Wealth and Inequality in Ottoman Lands in the Early Modern Period

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Abstract

The impact of growth on the distribution of wealth and income in the early modern period is known to be diverse but has not been comprehensively charted for different parts of the world. While differences between Eastern Asia and Western Europe appear pronounced, little is known about patterns of inequality in lands lying in between. Our paper reports some of the preliminary results of a project that aims to locate the Ottoman Empire in the early modern map of inequality. Using probate inventories from four of the project cities in Anatolia, we examine patterns of accumulation and distribution of wealth from 1500 to 1840, with an emphasis on 1700-1840. We find a positive relationship between growth and inequality and a net increase in inequality in the long run in all but one of the cities under study. Similar to what has been observed in Western Europe, we also see an upswing in inequality everywhere from late 17th-century onwards and a milder one in 16th-century Bursa, the only city where we have a continuous series. The terminus of our study does not allow us to trace the impact of industrialization on this long-term trend. However, medium-term fluctuations in wealth and inequality are identifiable and appear to parallel secular waves of demographic change, urbanization and commercialization.

Keywords: Wealth; Inequality; Ottoman Empire.

JEL: N15; D63

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1 Introduction

The impact of growth on the distribution of wealth and income in the early modern period is known to be diverse but has not been comprehensively charted for different parts of the world. Van Zanden’s argument regarding the ”origins of a super Kuznets curve” in Western Europe is supported by studies on wages and relative prices in the same region. Particularly, two upswings in inequality are observed, one in the 16th and another one in the 18th century (Allen, 2001; Fischer, 1996; Hoffman, Jacks, Levin and Lindert, 2002; Milanovich, Lindert ve Williamson, 2007). Regarding Asia, despite findings suggesting an increase in inequality eighteenth century onwards (Williamson 2000; Broadberry and Gupta 2006), it has been pointed out that the Japanese experience of growth, for one, did not alter the distribution as much as in north western Europe (Saito, 2005). Inequality in East Asia was low and remained low despite growth. Likewise, the ”Little Divergence” within Europe too may have implied different trajectories of change in the distribution of wealth in the northwest and the rest of the continent. In other words, the task of mapping inequality across the early modern world is closely tied to the broader debate on the divergence between the trajectories of growth and change in Western Europe and other regions.

The link between the distribution of wealth on the one hand and growth and industrialization on the other emerges in more than one paradigm. The Kuznets hypothesis, as a common research agenda in development economics, has been tested in different historical settings and found to apply to Western Europe. Several economic mechanisms, such as the skill premium, urbanization, factor prices, proletarianization have been proposed to explain why income/wealth inequality first increased in the early stages of industrialization and then began to decline where it did (Kaelble and Thomas, 1991; Lindert, 1991). More recently, as in the debate regarding early modern growth itself, institutions have been invoked to explain changes in the distribution of wealth. It has been argued, for example, that it was democratization, i.e. political institutions that brought inequality down in Western Europe in the aftermath of industrialization, or that the presence of ’strong institutions’ in western Europe even before industrialization ensured low inequality (Acemoglu and Robinson, 2002; Chor, 2005).
Where the Ottoman lands would stand in a map of early modern inequality and whether economic or institutional factors were more important in placing the empire where it stood is yet to be seen. Our project seeks to contribute to an answer to this question as much as to the basic factography of Ottoman economic history. Before carrying out any causal analysis, however, which should be the next step, we focus on descriptive characteristics of wealth and wealth distribution in this paper. In what follows, we first briefly introduce the data and the four cities to be examined. We then compare and discuss mean wealth in each in light of the available literature on Ottoman economic history. Lastly, we present our findings on inequality in terms of three standard measures (Gini, GE2 and share of the top decile) and compare socio-occupational groups.

2 Project and the sample

2.1 Probates and historiographic problems

2.1.1 Data

The project is based on probate inventories of six cities in Anatolia (Bursa, Manisa, Kayseri, Antep, Trabzon, Diyarbekir) and one city (Manastir/Bitola) in Macedonia. Ottoman probate records provide lists and estimated value or sale price of the realty and personalty owned by the deceased. Personalty includes financial assets (cash and credits) as well as all moveable physical property, and realty includes urban and rural buildings and land. The inventories also list debts owed by the deceased, thus offering a full account of the net worth of the probate population. Therefore, it would be fair to state that Ottoman probate records are superior to some of their counterparts in their comprehensiveness.

