example Alfani 2021; 2022).

The method starts from the assumption that the right way to build regional measures of inequality is not simply to calculate averages of local Gini indexes or of other inequality measures, as this would cause a loss of information about between-community inequality as well as about the structure of the distributions. Instead, either we reconstruct the overall, actual distribution by listing together the details of each household (a task impossible to accomplish in most instances, due to the unavailability of such detailed data at the regional level and/or to the simple enormity of the archival research needed to collect all the necessary information) or we build a ‘representative distribution’ approximating in the best possible way the actual distribution. Our method follows the second approach, and proposes to build regional time series starting from simplified, community-level distributions of 100 elements each, modeled on information about deciles of income/wealth. The tenth decile—the rich—is modeled in greater detail, using information about the top 5% and top 1% wealthy, as it is usually found empirically that what happens to the top rich disproportionately influences the overall trend in terms of Gini values—both in preindustrial societies and today. A detailed general description of the method can be found in the original article by Alfani (2015), and a step-by-step application is reported in the Appendix to Alfani and Di Tullio (2019).

To take into account the demographic, social, and economic specificities of Apulia, we first constructed three separate series of distributions, representative of cities, agro-towns, and rural areas. In practice, Apulian ‘cities’ are proxied by Bari and Monopoli, agro-towns by Lucera and Ostuni, and rural communities by Carovigno and Maglie; communities for which we had the wealth distribution for a single year (Ascoli Satriano, Manfredonia and Trinitapoli) were not used for the aggregation. The distribution representative of each of the three environments was obtained by simply merging the simplified distributions related to the proper communities and years. Note that, by using simplified distributions of exactly 100 elements each, we maximize the ability of each community to shape the overall trend (as otherwise, a larger community might unduly dominate the tendency of the aggregate).

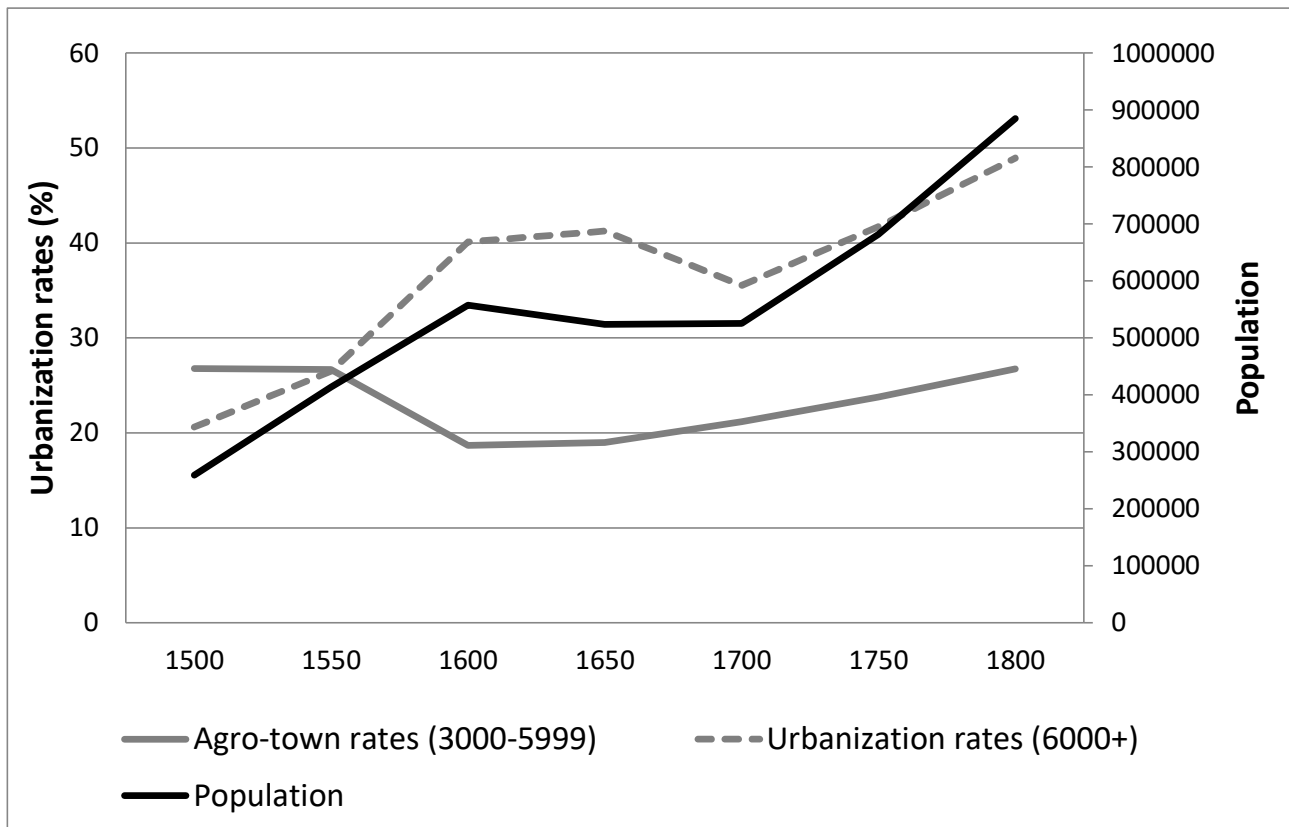
Using simplified distributions also eases the next step: obtaining an aggregate distribution representative of Apulia as a whole by weighing the distributions representative of cities, agro-towns and rural communities with a procedure similar in principle to that described by Milanovic (2005) for calculating ‘weighted international inequality’. Note that this kind of ‘weighing’ is meant to achieve,

in the aggregate distributions, a ratio between the number of elements that refer specifically to cities, agro-towns and rural areas that matches their respective share of the overall population. For this purpose, we developed estimates of the prevalence of the population residing in cities and of that residing in agro-towns. This leads to the problem of establishing the demographic boundary between agro-towns and cities. For preindustrial Apulia, it seems reasonable to assume that agro-towns usually had a population comprised in the 3,000-5,999 band of variation. From this comes the choice of reserving the status of fully-fledged cities only to communities having at least 6,000 inhabitants.¹² As can be seen in Table 1, this rough demographic classification has the virtue of matching well the distinction we made in our database between cities and agro-towns, a distinction that also makes use of additional information about the actual characteristics of each community.

To build our estimates, we relied upon a dataset developed by Alfani and Schifano (2024) using new evidence about the population of each community of the Kingdom of Naples, as well as previously published information (in particular, Da Molin 1995). Our population estimates are fully compatible with those provided, at a more aggregate level, by the literature (Da Molin 1995, 59; Del Panta et al. 1996, 277), while our estimates of the prevalence of the population residing in communities having 3,000-5,999 inhabitants or 6,000+ are entirely new (Alfani and Schifano 2024 only provide the more standard ‘urbanization rates’ for communities having 5,000+ or 10,000+ inhabitants). The results are shown in Figure 4.

¹² Note that this argument stands only for southern Italian regions where agro-towns were widespread—as for northern Italy, it has been argued that during the early modern period, centres having at least 4,000 inhabitants and the juridical status of cities should be considered urban centres to all effects: Alfani 2007, 571; 2013a, 146

