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**Long-term trends in economic inequality in southern Italy. The  
Kingdoms of Naples and Sicily, 16<sup>th</sup>-18<sup>th</sup> centuries: First results**

## **Abstract**

This paper uses new archival data collected by an ERC-funded research project, *EINITE-Economic Inequality across Italy and Europe, 1300-1800*, to study the long-term tendencies in economic inequality in preindustrial southern Italy (Kingdoms of Naples and Sicily). The paper reconstructs long-term trends in inequality, especially of wealth, for the period 1550-1800 and also produces regional estimates of overall inequality levels in Apulia, which are compared with those now available for some regions of central-northern Italy (Piedmont, Tuscany). As much of the early modern period the Kingdom of Naples was overall a stagnating economy, this is a particularly good case for exploring the relationship between economic growth and inequality change.

## **Keywords**

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

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This paper presents the first findings of large-scale research on preindustrial economic inequality in southern Italy (the Kingdoms of Naples and Sicily), conducted as part of an ERC-funded project, *EINITE-Economic Inequality across Italy and Europe, 1300-1800*<sup>1</sup>. The overall aim of the project is to collect new data about very long-term tendencies in economic inequality, covering the whole of Italy and also including in the analysis selected areas in the rest of Europe. The first papers produced by EINITE focused on Piedmont in northern Italy (Alfani 2015) and on Tuscany in central Italy (Alfani and Ammannati 2014). This is the first time that the data collected for southern Italy have been used—what’s more, this is the first time ever that an attempt has been made to study economic inequality systematically in large areas of southern Italy for periods preceding the eighteenth century.

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 at covering 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 EINITE project, the main aim of which is to produce systematic and comparable data for large areas, partly due to a renewal of interest in long-term changes in economic inequality that has been further fuelled by the recent controversial book by Thomas Piketty (2014). New studies covering preindustrial inequality in large or fairly large areas of Europe involved Italy (Alfani 2015; Alfani and Ammannati 2014; Alfani and Di Tullio 2015), Spain (Santiago-Caballero 2011; Santiago-Caballero and Fernandez 2014; García Montero 2015), Portugal (Reis and Martins 2012), and the southern Low Countries (Ryckbosch 2014). Almost all these studies reported a long-run tendency of 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, contributing to the generalization of a hypothesis first formulated by Alfani (2010a; 2010b) in his case study of Ivrea in northwestern Italy. Southern Italy is a particularly good setting in which to assess the long-term connection between economic inequality and economic decline—as overall, the Kingdom of Naples had been an economically stagnating area since at least the late sixteenth century.

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<sup>1</sup> [www.dondena.unibocconi.it/EINITE](http://www.dondena.unibocconi.it/EINITE).

As noted, our study is the first to assess economic inequality in southern Italy before the eighteenth century. An earlier study by Malanima (2006a) covers the period 1700-1811 and, although the information about actual income distribution it uses dates to 1811 only, it partially overlaps with the period we covered, offering an interesting opportunity for methodological and substantial comparison. As a matter of fact, according to conventional wisdom, 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*, based on the new accounting system introduced in 1741 as part of a large-scale attempt at fiscal reform by the ruling dynasty—the Bourbons—which had taken over the Kingdom of Naples in 1734. Southern Italian regions are usually considered lacking 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. We focused specifically on the region for which the best and most abundant sources exist, Apulia.

Apart from Apulia, we also collected data for Sicily. Since 1302 and until 1816, Sicily was formally a separate kingdom held in personal union with the Kingdom of Naples. As a consequence of its specific institutional status, Sicily had a different fiscal system compared to the other southern Italian regions, which required registers comparable to the *catasti* (and even superior to them in some respects) to be kept: the *riveli*. However, our database for Sicily is not complete yet, and as a consequence the study of this region presented here is still sketchy and ought to be considered very provisional.

Both Apulian *catasti* and Sicilian *riveli* include detailed information about different components of wealth: real estate (land and buildings), capital, credit and debt, and other movables (animals, boats, etc.). The Apulian *catasti* also include a rough evaluation of income, while the Sicilian *riveli* are particularly precise in distinguishing different components of wealth. Consequently, our paper mostly focuses on wealth inequality. It describes and compares broad changes in time, and explores in depth the underlying changes in the distributions. It develops a number of relevant issues, such as the connection between economic growth/stagnation and inequality change. Using methods introduced in the case study of Piedmont (Alfani 2014), it also produces general estimates of inequality levels at the regional scale (for Apulia) and compares them with similar regional estimates for central-northern Italy.

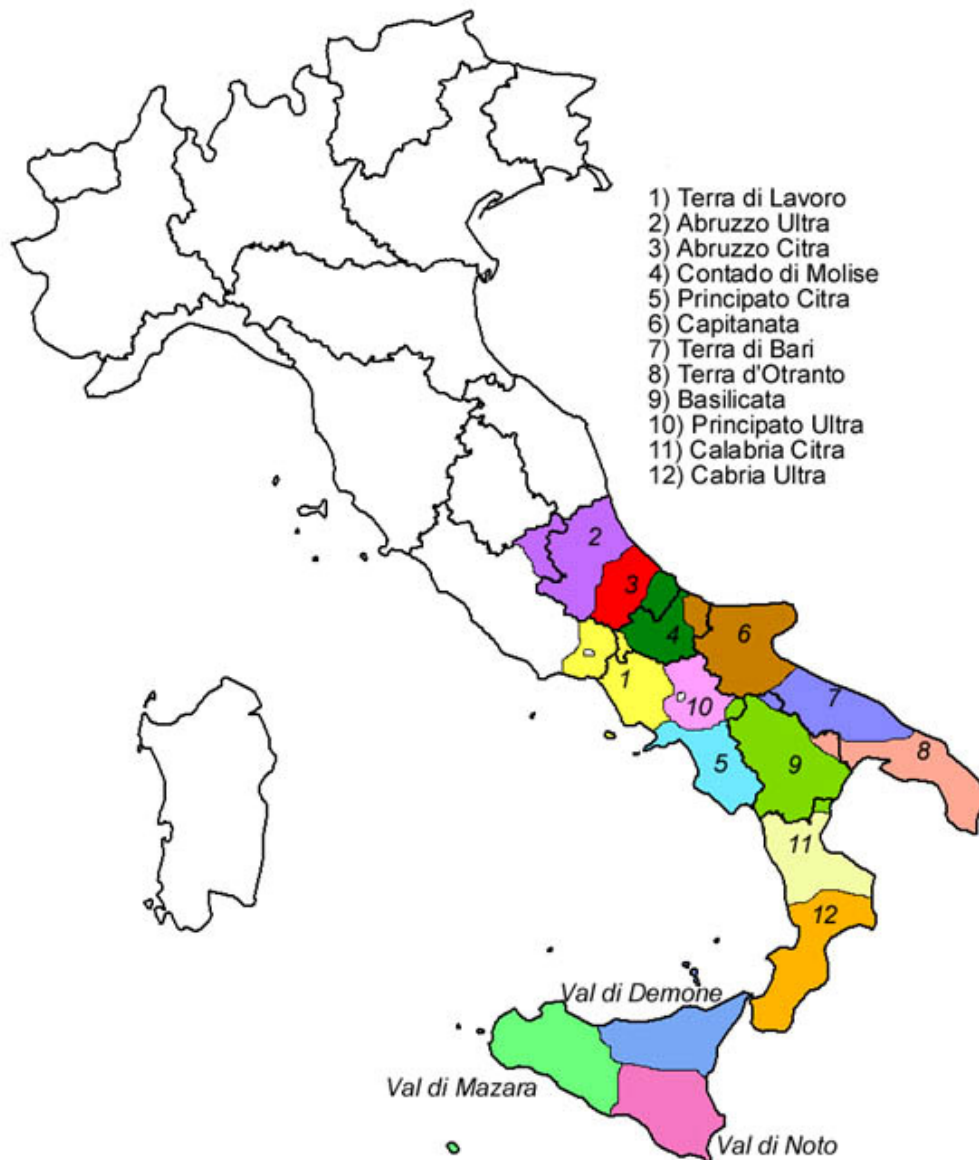
## **1. The Kingdoms of Naples and Sicily during the early modern period: A brief overview**

The Kingdoms of Naples and Sicily together constituted the largest of the pre-unification Italian states. This political entity was born during the Middle Ages as a consequence of the Norman conquest of territories previously held by the Arabs. The Normans conquered Sicily in 1061 and in the period 1127-28 Ruggiero II of Hauteville, count of Sicily, unified all the fiefs of southern Italy (in particular, the Duchies of Apulia and Calabria), creating the so-called Kingdom of Sicily. During the Middle Ages, the Kingdom enjoyed considerable prosperity, especially under the Hohenstaufen dynasty. In 1263, the Angevins conquered the kingdom but after the Vestri revolt, which started in Palermo in 1282, the Kingdoms of Sicily and Naples were separated: the first was ruled by an Aragonese dynasty, while the Angevins maintained the second. In 1441, Alfonso V of Aragona conquered the Kingdom of Naples, becoming Alfonso I of Naples and establishing a personal union of the two crowns (which, however, maintained a degree of administrative autonomy, including in fiscal matters: see next section). The Aragonese dynasty came to an end with the Italian Wars (1494-1559). The French Kings Charles VIII and Louis XII both launched campaigns to conquer the kingdom, to which they held some claim, but they were finally defeated by Spanish troops in the battles of Cerignola and Garigliano (1504), which marked the beginning of the Spanish domination under the Habsburg dynasty. In the context of the Spanish empire, Naples was recognized with the status of "vice-kingdom".

During the War of the Spanish Succession (1701-14), Naples was annexed by the Austrian branch of the Hapsburg family (1707) while Sicily was given to the Savoy family by the treaty of Utrecht (1713). However, in 1720 Vittorio Amedeo of Savoy was forced to exchange Sicily for Sardinia, and the Austrian Hapsburgs came to rule both Naples and Sicily—albeit only briefly as in 1734, after his victory at the battle of Bitonto, Charles of Bourbon conquered the two kingdoms. The Bourbons maintained their domain over the whole of southern Italy until the national unification in 1861, except for the Napoleonic period.

