

# **Economic inequality in early fourteenth-century Siena and in its countryside: evidence from the *Tavola delle Possessioni* (1316-20)**

by Davide Cristoferi

Il saggio presenta la prima analisi statisticamente aggiornata delle disuguaglianze economiche nella Siena del primo Trecento e in tre insediamenti rurali, integrando un database esistente con uno studio di prima mano della *Tavola delle Possessioni* (1316-8), il più antico e completo catasto di una città medievale italiana. Per Siena, si dimostra il più alto livello di disuguaglianza economica in Toscana precedente al 1348 e si analizza la distribuzione della proprietà immobiliare sia a livello geografico che per gruppi familiari. Lo studio della campagna senese ha ancora carattere preliminare e si concentra invece sulla contestualizzazione delle evidenze statistiche trovate a livello agrario e socio-economico.

The paper presents the first statistically up-to-date analysis of economic inequality in early fourteenth-century Siena and in three rural settlements by integrating an existing database with a selected study of the *Tavola delle Possessioni* (1316-8), the earliest and most complete fiscal cadaster for an Italian medieval city. For Siena, the paper shows the highest level of economic inequality in Tuscany before 1348 and analyzes the distribution of immovable property at both geographical and household levels. The study of the Siennese countryside is still preliminary and contextualizes the statistical evidence found at the agricultural and socio-economic levels.

Medioevo, inizi secolo XIV, Toscana, Siena, proprietà immobiliare, disuguaglianze economiche.

Middle Ages, early 14<sup>th</sup> century, Tuscany, Siena, immovable property, economic inequality.

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## 1. Introduction

Tuscany is one of the key regions for studying economic inequality in pre-industrial Europe because of its historical relevance and the wealth of sources available.<sup>1</sup> This is even more evident when we look at the late Middle Ages and, in particular, the fourteenth century.<sup>2</sup> As Guido Alfani's EINITE project's extensive exploration of pre-industrial European tax records has shown, only the Tuscan cities of Prato and San Gimignano, the rural communities of Poggibonsi, Impruneta and Antella, and the villages of the district of Lucca (*Sei miglia*) appear to have sufficient and detailed tax sources to reveal levels of inequality for this period, especially before and after the Great Plague of 1347-52.<sup>3</sup> In addition to Tuscany, the bourg of Toulouse and Albi in Southern France and the city of Tortosa in Catalonia should also be considered, as they have tax records before and after the Black Death, while Chieri and Cherasco in Piedmont, Perugia in Central Italy, and Quedlinburg in Germany have data only for pre-Black Death period.<sup>4</sup> Moreover, incomplete tax rolls in Florence and London have been recently used to reconstruct hypothetical wealth distributions for the first half of the fourteenth century.<sup>5</sup> Finally, in terms of rural inequality, only seven German parishes in the district of Buttstedt, together with Tuscany, have preserved tax records from before the Great Plague, according to the current state of research.<sup>6</sup>

All this evidence points to high economic inequality in the first phase of the so-called conjuncture of the fourteenth century, i.e. *before* 1347, while at the same time helping to understand the long-term trends in wealth concentration in the pre-industrial era and the inequality-reducing effects of the

<sup>1</sup> This paper is part of the EI-MED research project funded by the FWO (no. 12Z8221N, 2020-3) at the University of Ghent and by the FNRS (no. 40005274, 2023-6) at the Université libre de Bruxelles. I am grateful to Michele Pellegrini, in charge of the *Tabula* project at the University of Siena, for providing the unpublished dataset and the digital edition of the *Tavola delle Possessioni*, for hosting me as a visiting researcher in February 2022 at the Department of History and Cultural Heritage, and for his scientific support during the writing of this article. A preliminary version of this paper was presented at the XIX World Economic History Congress in Paris (July 2022) and at the European Social Science History Conference in Gothenburg (April 2023): I am very grateful to Guido Alfani and Fabrice Boudjaaba, respectively, for organizing the WEHC panel, and to Peter Lindert and Antoni Furió for their comments. I would also like to thank Riccardo Turati for guiding me through the Stata software analyses and Guido Alfani for discussing the data problems and their solutions, together with the anonymous reviewer for the helpful comments provided. Responsibility for the content and results is, of course, mine.

<sup>2</sup> See Figure 1 in my introduction to the volume.

<sup>3</sup> Alfani, Ammannati, "Long-term trends;" Ammannati, "La Peste Nera."

<sup>4</sup> Alfani, "Economic Inequality in Preindustrial;" Alfani, "Economic Inequality in Northwestern;" Alfani, Gierok, Schaff, "Economic Inequality in Preindustrial" and the chapter by Miquel Milian and Morelló Baget in this volume.

<sup>5</sup> Geens, "A Golden age," 265-7 and Appendix, 103-5; Alfani, García Montero, "Wealth inequality."

<sup>6</sup> See Alfani, Gierok, Schaff, "Economic Inequality in Preindustrial," Appendix. In general, see: Alfani, Thoen, *Inequality*.

Black Death.<sup>7</sup> This diachronic approach (and the relevance of the inequality-reducing effect of the Great Plague) has so far prevailed, which explains why a comprehensive study of economic inequality before the pandemic, when European society was at a turning point between its economic and demographic peak and its imminent decline or transformation, is still lacking and its causes have not yet been fully investigated.<sup>8</sup> This is particularly detrimental both to the understanding of the socio-economic transformations that occurred between c. 1300 and c. 1350, and to the debate on the explanatory factors of pre-industrial economic inequality.<sup>9</sup>

In this respect, the quantity and quality of Tuscan fiscal sources can be further exploited to improve our understanding of economic inequality in this phase of the late Middle Ages. In particular, the study of the so-called *Tavola delle Possessioni* of Siena (1316-20) – one of the earliest and most complete surviving medieval cadasters, and the only one available for a major Italian medieval city before the Black Death – goes in this direction. This source records the distribution of immovable property (land and buildings) among the lay, noble and religious inhabitants of Siena, its suburbs and hundreds of Sienese rural communities during the second decade of the fourteenth century. Due to the huge amount of information, the divergent fiscal policies and the obvious administrative problems, this monumental fiscal record was not repeated and thus deprived of any counterpart for subsequent periods.<sup>10</sup> Because of this gap, recent studies of economic inequality have often ignored the *Tavola*, despite its unique wealth of information and wide geographical scope which attracted renowned medievalists in the past.<sup>11</sup>

This paper aims to demonstrate the relevance of the *Tavola* for the study of economic inequality during the first phase of the conjuncture of the fourteenth century and to provide statistical up-to-date data for further comparisons. Indeed, the lack of other comparable observations for this source can be overcome by using cross-sectional (i.e. synchronous) analyses between different samples or areas, rather than a longitudinal comparison between two chronological data points. Although the first method cannot detect a trend in economic phenomena such as wealth concentration or social mobility, it does have some advantages.<sup>12</sup> First, it allows us to a) increase the data available for the pre-Black Death period; b) explore the structure and some causal mech-

<sup>7</sup> Alfani, “Epidemics.”

<sup>8</sup> For the conjuncture of the fourteenth century, see: Bourin, Carocci, Menant, To Figueras, “Les campagnes;” Bourin, Drendel, Menant, *Les disettes*; Bourin, Menant, To Figueras. *Dynamiques*; Drendel, *Crisis*; Grillo, Menant, *La congiuntura*.

<sup>9</sup> See my introduction to this volume.

<sup>10</sup> The only exception is the *lira*, a kind of *estimo*. There are three more complete series for the second half of the fifteenth century: Piccinni, Catoni, “Famiglie.”

<sup>11</sup> Cherubini, *La proprietà*; Cherubini “Proprietari;” Balestracci, Piccinni, *Siena*, 113-44; Pinto, “Ricchezza.”

<sup>12</sup> Concerning social mobility, see: Carocci, Lazzarini, *Social mobility*.

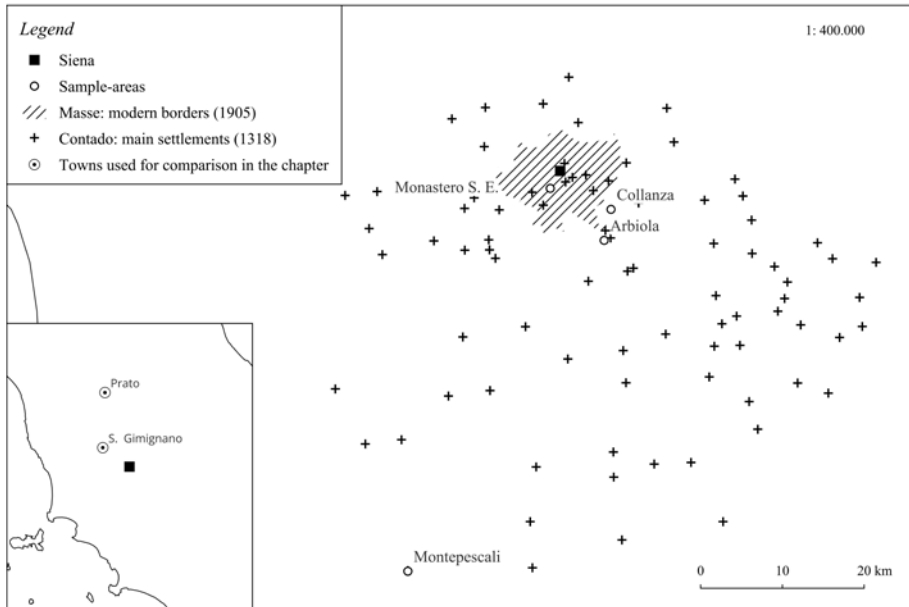


Figure 1. *Siena and the sample areas in the early fourteenth century*  
 Source: elaboration of the author.

anisms of late medieval economic inequality; c) compare the representativeness of the other available observations.<sup>13</sup>

The paper examines the distribution of (immovable) wealth as a proxy for economic inequality at two levels: first, in the city of Siena, where an existing unpublished dataset has been adapted and integrated for this study. Secondly, in three sample areas in the countryside: one of the suburbs of Siena (Monastero Sant'Eugenio, although included in the city's fiscal district) and two rural settlements (Arbiola and Collanza and Montepescali) selected according to different socio-economic characteristics. In this respect, this study can be seen as a first step towards a more comprehensive analysis of the distribution of wealth in the Sienese countryside. The paper is structured as follows: first, I will discuss the socio-economic context of early fourteenth-century Siena (2), the main features of the source (3) and the dataset used (4). I will then present the results of my analyses for the city (5), and then for the countryside (6). The main results are discussed in the concluding remarks (7).