Figure 4. Urbanization rates and total population in Apulia, 1500-1800



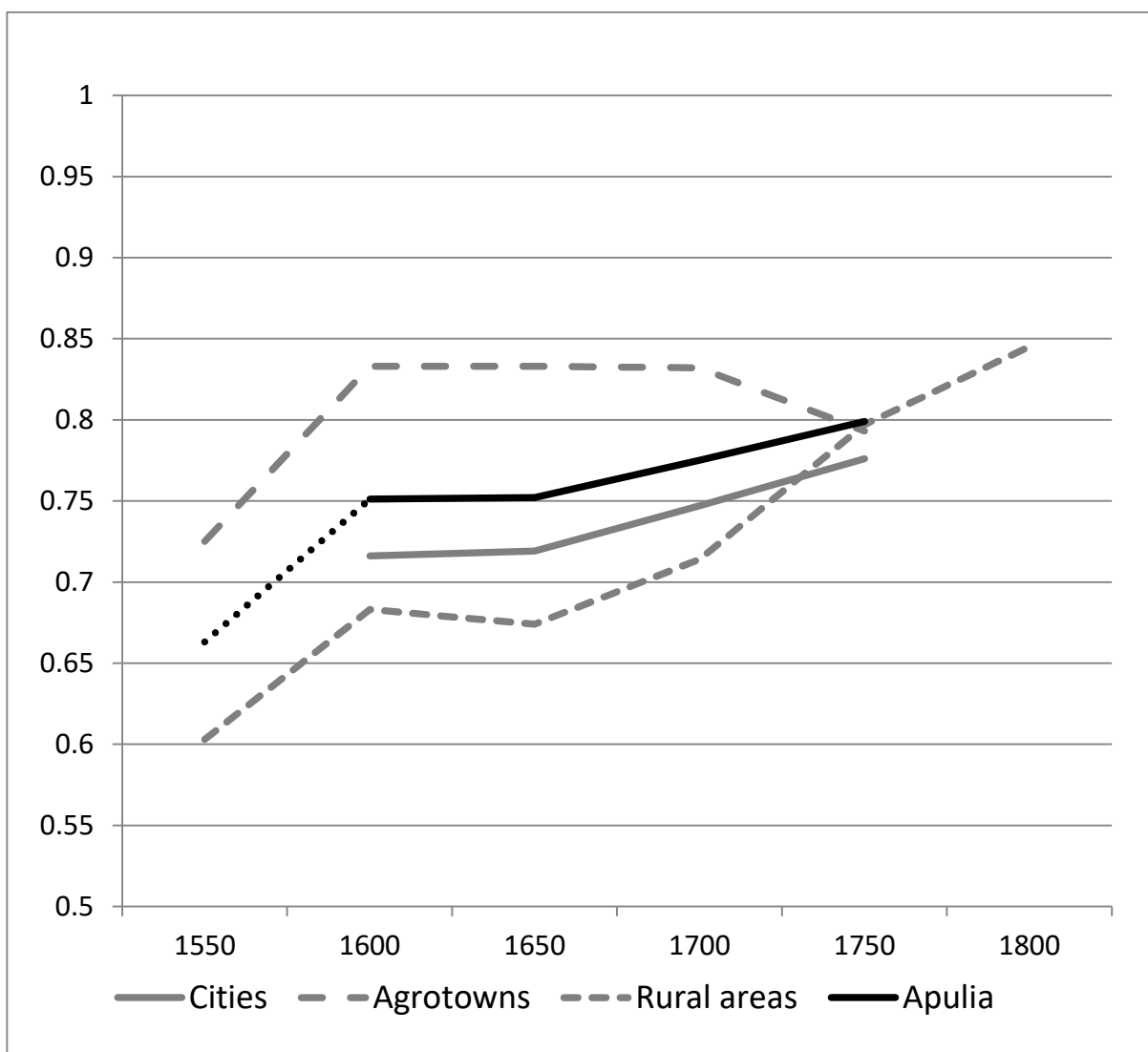
Source: new elaborations based on the dataset developed by Alfani and Schifano 2024. Notes: urbanization rates should be read on the left-hand y axis, total population on the right-hand y axis.

The figure shows a long-term tendency for the Apulian population to grow, except for the seventeenth century. This was partly the consequence of the terrible plague of 1656-57, probably the second-worst affecting southern Italy after the fourteenth-century Black Death. The plague killed between 30% and 43% of the overall population of the Kingdom of Naples (Alfani 2013b, 411), although Apulia was affected less severely also thanks to the effectiveness of public health authorities in containing the spread of the disease across the region (Fusco 2007). In our own estimate, which is based upon information published by Fusco (2009), the plague killed about 18.4% of the Apulian population. These epidemic-induced demographic losses, however, only made starker a phase of demographic decline which had begun decades before the plague, in connection with economic difficulties such as the crisis of the Adriatic trade which particularly damaged the Terra d'Otranto (Bulgarelli 2009, 86). Demographic stagnation, however, did not compromise the tendency for the population to concentrate ever more clearly in larger settlements, as the prevalence of those residing in places having 6,000+

inhabitants continued to grow in the first half of the century, a tendency which the plague of 1656-57 interrupted only temporarily.

Figure 5 presents our reconstruction of the long-term trends in wealth inequality in all three environments we considered (urban, rural, and the ‘intermediate’ environment of the agro-towns), together with our reconstruction for the whole of Apulia. As can easily be seen, the regional time series capture well the long-term trend that characterizes all its single components. This is the main property that it had to show, as its purpose is simply to allow an adequate comparison of large areas. Interestingly, by the end of the period covered by the aggregate series the Gini level is slightly higher than that of its single components. This reflects a growing disparity in the average wealth of cities compared to rural communities, which tends to polarize the overall regional distribution.

Figure 5. Wealth inequality in Apulia, 1550-1800 (Gini indexes, propertyless excluded)

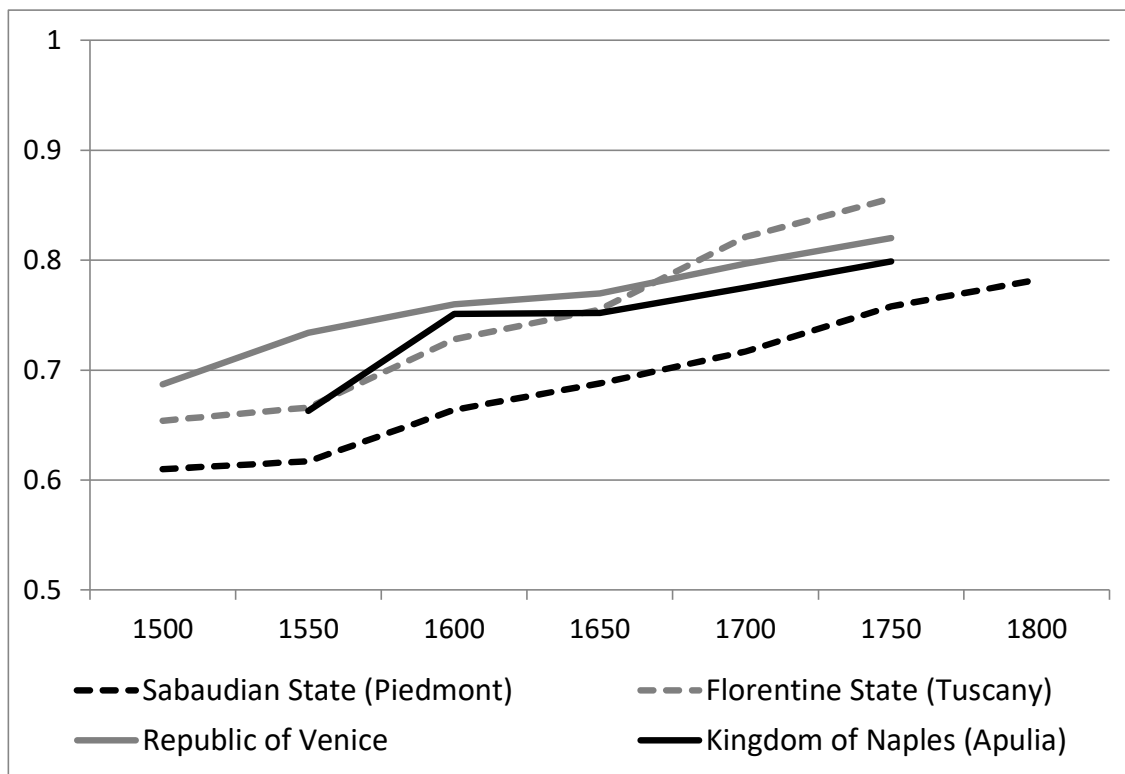


Unfortunately, as for cities we have information for some dates only, the regional time series covers just a century and a half—but as in the earlier period the aggregate series was heavily influenced by its rural component (around 1500 we estimate that about 47% of the population resided in villages with less than 3,000 inhabitants), it seems reasonable to assume that the tendency for inequality to grow found for 1600-1750 initiated earlier, and probably was even stronger during 1550-1600, especially considering that the exact same tendency is also found in agro-towns. This allows us to make a tentative hypothesis about the overall regional development (dotted line in Figure 5). A similar procedure could be applied to the period 1750-1800 but with much greater uncertainty, as the only information we have is for rural areas and, by 1800, only 24.3% of the Apulian population resided in rural villages with less than 3,000 inhabitants. As a final consideration, note that agro-towns show a partially different dynamic compared to the other environments and the region as a whole, as in agro-towns inequality grew in the early sixteenth century, was stable throughout the seventeenth century, and declined during the first half of the eighteenth. This is possibly due to Lucera being an exceptional case (to date, it is the only community in Italy where a monotonic decline in wealth inequality throughout the early modern period has been found), but unfortunately no other agro-towns could be added to this study simply due to lack of archival sources, except for Ostuni, which, as can be seen in Figure 2b, is also far from showing a marked tendency for inequality growth after 1600.