Yet, like their counterparts, they are also biased and impaired by uncertainties regarding inter vivos transfers, underreporting or misevaluation as well as possible changes over time in patterns of registration (Shammas, 1978; Lindert, 1981). Most commonly, they underrepresent women, the younger population, rural population, and possibly, the lower socio-occupational classes. Non-Muslims too appear to be underrepresented in most of the cities studied in this project, but not all, which reflects the varied legal culture in different
localities of the empire. Likewise, there is no uniform pattern in shares of women in probate records of different cities. Patterns vary over time as well as between cities. With all these caveats, probate records still stand out as our best tool to study wealth and its distribution in the Ottoman Empire before the 19th century, with the possible exception of cadastral surveys for the 15th and 16th centuries.

In this paper, we do not make any adjustments for demographics in the data and present, where necessary, statistics for different probate groups (rural, urban, male, female, etc.) separately. This is a simple way of controlling biases without having to deal with estate multipliers for probates belonging to different population groups. In the case of Ottoman probates, multipliers have to be established mostly from scratch as demographics of the Ottoman society are much understudied. That task will be undertaken at a later stage in the project.

2.1.2 Structure of the database

Table 1 indicates the sample size and the chronological structure of the study. The total number of probates in the current database is 11,098. We use a trimmed dataset in order to eliminate the impact of the outliers. The data is organized in nine sub-periods of 20 years each, with 20 years gap in between, which allows us to capture medium term economic fluctuations. Thus, findings from each sub-period stand for 40-year averages. We start at 1500 because, firstly, it is a common benchmark year in early modern studies -although it is clear that in the case of one project city at least, namely, Bursa, we need to go further back in time to identify the beginnings of the upward trend that we observe in the 16th century\(^3\). Currently, the terminus of the study is 1840, roughly the beginning of a new administrative and economic regime effected through reforms and commercial treaties with European powers.

Unless otherwise stated, all values reflect net wealth, that is, all assets including receivables minus outstanding debts. We take 1740 as our base

\(^3\)Bursa was damaged by the Timurid army in 1402 and the subsequent power struggles among the Ottoman princes and the elite. Judging by travel accounts, the damages had been repaired and the city had become a major international emporium towards the middle of the 15th century (Lowry, 2004). In the second phase of the project, which is underway, Bursa dataset will be expanded to include probates from the 15th, late 19th and early 20th centuries. Thus, we will be able to trace Bursa’s economy through probate inventories from 1460 to 1920.
Table 1: Database periods and usable observations, trimmed sample

<table>
<thead>
<tr>
<th>Period</th>
<th>Bursa</th>
<th>Diyarbekir</th>
<th>Kayseri</th>
<th>Manisa</th>
</tr>
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<td>1500-1520</td>
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<td>1540-1560</td>
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<td>1660-1680</td>
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<td>248</td>
<td>310</td>
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<tr>
<td>1780-1800</td>
<td>503</td>
<td>258</td>
<td>212</td>
<td>470</td>
</tr>
<tr>
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</tr>
<tr>
<td>Total</td>
<td>3,500</td>
<td>683</td>
<td>907</td>
<td>2,052</td>
</tr>
</tbody>
</table>

year and use Pamuk (2000) Istanbul Consumer Price Index (ICPI) as deflator. For sampling details, price indices and related problems, please refer to the Appendix.

3 Cities

In this paper, we limit our discussion to four of the project cities: Bursa and Manisa in western Anatolia, Kayseri in east central Anatolia and Diyarbekir in eastern Anatolia.