<sup>13</sup> See my introduction to the volume and Alfani, "Epidemics."

## 2. *Siena in the conjuncture of the early fourteenth century*

Siena is an interesting example of the complex socio-economic transformations that late medieval societies underwent during the conjuncture of the early fourteenth century. Siena was – together with Pisa – the second most populous city in Tuscany after Florence, with around 50.000 inhabitants in 1300, and one of the most important financial centres in Europe in the second half of the thirteenth century.<sup>14</sup> At that time, Siennese companies such as the Gran Tavola of the Buonsignori family preceded the Florentine banks and were extremely active in Flanders, Champagne and Rome.<sup>15</sup> During the years 1280-1310, despite the successive bankruptcies of its banks – exacerbated by the conflict between loyalty to the imperial party and affairs with its main opponent, the papacy – Siennese society experienced what has been defined as an “economic paradox”.<sup>16</sup> In fact, the decline in the number, budget and geographical scope of the Siennese banks, which had been at the heart of the previous economic growth and where most of the city’s wealth was invested and generated, did not correspond to an economic crisis, but rather to a profound transformation and reduction in the size of the financial sector. In fact, after the financial crisis, private wealth was increasingly invested in the public sector, i.e. in the city-commune.<sup>17</sup> This was made possible by the new political regime of the so-called Nine Governors: they seized power in 1287 as representatives of the middle merchants, bankers and entrepreneurs interested in peace with the papacy and its allies.<sup>18</sup> They set up a government of nine members, elected by a two-stage process – hence the name of the regime – from which the opponents of the imperial party and the lower and upper classes of Siennese urban society were excluded.<sup>19</sup> The new rulers were also, in many cases, the lenders of the city-commune, ensuring the public funding as well as its repayment with high interest rates.<sup>20</sup>

The Siennese oligarchy developed an ambitious programme of urban planning and patronage thanks to the huge influx of money collected through various kinds of loans, financing jobs in the building industry and promoting social consensus through art and architecture.<sup>21</sup> Between 1290 and 1330, new walls and gates, a public palace, its bell tower and the Campo square were built, a new gigantic cathedral was planned and the Maestà by Duccio

<sup>14</sup> Ginatempo, Sandri, *L'Italia*, 105-6, 149; Piccinni, “Il sistema senese.”

<sup>15</sup> *Banchieri e mercanti*. For the major banking families: Chiaudano, “I Rothschild;” Carniani, *I Salimbeni*; Mucciarelli, *I Tolomei*; Mucciarelli, *Piccolomini*.

<sup>16</sup> Piccinni, “Il sistema senese;” Piccinni, *Il ‘banco’ dell’ospedale*.

<sup>17</sup> Piccinni “Il sistema senese.”

<sup>18</sup> Piccinni, *Fedeltà*.

<sup>19</sup> Bowsky, *A Medieval*, 23-84; Cherubini, “I mercanti,” 317-29; Raveggi, “Il governo.”

<sup>20</sup> Piccinni, *Operazione*, 31-7; Ginatempo, *Prima del debito*, 109-36; Fochesato, “Plagues, wars.”

<sup>21</sup> Bowsky, *A Medieval*, 260-98; Piccinni, *Operazione*. See also the essays in Giordano, Piccinni, *Siena nello specchio*.

and Simone Martini were painted.<sup>22</sup> The Commune also took over the city's social and health services and helped the Sieneese wool merchants to improve the quality and quantity of their textile production by financing the facilities of their guild.<sup>23</sup> Public funds were also used to enlarge the territory of the city-state and to support the activities of Sieneese merchants in southern Tuscany: in this way, Siena gradually acquired silver mines, salt pans, woods, pastures and cereal fields, while gaining new tax revenues.<sup>24</sup> However, this period was also marked by social and political unrest, as shown by the conspiracy of 1311, the rebellions of butchers, notaries, judges and magnates in 1318 and 1325, the uprisings of 1315 and 1329, those encouraged by the passage of the German emperors Henry VII and Charles IV in 1314 and 1355, which finally overthrew the regime of the Nine.<sup>25</sup>

The peak of the Sieneese economy, although in a state of flux, was probably reached in the first decades of the fourteenth century. In fact, only a positive demographic and economic trend could have allowed the regime of the Nine to foresee an increase in the population through new births and immigration. This is evidenced by the construction of a new neighbourhood named after Santa Maria in the district of San Martino (Figure 4A), which began in 1323.<sup>26</sup> Five years later, a demographic and economic change was already evident: the city council introduced benefits for the new settlers, as the district was not growing as fast as expected.<sup>27</sup> The contemporary chronicler Agnolo, son of Tura, claims that at that time the city was still "in great and proper condition, with many people and wealth": one can argue, however, that the Sieneese economy was probably also slowing down, following the demographic trend.<sup>28</sup>

### 3. *The source: the Tavola delle Possessioni (1316-20)*

In 1316, the Sieneese government introduced a new tax system based on a standardized valuation of immovable property as a proxy for the fiscal capacity of each taxpayer. This reform was part of the Nine's programme of regime consolidation developed after the crisis that followed the passage of Emperor Henry VII and was made when the Sieneese economy was still showing pos-

<sup>22</sup> To the best of my knowledge, a comprehensive overview of this season of patronage is still lacking, but detailed references can be found in the works cited in the following footnotes. See also: Balestracci, Piccinni, *Siena*, 103-12.

<sup>23</sup> Pellegrini, *La comunità*; Piccinni, "Il contesto politico-sociale;" Sordini, *Dentro l'antico ospedale*; Giacchetto, *Siena*.

<sup>24</sup> Redon, *L'espace*; Cristoferi, *Il «ream»*.

<sup>25</sup> Bowsky, *A Medieval*, 117-58; Costantini, *Carni*; Piccinni, *Operazione*, 31-7.

<sup>26</sup> Piccinni, *Nascita*, 73-140.

<sup>27</sup> Piccinni, 141-78; Piccinni, *Operazione*, 31-7.

<sup>28</sup> Agnolo di Tura del Grasso, *Cronaca*, 486-7. Translation by the author from the Italian vernacular.

itive signs.<sup>29</sup> Although the new tax system was originally called *estimo*, it is also known as the *Tavola delle Possessioni* (table of possessions), clarifying its nature as a cadastral survey.<sup>30</sup> In fact, it was based on a field survey carried out by dedicated officials to record and value all the land and buildings belonging to the inhabitants of the city-state, whether urban or rural, lay or clerical, noble or seigneurial. The immovables of religious and welfare institution, as well as of communities and guilds, were also assessed while landless were obviously not included.<sup>31</sup>

The compilation of the *Tavola delle Possessioni* took several years and was organized in two main phases. First, in 1317-8, the Sieneese officials in charge of the survey assessed all the rural and urban properties, organized by fiscal district (*lira*) in the city of Siena and by community in the countryside. All the property records – listed in special registers called *Tavolette* – were then grouped together in an official series – the *Tavola* or *Estimo* – according to the owner's residence, in order to calculate the tax assessment of each taxpayer (1318). Finally, in 1320, the *Tavola* was revised and further amended by a special commission. The aim was to have a complete and up-to-date register of all the properties owned by Sieneese taxpayers: for this reason, newly discovered or exchanged properties were additionally recorded until 1323-5, and sometimes until 1330. After 1325 the *Tavola* was largely abandoned: the size and speed of the real estate market, both in Siena and in the countryside, together with the resistance of the great Sieneese landowners, have been cited to explain its disappearance.<sup>32</sup>

The State Archive of Siena now holds 96 of the original 500 *Tavolette* registers and 51 of the original 59 *Tavola* registers for the city of Siena, together with 93 *Tavola* registers for the countryside.<sup>33</sup> The *Tavolette* registers provide a detailed overview of land and buildings in 158 rural communities of both the *Masse* (the rural territory within a 6-8 km radius of the city) and the *contado* (the rest of the rural territory subject to Siena): for each item, the owner's residence, the location, a brief description and, if rented, the lease system and the name of the tenant, the boundaries, the area and the value (calculated in account currency, that is *lire*, *soldi*, *denari*) are recorded.<sup>34</sup> These registers are particularly useful for reconstructing the use of land, the tenancy systems and the distribution of land ownership (including landowners living in Siena

<sup>29</sup> Before and after, the main source of tax revenue for the Commune of Siena was indirect taxation (tolls, etc.), together with the so-called *lira*, a tax system based on the taxpayer's self-declaration of all movable and immovable property: Bowsky, *The finance*, 89-97; Cherubini, "La 'Tavola delle Possessioni';" Cherubini "Proprietari," 231-41; Cammarosano, "Le campagne;" Farinelli, Giorgi, "Sources."

<sup>30</sup> For the *estimi*: Alfani, "Economic Inequality" and the Appendix.

<sup>31</sup> Cherubini calculated that 50% of the households in the *Tavola* were without property; during the famine of 1302, a petition to the city council estimated that around 15,000 poor people in Siena were deprived of their alms: Cherubini: "Proprietari," 245-6.

<sup>32</sup> Piccinni, *Operazione*, 33.

<sup>33</sup> State Archive of Siena (ASS), *Estimo*, Inventario, 15.