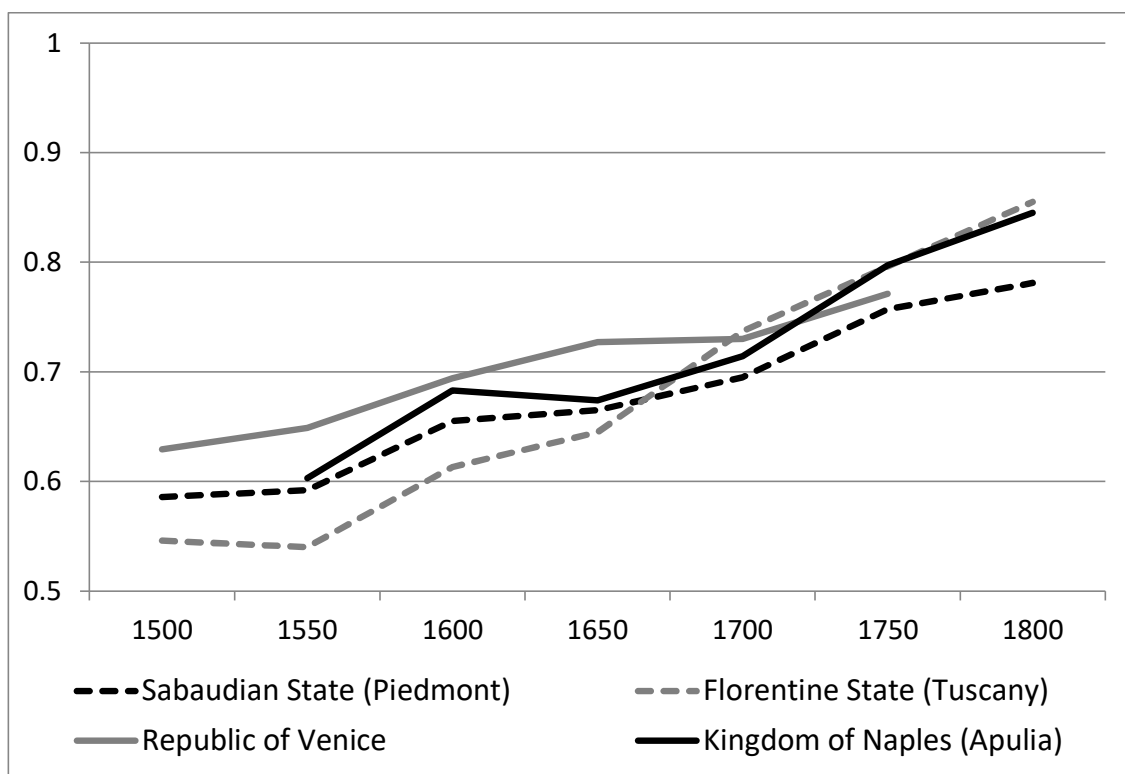
Interestingly, the same regional trend found in Apulia also characterizes Piedmont in northwestern Italy and Tuscany in central Italy (which in the period considered roughly corresponded to two distinct States, the Sabaudian State and the Florentine State, respectively), as well as the Republic of Venice which comprised most of northeastern Italy covering various current Italian administrative regions. These reconstructions have been obtained using information entirely comparable to that used for Apulia, and with the same method (with slight adaptations to each specific case). Notice that although the original source material could somewhat influence the level of the series (and consequently, we should be careful in comparing directly the Gini values), the trends are broadly comparable. In Figure 6 we consider both overall regions (panel a) and rural areas only (panel b), as they contribute heavily to shaping the trend in the earlier dates and furthermore, in Apulia they cover the longer period.

Figure 6. Long-term trend in wealth inequality in the Kingdom of Naples (Apulia) and other Italian pre-unification states, 1500-1800 (Gini indexes, propertyless excluded)

a. Regions



b. Rural areas only



The regional reconstructions which are currently available for different parts of Italy are all monotonically increasing from 1500 to 1800. This is an interesting finding, as these regions followed during the early modern period a very different economic, demographic, and possibly even social-institutional path. This topic will be succinctly discussed in Section 5. Before doing that, though, a final interesting aspect needs to be highlighted: in all four regions, the long-term increase in inequality seems to be driven by an increase in the wealth share of the rich, as can be seen in Figure 7 which reports the share of the top 10%. The ability of the share of the top of the distribution to shape the overall trend in inequality as measured by Gini indexes is a ‘stylized fact’ which holds true both for preindustrial societies (Alfani 2021, 10) and for modern ones (Atkinson et al. 2011; Alvaredo et al. 2013).

Figure 7. Long-term trend in the share of wealth of the top 10% in the Kingdom of Naples (Apulia) and other Italian pre-unification states, 1500-1800 (propertyless excluded)

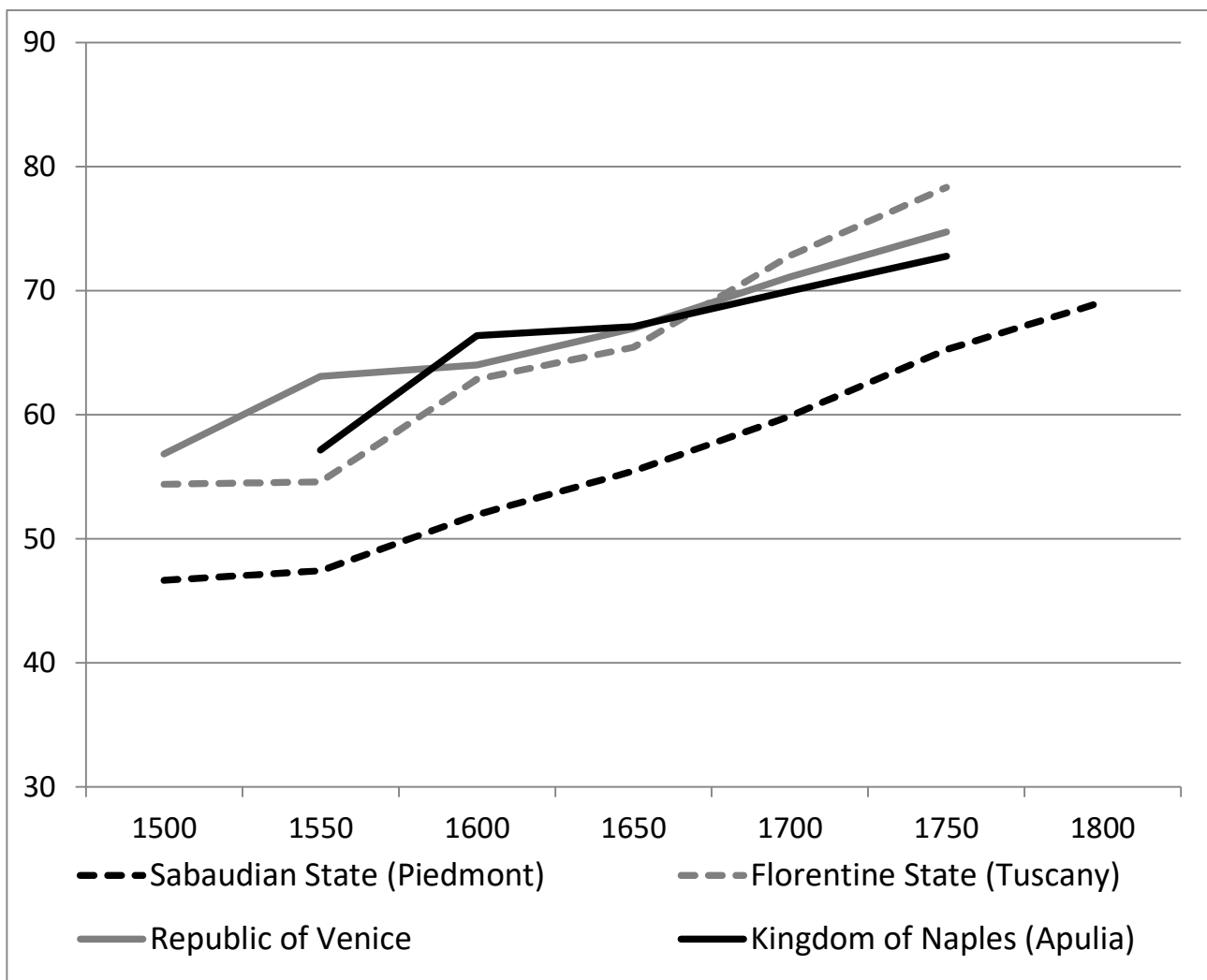
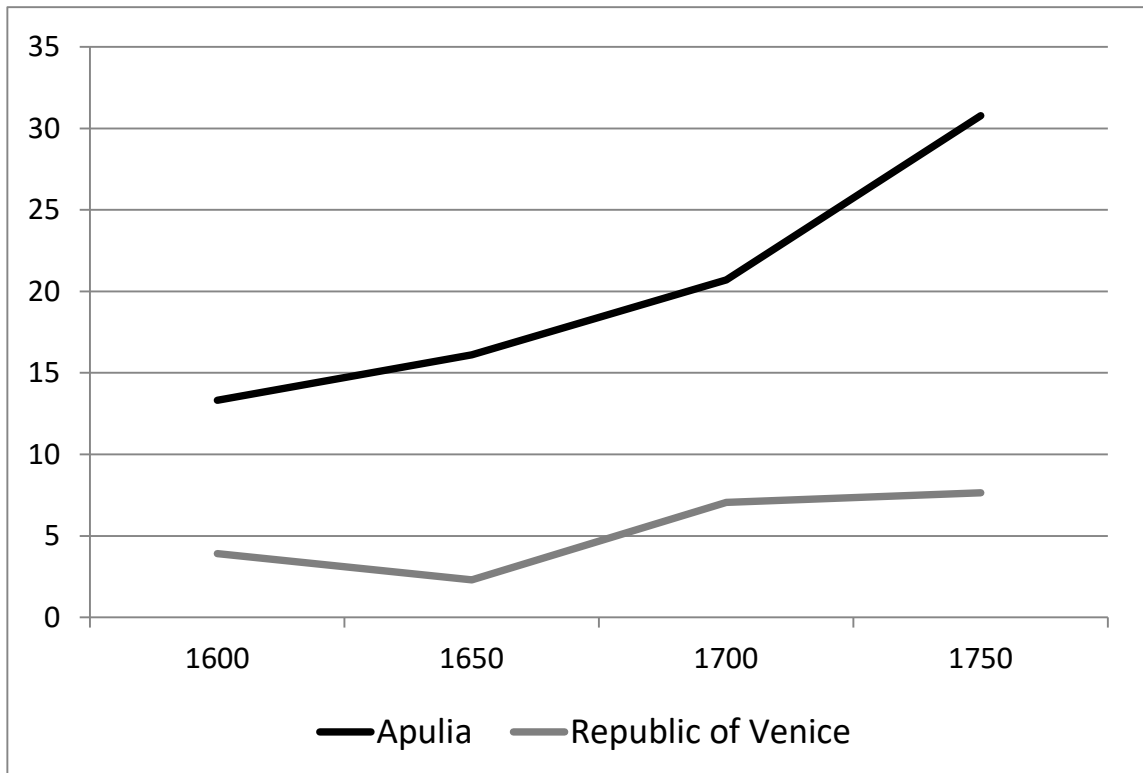