Bursa is located on the south coast of the Sea of Marmara. It was one of the principal cities of Byzantine Mysia at the time of the early Ottoman expansion westward. It served as the first capital of the Ottoman state (1326-1402), and thrived under its new lords. The emergence of Edirne in the 15th century as a second capital, did not reduce Bursa’s economic importance. It flourished on long-distance trade in spices, sugar, dyes, soap and perfumes, and most importantly, silk. The city was initially an entrepot for Persian silk which was either directly reexported or locally woven and exported to European as well as domestic markets. In the early 16th century, reportedly there were more than 1,000 looms in the city, all in private hands, and commonly operated by slaves (İnalçık, 1953-54; Çizakça, 1980). Despite many fluctuations in its fortunes during the period covered in this study, Bursa remained one of the most important centers of commerce and manufacture in the Ottoman Empire, and it still is such a center. It was also one of the most populated cities with
a population that varied between c. 30,000-70,000 from the late 15th century to the middle of the 19th century, by which time several cities of comparable size had emerged (Figure 1).

The capital city of a large province (eyalet) with the same name, Diyarbekir is the second largest city in the project after Bursa or, possibly, is as large. It is located in upper Mesopotamia, adjacent to a very fertile plain on the north side. Ottoman Diyarbekir, or Amid as the city was also called, was a major exporter of grains and supplier of Ottoman armies in the east. Its population may have reached 100,000 in the 18th century but the region experienced several disasters from the middle of the century onwards. Thus, the population had declined to about 50,000 by the middle of the 19th century and continued to shrink. The city was an important economic center due to its location at the crossroads of long-distance trade between Anatolia and India and Iran. In other words, it was one of the major gates to Asia. Its own exports included red yarn and cotton cloth as well as leather products. Cotton and silk textiles continued to be important in the 19th century.

Capital of a sub-province (sancak), Kayseri stood in a region suitable for agriculture as well as animal husbandry and produced a variety of products including grains, grapes and other fruits. The region of the Mountain Erçiyes offered good pasturage for local pastoralists as well as those taking their herds from eastern Anatolia to the west for trade (Kerpic, 494). Faroqhi characterizes it as a semi-rural market town as many of its inhabitants cultivated gardens, vineyards and fields inside and around the city. With its large and old villages in the district, 16th-century Kayseri must have been a good example of urban-rural continuum. At the turn of the eighteenth-nineteenth centuries, Kayseri merchants were active in a wide regional network of commerce in cotton yarn stretching from producers in Adana on one end to spinners in central and northern Anatolia on the other. Kayseri’s fortunes were rather tied to the domestic market than international trade - although some Kayseri merchants traded as far as Egypt. Leather and related industries were important and regularly provided the Istanbul market. (Jennings, 1999,12-13; Faroqhi, 2002, 42-43; Karagöz 2009).

Manisa is located in Western Anatolia in a fertile valley blessed by the River Gediz. It became part of the Ottoman lands in 1410. It was incorporated into the Province of Anadolu and became the capital of a sub-province. It was also
a transit point of secondary importance on the trade routes between India-Iran and the Aegean. In the 16th century, it enjoyed tax privileges as it was one of the towns where crown princes resided. Due to its location, agriculture was important and further developed in the 18th century due to commercial farming and formation of large farms. When Izmir became a hub of trade with Europe from the 17th century on, Manisa eclipsed in importance but continued to cater to this trade as a centre for agricultural goods. It also had a sizeable leather and cotton and woolen textiles sector (Goffman 1990, 80; Nagata 1997, 9-11; Kerpic 524).

4 Wealth

4.1 Wealth in Ottoman cities in comparative perspective

Bursa’s continuous dataset indicates that it was the wealthiest of the cities that are considered here for the longest period of time (Figure 2-3). We present rural and urban probate data separately (Table 2-3) because as noted earlier, we do not weigh the probate population according to their real population share. As the probate population in the 16th century has a much larger rural component than later periods,
city had the highest mean wealth in six out of nine data points. Diyarbekir was the wealthiest in 1740-60, but lost this rank to Kayseri in the subsequent period\(^5\). Manisa probates consistently had the lowest mean wealth (in seven out of eight data points). Let us note that the wealth ranking of the four cities more or less corresponds to the population ranking of each, thus, Bursa also being the most populous city when it is also the wealthiest, or likewise, Manisa having the lowest population throughout. There is also remarkable correlation between wealth and population in longitudinal data in Kayseri and Diyarbekir (0.81 and 0.99 respectively)\(^6\).

\[\text{Figure 2: Urban mean wealth, 1740=1}\]

\[\text{Figure 2: Urban mean wealth, 1740=1}\]

### 4.2 Long-term trends in light of the available literature

Our findings reveal expected trends for most part of the three and a half centuries examined. Until the 19th century there is an upward trend in mean wealth everywhere but Diyarbekir. In our longest data series, Bursa, we observe and there is considerable difference in patterns and volume of wealth in rural and urban areas in this period, examining them together generates distortion in the time series.