<sup>34</sup> For convenience we will report all values from the source and the database in *lire*.

or elsewhere) in each area. In most cases, however, information is only available for part of the territory of each community.<sup>35</sup>

The *Tavola* registers, on the other hand, cover most of the landowners living in 295 rural communes, 125 seigneurial lords (*nobili*) living in the *contado*<sup>36</sup> and about 86% of those living in Siena, and thus all their properties: for each taxpayer they provide an updated list and a brief description (definition, location, boundaries, area and value) of each property, together with the total value of the assets assessed. In this respect, the *Tavola* registers allow us to analyze the distribution of wealth and economic inequality within and between Siena and its communities.<sup>37</sup> However, the loss of eight urban registers from this series is not without consequences, since they recorded, along with smaller taxpayers, one of the largest landowners of the entire city-state: the hospital of Santa Maria della Scala.<sup>38</sup> Moreover, it is likely that a separate register recorded all the properties of the commune of Siena in the city and in the *contado*, while those of the bishopric of Siena were hardly recorded in the lost records.<sup>39</sup> In fact, most of the properties of the Sienese bishoprics were concentrated in the seigneurial enclave of the so-called Vescovado of Murlo, where they escaped any tax assessment due to the autonomous jurisdiction.<sup>40</sup>

#### 4. *The dataset*

This study is based on two databases, both of which derive their information from the registers of the *Tavola* series. For Siena, I used the unpublished database developed by the *Tabula* project of the University of Siena, which covers all the city registers: for all the Sienese taxpayers recorded, it provides information such as name, surname or patronymic, gender, occupation (if declared), residence – specifying the *terzo* (=one of the three main districts of the city, see Figure 4A) and the *lira* (=the fiscal district) – and the total wealth assessed in 1318, that is, before the amendments of 1320-5.<sup>41</sup> Despite

<sup>35</sup> ASS, *Estimo*, serie III, 145-239. Complete coverage is only available for a few communities such as Argiano, Camigliano, Castelnuovo dell'Abate, Castiglione d'Orcia, Radicondoli: Farinelli, Giorgi, *Camigliano, Argiano*; Farinelli, Giorgi, "La 'Tavola delle Possessioni';" Farinelli, Giorgi, "Castellum;" Farinelli, Giorgi, "Radicondoli." See also: Farinelli, Giorgi, "Sources;" Cherubini "Proprietari," 263-89.

<sup>36</sup> ASS, *Estimo*, serie I, 93; Cherubini "Proprietari," 292-5.

<sup>37</sup> ASS, *Estimo*, serie I, 1-92 (for the countryside); serie II, 95-144 (for Siena). See also: Cherubini "Proprietari," 231-41.

<sup>38</sup> With regard to the hospital, Epstein, from the *Tavolette* series, valued the rural properties at a total value of 36.691 lire: Epstein, *Alle origini*, 40, table 1. This is only a partial reconstruction of the hospital's properties in the *contado* due to the gaps in the *Tavolette*, while the properties placed in Siena were not considered by Epstein: it is therefore likely that the total wealth of the hospital is 2-3 times higher.

<sup>39</sup> Pellegrini, "La 'Tavola ritrovata'."

<sup>40</sup> Mengozzi, *Il feudo*.

<sup>41</sup> Pellegrini, Database progetto Tabula, based on ASS, serie II, 95-144. <https://www.dssbc.unisi.it/it/ricerca/progetti-di-ricerca/progetto-tabula>.

this invaluable wealth of information, the *Tabula* database is not without its problems: firstly, it does not allow a detailed analysis of the composition of the properties valued, i.e. the typology, location and value of each property. Secondly, the current *Tabula* database does not record the propertyless neither provides hints to estimate them. In this respect, estimates and assumptions based on primary and secondary sources have been made to calculate the potential impact of the propertyless on economic inequality.<sup>42</sup> Thirdly, the *Tabula* database does not include the suburb of Monastero Sant'Eugenio (Figure 1), which, although located 3,5 km outside Siena, was one of the fiscal districts that made up the *terzo* of Città: in fact, its inhabitants enjoyed the same fiscal and political rights as those who lived within the city walls.<sup>43</sup> In this regard, the *Tavola* register of Monastero was included in this study and its data integrated in the database. Finally, by mirroring the information provided by the *Tavola* registers, the *Tabula* database also incorporates some of their structural problems (Table 1). By relevance:

- It records wealth per tax unit instead of wealth per household: in most cases the two match perfectly, but sometimes they do not. This is the case, for example, when a taxpayer is recorded twice as the sole owner and, separately, as co-owner of an inherited property with his siblings (0,8%).
- It does not provide the valuation of the assets if they are not calculated in the source or are simply lost (10,2%).
- It accounts for some taxpayers (4,8%) twice or three times, making it difficult to disentangle when someone is just a homonym or the same person.
- It includes non-urban categories of landowners, such as the seigneurs and the main religious institutions of the *contado* (3% of the total records).

Table 1. *DB Tabula project: records typologies to be fixed*

Typology	Issue	n.	%	Solution
External Categories	Institutions (city & <i>contado</i> )	53	0,9	Removing from the DB
	Seigneurial lords ( <i>contado</i> )	125	2,0	Removing from the DB
Multiple names	Taxpayers recorded twice (in the same <i>lira</i> )	83	1,3	Considering the first assessment for the total wealth as valid
	Homonymous (in different <i>lire</i> )	218	3,5	Unifying the records and the wealth if proved as correspondents to the same taxpayer
	Taxpayers recorded also as co-owners	48	0,8	Keeping both records as separated fiscal units

<sup>42</sup> Cherubini, "Proprietari," 231-41.

<sup>43</sup> Agnolo di Tura del Grasso, *Cronaca*, 487-8. The *Tavola* register of Monastero Sant'Eugenio was probably added to the series of the countryside centuries later, hence the gap in the *Tabula* database: ASS, *Estimo*, serie I, 91.

Zero value	Lost records	415	6,7	Removing from the DB
	Properties recorded without valuation	14	0,2	Removing from the DB
	Total wealth not calculated	202	3,3	Calculating total wealth
	Total records in the DB	6.211		

Source: Pellegrini, *Database progetto Tabula*.

Table 1 shows these problems and the solutions I developed to make the *Tabula* database suitable for this study. Indeed, fiscal units were retained as the best available proxy for economic inequality at household level. The total number of records with problems was 1.158, representing 18,6% of the database (6.211 fiscal units). These records and their information were all checked against the digital version of the *Tavola* registers, and their problems were resolved according to specific procedures defined following previous studies on inequality.<sup>44</sup> As a result, 555 records were removed from the original database (DB), 164 records were made available for wealth estimation, 150 records of homonymous taxpayers were merged, while other 82 records of homonymous taxpayers were kept separate.<sup>45</sup> Then I added the records of 97 taxpayers assessed in the *lira* of Monastero Sant'Eugenio (ASS, *Estimo* 91): the wealth entered for each taxpayer of Monastero is the first one assessed (as in the original *Tabula* database), while the presence of new homonymous and co-ownership records within the *lira* and in the whole database was also checked and excluded. The religious, welfare and economic institutions located in the city and whose assets were valued (50) in the original *Tabula* database have been merged with those of Monastero (2) and kept separate from the fixed database: they are integrated only for carrying out specific analyses as indicated by the name of the database used (FDBI). The fixed database without institutions (FDB) contains 5.671 fiscal units for a total wealth of 5.944.613 *lire* and is currently the best available dataset for studying economic inequality in early fourteenth-century Siena (Table 4). It is also comparable to the other databases derived from the Florentine *estimi*, which also omit institutions and propertyless.<sup>46</sup>

For the Sieneese countryside, I entered new data from two *Tavola* registers for the sample areas of Arbiola and Collanza in Val d'Arbia and Montepescali in the Maremma (Figure 1).<sup>47</sup> The two sample areas represent different agro – and socio-economic systems, have different population sizes and were

<sup>44</sup> Alfani, Ammannati, “Long-term trends” and the Appendix online; Alfani, Di Tullio. *The Lion's Share*, Appendix.

<sup>45</sup> Homonymous records are the most critical problem to deal with: the total assets of two taxpayers with identical names were merged after a complete match of at least four of the following six fields: name, patronymic/husband's name, profession/provenance, *lira* of residence, *terzo* of residence, at least one rural property located in the same fiscal district.

<sup>46</sup> Alfani, Ammannati, “Long-term trends,” 1076-9, 1091-5 and the Appendix.

<sup>47</sup> ASS, *Estimo*, serie I, 5 (Montepescali), 92 (Arbiola e Collanza).

also selected according to their distance from Siena and the proportion of land owned by Siennese residents.<sup>48</sup> Moreover, they have also been studied by Cherubini's research group, providing a counterevidence for our analyses.<sup>49</sup> Table 6 shows some statistics of this second database, which also includes religious, welfare and communal institutions: unlike in Siena, they are fully recorded for the sample areas. The data available for each taxpayer are the same as in Siena, the only difference being that the total wealth assessed is that up to the year 1320-5: the same date limit is also used to compare the two areas with the rural suburb of Monastero Sant'Eugenio.<sup>50</sup> As in Siena, the wealth cannot be disaggregated: however, this difficulty is less worrying since land was the main asset and house ownership was still common among the rural population of Siena at that time.<sup>51</sup> In addition, for each of the sample areas, information was also collected on the properties owned by Siennese urban dwellers and by religious and welfare institutions located in the city. To do this, I used the *Tabula* database to identify the urban taxpayers who owned land and buildings there, and I entered their records from the corresponding *Tavola* registers of Siena: these data also go back to 1320-5.