Table 3 reports the numerical values of the Gini indexes for Apulia and, for completeness, it includes information about all the deciles and other significant percentiles. Additionally, it reports estimates of inequality ‘propertyless included’, exploiting the relatively good coverage of the very bottom of the distribution in most local sources. As discussed in Section 2, the prevalence of the propertyless tended to grow over time in the single communities of our sample. This is also captured by our aggregate analysis, as can be seen in Figure 8, where the trend in the estimated prevalence of the propertyless in Apulia is compared to that reported by Alfani, Ammannati and Ryckbosch (2022) for the Republic of Venice, which is the only other Italian pre-unification state for which an estimate of this kind is currently available. As can be seen, in both states the prevalence of the propertyless increased over time and about doubled between 1600 and 1750 (In Apulia, we estimate that they increased from 13.3% to 30.8% of the overall population). While the only difference in the *trend* regards the mid-seventeenth century, when the 1630 plague, which killed about 40% of the population of the Republic of Venice, temporarily reduced poverty there mostly by “extermination of the poor” (Alfani and Di Tullio 2019; Alfani 2022), the noticeable difference in the *level* surely depends in part on the fact that the house of residence was not taxed in Apulia, while it was in the Republic of Venice. While we don’t rule out that, independently from the fiscal sources, the estimates also reflect a broader spread of poverty in Apulia compared to northern Italian areas, this is a hypothesis that will have to be answered by a dedicated study.

Figure 8. Prevalence of the propertyless in Apulia and in the Republic of Venice, 1600-1750 (% of households)



As can be seen graphically in Figure 9, adding the propertyless to the distribution leads to some increase in the estimates of the overall inequality levels (this is a statistical necessity, as we are feeding “zeroes” to the distribution). This increase is substantial but not dramatic, and it grows in time (from a minimum of 0.034 Gini points in 1600 to a maximum of 0.06 in 1750), reflecting the growing proportion of the propertyless. For the same reason, the long-run tendency for inequality to grow that we have reported for Apulia looks only steeper when the propertyless are included in the analysis. This being said, as the trends do not change direction, including the propertyless in the analysis does not alter in any way our interpretation of the general distributive dynamics characterizing the region.

Figure 9. Wealth inequality in Apulia, 1600-1750 (Gini indexes, propertyless included)

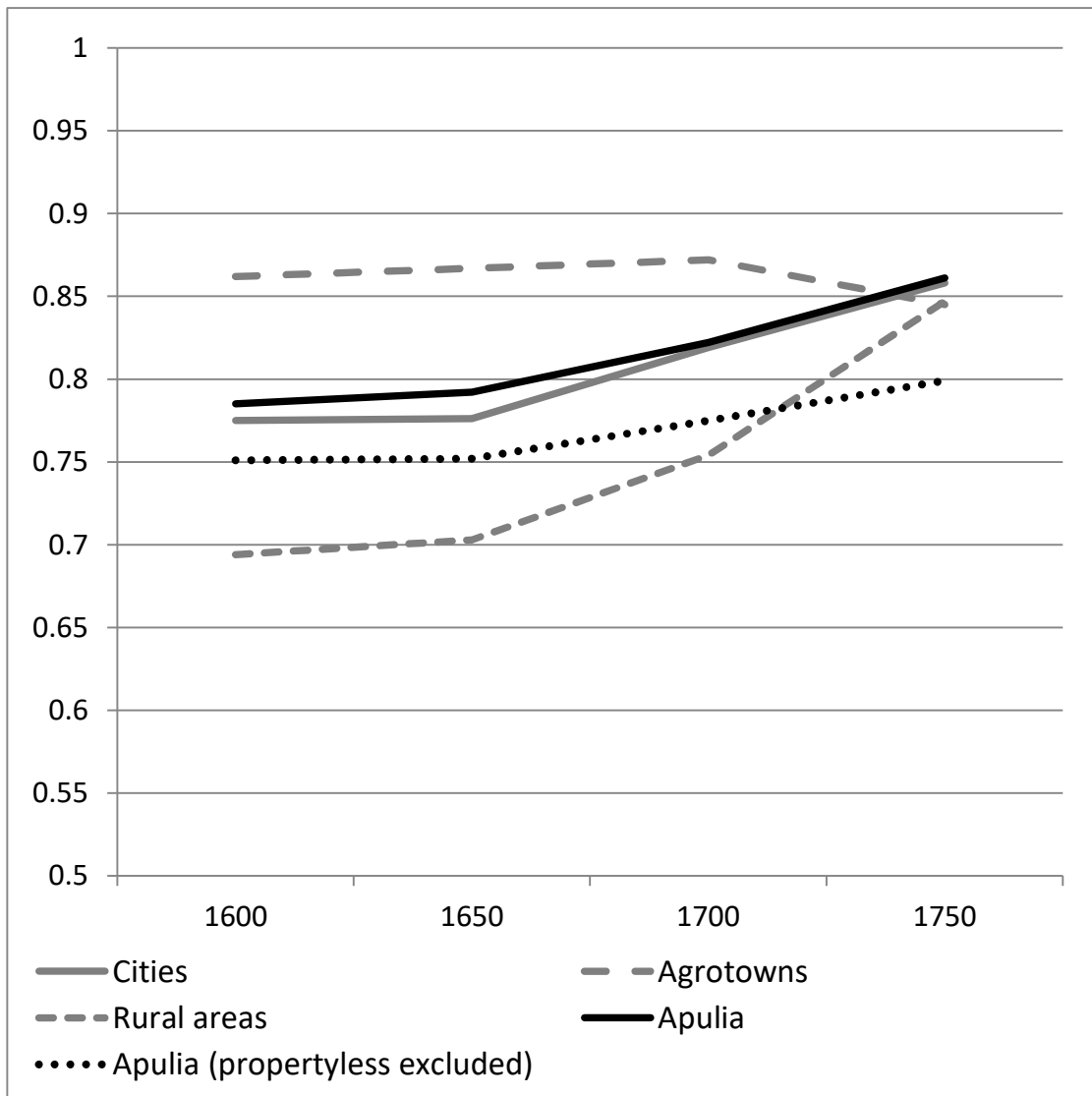


Table 3. The distribution of wealth in Apulia, with or without the propertyless, 1550-1750