\(^5\)When we use the Diyarbekir House Price Index as price deflator (see the appendix for details), Diyarbekir appears by far the wealthiest of the four cities in all the three data points where it is represented. We do not know at this point whether this simply means that house prices in Diyarbekir were much lower than in all the other cities studied or the city operated in overall different price zone.

\(^6\)Here we refer to mean wealth of urban male population.
serve two, perhaps three waves of expansion, starting in the 16th century and peaking in the 18th century whereas Manisa probates suggest a more steady growth through the same period. Also noteworthy is the relative rate of growth observed in urban and rural wealth.

Looking at the 16th century, through Bursa data, we observe a 40% increase in urban mean wealth from 1500-20 to the middle of the century, but then, urban wealth falls below its early-century level while rural mean wealth nearly triples in a century and catches up with urban wealth in absolute terms. The two rural data points that we have for 16th-century Manisa also indicate 80% increase. Higher rate of increase in mean wealth in the countryside may signal a change in relative prices in favor of the agricultural sector. That is to be expected at a time of population growth and supported by Pamuk’s price series for Istanbul. However, we need a more detailed study of who may have benefited from such change in the countryside because we know that in Bursa as well as Kayseri, agricultural productivity per capita was falling in the second half of the century. Overcrowding in villages prompted immigration to urban Bursa, which may have contributed to the decline in urban wealth in the late 16th century (Jennings, 1983; Coggel, 2007). The same was probably true of Kayseri, where the population more than doubled in less than a century. This was the setting in which Celali Rebellions\(^7\) around the turn of the 17th

\(^7\)Celali revolts affected Anatolia and northern Syria in the 16th and 17th centuries. Each episode had a slightly different agenda and social profile of rebels, starting with the socio-
century wrought havoc in both regions, possibly, with local support\(^8\). Apart from a slight decline in mean wealth in rural Kayseri\(^9\), 16th-century trends in probated wealth conform to the existing literature.

Our findings regarding the 17th century lend support to recent scholarship on this period. In the past, the 17th century was thought to mark the beginning of the Ottoman ‘decline’, which referred mainly to the relative power of the central state. Recent research has extensively revised this view and brought to light ways in which Ottoman society continued to flourish and partook in early modern transformations observed across Eurasia. The idea of perpetual decline has been replaced by the recognition of a series of interrelated difficulties (overpopulation, agricultural failure, elite and popular-level unrest, high inflation) that hit some parts of the empire, especially in Anatolia, in the late 16th century and the early 17th century. This episode had much in common with what has been characterized as the ‘17th-century/Little Ice Age crisis’ in European history or, alternatively, a nadir in the secular cycle in global history (Nefedov and Turchin, 2009; Goldstone, 1991). Be that as it may, the affected regions had started recuperating the damages of the crisis by the middle of the century (Faroqhi, 1997). Thus, we observe that notwithstanding fluctuations, mean wealth in Bursa and Manisa by the second half of the 17th-century was considerably higher than in the preceding century. In Bursa, it was 30% higher than in 1500-20\(^10\), and in Manisa, rural wealth had more than doubled relative to 1540-60 as well as the early 17th century\(^11\).

Evliya Çelebi’s account of the said cities from around the middle of the century also supports these observations (Evliya Çelebi, 1999).

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\(^8\) Ninety-five people were persecuted in Kayseri for having participated in Abaza Hasan Rebellion (1658-59). Kayseri Court Register No. 70. Also see Selcuk (2008).

\(^9\) We cannot tell at the moment whether this decline is an early sign of population pressure in the countryside or related to a change in the probate population, namely, a decline in the share of probates belonging to the elite.

\(^10\) From the end of the 16th century to 1620-40, mean wealth in Bursa more than doubles. A large part of this increase is due an exogenous factor, namely, the immigration of Armenians who had been displaced by the vagaries of the Ottoman-Safavid war of 1603-1618 and Shah Abbas I’s resettlement policy in the same context. With them as part of the probate population, non-Muslim wealth increases 10 times in the same period while Muslim wealth increases 65%.