As noted, throughout the early modern period the Kingdoms of Naples and Sicily enjoyed a separate administration. The Neapolitan territory was divided into 12 provinces whose boundaries were defined in the Aragonese period. Three of these such provinces correspond to the contemporary Italian administrative region of Apulia (Capitanata, Terra di Bari and Terra d'Otranto). Sicily was divided in three *valli* (literally, "valleys"). Figure 1 shows the administrative subdivision of the two kingdoms.

Figure 1. Provinces of the Kingdoms of Naples and Sicily (ca. 1454).



## 2. The sources and the database

In recent years, the property tax records common in Italian ancient states and usually called *estimi* or *catasti* have become the basis for a large-scale, coordinated attempt at reconstructing trends in economic inequality from the Middle Ages until ca. 1800, led by the EINITE project.<sup>2</sup> New studies have covered the Northwest (Alfani 2015), the Northeast (Alfani and Di Tullio 2015), and parts of the Centre (Alfani and Ammannati 2014; Ammannati 2015) of the Italian peninsula. They have

<sup>2</sup> 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*.

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.

To be fully understood, the Apulian *catasti* (also called *apprezzi*) and the Sicilian *riveli* need to be placed in the broader context of the fiscal system of the Kingdoms of Naples and Sicily.<sup>3</sup> They were first introduced in the Angevin period (1282-1442), with possibly just a slight delay compared to other central-northern Italian areas, and continued to be used under the Aragonese (1442-1516) and the Hapsburg (1516-1734) dynasties. Specifically, 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* survived. Moreover, in the early modern period the *catasti* were not actually used by all communities of the Kingdom of Naples (while the Sicilian *riveli* cover the entire island: see later). In fact, the central authorities of the State only established the amount due by each community on the basis of the *numerazioni dei fuochi*, that is, 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: Bulgarelli 1993) 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, in particular, actively opposed the use of this kind of system for raising local taxes (the Church managed to get total exemption from taxation on its property until 1741, see below).

As a matter of fact, in the Kingdom of Naples during the early modern period the *catasti* system was applied almost exclusively 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. On the other hand, 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

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<sup>3</sup> General works about these sources (without any attempt at being exhaustive) include: AA.VV 1983 and Bulgarelli 1993 about the *catasti*; Longhitano 1988 and Ligresti 2002 about the *riveli*.

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.<sup>4</sup> Feudal property is never recorded in the existing *catasti*, and 'feudal' communities of the aforementioned kind never drew up *catasti*. As a matter of fact, our extensive archival research revealed that of all the southern Italian regions, Apulia is the one where the use of *catasti* is more widespread and continuous in time, precisely due to the low prevalence of feudal property. Even in some areas of Apulia, though, the nobility was hostile to them: for example in the towns of Molfetta and Giovinazzo, where many *catasti* were compiled during the sixteenth century, this system was progressively abandoned after their lands had been bought by the powerful noble family Gonzaga from Guastalla. In Molfetta for example, no new *catasto* was compiled after 1617. However, in some instances, and especially in the case of conflicts or significant disagreements within the communities, the central authorities of the Kingdom could order that a local *catasto* was compiled.

Also in Sicily (which, as a separate kingdom, was entitled to have its own fiscal system) the Aragonese dynasty played a key role in enrooting a more homogeneous way of raising taxes, giving from the early sixteenth century a new impulse to the redaction of *riveli*, which was later continued by the Habsburgs. In a sense, these attempts were more successful compared to the Kingdom of Naples, as it was possible to impose the *riveli* system to all Sicilian communities. This is possibly connected to the more military-orientated character of the *riveli* compared to the *catasti*, as it is the first collected detailed information not only about household property, but also about the availability of men who could be enlisted by the militias, and of horses to support the infantry. This military character is also revealed by the fact that only men were recorded and by the greater precision with which horses were recorded compared to other beasts (Fazello 1992).

*Catasti* and *riveli* have many common characteristics, but also some important differences. Both record values expressed in *once*, a money of account (although the Neapolitan and the Sicilian *once* did not have the same nominal value<sup>5</sup>). The rules and procedures regulating the evaluation process were also similar, and involved local commissions, which included representatives of the two 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

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<sup>4</sup> For a general compendium about southern Italian feudality in the early modern period, see Ago 1994)

<sup>5</sup> While, during the sixteenth and seventeenth century, one Neapolitan *oncia* corresponded to six Neapolitan ducats, the Sicilian *oncia* had about half that value. Also note that the Neapolitan and Sicilian *once* were actually coined in the eighteenth century (the Sicilian *oncia* had already been coined in the Middle Ages, but seemingly was purely account money for most of the early modern period).



administration of the State), together with the evaluating officers (*accatastatori*) and the aforementioned commissions, verified all questionable cases and validated the declarations (Bulgarelli 1993, 126-7). Central institutions also supervised the drafting of the fiscal records across the state: the *Camera della Sommaria* in the Kingdom of Naples, and the *Tribunale del Real Patrimonio* (the *Deputazione del Regno* since 1651) in the Kingdom of Sicily. As already mentioned, a major difference between early-modern *catasti* and *riveli* is that the communities of the Kingdom of Naples could opt for different systems to raise taxes, while every Sicilian community had to use the *riveli*.

Both kinds of sources 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 on the grounds of their 'net worth'. However, both the *catasti* and the *riveli* 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). A key difference between the two sources is that the *catasti* also taxed the income from the economic activity of the household members: the so-called *industria*. This was done in an approximate way, on the basis of ad-hoc tables defining a fixed amount of *once* for each occupation (liberal arts were excluded, as they require the use of intellect, which is a gift from God and consequently it was considered un-taxable). 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*).<sup>6</sup>

The sum of the capital value of assets and the *industria* defined the alleged fiscal capacity of each household recorded in the *catasti* (only the first component was present in the Sicilian *riveli*), measured in *once*. These values were then used to calculate the amount due by each taxpayer, by distributing the fiscal burden among the households proportionally to their *once*.

A specific advantage of the *catasti*, in which they are comparable to most of the central and northern Italian sources, is that they include everybody, since even the propertyless might be called to pay for the *industria* and the entirely destitute, the 'miserables' (*miserabili*), were duly recorded

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<sup>6</sup> Only from the eighteenth century was the *testatico* recorded separately from the *industria*.

although exempted from paying any tax. Also the Sicilian *riveli* record the propertyless—in this case, possibly due to the mixed fiscal and military nature of this such source (see Ligresti 2013).

Church property and feudal property were not included in the evaluation, as was the rule across Italy and elsewhere during the early modern period (Alfani 2015; Alfani and Ammannati 2014). However, the Kingdoms of Naples and Sicily were relatively late in trying to subject Church property to taxation. Only Charles of Bourbon—the first sovereign of a new dynasty ruling Naples and Sicily from 1734 to 1861, with the exception of the Napoleonic period—made an 'agreement' (*concordato*) with the Church. This agreement was part of an encompassing project of fiscal reform, which started with the edict *De Catastis* of 1741. The new system—commonly known as *catasto onciario*, although technically all earlier *catasti* were also '*onciari*'—applied criteria entirely analogous to the earlier *catasti*. It introduced, however, some fundamental innovations:

- 1) The *catasti* system was extended to all the communities of the Kingdom of Naples, establishing for the first time the fiscal uniformity Sicily had enjoyed since the early sixteenth century;
- 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 would soon be applied in the State of Milan (in 1757: see Taccolini 2004)—other Italian states had been much more precocious in reaching fiscal agreements with the Church—as well as in Spain (1753). In fact in Spain, the agreement with the Church was part of a fiscal reform, started 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 service of Charles of Bourbon during the War of the Polish Succession (1733-38) (in turn, Charles became King of Spain in 1759).<sup>7</sup> The rich opportunities for an international comparison of economic inequality between the Kingdoms of Spain and Naples, based on these exceptionally homogeneous sources (*cadastro de la Ensenada* and *catasto onciario*), will be explored in future research.

Some clarification about the nature of the information recorded in southern Italian fiscal sources is needed. In both *catasti* and *riveli*, 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.

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<sup>7</sup> About the Marquis of the Ensenada, see Abad León 1981.

Traditionally, the information coming from the *catasto* has been used to proxy wealth distribution (Herlihy 1978; Herlihy and Klapisch-Zuber 1985), and this is also true for recent works (Alfani and Ammannati 2014). 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). Also in the case of the Neapolitan *catasti*, it seems natural to use the *once* values (once subtracted the *industria*) as representative of wealth distribution. However, here too in principle it is possible to integrate the information about the *industria* in order to obtain proxies of income distribution. Basically, this requires inputting a reasonable amount of *once* for individuals exempt from taxation on the *industria*, like those practising the liberal arts. A recent attempt to do this has been successfully performed on the Spanish *cadastro de la Ensanada* (Nicolini and Ramos Palencia 2015). The *riveli*, instead, can be used only to proxy wealth distribution, and this is one of the reasons why overall, here we focus more on wealth than on income.

Before proceeding, some additional information is needed about our sampling strategy and the sources we collected for Apulia and Sicily.

### Apulia

As a first step, we explored the general availability of early modern *catasti* throughout the Kingdom of Naples. The current administrative region of Apulia stood out as the one for which usable sources were more abundant, presumably on account of the relatively low diffusion of feudal property (see discussion above).

Overall, our database for Apulia covers the period 1550-1800. We conducted an extensive survey of Apulian archives and identified all 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, we could use only two *catasti* (dating 1627 and 1754), because we planned to also use a third one, dating to 1535 and (presumably) complete, but we could not gain access to it due to considerable delays in the reconstruction work on the archive where it is preserved. 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 property and not the *industria*. Also as a consequence of this, these sources do not include the propertyless systematically.

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 abundant 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 abundant 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). Ostuni, in particular, was the richest centre of the 'high' Salento. Finally, Carovigno and Maglie are representative of more typical (and much smaller) rural communities, often (and this is 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: Ascoli Satriano (an agro-town in the hills of the Daunia), Manfredonia (the main harbour of the Capitanata, particularly active in the export of grain), and Trinitapoli (a rural community close to Barletta, which at that time was owned by the Order of the Knights of Malta and was periodically assigned in usufruct to commendable members of the Order). Table 1 summarizes the observations available for each community and also provides additional information, in particular about their estimated demographic size at the time.