Propertyless excluded													
	Gini	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Top5	Top1
1550*	0.663	0.6	1.0	1.6	2.3	3.4	4.7	5.6	7.7	12.3	57.2	46.9	24.4
1600	0.751	0.3	0.7	1.2	1.7	2.3	3.2	4.6	6.9	12.7	66.4	52.6	27.4
1650	0.752	0.4	0.9	1.2	1.7	2.4	3.2	4.4	6.7	12.0	67.1	54.6	29.7
1700	0.775	0.4	0.7	1.1	1.5	2.0	2.8	4.0	6.2	11.4	70.0	57.8	31.4
1750	0.799	0.3	0.5	0.8	1.2	1.8	2.5	3.6	5.9	10.7	72.8	61.5	35.3
Propertyless included													
1600	0.785	0.0	0.2	0.7	1.4	2.1	3.0	4.4	6.8	12.6	68.9	55.8	29.9
1650	0.792	0.0	0.2	0.8	1.4	2.0	2.9	4.2	6.6	11.9	70.1	58.4	32.3
1700	0.822	0.0	0.0	0.5	1.0	1.6	2.4	3.6	5.8	11.2	73.9	62.1	34.9
1750	0.861	0.0	0.0	0.0	0.4	1.0	1.8	2.9	5.1	10.4	78.4	67.3	40.4

Notes: D1 stands for ‘first decile’, i.e. the poorest 10% of the population. D10 stands for ‘tenth decile’, i.e. the richest 10% of the population. * all regional estimates for 1550 are tentative and are based on information for rural areas only

4. Income inequality

Most recent studies of economic inequality in central and southern Europe focused on wealth, not only because of its intrinsic interest but also due to the greater amount of available information (see Alfani 2021 for a synthesis). Ideally, we would like to compare the wealth and the income distributions, and to explore the joint distribution of capital and of labour income. The case of Apulia is exceptional because it offers some opportunities for doing this, albeit with limitations. The *catasti* include a rough estimate of labour income, the *industria*. However, a careful analysis of the data revealed that the way in which the *industria* was assessed tended to vary substantially across time and between communities (something which did not happen with the evaluation of taxable wealth), also reflecting local policies which did not always leave a trace in the surviving documentation. For this reason, here we reconstruct the income distribution for the mid-eighteenth century only, that is when the Bourbon’s reform achieved substantial homogeneity across the entire Kingdom in the way in which the *industria* was assessed.

Although the recorded *industria* is a useful starting point, transforming it into a usable measure of income inequality requires much careful work on the distributions to solve a few issues. In particular, the distributions must be completed by adding a presumptive income for categories exempted from the *industria*, and specifically:

(i) men exercising liberal professions (doctors, notaries, judges...), whose labour income was not taxed because it was knowledge-based and the *scienza* is a gift from Gods (see Section 1 for further discussion. Interestingly, the income from more manual medical professions, like that of surgeon, was taxed). Also the income of men employed in the military (soldiers, captains...) was exempt from taxation and had to be imputed, and the same is true for members of the secular clergy¹³;

(ii) women appearing as heads of households (usually widows) for whom an occupation was recorded but no income was reported;

(iii) specific individuals/heads of households for whom an occupation was recorded but the *industria* is inexplicably absent (luckily enough, there are few such cases), possibly due to some temporary illness or because they had reached old age (60 or higher), as is explicitly mentioned in some records.

Some of these problems were also encountered by Nicolini and Ramos Palencia (2016) in their study based on the Spanish *cadastro de la Ensenada*, which, as shall be remembered, was modeled upon the fiscal innovations first introduced in the Kingdom of Naples, before Charles of Bourbon became King of Spain. In particular, Nicolini and Ramos Palencia had to take care of the un-reporting of labour income for households led by women. In the absence of additional information, they resorted to assigning to women for whom an occupation was indicated, but no labour income was specified, the lowest income that a man would have earned in the same position. We applied the same procedure, although it must be noted that in our dataset, this is a rare occurrence as the vast majority of women were recorded as widows, nuns, or young unmarried girls (*vergini*), without mentioning their profession (if they had one). In some rare case of female-only occupations, such as that of midwife (*mamma*), we imputed a minimum labour income.

Regarding male household heads for whom an occupation is recorded, but no income, we again followed Nicolini and Ramos Palencia (2016, 771) imputing the minimum labour income earned by other household heads with the same occupation and recorded in the same community and year.

For male household heads exercising liberal professions or employed in the military, we exploited the information about yearly salaries paid in Apulia to different occupational categories in various towns during the early modern period, collected by Massa (1911a). For higher military ranks (very rarely present in our sources), such as that of “captain”, we integrated this information based on new

¹³ For the clergy, the available information was particularly limited as Massa (1911a) only provided information about the lower ranks of the clergy, the *chierici* (priests). We set the income of the higher ranks as a multiple of that of the priest; for example, we assigned to archpriests 1.5 times the income of a priest.

archival evidence¹⁴. These salaries were expressed in *ducati*. To convert them to the *once* used in the *catasti*, which (as they were a pure money of account) could not be easily and univocally connected to any money used in daily economic transactions¹⁵, we took as a reference the average labour income of shoemakers (*scarpari*), as the incomes earned by those exercising this occupation were characterized by low variance (for example in Bari in 1598, all the 69 recorded shoemakers were attributed the same labour income: 2 *once*). Then, we calculated the ratio between the yearly salaries in *ducati* of various categories of professionals and the yearly salaries of shoemakers, also in *ducati*, again collected by Massa (1911b). We then used these ratios to roughly estimate, community by community, the presumed *industria* of the required categories of professionals or of military personnel, based on the observed average *industria* of the shoemakers.

Unfortunately, for some categories of professionals (notaries, judges and lawyers or *utriusque iuris doctores*, that is doctors in both civil and church law) we could not find any information about wages. We then assumed that their income was roughly analogous to that of doctors in medicine, which is in line with the assumptions made by Milanovic, Williamson and Lindert (2007) to integrate information from the Florentine *catasto* of 1427.