\(^11\) We do not have urban data for Manisa in 1540-60.
If we must find a "Golden Age" in Ottoman history in terms of the prosperity of the Ottoman subjects in the selected provinces, probate data which we consider points to the 18th century, not to the 16th century, as was thought to be the case in some earlier research. In all the cities under study, we see peak mean wealth scores in the first three quarters of the century. Significantly, rural mean catches and at several data points exceeds urban wealth. Thus, while the 18th-century average for urban Bursa is 75% higher than our first observation of 1500-20 for the same city, rural mean wealth appears to have more than sextupled in the same period. For Manisa, the respective figures are 86% growth in urban mean wealth from 1580-1600 to the 18th century and 170% increase in rural wealth. In Kayseri, we observe nearly four times (377%) increase in urban wealth and more than ten times increase in rural wealth. Also notable is the rise in median wealth in Bursa (27%) and Kayseri (nearly quadrupled). It seems likely that the so-called 'Tulip Period', associated with consumerism of the Istanbul elite, actually extended beyond the capital.

In the last quarter of the century, a downturn set in for Bursa and Diyarbekir, while mean wealth in Manisa and Kayseri rose. In Bursa, urban mean wealth declined 25% and rural mean declined 6%. The decline in Diyarbekir appears particularly dramatic, 83% overall, and the fact that median wealth too dropped about the same rate (78%) suggest that either the city experienced a major disaster or the pattern of probate registration changed radically within a few decades. The latter seems not to be the case as all identifiable estate groups in the sample (by title, religion or gender) were reduced to about 1/5th-1/6th of their mid-century level.

The drop in mean estate values in Bursa and Diyarbekir is less unexpected than Manisa and Kayseri’s increased prosperity because the last three decades of the 18th century, starting with the war with Russia in 1768, were a time of troubles for the Ottomans, like most of the rest of the world. In the Ottoman Empire too, this was a time of natural disasters, famine, epidemics, rebellion and wars, i.e. another nadir in the secular cycle to use Nefedov and Turchin’s terminology. As far as Ottoman history is concerned, the main focus of attention in the study of this period has been the political crisis of the center and not much else. Bursa and Diyarbekir findings signal the hard times for ordinary people in the provinces.
We know that Bursa had its share of natural disasters in this period. It was hit by an earthquake in 1766, plague in 1778 and 1784-86, a locust invasion, thus, scarcity, and a fire in 1796. The latter two may be due to extreme weather (Pansac, 1985, 608-609; Kılıç, 2002, 718-30; Lowry, 2004, 103). Diyarbekir was affected by a similar combination of disasters earlier. Drought in 1756 was followed by a locust invasion, scarcity and banditry the year after. In the '60s, the population was reportedly down to a quarter of its former size. In 1784, the region was hit by famine (McGowan, 1997), then by plague the following year. In fact, the whole empire succumbed to the disease in 1784-86. Tribal banditry did not subside in the 1790s, and in 1799-1800, another wave of plague visited the city (McGowan, 1997; Pansac, 1985). Undoubtedly, adverse natural circumstances do not always make the same disastrous impact. Their potential damage depends on several factors, the most important one being the ratio of key resources to population. Available population estimates suggest all-time highs in all project cities in the 18th century with the possible exception of Bursa, which may have seen a slightly larger population in the late 16th-century (Figure 1).

As for the twosome divergence among the four cities, it may be related to differences in the sources of wealth. The share of rural property (land, rural real estate, agricultural products and animals) in mean wealth was highest in Kayseri and Manisa probates (with an average of 20% and 19% for the whole period, not counting the all-rural probates of 1540-60). The respective figure for Diyarbekir was 6% and for Bursa 13%. In other words, as in the 16th century, owners of rural property may have benefited from higher inflation in agricultural prices at a time of scarcity and population increase.