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	5,270 (1754)
Bari	U	1598; 1619 (nobles)*; 1636 (commoners)*; 1753	10,900 (1598); 289 (1619); 9,935 (1636); 17,507 (1753)
Carovigno	R	1602; 1710; 1742; 1790	1,041 (1602); 1,247 (1710); 1,615 (1742); 2,670 (1790)
Lucera	U/R	1621; 1685; 1754	3,472 (1621); 3,776 (1685); 5,479 (1754)
Maglie	R	1578; 1608; 1674; 1752	1,948 (1752)
Manfredonia	U	1749	3,200 (1749)
Monopoli	U	1627; 1753	7,677 (1627); 8,759 (1753)
Ostuni	U/R	1578; 1615; 1737	4,035 (1578); 5,084 (1615); 5,390 (1737)
Trinitapoli	R	1754	366 (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.

### Sicily

For Sicily, data collection is not completed yet. Although all the communities of the island had to compile the *riveli* from the early sixteenth century, the actual survival or completeness of the documentation needs to be verified on a case-by-case basis. We already conducted extensive checks and selected a range of communities covering all the three provinces or 'valleys' of the island: Val di Demone (Condrò, Frazzanò, Gioiosa Marea, Lipari, Misterbianco, and San Giovanni La Punta), Val di Mazara (Castellamare del Golfo, Mazara del Vallo, Mezzojuso, Montelepre, Raffadali, Gangi, and Salaparuta), and Val di Noto (Ragusa, Giarratana, Santa Croce Camerina, and Mazzarino). Of the 17 communities that we plan to include in our database, three are cities (Ragusa, Mazara del Vallo, and Lipari), two can be classified as agro-towns (Mazzarino and Raffadali), and 12 are smaller rural communities. For the moment, however, we have completed time series of inequality measures for two communities only: the important city of Ragusa and the rural community of Misterbianco. Note that due to the large size of some communities, the nature of the *riveli* (which were very detailed), and the need to keep the records updated due to the high frequency of fiscal

controversies, the Sicilian *riveli* are difficult to use and require painstaking care—especially considering that for all these reasons, each *rivelo* can reach a daunting size: the 1748 *rivelo* of Ragusa, for example, consists of 28 volumes. Table 2 summarizes the information that will be available after completion of the archival work, while Figure 2 shows the position of all Apulian and Sicilian communities covered by this study.

Table 2. Composition of the database (Sicily).

Community	Urban / Rural	Estimi used (year)	Population (year of reference between parentheses)
Castellammare del Golfo	R	1607; 1636; 1714; 1748	1607; 1636; 1714; 1748
Condò	R	1569; 1693; 1651; 1682; 1748	1,520 (1569); 805 (1593); 813 (1651); 677 (1682); 733 (1748)
Frazzanò	R	1569; 1607; 1651; 1682; 1748	663 (1569); 781 (1607); 895 (1651); 482 (1682); 883 (1748)
Gioiosa Marea	R	1569; 1693; 1636; 1682; 1748	1,401 (1569); 1,347 (1693); 2,468 (1636); 3,372 (1682); 3,171 (1748)
Gangi	U/R	1548; 1607	4,094 (1548); 4,097 (1607)
Giarratana	R	1548; 1607; 1651; 1748	2,194 (1548); 1,978 (1607); 2,184 (1651); 1,750 (1714); 2,402 (1748)
Lipari	U	1610	5,270 (1610)
Mazzara del Vallo	U	1607; 1636; 1682; 1748	5,909 (1607); 7,793 (1636); 6,109 (1682); 7,972 (1748)
Mazzarino	U/R	1748	6,094 (1748)
Mezzojuso	R	1607; 1652; 1682; 1748	2,259 (1607); 3,015 (1652); 3,482 (1682); 2,834 (1748)
Misterbianco	R	1607; 1652; 1682; 1748	2,633 (1607); 2,947 (1652); 934 (1682); 2,262 (1748)
Montelepre	R	1694; 1748	(?) 1694; 1,072 (1748)
Raffadali	R	1569; 1593; 1636; 1714; 1748	2,027 (1569); 3,246 (1593); 3,758 (1636); 2,857 (1714); 3,432 (1748)
Ragusa	U	1569, 1607; 1639; 1651; 1714; 1748	9,870 (1569); 8,866 (1607); 9,456 (1636); 8,863 (1717); 12,225 (1748)
Salaparuta	R	1607; 1651; 1714; 1748	1,020 (1607); 1,427 (1651); 1,429 (1714); 2,791 (1748)
San Giovanni La Punta	R	1623; 1652; 1682; 1748	834 (1623); 930 (1652); 1,082 (1682); 1,523 (1748)
Santa Croce Camerina	R	1616; 1651; 1748	622 (1616); 399 (1651); 1,296 (1748)

Figure 2. Communities in the database



### 3 Wealth and income inequality in Apulia

In this section and the next we provide a descriptive analysis of economic inequality in, respectively, Apulia and Sicily during the early modern period. This is a preliminary step before producing and discussing regional-level inequality reconstruction (section 5).

The richer data available for Apulia, which includes a rough and incomplete assessment of labour income side-by-side with an evaluation of the net worth of each household (see earlier section) requires a particularly careful analysis. To clarify the implications for our study of changes in the characteristics of the information available, we will 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 9 Apulian communities we consider. Table 3 summarizes our measures of inequality levels conducted on different aggregates. We use

standard Gini indexes<sup>8</sup>, where 0 corresponds to a hypothetical situation of perfect equality, and 1 to a situation of perfect inequality: one household owns everything.

We first measured Ginis on the overall distributions, that is, those comprising both property (wealth) and *industria*. Overall, we found that inequality was higher in cities than in rural communities, with agro-towns in between: the average Gini value is 0.8 in cities, 0.78 in agro-towns (excluding Ascoli Satriano), and 0.7 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 1975; Herlihy and Klapisch-Zuber 1985); Van Zanden 1995; Alfani 2009; 2010a; 2015; Alfani and Ammannati 2014). The exception is Ascoli Satriano, which is characterized by very high inequality (0.94). 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 very rich religious institutions, like the *badia* (nunnery) of San Lionardo della Matina, the richest of all owning 32,372 *once* of property (about 23% of the overall property registered in the *catasto*), as well as to the presence of a local lord (the Duke of Ascoli, don Sebastiano Marulli), who owned large amounts of non-feudal property in the territory (4% of the overall property, but 19% of the total if we exclude the property of religious institutions).<sup>9</sup>

The *industria*, however, is a severely incomplete measure of (labour) income distribution and needs to be integrated in order to provide useful information (see below). On the other hand, if we take it out of the distribution we are left with an excellent proxy of wealth inequality. Interestingly, in all instances removing the *industria* leads to an increase in the Gini values, which is entirely reasonable given that empirically wealth tends to be more unequally distributed than labour income. In Bari, for example, the Gini increases from 0.748 (both wealth and *industria*) to 0.914 (wealth only).

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<sup>8</sup> 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.

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



Table. 3. Inequality in Apulia, ca. 1750: Gini indexes calculated on different distributions

	Bari	Manfredonia	Monopoli	Ascoli Satriano	Lucera	Ostuni	Carovigno	Maglie	Trinitapoli
	Cities			Agro-towns			Rural communities		
Wealth & <i>Industria</i>	0.748	0.871	0.800	0.936	0.776	0.827	0.751	0.695	0.654
Wealth	0.914	0.948	0.858	0.967	0.828	0.879	0.856	0.855	0.678
Wealth (excluding institutions)	0.887	0.941	0.832	0.892	0.828	0.865	0.854	0.854	0.63
Wealth (excluding property-less)	0.837	0.876	0.842	0.917	0.731	0.865	0.834	0.778	0.604
Wealth (excluding institutions & property-less)	0.792	0.853	0.788	0.881	0.724	0.85	0.832	0.773	0.543

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 *De Catastis* edict, notably, regarding the inclusion in of the property of religious institutions in the evaluations.

As noted earlier, for the first time in the *catasto onciario* the property of the Church is recorded, 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 never 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. Everywhere this led to a decline in the Gini values, one that was particularly pronounced in Ascoli Satriano (from 0.967 to 0.892) 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 and in fact, although the most common case by far is that of removing religious property reducing the Gini values, where religious property is fragmented the opposite can happen, like in Saluzzo in northwestern Italy in 1772, where removing religious property leads to a slight increase of the Gini, from 0.771 to 0.777 (Alfani 2015). Also in our database, we have communities where the impact on

the Gini of the removal of Church property is minimal. The most notable examples are Maglie (from 0.855 to 0.854) and Lucera, where nothing changes.