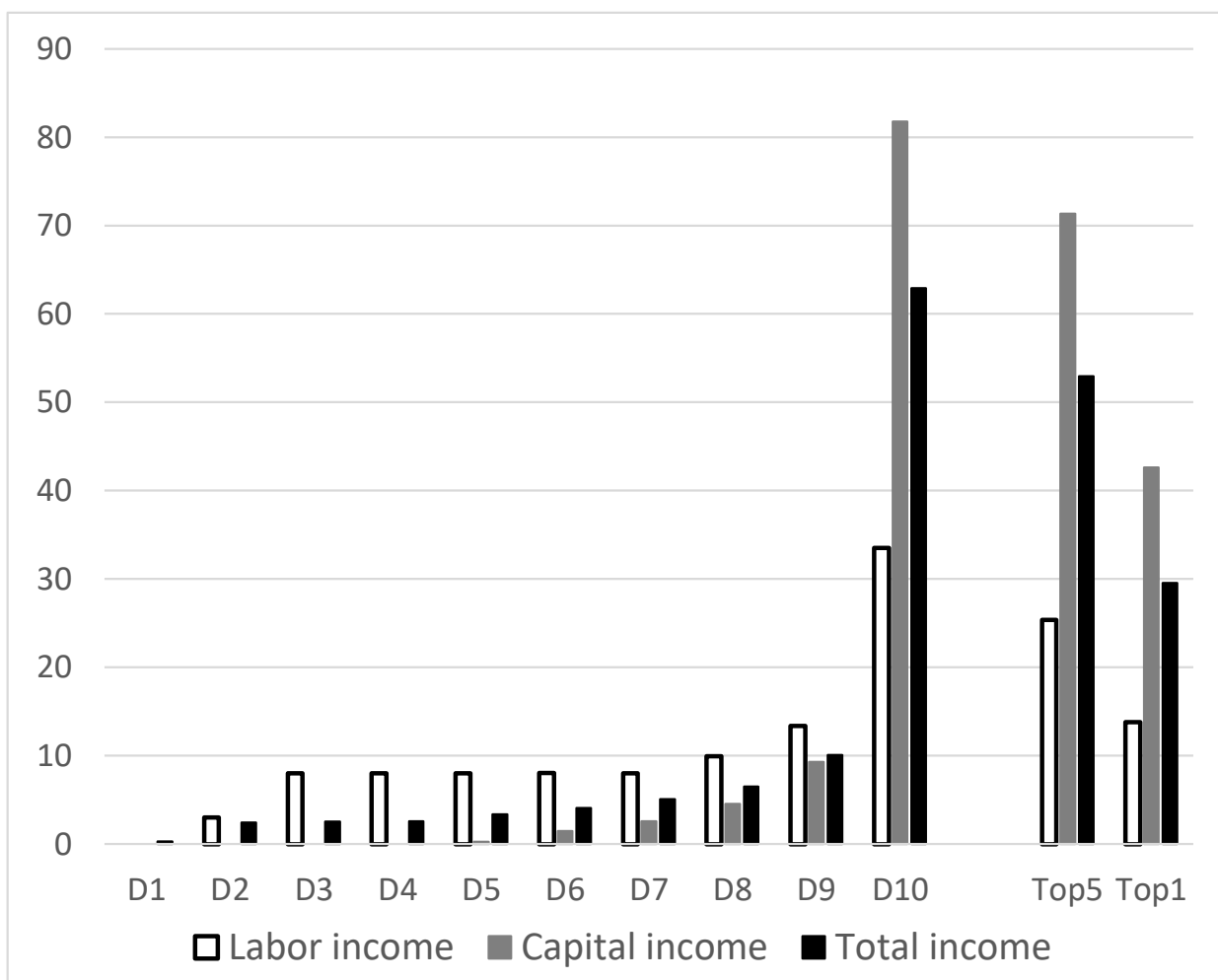
The procedure described above allowed us to reduce substantially the number of cases where no estimate of labour income is available – but it fell short of solving the problem entirely. While, in principle, it would be possible to restrict the analysis to the part of the population for which we do have an estimate of labour income, this would lead to the exclusion of most of those receiving the largest capital incomes, including almost all the nobles or, more properly, those who ‘lived like a noble’ (recorded as *vive nobilmente* or *nobiliter vivit* by our sources), hence did not work. Quite clearly, removing these households would substantially distort our reconstruction of total incomes. As the information about the distribution of capital income (which corresponds to that of wealth) is of much better quality than that concerning labour income, we decided not to restrict the analysis to those for whom some labour income was recorded or imputed, but to explore the entire distribution of those recorded in the *estimi*. So, the purpose of our tentative reconstruction of the distribution of labour income is to augment that of capital income / wealth to get as close to the actual distribution of total income as the sources allow.

¹⁴ We used a list of wages paid to “national regiments” (*reggimento nazionale*) in 1787, deriving ratios between the wages of high officials and the lower categories (National Library of Naples, section *Manoscritti e rari*, Ms.prov.109/2. *Averi fissati di soldi e prest ad un reggimento nazionale, secondo il regolamento del 31 dicembre del precorso anno 1787*, c. 1r); we then applied these ratios to the proper wages of lower ranks reported by Massa (1911a). In general, wages reported by Massa have the useful feature of referring specifically to Apulia.

¹⁵ For this reason, the standard ratio of 1 *oncia* = 6 *ducati* could not be used, as here the *ducati* and the *once* do not refer to same system of measurement.

To illustrate the way in which labour and capital income contribute to determine the overall levels of income inequality, Figure 10 reports the case of Bari, showing the income share of each decile plus that of top 1% and 5%. Our estimated labour income inequality, with a Gini index of 0.4, is reasonable and it appears to be in line with the 0.505 estimated by Espín-Sánchez et al. (2019) for Murcia in Spain in 1755 (Murcia, a city of almost 60,000, was much bigger than Bari – and in a preindustrial context, larger cities tend to be more unequal than smaller ones, as already argued in Section 2). More importantly for our purposes, the distribution of labour income is much more egalitarian than that of capital income (Gini index of 0.886). For this reason, the total income distribution, at 0.681, is more egalitarian than that of capital income, mirroring the well-known empirical regularity that income tends to be distributed less unevenly than wealth.

Figure 10. Income distribution in Bari in 1753 (propertyless included)



Notes: D1 stands for ‘first decile’, i.e. the poorest 10% of the population. D10 stands for ‘tenth decile’, i.e. the richest 10% of the population.

If taken at face value, the distribution of total income reported for Bari would make it a very unequal community by the standards of the time, which might well have been the case – but presumably not to such an extent. In fact, the artificially high prevalence of households with zero labour income automatically distorts our inequality measures towards higher-than-real inequality. Consequently, these estimates should be considered upper-bound estimates. More realistic estimates can be obtained by removing from the analysis those households with zero total income: a situation which can be presumed to be artificial (arising from limitations in the sources and in the practices and regulations concerning how our sources were drafted), as no household could survive without any income whatsoever. When looking at these, which are our preferred estimates, total income inequality in Bari falls to 0.657: still high, but not exceptionally so. For the Spanish city of Palencia in 1759, Nicolini and Ramos Palencia (2016, 760) measured a Gini index of total income of 0.581, which is rather lower. Palencia, however, with a population of 9,639 was about half the size of Bari, hence we can expect it to have been less unequal. This being said, in our reconstruction all the communities reported in Table 4 show higher total income inequality than Palencia. This might be because Palencia was a relatively “egalitarian” setting (land-locked in Castile and suffering from centuries of decline), or it might suggest that our preferred estimates are still somewhat higher than real. To address this concern, we produced lower-bound estimates by removing from the analysis those with zero reported labour income. This final set of estimates, however, is to be taken as purely indicative as the reported values are certainly too low – as they do not include most of the nobles, or more generally all those who “lived like nobles” (hence, did not work and had no specific occupation) and had zero labour income, but in turn earned a substantial capital income. For Bari, our lower-bound estimate of the Gini index of total income inequality is 0.544: quite lower than Palencia, which is another hint that it is too low.

Table 4. Total income inequality in Apulia, ca. 1750: preferred estimates and bounds

	Bari	Monopoli	Lucera	Ostuni	Carovigno	Maglie
	Cities		Agro-towns		Rural communities	
Total income (upper bound*)	0.682	0.676	0.771	0.751	0.721	0.649
Total income (preferred**)	0.657	0.667	0.721	0.749	0.716	0.602
Total income (lower bound***)	0.544	0.592	0.613	0.559	0.488	0.514

Notes: (*) upper-bound estimates include all households. (**) Preferred estimates obtained by removing from the distributions those households with zero total income (a situation which would be incompatible with survival). Consequently, they do not include that portion of the propertyless (those with zero capital income) who were recorded with no *industria* (labour income) or to whom it proved impossible to assign an *industria* value based on the criteria discussed in the main text. (***) Lower-bound estimates obtained by removing households with zero *industria* (labour income) from the distribution.

The local-level information about total incomes can be aggregated, using the same approach followed for our exploration of wealth inequality, in order to produce a distribution representative of the region Apulia as a whole (Table 5). Focusing on our preferred estimates, the distribution of total income, with a Gini index of 0.699 and an income share of the top 10% of 63.9%, is much less unequal than that of wealth (Gini of 0.862 and share of the top 10% of 78.8%: see Table 3). However, while in an international comparison our estimate of wealth inequality in Apulia in 1750 places it in a middling position compared to other areas of Italy (Figure 6a), regarding income a Gini index of 0.699 squarely places Apulia within the group of high-inequality European regions.