In 1820-40, our last data point, we observe a more widespread downturn. In three of the cities discussed here, the decline is pretty dramatic. Namely, in Bursa, Kayseri and Manisa, mean estate size is about halved, and in Diyarbekir, it drops by 14%.13 While most of our observations about the earlier

13 There is considerable difference between the Istanbul Consumer Price Index and the local House Price Index in this period of high inflation. Using local HPIs instead of ICPI smoothes the decline in mean wealth in the 19th century or even reverses the trend, as in Manisa and Diyarbekir. Thus, according to local HPIs, mean wealth in Bursa and Kayseri contracted only 18-25%, and in Diyarbekir and Manisa, it increased 12% and 21% respectively. The local HPI and ICPI are especially different in Diyarbekir throughout the
periods are essentially in agreement with received knowledge, there is not much to draw on regarding the early 19th-century since it is not one of the better studied periods in Ottoman history. This is possibly because apart from the truly novel story of budding nationalisms, these decades are considered transitional, a period in which the old regime seemed bankrupt and hopeless and the new regime was not yet born.

What little we have at hand points to a number of natural disasters to start with. Intermittent waves of plague and cholera in the early decades of the century turned into a pandemic in 1813-19 and the 1830s. (Lowry, 2004, 98-100; Panzac, 1985, 127). In Diyarbakir, 1805, 1810 and 1817 were famine years. (Yılmazcelik, 1995)\textsuperscript{14}. In Bursa, at least half of the city was destroyed by a massive fire in 1801. And the countryside was hit by a locust invasion in 1802 (Lowry, 2004, 98-100). No less important than the natural circumstances were changes in the military and domestic political scene that may have put pressure on local economies.

While the first extensive perestroika of the Ottoman center in the 19th century is usually dated to 1839 (signing of the commercial treaty Baltalimani with Great Britain) or 1840 (the declaration of the reform edict of Gulhane), political changes with direct or indirect consequences for provincial economies had already been underway. Economic liberalization coupled with political centralization set the tone of Ottoman reform in the subsequent decades. Liberalization of raw material exports after 1826, increased import of machine-made cheap industrial inputs and weakening of the guilds are likely factors that would have impaired urban manufactures. Disruption of the integrity of the domestic market due to rebellions and territorial losses as well as subjugation of some of the provincial elite households (ayan) (such as Karaosmanoglus in Manisa) may also have affected both urban and rural wealth (Quataert, 1997; Nagata, 1997). On top of these, Anatolia turned into a battle ground in 1832-39 due to the Egyptian question. During his march across Anatolia, Kavalali Ibrahim Pasha obtained control of Kayseri and Konya on his way to Kutahya, which borders both on Manisa and Bursa\textsuperscript{15}.

\textsuperscript{14}Apart from the pandemic years, there was plague in Central and Eastern Anatolia in 1804, 1806 and 1823, in Manisa in 1812, in Bursa in 1814 and in Diyarbekir in 1827.

\textsuperscript{15}In 1833, the conflict was temporarily settled in the Treaty of Kiïtahya. In the following

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To recapitulate, mean wealth findings quantitatively support, for the provinces under study, what we already know about medium-term change in Ottoman economy, namely, that the 16th century was a period of growth, that the 17th century was not a period of economic decline although it may have started with difficulties, and that the 18th century brought an even higher rate of growth followed by a period of crisis in its last decades. They also generally support Pamuk (2007), which estimates 26% increase in GDP in the Ottoman Balkans and Anatolia from 1500 to 1820. Pamuk (2006) also estimates 0.5% annual increase in per capita GDP for the subsequent period (1820-70). This figure is obtained by backward extrapolation and may need reconsideration especially for the earlier decades we are concerned with. In any case, we are aware that probate wealth figures cannot be taken as a direct proxy for economic performance (or GDP), and have to be controlled for changes in the probate population and, ideally, in habits/patterns of probate registration.

5 Inequality

5.1 Social groups compared

In this section we first briefly discuss the relevance of immediately identifiable individual attributes present in the probates. We present the data in aggregate form because estates that belong to some population groups are few in number and get even fewer if we examine them separately for each city. Two identity attributes stand out as important factors that contributed to overall inequality: gender and honorific titles (Table 2). The role of gender by and large followed the trend in overall inequality, rising when the latter was high and vice versa. Thus in 1620-40, when overall inequality too was low, between gender inequality accounted for only 5% of overall inequality. In the 18th century, it contributed 21-30% to overall inequality, which is higher than the 16th-century average too. The value of female estates varied in the range of 49-75% of the overall mean and was lower in Manisa and Kayseri, i.e. in more rural settings, by which we mean a higher share of rural assets irrespective of

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16Between inequality referred in this paper takes into account the number and relative sizes of groups under examination as suggested by Elbers et al. (2008).
the residence of the decedent.