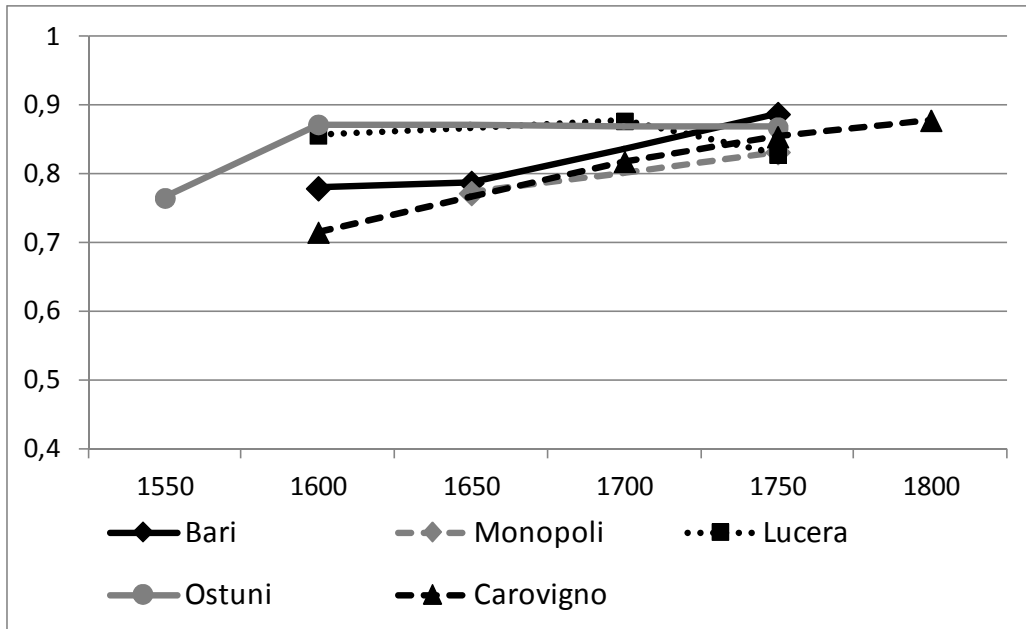
Removing Church property allows the production of the best possible measures of inequality covering the whole of the early modern period, as they represent the overall household wealth distribution, including the property-less. Unfortunately, however, these measures are not as comparable as we would 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 2). Moreover, all other earlier regional studies of inequality in Italy 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 only in exceptional circumstances (Alfani 2010a; 2015; Alfani and Ammannati 2014). As a consequence, in the following we will also consider changes in other aggregates that exclude the propertyless. As can be seen in Table 3, 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 '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 0.027 points when religious institutions are removed, and by 0.077 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 3), 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 3 represents graphically the time 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).<sup>10</sup>

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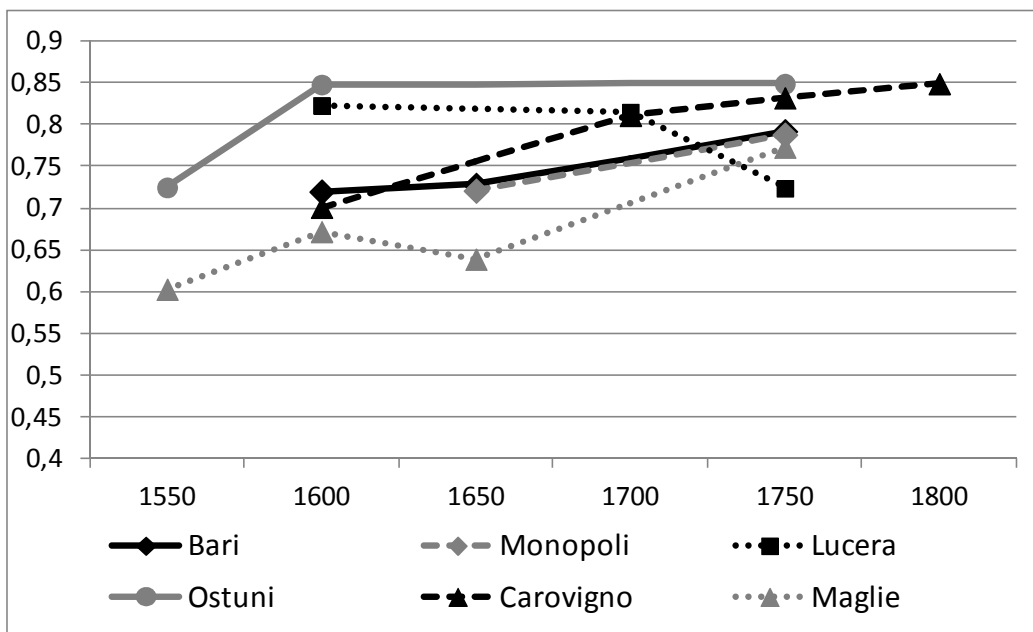
<sup>10</sup> Note that for Monopoli ca. 1750, we calculated the Ginis after having removed the non-residing foreigners from the distribution, as they were missing from the catasto of ca. 1650 (see notes to table 1 for details). As a consequence, the value of the Gini is slightly different from that presented in table 3. We did the same for Ostuni, as here we did not find empirically this category in earlier sources and consequently we hypothesized that it was not recorded. For Ostuni, however, the resulting changes in the indexes are negligible.

Figure 3. Long-term trends in economic inequality in Apulia (Gini indexes of wealth concentration. Institutions excluded)

a. Propertyless included



b. Propertyless excluded



Overall, the data presented in Figure 3 suggests a general tendency for 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 decline slightly in the

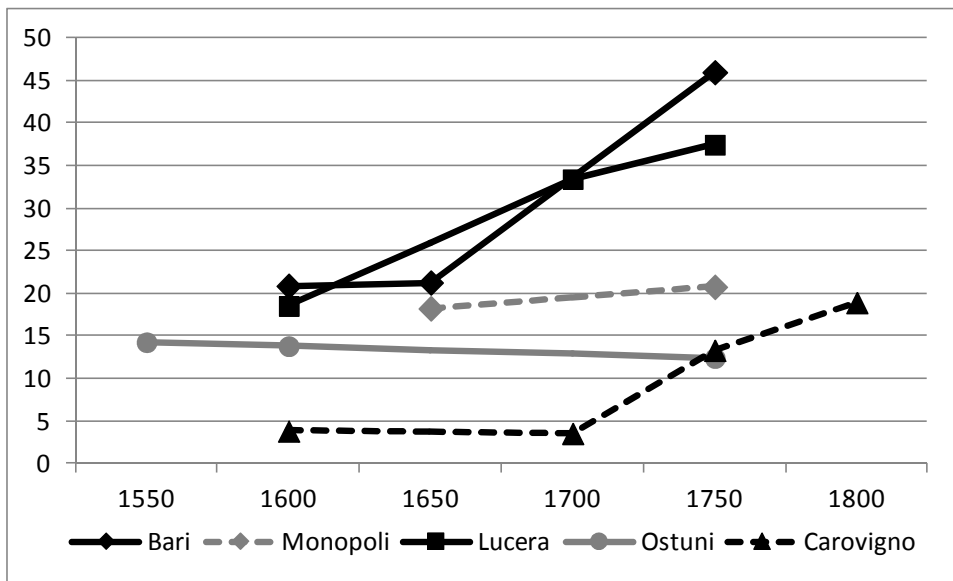
period 1600-1750, but this could be due to the fact that we miss in-between observations). In the period 1700-1750 the situation is somewhat more complex and in at least one community (Lucera) there seems to be a clear tendency for inequality decline.

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 4). In Bari, for example, the prevalence of propertyless households grew from 20.9% in 1600 to 21.3% in 1650, and reached a peak of 46% in 1750. The exception is Ostuni, where removing the propertyless changes the trend from slightly declining to slightly increasing—and this because Ostuni is the only community where the prevalence of the propertyless seems to be declining over time, although only slightly (from 13.8% in 1600 to 12.4% in 1750).

The assumption of a growing prevalence of poor households during the early modern period has been made in earlier studies on Piedmont and Tuscany (Alfani 2015; Alfani and Ammannati 2014) on the basis of the limited amount of information available for these areas as well as of the general literature on poverty (Pullan 1978; Woolf 1988). 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 even distinguish between the propertyless (those whose wealth is evaluated at zero) and the entirely destitute (those labeled *miserabili*). 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.

Removing the propertyless also allows the inclusion in the observation the case of Maglie, which shows a particularly clear tendency for inequality to grow during the early modern period. We will discuss long-term trends in inequality in Apulia further in section 5.

Figure 4. Prevalence of the propertyless in Apulia, 1550-1800 (% of overall households)



As we mentioned earlier, one of the final aims of our study of Apulia is to cover both wealth and income. However, transforming the information we have for the *industria* in a usable measure of income inequality requires much careful work on the distributions to solve a number of issues and to complete the distributions by adding a presumptive income for categories exempted from the *industria*, and specifically: (i) men exercising liberal professions; (ii) women appearing as heads of households (usually widows) for whom an occupation was recorded; and (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). The problem is similar, in principle, to that faced by Nicolini and Ramos (2015) in a recent study of income inequality in eighteenth-century Spain. An additional issue, however, has to do with the innovations introduced by the mid-eighteenth century *catasto onciario*: which, while standardizing across the Kingdom the rule for evaluating the *industria*, also seems (differently from the evaluation of property) to have marked a discontinuity with at least some earlier sources. This aspect, however, needs additional research to be fully clarified.

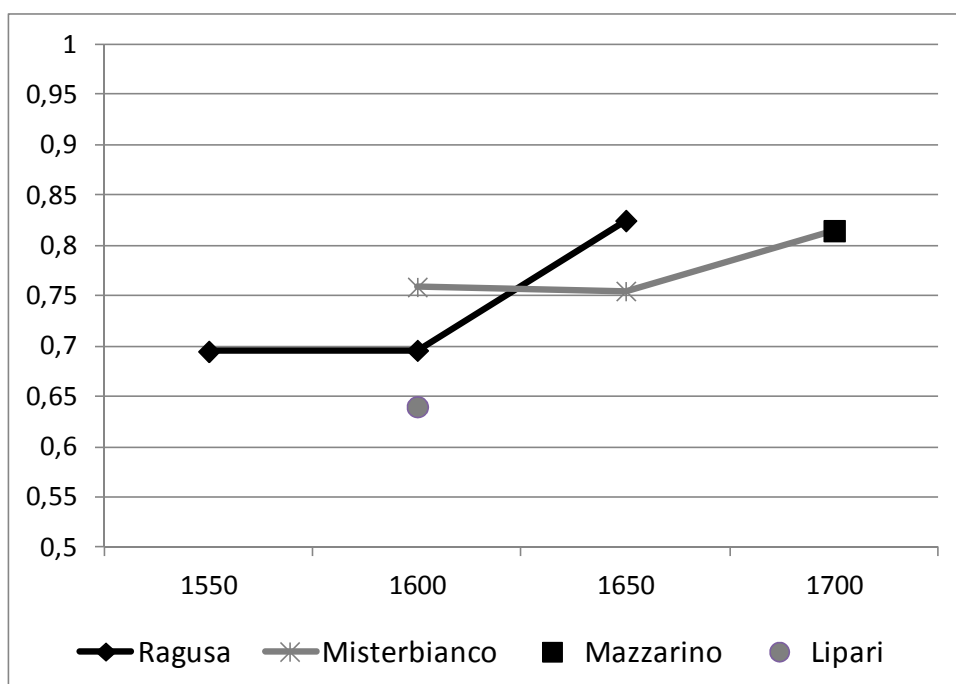
Overall, our study of trends in labour income inequality is still at a very early stage. We are currently defining the set of reasonable hypotheses needed to bridge the gap between what is provided by the sources, and what we would actually need to get an adequate proxy of a distribution of labour income. As a consequence, here no results about labour income inequality will be presented.