Table 5. The distribution of total income in Apulia in 1750

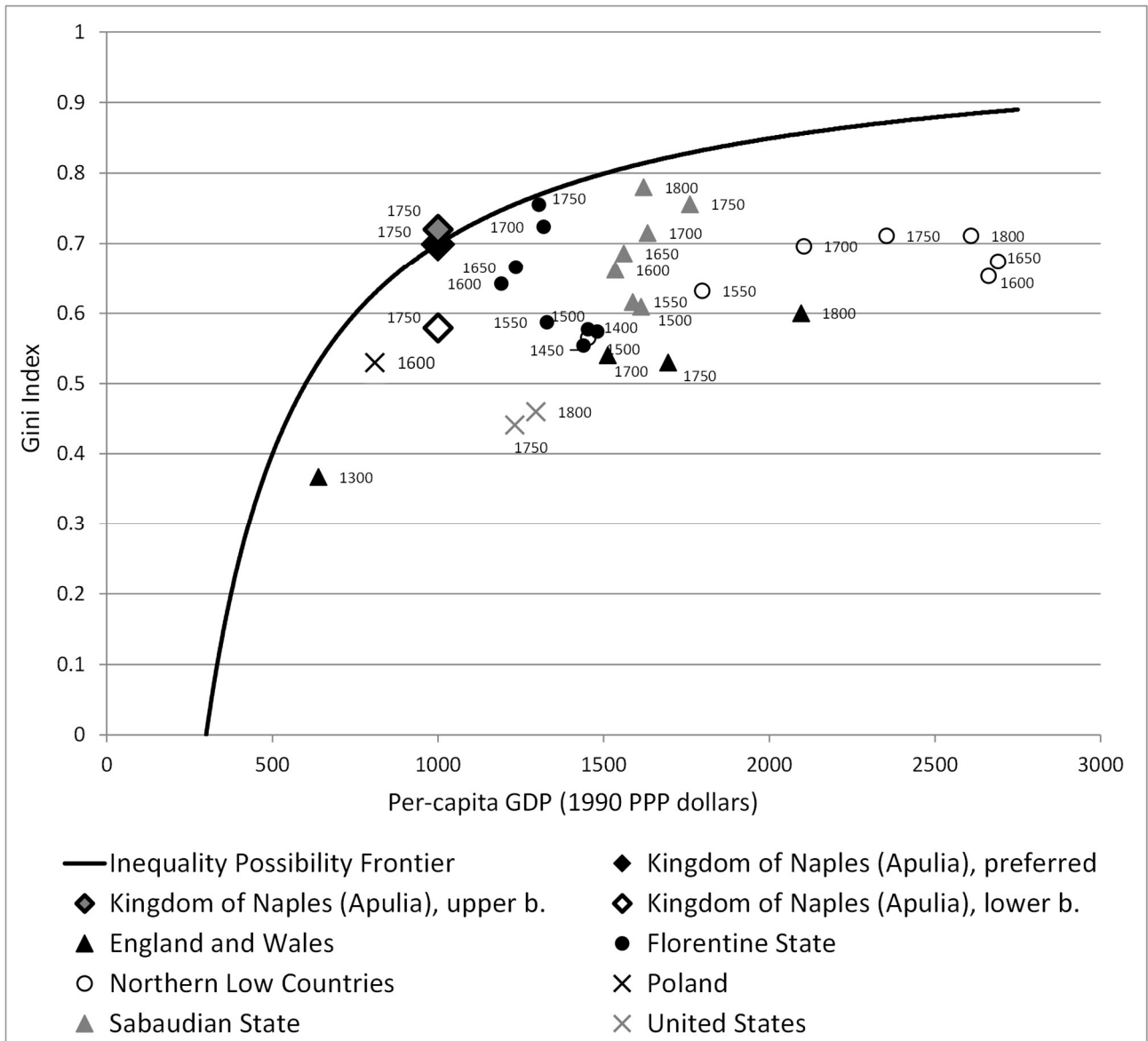
	Gini	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Top5	Top1
Total income (upper bound*)	0.72	0.2	1.2	1.9	2.5	3.0	3.7	4.8	6.7	10.8	65.2	54.3	30.5
Total income (preferred*)	0.699	0.8	1.6	2.0	2.5	3.1	3.8	4.8	6.7	10.9	63.9	52.9	29.6
Total income (lower bound*)	0.579	2.0	2.5	2.9	3.5	4.3	5.2	6.5	8.6	13.5	51.0	38.3	17.9

Notes: D1 stands for ‘first decile’, i.e. the poorest 10% of the population. D10 stands for ‘tenth decile’, i.e. the richest 10% of the population. (*) See notes to Table 4 for details about how upper bound/preferred/lower bound estimates have been obtained.

To better understand the meaning of our estimates of total income inequality, we must consider that in the mid-eighteenth century, Apulia (and southern Italy more generally) was a relatively poor European region. According to a new, albeit still provisional, estimate, the per-capita GDP of the region Apulia circa 1750 was about 1,000 dollars (1990 PPP; Nuvolari et al. 2024). If we accept this estimate as roughly correct, we can follow the approach introduced by Milanovic, Lindert and Williamson (2011) and calculate the inequality extraction ratio (IER). This ratio shows how close (in percentage terms) the estimated income inequality is to the theoretical maximum level which could be achieved by a given society through perfectly inegalitarian redistribution of all the income above subsistence towards a single super-rich household. This theoretical maximum inequality can be understood as a positive function of per-capita GDP, and it is represented by the “Inequality Possibility Frontier” line in Figure 11. Our preferred estimate of the Apulian inequality extraction ratio in 1750 is of 100% (with a band of variation of 82% to 103%), which would lead to include squarely this region among the most “extractive” of eighteenth-century Europe: much more than northern areas such as England (64%) or Holland in the Dutch Republic (82%), but also more than other regions of Italy, with the only (known) exception of Tuscany where the current estimate of the inequality extraction ratio circa 1750 is about the same (98%).¹⁶ The implications of such high extractiveness will be discussed in the next Section.

¹⁶ Note that the current estimates of the inequality extraction ratios in Tuscany (Florentine State) and Piedmont (Sabauidian State) will soon be possible of updating based on forthcoming estimates of regional per-capita GDP (Nuvolari et al. 2024), and have to be considered as a rough approximation due to the lack of good information about the distribution of income in these areas (Alfani and Ryckbosch 2017).

Figure 11. The inequality extraction ratio in Apulia in 1750 in international comparison



Sources: Alfani 2021, to which the new estimates for Apulia have been added.

As a final note to this section on income inequality, it should be acknowledged that the information provided by the Apulian *catasti*, when properly integrated by additional research, would allow us to follow an alternative path in estimating labour income inequality. This would require, first, using the information about occupations to reconstruct the occupational structures at the local and regional level; second, using information about daily and yearly wages from sources different from the *catasti* to establish the average labour income per category; and third, combining the occupational structures

and the average labour incomes to produce very detailed social tables as a basis for estimating overall inequality levels. This procedure, which is similar to that used by a few other studies (such as Espín-Sánchez et al. 2019), has the drawback of preventing a study of the joint distribution of labour and capital income (hence it would not allow us to easily reconstruct the distribution of total income). In exchange, it would allow us to bypass some challenges, including those posed by the changing way in which the *industria* was estimated. Consequently, it would allow to study labour income inequality across the entire period for which we have information about occupations. This is clearly a worthy objective, which will be pursued by future research.

5. Final discussion: Economic inequality and Economic growth

In his seminal article on long-term inequality trends in Holland, Van Zanden argued that the early modern growth in economic inequality there was ‘over-explained’ by economic growth (Van Zanden 1995, 661). Van Zanden suggested that in Holland, a ‘super-Kuznets curve’ was to be found: that is, the rising phase of the famous inverted-U curve which supposedly describes the path followed by economic inequality during the industrialization process could be prolonged in the early modern period. Economic growth would explain both the preindustrial and the early industrial inequality growth. Although Kuznets (1955) formulated his original hypothesis referring to income inequality, Lindert convincingly argued that during the Industrial Revolution wealth concentration and income concentration followed the same path (Lindert 1991, 215), a position which in time has come to be widely accepted.

Recent research, however, has shown that economic growth could not have been the only causal factor explaining early modern inequality growth, as it occurred also in communities and in areas characterized, in at least part of the period, by economic stagnation or decline. This point was first raised by Alfani in his case study of the Piedmontese city of Ivrea (Alfani 2010a) but has since been generalized to the whole of Piedmont (Alfani 2015) as well as to Tuscany (Alfani and Ammannati 2017) and Veneto (Alfani and Di Tullio 2019). Outside Italy, long-term preindustrial inequality growth in periods of economic stagnation or decline has also been reported for Spain (Santiago-Caballero and Fernández 2013; García Montero 2015), the southern Low Countries (Ryckbosch 2016; Alfani and Ryckbosch 2017) and Germany (Alfani, Gierok and Schaff 2022).¹⁷ Only for Portugal is

¹⁷ Some other studies for Spain have found evidence of phases of substantial economic growth not associated with inequality increase, particularly in Murcia (Espín-Sánchez et al. 2019) and Barcelona (Brea-Martínez and Pujadas-Mora

there evidence of a correlation between early modern economic stagnation and (income) inequality decline, at least in some periods (Reis and Martins 2012).

Economic growth, then, which could well have been the trigger of preindustrial inequality growth in Holland, is not the only possible causal factor of such a process. Other works highlighted demographic factors (Alfani 2010a; 2010b; 2015; Ryckbosch 2014; Alfani and Ammannati 2017), institutional factors like the rise of the fiscal-military State (Alfani 2015) or the regressive character of early modern fiscal systems (Alfani and Ryckbosch 2016; Alfani and Di Tullio 2019), the uneven distribution of political power (Scheidel 2017) and social-economic processes that we could broadly refer to as ‘proletarianization’ (Ryckbosch 2014; Alfani and Ryckbosch 2016). A comparative study of all these potential causal factors of inequality is provided elsewhere (Alfani 2021).