##### 5. *Wealth inequality in Siena (1316-8)*

This section explores the extent to which economic inequality was high in early fourteenth-century Siena, how it was exacerbated by the inclusion of the propertyless and by religious, welfare and guild institutions, how wealth was distributed and concentrated geographically, and who owned most of it. In 1316-8, economic inequality among Siennese landowners was extremely high, as indicated by a Gini index of 0,788.<sup>52</sup> Such a high level of inequality was to be expected, as Cherubini's pioneering study of the *Tavola* had shown for a sample of the source: what is new here is its quantification with a standard indicator and a graphic representation for the whole population of Siennese landowners' (Figure 2) which allows further comparison at several levels.<sup>53</sup>

The distribution of wealth by deciles confirms the remarkable concentration of property in the hands of a few people (Table 3). The tenth decile owns more than 68% of total wealth, the richest 5% more than 53% and the richest

<sup>48</sup> For the concept of social-agro system: Thoen, "Social agrosystems."

<sup>49</sup> Mandriani, "Arbiola;" Cherubini "Proprietari," 278-89.

<sup>50</sup> The difference between the first and the following valuations may vary from case to case but is generally limited: for example, the total wealth of the Monastero Sant'Eugenio (including the institutions) was 40.443 *lire* in 1318 (with 99 landowners) and 43.781 in 1320-5 (with 93 landowners) while in Arbiola and Collanza (including the institutions) was 17.571 in 1318 and 17.863 in 1320-5, always with 49 landowners. Elaboration of the author from: ASS, *Estimo*, serie I, 91 and 92.

<sup>51</sup> Cherubini "Proprietari," 263-89.

<sup>52</sup> Elaboration of the author from FDB.

<sup>53</sup> Cherubini "Proprietari," 241-52, based on 27 out of 59 *lire*.

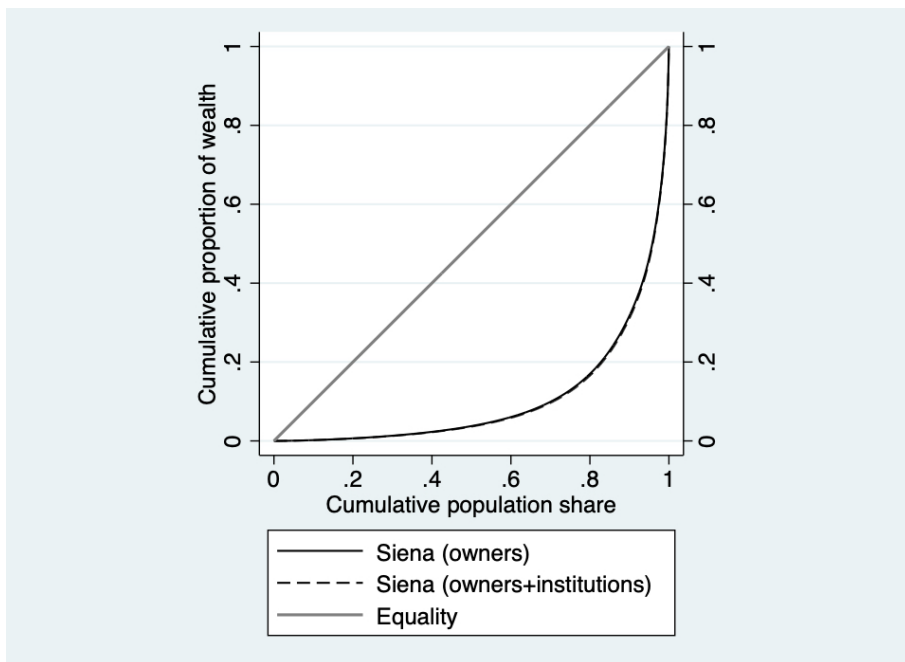


Figure 2. *Economic Inequality in Siena (1316-18): wealth distribution (Lorenz Curve)*  
 Note: Lorenz curves have been drawn using the *glcurve* Stata package.  
 Sources: FDB and FDBI.

1% almost 25%. The richest landowners belonged to the city’s financial aristocracy (Table 2): among the richest 1%, the Salimbeni were the richest, with properties valued at over 140.000 lire. They were followed by other important banking families of the thirteenth century – Gallerani, Tolomei, Buonsignori, Piccolomini – publicly considered as magnates. Others belonged to the Nine’s regime élite such as the Petroni, or repeatedly had their members elected as bishops of Siena such as the Malavolti.<sup>54</sup> This overlap is well known: in the sample studied by Cherubini, the households of Salimbeni, Gallerani, Tolomei and Buonsignori owned 20% of the total wealth.<sup>55</sup> The share of these families in the total wealth of Siena is actually 5% lower but this does not alter the conclusion that there is a strong correspondence between financial wealth (movable property) and landed property (immovable property). In fact, some of the richest Siennese households, such as the Buonsignori, began their financial activities by using their landed property as a guarantee.<sup>56</sup> In addition to their

<sup>54</sup> Mucciarelli, “Potere economico.”  
<sup>55</sup> Cherubini, “Proprietari,” 247-52.  
<sup>56</sup> Chiaudano, “I Rotschild;” Mucciarelli, *Piccolomini*, 73-210.

financial activities, these families acquired new properties, both urban and rural, in order to differentiate their investments and strengthen their capital base, as well as to increase and display their social prestige.<sup>57</sup> The Salimbeni and Tolomei families, who began to accumulate land and feudal rights in the second half of the thirteenth century, are a good example of this trend.<sup>58</sup>

Table 2. *Composition of the top 1% in Siena: the 10 richest household groups (1316-8)*

	Name	Wealth (lire)	Fiscal units	
			n.	Mean (lire)
1	Salimbeni	140.944,3	5	28.188,9
2	Gallerani	124.986,5	4	31.246,6
3	Tolomei	114.511,0	6	19.085,2
4	Petroni	105.074,2	4	26.268,5
5	Buonsignori	88.983,1	3	29.661,0
6	Piccolomini	76.009,5	4	26.175,4
7	Franzesi	69.423,6	2	34.711,8
8	Malavolti	59.316,5	3	19.772,1
9	Ugurgeri	50.728,8	1	50.728,8
10	Arzocchi	43.467,8	1	43.467,8

Source: FDB=elaboration of the author from Pellegrini, *Database progetto Tabula* and from ASS, Estimo, serie II, 91 (Monastero Sant'Eugenio).

The *Tabula* database also provides a general assessment of the total wealth of these families in 1318, showing that the Tolomei were indeed the richest group of households in Siena with 402.679 *lire* (6,8% of the total wealth), followed by the Salimbeni (201.545; 3,4%), Piccolomini (174.747; 2,9%), Malavolti (146.474; 2,5%) and Gallerani (125.597; 2,1%).<sup>59</sup> These results do not always agree with previous analyses, since our database does not take into account the amendments of 1320 and the subsequent adjustments to the *Tavola*.<sup>60</sup> However, our evidence confirms the structure of the wealth of these families: the richest groups of households, such as the Tolomei or the Malavolti, were so because of their many family branches (72 and 30 fiscal units recorded respectively).<sup>61</sup> Among them, however, the wealth was concentrated in a few households, while the 'poorest' branches owned smaller properties, mainly located in the city: for example, fourteen Tolomei households were recorded with a wealth of between 7,9 and 870 *lire*.<sup>62</sup>

<sup>57</sup> Pinto, "I mercanti e la terra," 223-51.

<sup>58</sup> Carniani, *I Salimbeni*, 55-146; Mucciarelli, *I Tolomei*, 71-191, 307-39. See also the files: Ginatempo, "Salimbeni;" Ginatempo "Tolomei."

<sup>59</sup> Elaboration of the author from FDB.

<sup>60</sup> For example, the total wealth of the Tolomei was calculated at 360.847 *lire*: Mucciarelli, *I Tolomei*, 307-9.

<sup>61</sup> Elaboration of the author from FDB.

<sup>62</sup> Elaboration of the author from FDB. See also: Mucciarelli, *I Tolomei*, 307-9.

Table 3. *Wealth distribution in Tuscan cities (1277-1325)*

	San Gimignano	Siena	Prato
Year	1277-90	1316-8	1325
Est. Pop.	7.637	52.000	10.559
Gini	0,712	0,788	0,703
D1	0,74	0,2	1,58
D2	0,76	0,44	1,82
D3	1,17	0,68	1,98
D4	1,51	0,98	2,14
D5	1,64	1,46	2,27
D6	2,66	2,29	2,49
D7	5,3	3,86	5,93
D8	10,06	7,09	6,69
D9	20,1	14,71	9,39
D10	56,05	68,29	65,72
Top 5%	38,29	53,78	55,26
Top 1%	16,74	24,99	29,18

*Note:* estimated population in Siena is from Ginatempo, Sandri, *L'Italia delle città*, 105-6; data on San Gimignano includes its *contado*.

*Sources:* *San Gimignano* and *Prato*: Alfani, Ammannati, "Long-term trends," 1093; *Siena*: FDB.

The overlap between the richest landowners and their financial activities is a non-trivial result for the study of economic inequality in the late Middle Ages for two reasons. First, because it further confirms a general equivalence between the levels of immovable and movable wealth, which could be extended to other medieval cities, especially for the study of the richest deciles. Secondly, and more importantly, because this equivalence allows, with some caveats, comparable analyses with the Tuscan *estimi*, based on the fiscal capacity of the taxpayers according to their total wealth, including movable property. In this respect, the distribution of wealth by decile of landowners in the cities of Siena, San Gimignano and Prato shows some differences worth discussing (Table 3).

A comparison of the Gini indices shows that wealth was even more unequally distributed in Siena (0,788) than in San Gimignano (0,712) and Prato (0,703). This means that Siena, on the one hand, has the lowest share of wealth owned by the deciles between the first and the seventh (0,20%-3,86%) and, on the other hand, as already mentioned, the highest share of wealth owned by the tenth decile (68,29%). More interestingly, the distribution in the top deciles was slightly different in the three cities, generating what is statistically defined as stochastic dominance, i.e. the dominance of the curve of one distribution over another, either completely (first-order) or partially (second-order) (Figure 3).<sup>63</sup> In San Gimignano, the eighth and ninth deciles have a higher

<sup>63</sup> Davidson, "Stochastic Dominance."