#### 4. Wealth inequality in Sicily

Our research on long-term trends in inequality in Sicily is still at a very early stage. The kind of information we are collecting about wealth distribution is comparable to that discussed for Apulia, with the added benefit that the *riveli* allow an easy breaking-down of the total wealth of each household in two components: immovables and movables.

In Figure 5 we charter all the inequality measures that we have available at the moment (notice that such data is still very provisional). Only for the city of Ragusa and the rural community of Misterbianco we have a glimpse of long-term trends—which seem to be orientated towards inequality growth during the early modern period, like in Apulia.

Figure 5. Economic inequality in Sicily (wealth inequality, propertyless excluded)



Sicily is a particularly interesting case to study, as it offers the opportunity to analyze the distributional consequences of what we could define "natural disasters". During the early modern period, the Etna volcano erupted repeatedly, often associated with earthquakes. Eruptions were the

most frequent in the seventeenth century (9) and the eighteenth (10), deeply affecting the territory<sup>11</sup>. Particularly terrible was the 1669 eruption, which lasted 122 days, reached and encircled the important city of Catania (see Figure 6), and created the so-called "Red mountains". Some communities were entirely destroyed by the river of lava, including Misterbianco, where only the bell-tower was left standing. The village was entirely relocated. Future research will determine whether the particularly marked increase in wealth inequality we found from ca. 1650 to ca. 1700 is at least partly the consequence of the catastrophe.

*Figure 6. The eruption of the Etna volcano in 1669*



Note: The picture shows the river of lava reaching Catania (by Giacinto Platania, painting in the Dom of Catania).

## **5. A comparison of long-term trends in economic inequality**

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 find a way to aggregate the community-

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<sup>11</sup> Eruptions occurred in 1536, 1556, 1603, 1607, 1609, 1634, 1640, 1646, 1651, 1669, 1694, 1702, 1727, 1732, 1748 1766, 1780, 1787, 1793.

level data in order to produce inequality measures representative of broader environments/areas. To do this, we use a method introduced by Alfani (2015) in his case study of Piedmont. The same method has also been applied to Tuscany (Alfani and Ryckbosch 2015).

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 "fictitious distribution" approximating in the best possible way the actual distribution. Alfani's method follows the second approach, and proposes to build regional time series starting from simplified distributions, 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—in preindustrial societies as well as today, see section below. A detailed general description of the method can be found in the original article by Alfani (2015).

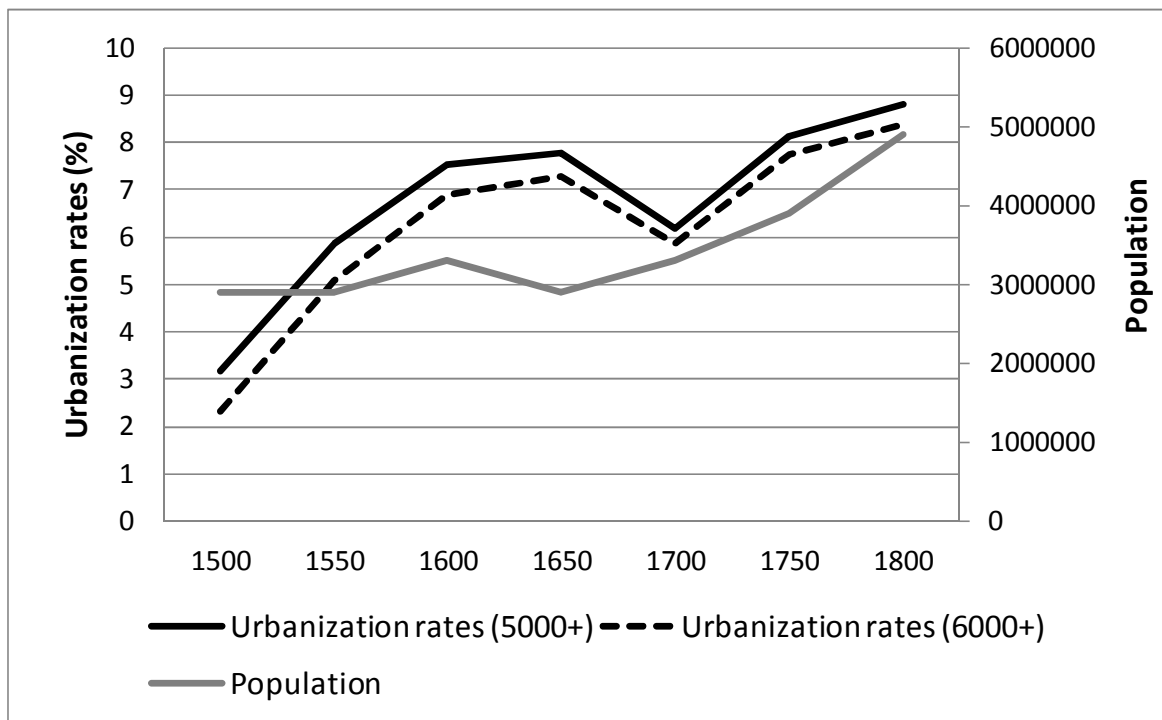
To take into account the demographic, social, and economic specificities of Apulia, we first constructed three separate series of distributions, representative of cities, agro-towns, and rural areas. We then weighed them based on the urbanization rate in each period, using a procedure similar in principle to that described by Milanovic (2005) for calculating 'weighted international inequality'.

A particularly important issue we needed to solve in order to build our regional reconstruction, was the absence of any regional-level estimate of urbanization rates (or even of an estimate for the whole of the South, or for the Kingdom of Naples). Consequently, we produced an estimate of our own, starting with the most updated estimates of the size of the southern Italian population during the early modern period (Del Panta et al. 1996, 277). From this we extrapolated the share of the Apulian population, using the information about the population of each province of the Kingdom of Naples in 1595, 1669, and 1765 provided by Da Molin (1995, 59). As the information for the province of Capitanata includes the small rural region of Molise, our estimates refer to urbanization rates in both Apulia and Molise (urbanization rates for Apulia only would surely be slightly higher). Finally, we calculated the size of the urban population in this area at different dates using the database of city size in time published by Malanima (2005). By applying some simple interpolation,



we could finally calculate the urbanization rate in Apulia (and Molise) for 50-year periods, 1500-1800. The results (both urbanization rates and population estimates) are presented in Figure 7.

Figure 7. Urbanization rates and population in Apulia, 1500-1800



Notes: The estimates include the small rural region of Molise.

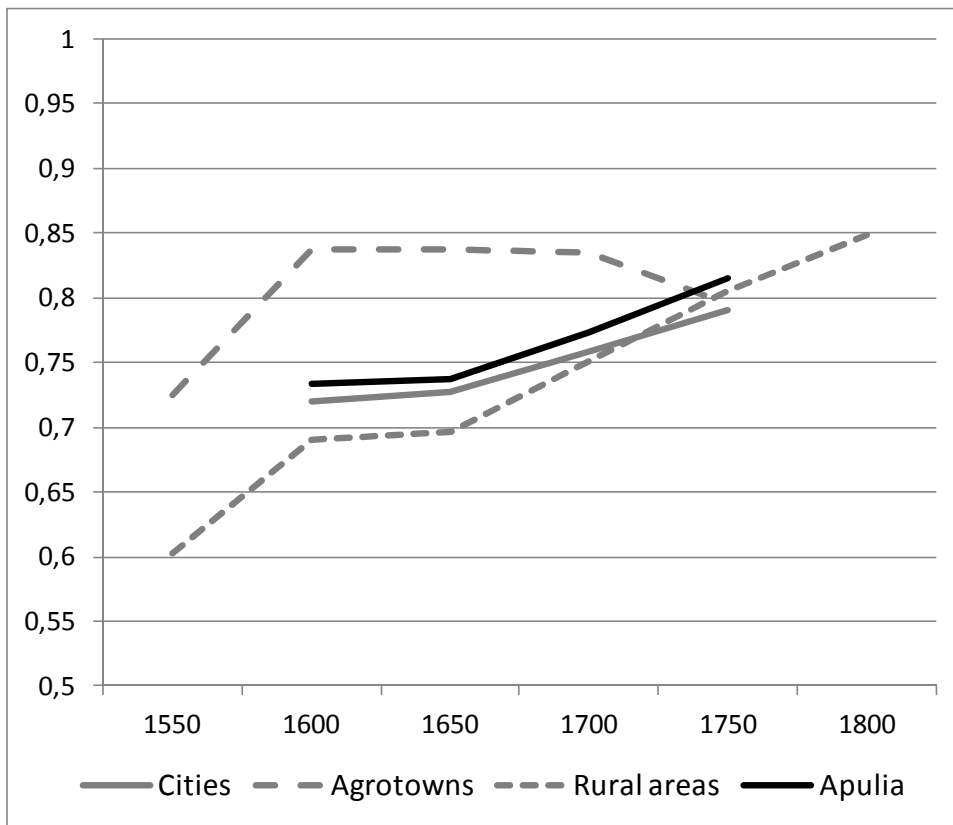
Malanima provides information only for cities with at least 5,000 inhabitants. This leads to a problem regarding the agro-towns, as a reasonable estimate of their size would place them in the size band 3000-5999, reserving the status of full-fledged cities only to centres having at least 6,000 inhabitants (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). As can be seen in Table 1, this rough demographic classification perfectly matches 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.