More important than gender as an element of inequality, was socio-occupational status identified through honorific titles. As expected, status accounts up to 48% of overall inequality\textsuperscript{17}. In this study, we tentatively assume that all those who did not have an honorific title were commoners. The former constituted 50-60% of the sample on the whole, with wide variations over time and between cities. We take those who did have a title to be the ‘respectable citizenry’, a category broader than the ‘elite’.

Table 2: Between inequality as percentage of total inequality (GE2)

<table>
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<tr>
<th>Period</th>
<th>Gender</th>
<th>Religion</th>
<th>Title</th>
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<tr>
<td>1740-1760</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>1780-1800</td>
<td>21</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>1820-1840</td>
<td>8</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>

The ‘all Ottoman’ data set used here is unweighted by city populations.

While calculating between inequality, we follow Elbers, et al. (2008).

While Table 2 might suggest that the second most important factor that contributed to inequality was religion, especially in the earlier period, our database is particularly weak at these early data points in terms of non-Muslim probates. Therefore, we advise caution in interpreting the role of religion in inequality. Be that as it may, its decline over time is noteworthy. It declined as mean non-Muslim wealth rose and approached the Muslim mean (Figure 4). That is to say, at most of our data points, non-Muslim estates were smaller than Muslim estates. This observation by itself does not support or invalidate Kuran (2010) where it is argued that in later periods, non-Muslims got richer by withdrawing themselves from Ottoman (and communal) legal space and availing themselves of European law. It is possible that it was the non-Muslims

\textsuperscript{17}The use of honorific titles in order to identify socio-occupational status is not unproblematic because we do not know well how assumption and attribution of titles changed over time. Although they stand unchallenged as a key to deciphering the Ottoman social constitution, caution is warranted especially when working with a long time series as we do.
of more modest means who continued to take their estates to the state courts for registration. A relevant observation is the apparent bifurcation between Bursa and Manisa, where non-Muslim estates get bigger relative to the average over time, and Kayseri and Diyarbekir, where they get smaller. More detailed inquiry is called for to see if this bifurcation is related to the fact that Bursa and Manisa had closer commercial ties with Europe.

Figure 4: Non-muslim wealth relative to average

Figure 5 indicates that large scale fluctuations in mean wealth in the 16th and 18th centuries reflects mainly changes in the wealth of men and women of title. Commoners appear untouched by waves of growth and depression. Not surprisingly, high ranking military officers (agha)\textsuperscript{18} appear by far the wealthiest, followed by the civilian elite (el-hac, çelebi, hwace, etc). Changes in the wealth ranking of civilians and public employees (those who received income from public resources, i.e. the state or public trusts (vakif)) relative to one another are interesting\textsuperscript{19}. Starting from 1620-40, civilian wealth enjoys a steady increase both in absolute and relative terms while the latter begins to rise relative to average wealth in 1700-20, after more than a century-long decline. In the 18th century, the value of civilian estates comes to exceed

\textsuperscript{18}When Beys are included in the set, the mean is lower

\textsuperscript{19}The thrust of this classification is to distinguish private capital accumulation from wealth that accumulated via distributive mechanisms of the public sector. We are aware that tax farming civilians would stand between the two categories. At least at this stage in our research, we cannot identify them.
those of the public employees. The former include female estates which pull the civilian mean down. Thus, it would appear that although public employees are known to have tried to compensate in lawful and unlawful ways for their loss in salaries due to inflation, they could not. Religious aristocracy (seyyids, şerifs: descendants of the Prophet) are shown separately because while they were not by definition "employed", they enjoyed some privileges granted by the state, and for a while before the 18th century, they were considered part of the state elite (askeri) (Canbakal, 2006, 2009). Table 6 indicates that the ranking of their wealth was closer to that of the public employees. The turn of the tide in the early 19th century is largely related to the abolition of the janissary corps in 1826. The disappearance of the rank-and-file soldiers (beşe) from the sample causes an increase in the average wealth of public employees. However, religious aristocracy too enjoys a slight rise in their relative wealth. In other words, relative rise of "public-related" wealth may not be accidental but a result of state’s reform policies.