Our findings for southern Italy provide additional evidence against the view that, in a preindustrial setting, inequality growth was a consequence of economic growth. First, we have documented a substantial increase in inequality. Second, in early modern times the economy of the Kingdom of Naples was stagnating overall, and in Apulia in particular, as is apparent from recent estimates suggesting that, from ca. 1550 to ca. 1850, per-capita GDP in this region was set on a path of slow but almost constant decline (Nuvolari, Federico, Ridolfi and Vasta 2024). While estimates of preindustrial GDP are always subject to a high degree of incertitude, the general literature on Italian economic history is rather uniform in considering that the early modern period was not very auspicious for the economy of the Kingdom of Naples. Many scholars have pointed to the seventeenth century as one of crisis for this area (for example, De Rosa 1987), as well as for most of Italy. Although in recent decades this view has been softened and the notion of an Italian ‘relative decline’ has been introduced (Sella 1997; D’Amico 2004; Lanaro 2006), for the Kingdom of Naples the picture is an altogether bleaker one, both from the economic and demographic point of view. Economically, the Kingdom suffered from its increasingly peripheral position in the context of the Spanish domains, especially from the late sixteenth century when the reduction in the expenses for the fleet (which had been a huge source of local expenditure in the sixteenth century: Fencia 2003) led to a systematic outflow of resources towards other parts of the Empire, including the State of Milan (Galasso 1994; Alfani 2013a, 123-4). At the same time, fiscal pressure was increasing to the point of causing political unrest, culminating with the famous 1647 revolt in Naples led by Masaniello, a fisherman-turned-revolutionary (De Rosa 1987, 33-4). Demographically, recent research suggested that the decline started in the early decades of the seventeenth century, pre-dating

2019) during the eighteenth century, which also suggests the absence of any stable relationship between economic growth and distributional change in preindustrial Europe.

the further devastating consequences of the 1656-57 plague. This demographic decline seemingly reflects the crisis of key economic sectors, particularly (but not limited to) the agrarian one (Bulgarelli 2009, 92-5). The overall crisis of the first half of the seventeenth century is demonstrated also by the outright abandonment of many settlements (Bulgarelli 2009, 94-5).

The 1656-57 plague made much worse a situation that had already deteriorated: «that period so particularly unfavourable, affecting production and trade structures caused a worsening of the living conditions of large masses, an increasing rigidity of the pre-existing economic structures, the stagnation or decline of production» (Da Molin 1995, 61-2, our translation). As seen in Section 4, Apulia was one of the regions affected in a relatively mild way by the plague—but the human losses were still huge, at least in Terra di Bari and Capitanata (Terra d'Otranto was spared: Da Molin 1995, 65-6). What is more, there is evidence that additional factors contributed to the economic stagnation of the region, like the secular crisis of the Adriatic trade connected to the increasing hostility (and the frequent wars) between the Republic of Venice, the Habsburg Empire and the Ottoman Empire (Cessi 1953; Bulgarelli 2009, 86). Further evidence of the severity of the crisis, at least in some localities, is that after the mid-seventeenth century all the major centres of the Terra di Bari (Altamura, Bari, Barletta, and Monopoli included) were subject to temporary receivership (*deduzione in regia Camera*) (Bulgarelli, 2004, 307-308). This long phase of economic difficulties continued throughout the eighteenth century and became more general, affecting all regions of the Kingdom of Naples (Nuvolari, Federico, Ridolfi and Vasta 2024).

Based on the current literature on the economic conditions of the Kingdom of Naples in general, and of Apulia in particular, there is no basis whatsoever to argue that economic growth could have been the causative factor of the long-term inequality growth that we discovered – and consequently, there is no reason to argue that growing inequality was just an unpleasant side-effect of increasing prosperity. The opposite is much closer to the mark: given the absence of any improvement in (average) income levels in early modern Apulia, the increase in economic inequality could be obtained only by the society becoming more ‘extractive’, that is, closer to the maximum possible inequality that it could theoretically have achieved (Milanovic, Lindert, and Williamson 2011; Alfani 2021). Our estimate of an inequality extraction ratio of 99.6% ca. 1750 shows the ultimate result of this long-run process: in the following period, in the absence of economic growth Apulia could not have become more unequal without condemning a large part of its population to suffer from hunger and from an inability to satisfy its basic necessities. Importantly, this high ‘extractiveness’ was also achieved, during much of the period considered here, through the actual extraction of resources by

means of increasing per-capita taxation in presence of a clearly regressive fiscal system, exactly as happened in other parts of Italy (Alfani and Di Tullio 2019; Alfani 2021).

Arguably, the broadly similar tendencies in inequality that have been spotted between southern and northern European areas in early modern times, in the context of the ‘Little Divergence’ in overall levels of economic prosperity, led to a divergence in terms of overall extractiveness (Alfani and Ryckbosch 2016). This development can be presumed to have led to different patterns of social change between northern and southern Europe, for example by fostering relatively higher social-economic mobility in the North (Alfani 2024), which in a feedback effect might have favoured further increases in prosperity there. The same argument, however, could be made concerning within-Italy divergence. As we have shown, inequality trends in preindustrial Apulia were broadly comparable to those of central and northern Italian regions, while recent estimates suggest that throughout the early modern period the North (and in particular, from the eighteenth century, the Northwest) was leaving behind the South in terms of per-capita GDP. We can then tentatively conclude that, in the centuries preceding national unification in 1861, the society of Apulia and, presumably, of the South as a whole, was becoming more extractive, socially-immobile, and altogether nastier towards its members compared to the North of Italy—with consequences that might be felt to this day.

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Appendix

A1. Archival sources, by community

Ascoli Satriano

State Archive of Naples: Catasti Onciari, vol. 7263 (1753).

Printed sources: A. Ventura, *Onciario della città di Ascoli 1753*, Claudio Grenzi Editore, 2006 (partial edition of an original document preserved at the State Archive of Foggia)

Bari

State Archive of Bari: Fondo Catasti Antichi, *Apprezzi di Bari*, voll. 1, 2 (1598), voll. 3, 4 (1619), voll. 5, 6, 7 (1636); Fondo Catasti Onciari, *Catasto Onciario di Bari*, voll. 12, 13, 14, 15, 16 (1753)

State Archive of Naples: Fondo Catasti Onciari, voll. 8577, 8578, 8579, 8580 (1753)

Carovigno

State Archive of Brindisi: Fondo Catasto antico preonciari, vol. 1 (1603), vol. 2 (1710); Fondo Catasto Onciario, vol. 4 (1742), vol. 6 (1790)

Lucera

State Archive of Foggia – section “Lucera”: Fondo Catasti antichi, I serie, vol. 1 (1621), vol. 2 (1685); II serie, vol. 2 (1753).

Maglie

State Archive of Naples: Fondo Catasti antichi (frammenti), Stanza 45, armadio B, n. 91 (1578), Stanza 45, armadio B, n. 921 (1608); Fondo Catasti onciari, voll. 8419, 8420, 8421 (1752).

Town Library of Maglie: Apprezzo del 1674; Catasto onciario di Maglie del 1752.

Printed sources: E. Panarese, *Il catasto di Maglie del 1578*, Congedo, 1987; E. Panarese, *Il catasto di Maglie del 1608*, in «Note di storia e cultura salentina», XIV, Maglie, 2002, pp. 9-62.

Manfredonia

State Archive of Foggia: Fondo Catasti Onciari, Catasto Onciario di Manfredonia (1749).

Printed sources: T. Prencipe, *L'Onciario di Manfredonia (1749)*, Foggia, Atlantica Editrice, 1985.

Monopoli

City Archive of Monopoli: Catasto di Monopoli, 1627.

State Archive of Bari: Fondo Catasti Onciari, Catasto Onciario di Monopoli, voll. 48, 49, 50, 51, 52 (1754).

State Archive of Naples: Fondo Catasti Onciari, voll. 8745, 8746, 8747, 8748 (1754)

(note that for Monopoli, we used two distinct copies of the 1754 *catasto onciario*, one preserved in Bari and one in Napoli. By comparing the entries of the single households in the two copies, we found that the document preserved in Bari contained some duplications, which we have removed from our dataset)

Ostuni

State Archive of Brindisi: Catasto antico preonciario, vol. 6 (1578), vol. 8 (1613), vol. 9 (1737)

Trinitapoli

State Archive of Naples: Fondo Catasti Onciari, voll. 7036-7037 (1752)

Printed sources: P. Di Biase, *Bracciali e massari nella Puglia del Settecento. L'onciario di Trinitapoli*, Fasano, Schena, 1996.