In Figure 7, we present both the widely-used urbanization rate for cities having at least 5,000 inhabitants and our ad-hoc urbanization rate for cities having at least 6,000. We are still searching

for information allowing us to produce a reliable estimate of the share of the population residing in centres having 3,000-5,999 inhabitants. In the following reconstruction, which consequently has to be considered provisional, we simply assumed that the population residing in agro-towns was three times the size of that residing in cities. So for example, for 1600 we assumed that 6.9% of the Apulian population lived in cities, and 20.7% in agro-towns. Note that between 1650 and 1700, a clear decline in urbanization rates occurred. This was due to 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).

Figure 8 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. Here it will suffice to underline some aspects connected to the construction of the regional time series: (i) its trend follows more closely that of the rural series than that of the urban one, as a consequence of the fact that the vast majority of the population lived in rural areas (which is reflected in the weights used); and (ii) the level of the curve, in terms of Gini, is shifted upwards compared to the rural one due to the greater average household wealth of cities compared to rural communities. Both properties were to be expected and are entirely reasonable. These properties also characterize the regional reconstructions available for Piedmont and Tuscany.

Figure 8. Wealth inequality in Apulia, 1550-1800



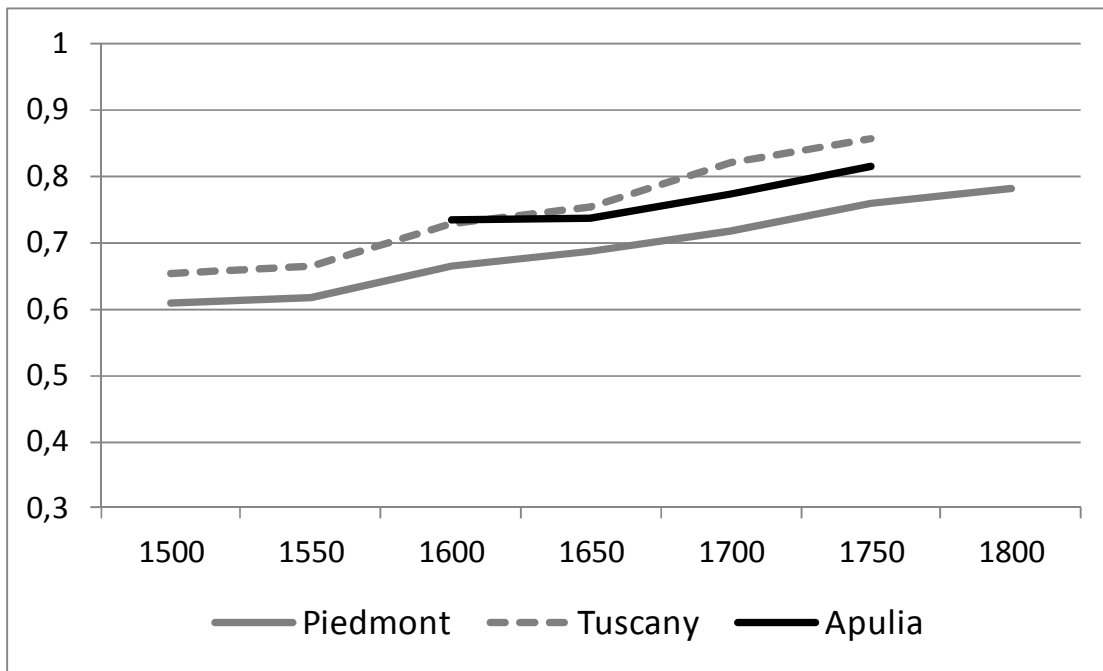
Unfortunately, as for cities we have information for some dates only, the regional time series covers just a century and a half—but as its trend is overly dependent on that of rural areas, it seems fair to assume that the tendency for inequality to grow found for 1600-1750 can actually be extended to the whole period 1550-1800. Only agro-towns show a partially different dynamic as there, inequality grows in the early sixteenth century, is stable throughout the seventeenth century, and declines 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 3b, 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 northern 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. The fact that these reconstructions have been obtained using information entirely comparable to that used for Apulia, and with exactly the same method (although adapted to the specificities of each case: one of its intended advantages

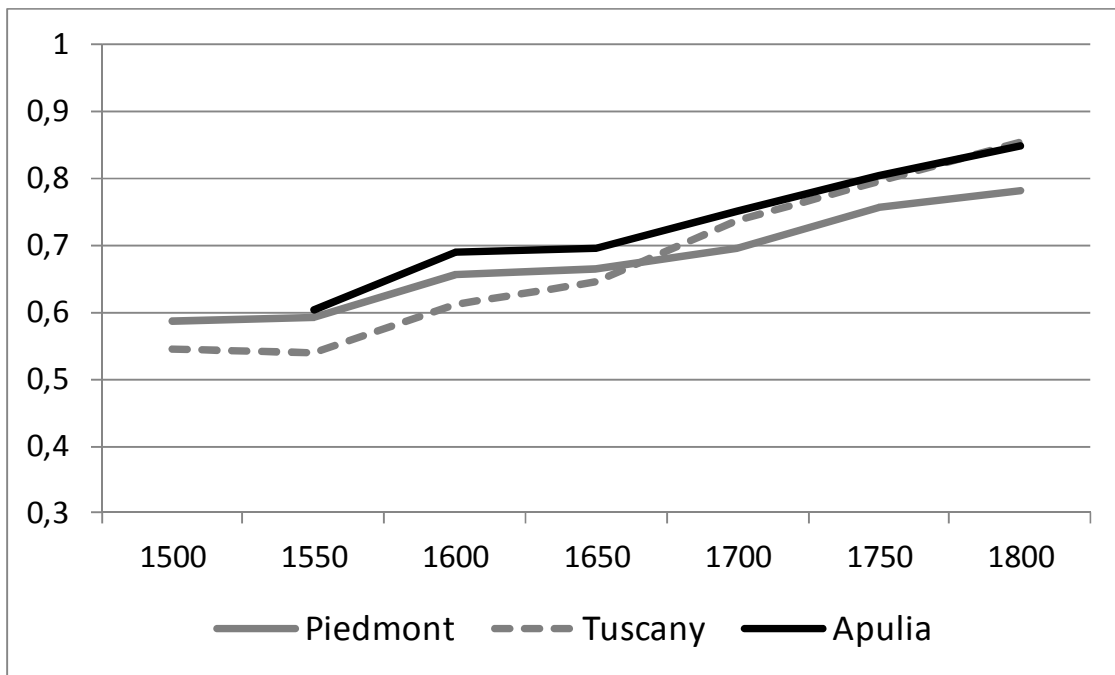
is in fact that of being very flexible, see Alfani 2015) justifies placing them on the same graph, as in Figure 9. Notice that although the original source material could somewhat influence the level of the series (and consequently, we should be careful in comparing directly the Gini values), the trends are entirely comparable. We consider both overall regions and rural areas only (as these tend to shape the trend, and what's more, in Apulia they cover the longer period).

Figure 9. Long-term trend in wealth inequality in Apulia, Piedmont and Tuscany, 1500-1800 (Gini indexes)

a. Regions

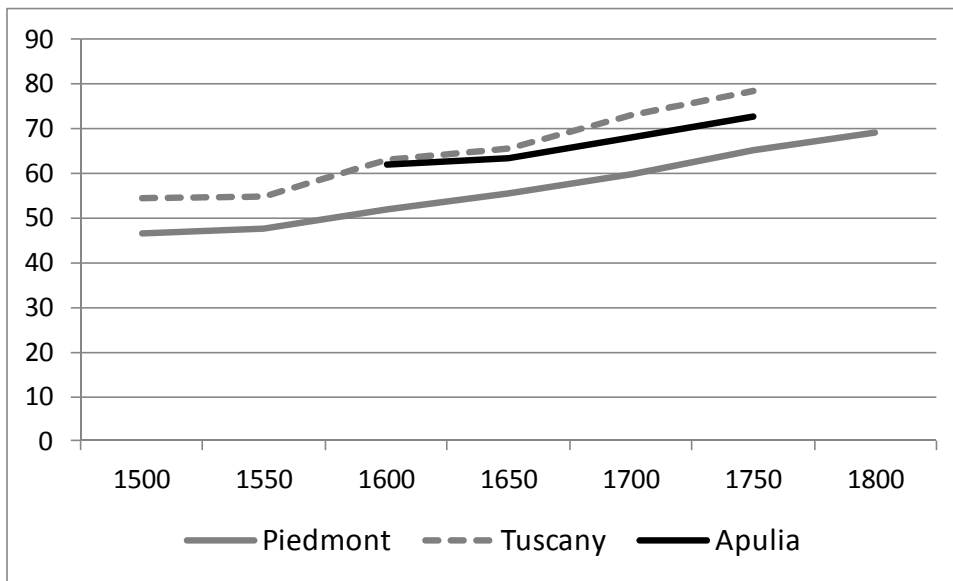


b. Rural areas only



The regional reconstructions for Apulia, Piedmont, and Tuscany are all monotonically increasing from 1550 at least to 1800. This is even more clear if only rural areas are considered. 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 the concluding section. Before doing that, though, a final interesting aspect needs to be underlined: in all three regions, the long-term increase in inequality seems to be driven by an increase in the share of the top rich, as can be seen in Figure 10. This is particularly striking since it perfectly matches what has been found for contemporary societies, with many recent studies of top incomes showing that changes at the top practically determine the overall inequality trend (Atkinson et al. 2011; Alvaredo et al. 2013).

Figure 10. Share of wealth owned by 10% top rich



## 6. Economic inequality and economic growth: A preliminary discussion

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), and discussed three different ways in which economic growth could have promoted inequality growth: through (i) increasing urbanization, (ii) increasing skill premium, and/or (iii) changes in functional distribution of income. Van Zanden suggested that this process defined a "super-Kuznets curve": that is, that the rising phase of the famous inverted-U curve describing 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 argued that during the Industrial Revolution wealth concentration and income concentration followed the same path (Lindert 1991, 215).