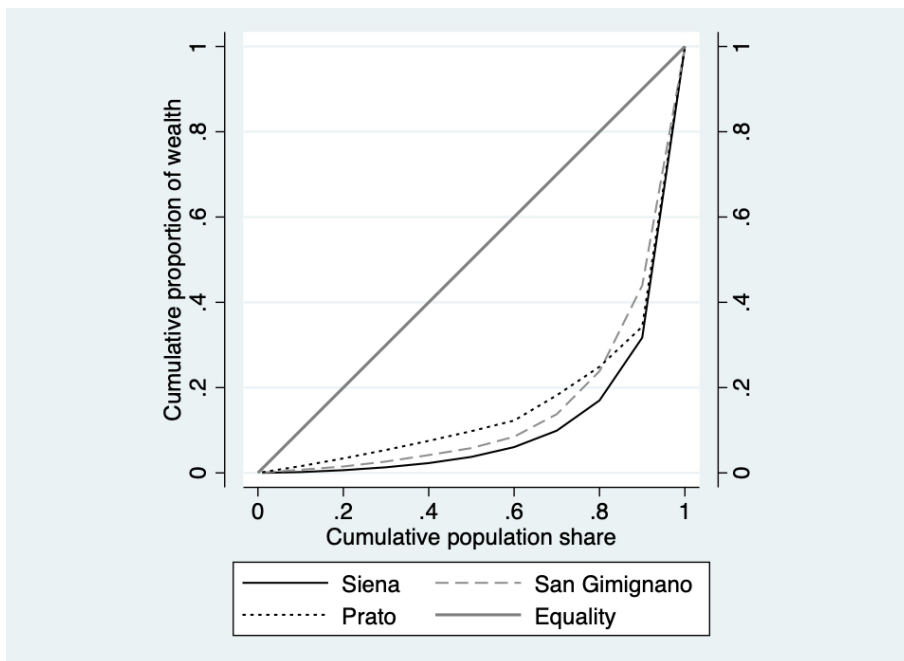


Figure 3. *Economic Inequality in Tuscan cities (1277-1325): wealth distribution (Lorenz Curve)*  
 Note: Lorenz curves have been drawn using the *glcurve* Stata package.  
 Sources: *San Gimignano* and *Prato*: Alfani, Ammannati, “Long-term trends,” 1093; *Siena*: FDB.

share of wealth (10% and 20% respectively) than in Siena and Prato. Conversely, in Prato the richest 5% and 1% have an even higher share (55% and 29% respectively) than in Siena. These differences could be explained by the economic structure of the three cities. San Gimignano, in the late thirteenth century, had a general prosperity characterized by the widespread presence of landed property in all social classes and especially in the middle and upper classes.<sup>64</sup> This could explain the good proportions of property owned by the eighth and ninth deciles, together with the fact that in the database the population of the city is grouped with that of the *contado*. In Prato, on the other hand, land ownership was probably less widespread (or less consistent) among the lower and middle deciles and concentrated among the richest 5% and 1%.<sup>65</sup>

While the top of the distribution of wealth is reflected very well by the *Tabola*, it is much more difficult to get a clear picture of the bottom. The concentration of wealth is somewhat higher (0,042 points, i.e. a Gini index of 0,830) if we take into account the propertyless, assumed here to be equal to 25% of

<sup>64</sup> Fiumi, *Storia economica*, 127-48.

<sup>65</sup> Fiumi, *Demografia*, 35-83; Cherubini, “Ascesa,” 194-208, 218-28.

all fiscal units.<sup>66</sup> This implies a 5% increase in the Gini value when the poorest strata of the population are included: such a difference is not in line with that suggested by Sam Geens for Florence in the 1320s, which is equal to 10%, and by Alfani and Ammannati for Prato in 1372 and for Florence in 1427, which is around 20-23%.<sup>67</sup> In fact, all these results show that the difference between the Ginis in the distribution of wealth in Tuscany, with or without landowners, suggested by Alfani and Ammannati as equal to 20% in most cases, does not always hold: in Siena the distribution is different, as other evidence shows for later periods and areas.<sup>68</sup> How to explain this is another matter: it can be deduced, as already discussed above, that in early fourteenth-century Siena the distribution of wealth within the group of Siennese landowners was so unequal that the addition of more than 2.000 fiscal units without property had less impact than in other cases, such as early fourteenth – and early fifteenth-century Florence. In this respect, it is also necessary to take into account the different sensitivities of the source used to the statistical tools applied and the assumptions made. It is likely that an estimate such as the *Tavola*, based on immovable wealth – which is much more unequally distributed than movable wealth – is less sensitive to the addition of propertyless, confirming once again the complexity of excluding or including (often an assumed number of) zero value observations in the calculation of economic inequality.

With regard to the general distribution of wealth, its concentration among Siennese landowners hardly changes when we add the fifty religious, welfare and gild institutions located in the city, which were previously excluded from the FDB. Figure 2 shows that the Gini index for Siena increases only 1% (from 0,788 to 0,792).<sup>69</sup> On the one hand, the absence of the hospital of Santa Maria (together with the bishopric and the city-commune of Siena) among the registered landowners should be taken into account. On a smaller scale, for example, I observe a 29% increase in the Gini (from 0,565 to 0,806) if the abbey of Sant'Eugenio in Pelusina and the Monastery of Sant'Abbondio are added to the taxpayers in the *lira* of Monastero San'Eugenio, where they are located. In fact, the combined wealth of these institutions represents 49% of the total recorded in the *lira*.<sup>70</sup> A similar upsurge, however, is extremely unlikely for Siena: the total wealth owned by the recorded institutions is 347.262,5 *lire*,

<sup>66</sup> Siennese sources and previous literature agree that the most probable number of propertyless households in early fourteenth-century Siena was equal to 50% of the Siennese households assessed in the *Tavola delle Possessioni*: see footnote 31 above. Consequently, I reconstructed a fictitious wealth distribution by adding to the total number of urban taxpayers without a zero value (5.671) a number of observations with zero value equal to 1.418. For this method: Geens, "A Golden age," Appendix, 103-5.

<sup>67</sup> Alfani, Ammannati, "Long-term trends," 1094-5; Geens, "A Golden age," 265-7 and Appendix, 103-5. Geens calculates for Florence a Gini index of 0,743 in 1326 and infers an increase up to 0,828 by adding a number equal to 30% of all the taxpayers with zero value.

<sup>68</sup> Alfani, Ammannati, "Long-term trends," 1094-5: the authors notice an increase of c. 7% in Prato and Florence in 1450 and of 8,5-11% in rural and urban Piedmont between 1393 and 1613.

<sup>69</sup> Elaboration of the author from FDBI.

<sup>70</sup> Elaboration of the author from ASS, *Estimo*, serie I, 91.

equal to 5,5% of the total wealth. In any case, this is so unevenly distributed among the other landowners that the addition of a few more, mostly concentrated in the ninth and tenth deciles (35 out of 50), does not affect it.<sup>71</sup> Even if we take the value of the hospital of Santa Maria della Scala at 100-120.000 *lire*, the overall picture does not change very much, and the total wealth of the institutions remains below 10% of the total.<sup>72</sup> This is the case, for example, if we also add to the group the wealth of the two institutions outside Siena, including the Cistercian abbey of San Galgano, the largest landowner recorded in the *Tavola* (128.635 *lire*): the total wealth of the institutions rises to 476.294 *lire*.<sup>73</sup> The situation could change if the wealth of the city-commune and the bishopric of Siena, which is unknown and will probably remain so, were also taken into account.

Table 4. *Economic Inequality in Siena (1316-8): Theil decomposition*

<i>District</i>	Camollia	Città	San Martino
<i>WGI</i>	1,500	1,369	1,437
<i>BGI</i>	0,018	-0,038	0,024
<i>Total WGI</i>	4,306 (99.9%)		
<i>Total BWI</i>	0,003 (0.1%)		
<i>Theil</i>	4,309		

*Note:* WGI=Inequality Within Groups; BGI=Inequality Between Groups.

*Source:* FDB.

As regards the geographical distribution of wealth, there are no consistent differences in the level of inequality between the three districts of the city: Camollia, Città and San Martino (Table 4). The contribution to inequality among districts, calculated using the Theil index, is insignificant (0,1%), while that within each district of the city, i.e. among its inhabitants, ranges from 1,369 in Città to 1,500 in Camollia.<sup>74</sup> This ranking almost reflects the distribution of the richest 1% of taxpayers between districts: 41% were resident in Camollia, 33% in Città and 26% in San Martino. Presumably, a smaller number of very rich taxpayers (29.682 *lire* in average) increased the concentration of wealth in San Martino, while a larger number of less rich members of the top 1% (23.498 *lire* in average) led to a less unequal distribution of wealth in Città.<sup>75</sup>

<sup>71</sup> Elaboration of the author from FDBI. This is the distribution of the wealth of the urban institutions per deciles: Q1 (1); Q3 (1); Q4 (4); Q5 (2); Q7 (2); Q8 (5); Q9 (8); Q10 (27).

<sup>72</sup> See footnote 38 above.

<sup>73</sup> Elaboration of the author from FDBI. For San Galgano: Barlucchi, "Il patrimonio."

<sup>74</sup> The Theil index measures an entropic 'distance' the population is away from the 'ideal' egalitarian state of everyone having the same income. The numerical result is in terms of negative entropy so that a higher number indicates more order that is further away from the 'ideal' of maximum disorder. See: Cowell, *Measuring Inequality*, 53-61.

<sup>75</sup> Elaboration of the author from FDB.