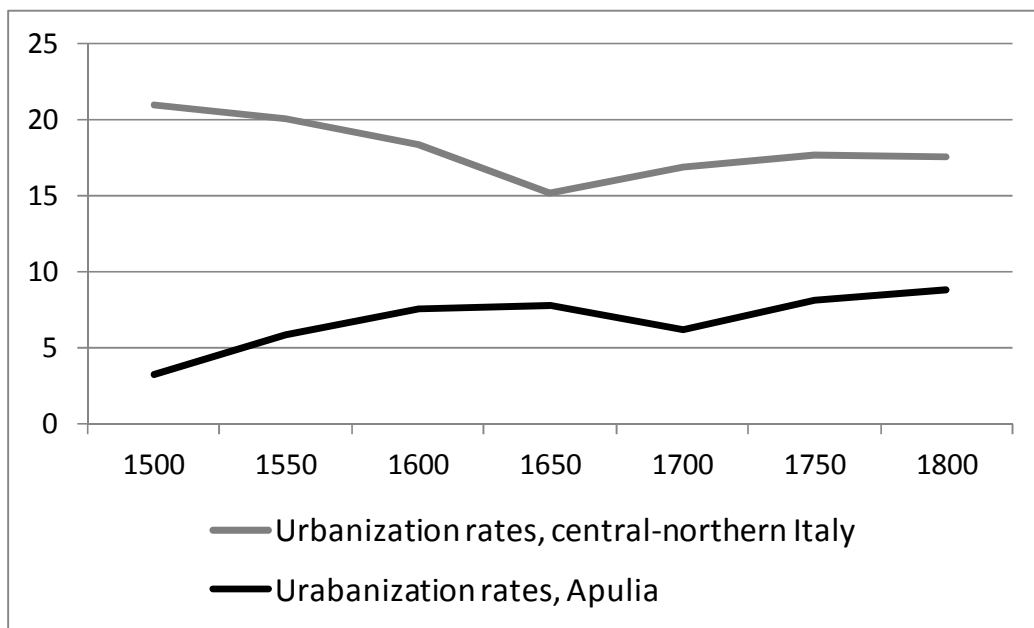
Recent research, however, has shown that economic growth could not have been the only causal factor explaining early modern inequality growth, as it occurred also in communities and in areas characterized, in at least part of the period, by economic stagnation or decline. This point was first raised 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

2014) and Veneto (Alfani and Di Tullio 2015). Outside Italy, long-term preindustrial inequality growth in periods of economic stagnation or decline has also been reported for the southern Low Countries (Ryckbosch 2014; Alfani and Ryckbosch 2015) and for Spain (Santiago-Caballero and Fernández 2013; García Montero 2015). Only for Portugal there is 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 underlined demographic factors (Alfani 2009; Alfani 2010a; 2010b; 2015; Alfani and Ammannati 2014; Ryckbosch 2014), institutional factors like the rise of the fiscal-military State (Alfani 2015) or the regressive character of early modern fiscal systems (Alfani and Ryckbosch 2015), and social-economic processes that we could broadly refer to as "proletarianization" (Ryckbosch 2014; Alfani and Ryckbosch 2015). A comparative study of all these potential causal factors of inequality is provided elsewhere (Alfani and Ryckbosch 2015).

Here we will refer to some of these ideas in order to provide a preliminary discussion of the roots of the inequality growth that seems to have occurred in southern Italy during the early modern period. Specifically, we will provide a discussion of the relationship between economic growth and inequality growth in Apulia. To this end, we are faced with a problem: we lack any kind of estimate of per capita GDP for southern Italy during the early modern period, for example of the kind that has been produced by Malanima (2011) for central-northern Italy. Another popular indicator of economic growth is urbanization rates (see for example Acemoglu et al. 2005; Alfani 2013b), which is also one of the indicators originally used by Van Zanden (1995). As we were able to produce estimates of Apulian urbanization rates throughout the early modern period, we will start with this, including in the analysis also Piedmont and Tuscany. Figure 11 presents our estimates of urbanization rates (cities with 5,000 inhabitants or more) in Apulia side-by-side with the estimates produced by Malanima (2005) for central-northern Italy, for 50-year periods. Regional-level estimates of urbanization rates are available for both Piedmont and Tuscany, but for 100-year periods only.

Figure 11. Urbanization rates in Apulia and central-northern Italy, 1500-1800



As can easily be seen in the figure, in central-northern Italy urbanization rates do not follow the same trend as inequality (compare with Figure 9). In Apulia, where the (originally quite low) urbanization rates grow for most of the early modern period, there seems to be some correlation. However, if we calculate Pearson's correlation index between the regional reconstruction (1600-1750) and the urbanization rates, it turns to be positive but very low (0.083). This is surely due to the fact that inequality increased also in the seventeenth century, when a decline in urbanization rates caused by the 1656-57 plague is found. In fact, if we focus on the seventeenth century, we find an overall decline in urbanization rates (7.5% in 1600 vs. 6.2% in 1700) but an increase in inequality (Gini equal to 0.726 in 1600 and 0.765 in 1700). The same is true if we focus on cities only, while if we consider agro-towns the correlation is much stronger—but it is negative (Pearson's index -0.525) and it seems unreasonable to provide any causal interpretation of this.

Until now, we have used urbanization rates as a quantitative indicator of the general economic trend in a specific region. We can rely on the general literature on southern Italy to extend and deepen the discussion. Generally speaking, the early modern period is not usually considered very auspicious for the economy of the Kingdom of Naples. The traditional literature has pointed to the seventeenth century as one of crisis for this area, as well as for most of the rest of Italy. Although more recently this view has been softened and the notion of an Italian 'relative decline' has been introduced (Sella 1997; Lanaro 2006), for the Kingdom of Naples the picture usually provided is an altogether



bleaker one, both from the economic and demographic point of view. Economically, the Kingdom suffered from the increasingly peripheral position it acquired in the context of the Spanish domain, especially after the reduction in the expenses for the fleet (which had been a huge source of local expenditure in the sixteenth century: Fenicia 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. Demographically, recent research suggested that the decline started in the early decades of the seventeenth century, pre-dating the further devastating consequences of the 1656-57 plague (see below). 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 mentioned in section 5, 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). Although overall it might be that Apulia fared better, during the seventeenth century, compared to the rest of the Kingdom of Naples (as might be suggested by slightly rising urbanization rates in the first half of the century), it seems reasonable to assume that here, too, this was overall a period of economic stagnation, to which also some region-specific factors contributed, like the crisis of the Adriatic trade (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). Recently, Malanima (2006b; 2011) suggested that the real Italian crisis (in terms of per capita GDP) occurred in the eighteenth, not the seventeenth, century (Malanima 2006b; 2011), although it has also been pointed out that this view is not incompatible with that of a process starting in the seventeenth century, due (in the North at least) to the medium- and long-term consequences of the shock caused by the 1629-30 plague (Alfani 2013a; 2013b; Alfani and Percoco 2014). Malanima also suggested that for the Kingdom of Naples specifically, the eighteenth century was overall one of crisis (Malanima 2006a, 18-23). This being said, if we accept the hypothesis that economic decline (or stagnation at most) continued to characterize the Kingdom of Naples during the eighteenth century, we would still find a clearly

contrasting trend in inequality and economic development. As a consequence, we can conclude—at least provisionally—that also for Apulia, we cannot refer to economic growth as the causative factor of the long-term inequality growth we discovered.

Interestingly, Malanima (2006a) also suggested that during the eighteenth century, income inequality in the Kingdom of Naples declined. This assumption, however, is made on the basis of actual data on income distributions for 1811 only, which is later "projected" backwards until 1700, assuming that decreasing per-capita GDP must be associated with lower income inequality. This is, however, a bold hypothesis that does not take into account all the many factors influencing income and wealth distribution. As pointed out by Milanovic, Lindert, and Williamson (2011), although a lower per capita GDP reduces the maximum possible inequality achievable in a society (as everybody needs be guaranteed subsistence, otherwise said society would be unstable), the "extraction ratio" of inequality (i.e., actual inequality as a percent of the maximum possible inequality) can vary in such a way that the Gini can remain stable, or even increase. Alfani (2015), in his case study of Piedmont, argued that inequality increased during the seventeenth century notwithstanding economic stagnation/decline because the inequality extraction ratio also increased. Later, Alfani and Ryckbosch (2015) provided quantitative evidence for the occurrence of such a process in Piedmont, Tuscany, and the Low Countries. They argued that although there was a "Little Convergence" in inequality levels between central-northern Italy and the Low Countries, this was coupled with a "Little Divergence" in inequality extraction ratios.

As a matter of fact, there is virtually no empirical evidence of a decline in income inequality in the Kingdom of Naples during the early modern period. This makes the measures of income inequality in Apulia that we hope to be able to reconstruct starting with our source material all the more interesting—but presently, we do not have enough information to develop the matter any further. This being said, it has often been suggested that for preindustrial economies, changes in wealth inequality in the long run are in most instances the best possible proxy for income inequality (Alfani 2015; Alfani and Ammannati 2015; Lindert 1991, 215; 2014, 8)—although obviously, whenever possible, we should try and measure income inequality directly. Consequently, our regional series of wealth inequality provides a clear hint that income inequality was also growing in early modern Apulia.

If we accept the view that both the seventeenth and eighteenth centuries were characterized in the South by economic stagnation/decline, an increase in economic inequality could be obtained only by the society becoming more "extractive" (in the above-mentioned meaning). Additional research is needed to clarify which are the societal, economic, and institutional factors leading to such a

result. However, as a provisional conclusion we will mention that this specific perspective could also provide some useful element for the debate about the origin and the causes of the Italian North-South dualism—a debate that has recently become a particularly heated one, especially about the (possible) role played by the development of "extractive" (in a different, but somewhat connected, meaning) institutions in southern Italy before the 1861 national unification.