Table 5. *Economic Inequality in Siena (1316-8): wealth distribution per lire*

Fiscal district	Archival record	Fiscal units	Wealth assessed <sup>a</sup>		Householders <sup>b</sup> (1328)
	ASS, <i>Estimo</i>	n.	Total	Mean	
<b>CAMOLLIA</b>					
Abbazia di San Donato di sopra	133	75	59.111,2	788,1	115
Abbazia di San Donato di sotto	134	134	22.362,2	167,9	413
Magione del Tempio	143	215	135.066,6	628,2	379
San Bartolomeo	144	80	36.787,5	459,8	154
San Cristoforo (a lato dei Provenzani)	128	74	77.690,0	1.049,9	263
San Cristoforo (a lato dei Tolomei)	130	59	383.704,8	6.503,5	71
San Cristoforo (a lato della chiesa)	129	59	266.293,5	4.513,4	68
San Donato (a lato dei Montanini)	131	153	150.638,6	984,6	320
San Donato (a lato della chiesa)	132	140	229.021,4	1.635,9	462
San Pietro a Ovile di sopra	126	51	91.066,6	1.785,6	107
San Pietro a Ovile di sotto	127	312	189.364,3	606,9	531
San Vincenzo	142	81	54.113,3	668,1	164
Sant'Andrea (a lato della chiesa)	138	78	153.050,1	1.962,2	140
Sant'Andrea (a lato della piazza)	139	81	70.031,7	864,6	151
Sant'Antonio	135	90	35.325,0	392,5	-
Sant'Egidio (a lato dei Malavolti)	136	137	152.337,6	1.112,0	277
Sant'Egidio (a lato dei Rustichetti)	137	85	28.321,7	333,2	214
Santo Stefano (a lato dei Benucci)	141	133	57.502,6	432,4	233
Santo Stefano (a lato della chiesa)	140	75	96.194,2	1.282,6	225
<i>Partial</i>	<i>19/19</i>	<i>2.111</i>	<i>2.287.946,8</i>	<i>1.083,8</i>	<i>4.287</i>
<b>CITTÀ</b>					
Aldobrandino del Mancino	100	52	77.070,6	1.482,1	100
Codennacci	-	-	-	-	86
Galgaria	96	80	401.268,1	5.015,9	87
Incontri	102	71	145.014,5	2.042,5	110
Manetti	101	69	74.997,1	1.086,9	124
Monastero (Sant'Eugenio)	91	97	18.351,2	189,2	148
Porta all'Arco	108	256	196.645,	768,1	346

*Economic inequality in early fourteenth-century Siena and in its countryside*

San Giacomo ai Canonici	99	84	101.236,0	1.205,2	150
San Marco	107	288	119.759,0	415,8	417
San Paolo	97	27	61.585,7	2.281,0	33
San Pellegrino	95	141	247.225,3	1.753,4	257
San Pietro di Castelvecchio	106	135	90.852,0	673,0	192
San Quirico di Castelvecchio	104	281	102.027,8	363,1	274
San Salvatore di sopra	-	-	-	-	198
San Salvatore di sotto	103	238	86.274,1	362,5	586
Sant'Agata	109	83	77.470,9	933,4	184
Stalloreghi di dentro	105	63	50.613,0	803,4	141
Stalloreghi di fuori	-	-	-	-	253
Vallepiatta di sopra	-	-	-	-	210
Vallepiatta di sotto	98	125	116.013,4	928,1	330
<i>Partial</i>	<i>16/20</i>	<i>2.090</i>	<i>1.966.403,7</i>	<i>940,9</i>	<i>4.226</i>
<b>SAN MARTINO</b>					
Abbadia Nuova di sopra	-	-	-	-	280
Abbadia Nuova di sotto	119	160	44.543,0	278,4	256
Cartagine	122	72	136.539,1	1.896,4	94
Malcucinato	115	26	23.726,6	912,6	32
Pantaneto	112	44	178.893,2	4.065,8	80
Porrione	114	36	149.276,3	4.146,6	57
Pozzo di San Martino	113	42	229.445,4	5.463,0	84
Rialto	121	87	96.452,1	1.108,6	141
Salicotto di sopra	123	94	71.604,9	761,8	224
Salicotto di sotto	124	94	50.139,6	533,4	144
San Giorgio	-	-	-	-	104
San Giusto	125	163	74.667,5	458,1	244
San Maurizio (al lato dei Pagliaresi)	117	76	31.788,6	418,3	123
San Maurizio (al lato della chiesa)	116	87	164.218,2	1.887,6	103
San Maurizio di fuori	-	-	-	-	346
San Pietro alle scale	-	-	-	-	46
San Vigilio di dentro	110	62	194.311,6	3.134,1	57
San Vigilio di fuori	111	101	109.285,2	1.082,0	170
Sant'Angelo a Montone e San Mamiliano	118	266	83.195,9	312,8	298
Spadaforte	120	60	52.139,2	869,0	103

<i>Partial</i>	17/20	1.470	1.690.226,6	1.149,8	2.986
TOTAL	52/59	5.671	5.944.613,0	1.447,1	11.499

Note: a=wealth values are expressed in *lire*; b=the number of householders assessed for the *lira* of 1328 is reported by Agnolo di Tura, *Cronaca senese*, 487-8.

Source: FDB.

In general, the rich and the poor were almost equally distributed among the three districts of the city. This homogeneity is also explained by the fact that each district almost perfectly represents one third of the urban area, including both the city centre and the most peripheral neighbourhoods, where medium and poor classes mainly lived (Figure 4A). In fact, if we look at the distribution of wealth per *lire*, we can clearly see a strong difference between the neighbourhoods by looking at the total and average wealth assessed (Table 5 and Figure 4B). The rich, despite spread in many *lire*, are clearly concentrated in the core commercial areas around the central square of the Campo (such as Pozzo di San Martino and San Paolo), along the Francigena route in Camollia (San Cristoforo) and San Martino (Porrione, Pantaneto), and along the main street in Città (Galgaria). There, the average wealth of the top ten *lire* ranges from 6.503 *lire* in San Cristoforo, near the houses of the Tolomei family, to around 1.962 *lire* near the church of Sant'Andrea, both in Camollia. Some of the poorest classes, on the other hand, were located on the outskirts of each district: for example, the average wealth of the ten lowest fiscal districts ranged from 416 *lire* in San Marco, near the south-eastern wall of the city (Città), to 162 *lire* near the Abbazia di San Donato, on the north-eastern side of Camollia. In this respect, Table 5 confirms the conclusions of the studies of Cherubini, Piccinni and Balestracci and completes previous overview by showing the average and total wealth for 52 out of 59 *lire*.<sup>76</sup>

Figure 4B shows graphically what has been said above, but on a different basis. In fact, the territories of the *lire* are very difficult to draw: they are usually smaller than those of the *popoli*, i.e. the urban parishes, and they tend to extend over or to cut through more than one parish territory rather than overlapping. Sometimes, the boundaries of the *lire* are simply blurred or unclear. The information provided by the *Tabula* project makes it possible to associate each *lira* with the corresponding parish territory, whose boundaries are known. This allows us to reconstruct the geographical distribution of the members of the richest 1%, used here as a proxy of high average wealth, first in the 59 *lire* and then in the 37 *popoli*. The small number of observations for this proxy allows us to better control the conversion of data from fiscal to parish territories and allows us to plot the concentration of wealth in Siena at the beginning of the fourteenth century.<sup>77</sup>

<sup>76</sup> Cherubini "Proprietari," 241-52; Balestracci, Piccinni, *Siena*, 113-44.

<sup>77</sup> Data from *lire* to *popoli* have been converted as follows: if the territory of a *lira* fully overlaps that of a *popolo*, the corresponding observations are simply added; if the territory of a *lira* is divided into *n* parishes, the corresponding observations have been divided according to the

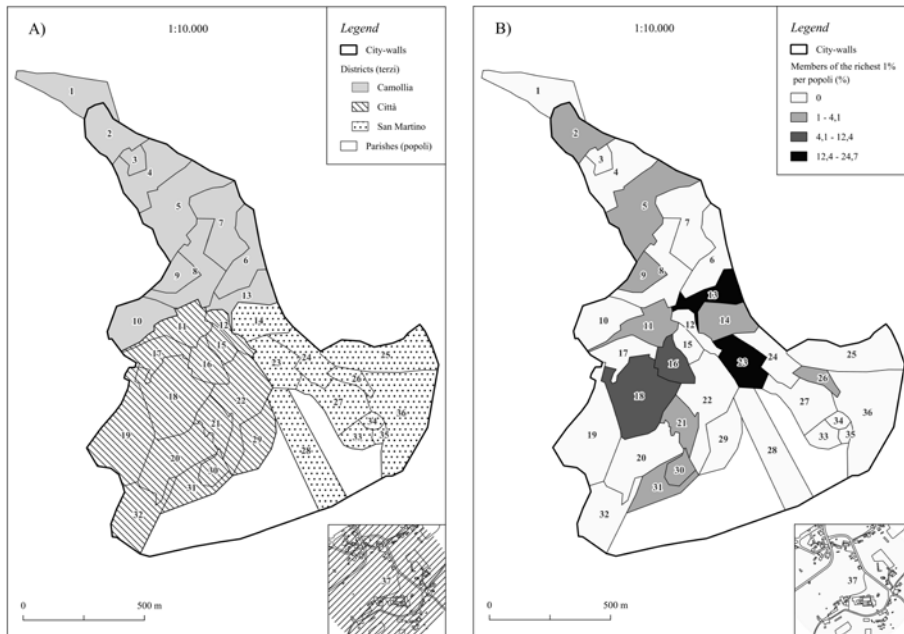


Figure 4. *Urban districts (A) and wealth concentration per popoli (B) in Siena (1316-8)*

*Note:* *Popoli*: 1. San Bartolomeo di Camollia (=lira of San Bartolomeo); 2. Magione (=Magione); 3. San Vincenzo (=San Vincenzo); 4. Santo Stefano (=Santo Stefano ai Benucci; Santo Stefano alla chiesa); 5. Sant'Andrea (=Sant'Andrea alla piazza); 6. San Pietro a Ovile (=Porta Provenzani; Abbazia San Donato di sotto; San Pietro a Ovile di sopra; San Pietro a Ovile di sotto); 7. Abbazia San Michele in poggio San Donato (=Abbazia San Donato di sopra; Abbazia San Donato di sotto); 8. San Donato (=San Donato ai Montanini; San Donato alla chiesa); 9. Sant'Egidio (=Sant'Egidio ai Rustichetti; Sant'Egidio ai Malavolti); 10. Sant'Antonio (=Sant'Antonio); 11. San Pellegrino (=San Pellegrino; Aldobrandino del Mancino; Codennacci); 12. San Pietro alle scale (=San Pietro alle scale); 13. San Cristoforo (=Porta Provenzani; San Cristoforo ai Provenzani; San Cristoforo ai Tolomei; San Cristoforo alla chiesa); 14. San Vigilio (=San Vigilio di dentro; San Vigilio di fuori; Serravalle); 15. San Paolo (=San Paolo); 16. San Desiderio (=Codennacci; Galgaria; San Giacomo dei canonici); 17. San Giacomo (=Aldobrandino del Mancino); 18. Pieve di San Giovanni (Aldobrandino del Mancino; Codennacci; Galgaria; Incontri; Manetti; San Giacomo dei canonici; San Pietro in Castelvecchio; Stalloreggi di dentro; Stalloreggi di fuori; Vallepiatta di sopra; Vallepiatta di sotto); 19. Santa Trinità del Laterino (?); 20. San Quirico in Castelvecchio (=San Quirico in Castelvecchio; Porta all'arco; San Marco; San Pietro in Castelvecchio; Stalloreggi di dentro; Stalloreggi di fuori); 21. San Pietro in Castelvecchio (=San Pietro in Castelvecchio; Badia all'arco; Incontri; Porta all'arco; San Salvatore di sopra; San Salvatore di sotto); 22. San Salvatore (=San Salvatore di sopra; San Salvatore di sotto); 23. San Martino (Abbazia nuova di sopra; Abbazia nuova di sotto; Malcucinato; Pantaneto; Porrone; Pozzo di san Martino; Rialto; Salicotto di sopra; Salicotto di sotto; Spadaforte); 24. San Giorgio (=Abbazia nuova di sopra; Abbazia nuova di sotto); 25. Abbazia nuova (=Abbazia nuova di sopra; Abbazia nuova di sotto); 26. San Maurizio (=Abbazia nuova di sopra; Cartagine; San Maurizio di fuori; San Maurizio ai Pagliaresi; San Maurizio alla chiesa); 27. San Giusto (=Salicotto di sotto; San Giusto); 28. Borgo Santa Maria (=San Giusto); 29-30-31. Sant'Agata e Santa Mustiola (=Badia all'arco; Porta all'arco; Sant'Agata); 32. San Marco (=San Marco); 33. Castel Montone (=Castel Montone); 34. San Clemente (=San Maurizio di fuori); 35. San Leonardo (?); 36. Sant'Angelo a Montone (=San Maurizio di fuori); 37. Monastero Sant'Eugenio (=Monastero Sant'Eugenio).

*Sources:* Balestracci, Piccini, *Siena nel Trecento*, carta 1; FDB.

## 6. *Wealth inequality in the countryside of Siena: three samples (1320-5)*

This section looks at three sample areas to provide new statistically up-to-date measures of economic inequality for the countryside of Siena (Figure 1), and to discuss some of the potential causal factors of wealth concentration there, such as property distribution. As mentioned above, for the hamlets of Arbiola and Collanza and the rural commune of Montepescali, data from the *Tavola* registers – entered according to the amendments of 1320-5 – are used. The same operation was carried out for the records of Monastero Sant’Eugenio: although it belonged to the urban district of *Città*, it was located in the area of the *Masse* at 3,5 km from Siena and was surrounded by hilly cultivated fields, and thus halfway between a rural and an urban suburb. In 1320-5, 91 landowners were recorded with an assessed value of 17.646 *lire*, mostly land devoted to grain-cropping and vineyards, often mixed, and rural houses. Around half of these landowners were of modest affluence or even better off, owning between 100 and 800 *lire*. On the south-eastern edge of the *Masse*, about 8-10 km from Siena, are Arbiola and Collanza, two hamlets with a few rural houses and farms, grouped around the parish churches of San Pietro and San Giovanni and divided by the river Arbia. Together they had 47 inhabitants recorded as landowners in 1320-5, almost all of them peasants and sharecroppers of modest prosperity, with a total of 15.268 *lire* of immovable property. Most of this land was devoted to grain-cropping (about 57%) and, to a lesser extent, to mixed farming with cereals and vines (28%).<sup>78</sup> Finally, the fortified village of Montepescali was placed in the heart of the Maremma region – a vast and depopulated area 75 km south of Siena, characterized by woods, marshes and extensive cereal and livestock farming – on a hill at 200 m a.s.l.<sup>79</sup> The total wealth assessed is the highest of the three sample areas – over 29.000 *lire* – but is divided among more than 500 landowners, resulting in the lowest average value.

Montepescali is also as the most unequal of the three samples when only landowners are considered. The Gini index calculated is 0,681 while those for Arbiola and Collanza and Monastero are 0,609 and 0,565 respectively (Figure 5).<sup>80</sup> However, the difference in the distribution of the wealth among the population as a whole was probably smaller: the high number of small landowners recorded in Montepescali – 359 had assets valued at less than 50 *lire* – suggests that almost all the inhabitants were registered in the *Tavola*. This was probably not the case in Arbiola and Collanza and in Monastero Sant’Eugenio, where a higher proportion of (unregistered) propertyless working as urban and rural labourers and sharecroppers would be expected, sug-

number *n* of parishes. Then, for each parish, the observations (integral or divided) of all the *lire* corresponding to its territory are added.

<sup>78</sup> Mandriani, “Arbiola.”

<sup>79</sup> Cherubini “Proprietari,” 278-89.

<sup>80</sup> For the source of the results shown below see the references in Table 6.

gesting a more unequal distribution.<sup>81</sup> The picture changes definitively when we include local institutions in the distribution: Monastero – where the abbey of Sant’Eugenio and the monastery of Sant’Abbondio together owned 49% of the total wealth – becomes the most unequal of the three samples with a Gini of 0,806. Conversely, the pattern of wealth concentration remains largely unchanged in Arbiola and Collanza (Gini index of 0,611) – where the two parish churches owned the 14% of the total wealth – and increases by 6% in Montepescali (Gini index of 0,732). In fact, the largest landowner was the commune of Montepescali, with almost 5.000 lire, or 13% of the total wealth.<sup>82</sup> However, this property, mostly based on woods, pastures, marshes and arable land, was redistributed among the population in various ways as commons along the year, thus contributing to the integration of their incomes.<sup>83</sup> In this respect, communal assets served to reduce income inequality resulting from unequal land distribution and smallholdings: a feature which was clearly absent in the other two sample areas where commons and communal property probably disappeared early.<sup>84</sup> This function was in any case increasingly reduced during the fourteenth century by Siena, which took over some of the best resources in order to lease them in exchange for tax revenues.<sup>85</sup>

Table 6. *Economic inequality in the Sienese countryside: wealth distribution in sample-areas (1320-5)*

Sample-area	Residents			Local institutions			Sienese owners and institutions		
	n.	lire	Mean	n.	lire	Mean	n.	lire	Mean
<i>Monastero Sant’Eugenio</i>	91	17.646,9	193,9	2	26.134,0	13.067,0	46	13.553,9	294,7
<i>Arbiola and Collanza</i>	47	15.268,2	324,8	2	2.594,9	1.297,4	31	8.801,9	283,9
<i>Montepescali</i>	505	29.487	58,3	5	6.978,1	1.395,6	2 <sup>a</sup>	265,8	132,9

*Note:* the term *Institutions* concerns here local welfare, religious and communal institutions; a=the Cistercian monastery of San Galgano nearby Chiusdino is accounted as a Sienese institution with 245,8 lire.

*Sources:* for residents and institutions: elaboration of the author from ASS, serie I, 5 (Montepescali), 91 (Monastero Sant’Eugenio), 92 (Arbiola and Collanza); for Sienese owners and institutions: elaboration of the author from ASS, serie II, 93, 95, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 113, 115, 116, 120, 125, 126, 127, 130, 131, 136, 144.

The distributions analyzed above concern only a part of the immovable property located in each sample area. In fact, apart from a few neighbouring rural landowners, the presence of Sienese urban dwellers and institutions as

<sup>81</sup> Cherubini “Proprietari,” 287.

<sup>82</sup> Cherubini by looking at the *Tavolette* registers, which are uncomplete, accounted for a proportion of the wealth equal to 40%: Cherubini, 266, 280, 284.

<sup>83</sup> Imberciadori, *Statuti*; Cristoferi, *Il «reame»*, 93-107.

<sup>84</sup> Ginatempo, “Processi;” Cherubini “Proprietari,” 278-89.

<sup>85</sup> Cristoferi, *Il «reame»*, 101-7.

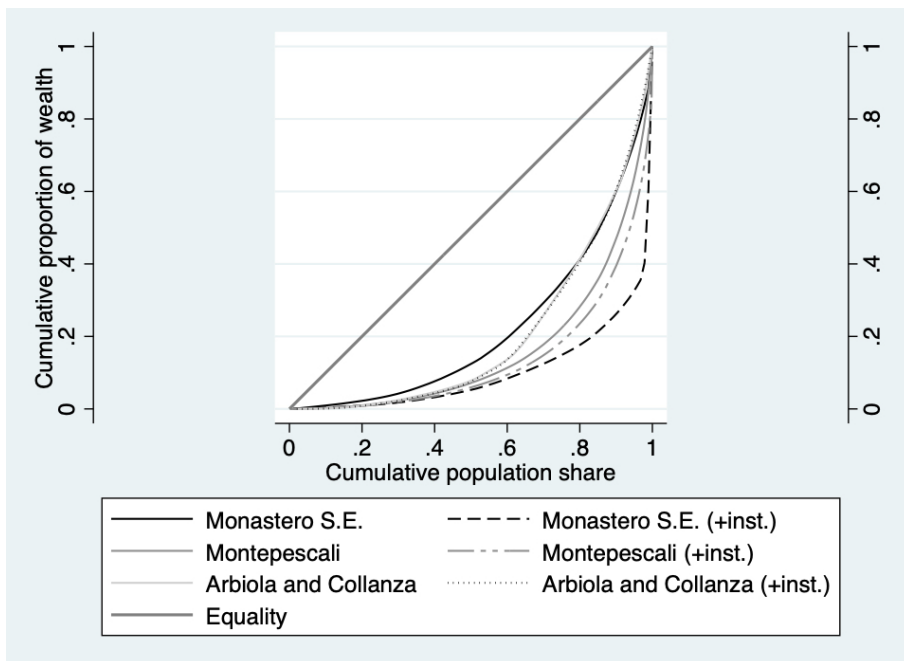


Figure 5. *Economic Inequality in the countryside of Siena (1320-5): wealth distribution (Lorenz Curve)*

Note: Lorenz curves have been drawn using the *glcurve* Stata package.