## References

- AAVV (1983). *Il Mezzogiorno settecentesco attraverso i catasti onciari: Aspetti e problemi della castastazione borbonica*, Centro Studi A. Genovesi-ESI, Napoli.
- Abad León, F. (1981). *El Marqués de la Ensenada*, Diputación de la Rioja, Logroño.
- Acemoglu, D., S. Johnson and J. Robinson (2005). 'The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth.' *The American Economic Review* 95(3): 546-579.
- Ago, R. (1994). *La feudalità in Età Moderna*, Laterza, Roma-Bari.
- Alfani, G. (2007). 'Population and Environment in Northern Italy during the XVIth Century.' *Population* 62(4): 1-37
- Alfani, G. (2009). 'Prima della curva di Kuznets: stabilità e mutamento nella concentrazione di ricchezza e proprietà in età moderna.' In G. Alfani and M. Barbot, eds., *Ricchezza, valore, proprietà in Età Preindustriale. 1400-1850*, Marsilio, Venice: 143-68.
- Alfani, G. (2010a). 'Wealth Inequalities and Population Dynamics in Northern Italy during the Early Modern Period.' *Journal of Interdisciplinary History* 40(4): 513-49.
- Alfani, G. (2010b). 'The effects of plague on the distribution of property: Ivrea, Northern Italy 1630.' *Population Studies* 64(1): 61-75.
- Alfani, G. (2013a). *Calamities and the Economy in Renaissance Italy. The Grand Tour of the Horsemen of the Apocalypse*, Palgrave, Basingstoke.
- Alfani, G. (2013b). 'Plague in seventeenth century Europe and the decline of Italy: an epidemiological hypothesis.' *European Review of Economic History* 17:408-430.
- Alfani, G. (2015). 'Economic inequality in northwestern Italy: A long-term view (fourteenth to eighteenth centuries).' *Journal of Economic History*, forthcoming.
- Alfani, G. and Ammannati, A. (2014). *Economic inequality and poverty in the very long run: The case of the Florentine State (late thirteenth-early nineteenth centuries)* Dondena Working Paper No. 70.
- Alfani, G. and Barbot, M., eds. (2009). *Ricchezza, valore, proprietà in Età preindustriale. 1400-1850*. Marsilio, Venice.
- Alfani, G. and Caracausi, A. (2009). 'Struttura della proprietà e concentrazione della ricchezza in ambiente urbano: Ivrea e Padova, secoli XV-XVII.' In G. Alfani, M. Barbot, eds., *Ricchezza, valore, proprietà in Età preindustriale. 1400-1850*. Marsilio, Venice: 185-209.
- Alfani, G. and Percoco, M. (2014). *Plague and long-term development: the lasting effects of the 1629-30 epidemic on the Italian cities* IGIER Working Paper No. 508.
- Alfani, G. and Di Tullio, M. (2015) *Dinamiche di lungo periodo della disuguaglianza in Italia settentrionale: una nota di ricerca*, Dondena Working Paper No. 71.

- Alfani, G. and Frigeni, R. (2013). *Inequality (un)perceived: The emergence of a discourse on economic inequality from the Middle Ages to the Age of Revolutions*. Dondena Working Paper No. 58 .
- Alfani, G. and Ryckbosch, W. (2015). *Was there a "Little Convergence" in inequality? Low Countries and Italy compared, ca. 1500-1900*. Dondena Working Paper, forthcoming
- Ammannati, F. (2015). *La distribuzione della proprietà nella Lucchesia del tardo Medioevo (sec. XIV-XV)*. Dondena Working Paper No. 73.
- Alvaredo, F., Atkinson, A.B. and Piketty, T. (2013). 'The Top 1 Percent in International and Historical Perspective.' *Journal of Economic Perspectives*, 27(3), 3-20.
- Atkinson, A. B., T. Piketty and E. Saez (2011). 'Top Incomes in the Long Run of History.' *Journal of Economic Literature* 49(1): 3-71.
- Blok , A. (1969). 'South-Italian agro towns.' *Comparative Studies in Society and History* 11(2): 121-35
- Bulgarelli, A. (1993). *L'imposta diretta nel regno di Napoli in età moderna*. Franco Angeli, Milano.
- Bulgarelli, A. (2004). *Alla ricerca del contribuente. Fisco, catasto, gruppi di potere, ceti emergenti nel Regno di Napoli del XVIII secolo*. ESI, Napoli.
- Bulgarelli, A. (2009). 'La popolazione del regno di Napoli nel primo Seicento (1595-1648). Analisi differenziale degli effetti redistributivi della crisi e ipotesi di quantificazione delle perdite demografiche.' *Popolazione e Storia* 1/2009: 77-114.
- Curtis, D. (2013). 'Is there an "agro-town" model for Southern Italy? Exploring the diverse roots and development of the agro-town structure through a comparative case study in Apulia.' *Continuity and Change* 28(3): 377 - 419.
- Curtis, D. (2014). *Coping with crisis. The resilience and vulnerability of pre-industrial settlements*. Ashgate, Farnham.
- Da Molin, G. (1995). *Popolazione e società. Sistemi demografici nel Regno di Napoli in età moderna*. Laterza, Bari.
- Del Panta, L., Livi Bacci, M., Pinto, G. and Sonnino, E. (1996). *La popolazione italiana dal Medioevo a oggi*. Laterza, Bari.
- Fenicia, G. (2003), *Il regno di Napoli e la difesa del Mediterraneo nell'età di Filippo II (1556-1598)*. Cacucci, Bari.
- Fusco, I. (2007). *Peste, demografia e fiscalità nel regno di Napoli del XVII secolo*. Franco Angeli, Milano.
- Galasso, G. (1994), *Alla periferia dell'impero*. Einaudi, Torino.
- García Montero, H. (2015). *Long-Term Trends in Wealth Inequality in Catalonia 1400-1800*. Dondena Working Paper, forthcoming.

- Herlihy, D. (1967). *Medieval and Renaissance Pistoia*. Yale University Press, New Haven and London.
- Herlihy, D. (1978). 'The distribution of wealth in a Renaissance Community: Florence 1427.' In P. Abrams, E. A. Wrigley, eds., *Towns in Societies. Essays in Economic History and Historical Sociology*. Bristol: 131-57.
- Herlihy, D. and Klapisch-Zuber, C. (1985). *Tuscans and their families*. Yale University Press, New Haven and London.
- Hoffman, P.T., Jacks, D., Levin, P.A., Lindert, P.H. (2002). 'Real inequality in Europe since 1500.' *Journal of Economic History* 62(2): 322-55.
- Kuznets, S. (1955). 'Economic Growth and Income Inequality.' *American Economic Review* 45(1): 1-28.
- Lanaro, P., ed. (2006). *At the Centre of the Old World. Trade and Manufacturing in Venice and the Venetian Mainland, 1400-1800*. Centre for Reformation and Renaissance Studies, Toronto.
- Ligresti, D. (2002). *Dinamiche demografiche nella Sicilia moderna: 1505-1806*. Franco Angeli, Milano.
- Ligresti, D. (2013). *Le armi dei Siciliani. Cavalleria, guerra e moneta nella Sicilia spagnola (secoli XV-XVII)*. Mediterranea, Palermo.
- Longhitano, G. (1988). *Studi di storia della popolazione siciliana. Riveli, numerazioni, censimenti (1569-1861)*. CUECM, Catania.
- Lindert, Peter H. (1991). 'Toward a comparative history of income and wealth inequality'. In Y.S. Brenner, H. Kaelble, and M. Thomas, eds., *Income distribution in historical perspective*. Cambridge University Press, Cambridge: 212-31.
- Lindert, Peter H. (2014), *Making the most of Capital in the 21st Century*. NBER Working Paper No. 20232.
- Malanima, P. (2005). 'Urbanisation and the Italian economy during the last millennium.' *European Review of Economic History* 9: 97-122.
- Malanima, P. (2006a). *Pre-Modern Equality. Income Distribution in the Kingdom of Naples (1811)*, paper given at World Economic History Conference, Helsinki.
- Malanima, P., (2006b). 'An Age of Decline. Product and Income in Eighteenth Century Italy.' *Rivista di Storia Economica* 22: 91-133.
- Malanima, P. (2011). 'The long decline of a leading economy: GDP in central and northern Italy, 1300-1913.' *European Review of Economic History* 15(2): 169-219.
- Marrone, A. (2002). 'Sovvenzioni regie, Riveli, demografia in Sicilia dal 1277 al 1398.' *Mediterranea. Ricerche storiche* 24: 23-56.
- Milanovic, B., P. H. Lindert and J. G. Williamson (2011). 'Pre-Industrial Inequality.' *The Economic Journal* 121: 255-272.

- Nicolini, E. and Ramos Palencia, F. (2015). 'Decomposing Income Inequality in a Backward Pre-Industrial Economy: Old Castile (Spain) in the Middle of the 18th Century.' *Economic History Review*, forthcoming.
- Piketty, T. (2014), *Capital in the 21st century*. Harvard University Press, Cambridge.
- Pullan, B. (1978). 'Poveri, mendicanti e vagabondi.' *Storia d'Italia, Annali* vol. 1, Einaudi, Turin: 981-1047.
- Reis, J. and Martins, C.A. (2012). *Inequality in Early Modern Europe: The "Strange" Case of Portugal, 1550-1770*, paper given at the conference Wellbeing and Inequality in the Long Run (Madrid).
- Ryckbosch, W. (2014). *Economic inequality and growth before the industrial revolution: a case study of the Low Countries (14th-19th Centuries)*. Dondena Working Paper No. 67.
- Salvati, C. (1983). 'Dalla De appretio di Ferdinando I d'Aragona alla De Catastis di Carlo di Borbone.' In *Il Mezzogiorno settecentesco attraverso i catasti onciari. I. Aspetti e problemi della catastazione borbonica* Napoli: 107-15.
- Santiago-Caballero, C. (2011). 'Income inequality in central Spain, 1690–1800.' *Explorations in Economic History* 48(1): 83-96.
- Santiago-Caballero, C. and Fernandez, E. (2013). *Income inequality in Madrid, 1500-1850*. Paper given at the Economic History Society Annual Conference (York, U.K., 5-7 April).
- Sella, D. (1997). *Italy in the Seventeenth Century*. Longman, London.
- Soltow, L., Van Zanden, J.L. (1998), *Income and wealth inequality in the Netherlands, 16<sup>th</sup>-20<sup>th</sup> centuries*. Het Spinhuis, Amsterdam.
- Van Zanden, J.L. (1995). 'Tracing the beginning of the Kuznets curve: western Europe during the early modern period.' *Economic History Review* 48(4): 643-64.
- Woolf, S. J. (1988). *Porca miseria. Poveri e assistenza nell'Età moderna*. Laterza, Bari.