Sources: elaboration of the author from ASS, serie I, 5 (Montepescali); 91 (Monastero Sant’Eugenio); 92 (Arbiola and Collanza).

owners is fundamental to understanding the structure of wealth and its real concentration.<sup>86</sup> Indeed, the three samples also differ in terms of the share of the immovable property owned by Sienese landowners and institutions, as shown in Table 6. Monastero had the highest number of them, 46, who owned about 23% of the total wealth. In Arbiola and Collanza – and especially in the former, where the land was more fertile – Sienese urban dwellers owned about 1/3 of the immovable property recorded.<sup>87</sup> In Montepescali, on the other hand, only one Sienese notary, who owned 20 *lire*, and the abbey of San Galgano (245 *lire*) were recorded as external landowners.<sup>88</sup> The different levels of inequality measured among resident landowners should therefore be

<sup>86</sup> The properties registered in each *Tavola* register are usually, but not always, located in the taxpayer’s area of residence; in addition, landowners living in neighbouring fiscal districts may also own properties there: Cherubini, “Proprietari, contadini,” 278-89.

<sup>87</sup> Sienese landowners and institutions had assets valued 5,712 *lire* in Arbiola and 3,089 *lire* in Collanza. See also: Mandriani, “Arbiola.”

<sup>88</sup> Cherubini “Proprietari,” 280.

reassessed in the light of this evidence.<sup>89</sup> Indeed, in Monastero Sant'Eugenio, Arbiola and Collanza the economic inequality measured concerned the distribution of 30% and 57% of total wealth respectively, while in Montepescali it was 80%. All the rest belonged to local and Sienese institutions and urban dwellers, as a result of an ongoing and well-known process of land consolidation.<sup>90</sup> Moreover, as in other areas of late medieval Tuscany, the property of urban dwellers tended to be located on the best and most fertile land, i.e. the most productive, exacerbating the consequences of wealth inequality on the distribution of income.<sup>91</sup>

However, there was also a form of partial redistribution, albeit extremely extractive, to mitigate the consequences of the unequal access to land created by urban and religious property in central Tuscany: the so-called *mezzadria* (sharecropping).<sup>92</sup> By dividing the input and output of the leased land in half between the landlord and the sharecropper, this contract acted as an institution to regulate inequality, giving the lower classes of the rural population access to the income from the land and allowing smallholders to integrate their income.<sup>93</sup> Together, the *mezzadria* insured absentee urban landlords against moral hazard and overexploitation, thus protecting their land investments.<sup>94</sup> At the beginning of the fourteenth century, sharecropping was not yet fully developed: at the same time, due to the increasing urban-driven land purchase and the high demographic pressure, *mezzadria* contracts were particularly extractive, requiring a high contribution from the sharecroppers in terms of oxen, seeds and other inputs.<sup>95</sup> In this respect, it is not surprising to find even in an area characterized by direct farmers such as Arbiola and Collanza that over 90% of the land of local institutions and Sienese urban dwellers was leased out in *mezzadria*.<sup>96</sup>

## 7. Concluding remarks

This paper has presented the first statistically up-to-date analysis of economic inequality in early fourteenth-century Siena and in its countryside. This has been possible thanks to the extraordinary wealth of information contained in the *Tavola delle Possessioni*, the earliest and most complete fiscal cadaster for an Italian medieval city, covering all the landowners in Siena and in almost three hundred settlements. It has been possible to exploit the wealth of information contained in this remarkable source by carrying out

<sup>89</sup> Cristoferi, "Socio-economic."

<sup>90</sup> Ginatempo, "Processi."

<sup>91</sup> Herlihy, Klapisch-Zuber, *Tuscans*, 93-109.

<sup>92</sup> See Cristoferi, "Socio-economic" and the bibliography.

<sup>93</sup> Cristoferi; Herlihy, Klapisch-Zuber, *Tuscans*, 106-9.

<sup>94</sup> Ackerberg, Botticini, "The Choice."

<sup>95</sup> Ginatempo, "Processi;" Pinto, "I mercanti e la terra;" Pinto, Pirillo, "Il contratto."

<sup>96</sup> Mandriani, "Arbiola," 90; Cherubini "Proprietari," 297-301.

synchronic, rather than diachronic, analyses of the distribution of wealth, focusing on levels of inequality and comparisons between sample areas. A thorough work of revision, adaptation and integration of the *Tabula* project database with the digital version of the *Tavola* registers and the new data entry for three rural settlements has allowed us to create a complete and reliable dataset for further research on Siena and to establish data entry and analysis procedures to extend our analysis in the countryside in the future.

The study of the distribution of wealth in Siena has provided a measure of economic inequality before the Black Death for one of the major Italian cities of the late Middle Ages, when its economy was still showing positive signs after the political and economic transformation that took place between the end of the thirteenth century and the first decades of the fourteenth. These results were also compared with those available for Prato and San Gimignano: to date, Siena has the highest level of economic inequality in Tuscany before 1348 (Gini index 0,788). Moreover, the inclusion of the landless and the institutions did not significantly affect the already high concentration of wealth recorded in Siena in 1318 (1% and 5% respectively), unlike in other cases. The distribution of immovable property was also analyzed in detail at both the geographical and the household level: most of our findings are consistent with those of previous studies, in particular Cherubini's first analysis of the *Tavola*, while providing new evidence based on the closest reconstruction of the entire population of Sienese landowners.

In this respect, it would be interesting for the future to link the evidence found on economic inequality with the internal dynamics of social mobility in early fourteenth-century Sienese society, which has already been traced for some specific social and professional categories.<sup>97</sup> The data on the professions of Sienese taxpayers have not been analyzed here due to the limitations of the datasets used: however, further cross-referencing with other contemporary sources, such as notarial registers and the lists of representatives elected to Sienese offices and magistracies, would provide a better understanding of another fundamental and intertwined dynamic with the concentration of wealth, as demonstrated elsewhere in this volume.<sup>98</sup>

The study of the Sienese countryside, on the other hand, has a preliminary character: it has provided new measures of economic inequality for three sample areas with different agricultural and socio-economic characteristics, such as the presence, typology and share of immovable property owned by institutions and Sienese landowners. In this respect, our results suggest that any statistical measure of economic inequality should be carefully con-

<sup>97</sup> See, for instance: Mucciarelli, "Potere economico," Piccinni, *Fedeltà*; Costantini, *Carni*; Giacchetto, *Siena*.

<sup>98</sup> For an example of a combined study of social mobility and economic inequality see the chapter of Poloni in this volume. See also: Carocci, Lazzarini, *Social mobility*. An unpublished list of representatives elected during the regime of the Nine was made by Sergio Raveggi and Alessia Zombardo at the University of Siena in the 2000s.

textualized in the light of the overall distribution of wealth. For example, high levels of inequality between residents could correspond to contexts where the lion's share of the immovable property belongs to urban dwellers, or where specific mechanisms of access, redistribution and extraction of land, such as commons or sharecropping, were in place, exacerbating the difference between formal and informal access to and income from landed property. In this respect, a comprehensive study of wealth inequality in a broader selection of the settlements covered by the *Tavola* – in connection with the *Tabula* database for the city – could provide sufficient data and case studies to develop a robust interpretive framework for statistical measures and to test the influence of processes such as land consolidation and proletarianization on rural economic inequality.

To conclude, our results also have implications for the debate on the causes of late medieval economic inequality, as mentioned in the introduction. The case of Siena, especially when compared with Prato and San Gimignano, could support an interpretation of wealth concentration based on both the specific economic and financial context of the city and its demographic size. Indeed, the most populous city has the greatest economic inequality: however, this is not entirely true, as shown by the small increase in inequality that occurs when we include the propertyless. In fact, it seems that the strong connection between financial activity and property ownership among the richest 1% and 5% is better able to explain the high economic inequality found in Siena at the beginning of the fourteenth century. This is also supported by the comparison of the distribution of deciles and the economy with San Gimignano and Prato. Both explanations are not mutually exclusive, but rather complementary, and lead us to reconsider the combination of more than one factor to uncover the mechanism behind wealth concentration.<sup>99</sup> The same is true if we look at factors such as demography, proximity to the city and property distribution for rural areas. In fact, the first factor seems to explain the Ginis found (higher in Montepescali, lower in the other settlements) if we consider only the inhabitants, while proximity to the city better explains the presence of Sienese urban dwellers and institutions as landowners and, consequently, a more unequal distribution of wealth. Finally, it is worth noting that such a high level of economic inequality was recorded in Siena at a time when its economy was undergoing profound changes but still showing positive signs. In this respect, it could be argued – but not yet proven – that it is the first part of a Kuznets curve, based on about a century of economic and demographic growth in Siena, which then entered the conjuncture of the fourteenth century, keeping inequality high instead of reducing it.<sup>100</sup>

<sup>99</sup> Alfani, "Economic Inequality in Preindustrial," 19-30.

<sup>100</sup> van Zanden, "Tracing;" Alfani, "Epidemics," 11-6.

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