Figure 5: Mean wealth (all project cities)

5.2 Inequality measures: Cities compared

Different measures yield slight differences in inequality scores of the cities examined relative to one another but overall ordering remains basically the
same. Thus, we consistently observe the highest level of inequality in Bursa. In most of the periods, Gini coefficient in Bursa stays in the 0.70s (Figure 7-8). Kayseri is in some ways opposite of Bursa. Although it is one of the three most populated and wealthiest among the project cities, inequality in Kayseri is very low relative to all project cities. Depending on the measure of inequality considered, it has the lowest or second lowest inequality scores throughout. Other than the all-rural data point of 1540-60, Kayseri Gini stays mostly in the 0.50s, exceeding it only in 1820-40. Closer to Kayseri in terms of its more rural character, Manisa is the smallest city considered here. Likewise, it has the lowest mean wealth for most of the period discussed. However, it has a higher inequality ranking than its wealth. As for Diyarbekir, it is difficult to position it in terms of inequality because it seems to have moved from one extreme to the other. While in 1740-60 it has the highest Gini score (and highest mean wealth and population), this situation is reversed by 1820-40. It has the lowest Gini (and lowest mean wealth).

Figure 9 indicating the share of the top 10% of the probates in overall wealth provides a broader comparative perspective on the level of inequality. The share of the top 10% in Bursa is comparable to its counterpart in Damascus, another provincial capital about the same size as Bursa around the turn of the 18th century. Kastamonu, an inland town of about 12,000 people in northern Anatolia, nearly equals Kayseri in terms of inequality (Coşgel and
Ergene, 2011)\textsuperscript{20}. Notably, Kastamonu as well as Manisa and Kayseri, all secondary centers in terms of urbanization, have inequality scores similar to those obtained in colonial US, based on weighted rural and urban data (Carr and Menard, 1999; Shammas, 1993).

\textsuperscript{20}Kastamonu figures are based on Muslim male probates.
5.3 Long-term trends

We observe a net increase in inequality from the earliest data point for each city until 1820-40. Diyarbekir appears as an exception among the four but probably has to do with the fact that our data set for this city starts in the 18th century. It is highly likely that the level of inequality in Diyarbekir prior to the 18th century was lower. Turning to the other three cities, Gini in Bursa rises from 0.718 to 0.734, in Kayseri from 0.536 to 0.660, in Manisa from 0.473 to 0.706. GE(2) rises in Bursa from 3.308 to 3.945, in Kayseri from 0.693 to 2.090, and in Manisa, from 0.388 to 3.018. All measures indicate that Manisa experienced the highest rate of increase in inequality (49% in Gini) while net change in Kayseri was 23% and in Bursa, already a highly unequal place, was minimal (2%).

Higher rate of increase in inequality in Kayseri and Manisa may be reflecting dynamics that more broadly affected rural property and rural probates. Aggregate inequality within rural probates also increased 22% (Gini coefficient

\[ \text{Gini coefficient of Diyarbekir declines from 0.774 to 0.647 (16%) and GE(2), from 2.903 to 1.326 between 1740-40 and 1820-40.} \]

\[ \text{Manisa’s earliest all-rural data point is not included here.} \]
rising from 0.538 to 0.656) from the beginning to the end of our period of investigation (Figure 10). This may well reflect the impact of commercialization in agriculture, spread of cottage industries and related changes in property relations. Accordingly, the correlation between rural mean wealth and rural inequality appears remarkable (0.77). To pursue this line of analysis, we need to focus on changes in the sources of wealth in rural and urban probates respectively. We leave this task to another paper.

Figure 10: Inequality within rural probates, Gini coefficients

Turning to medium-term fluctuations, our longest data series Bursa indicates an increase in all inequality measures but GE (2) in the second half of the sixteenth century (1540-1600). This observation is in line with Özmucur and Pamuk (2002), which finds a decline in real wages in 1469-1585. Also, all inequality measures but Gini indicate a peak in the first half of the eighteenth century (1700-1760). In Bursa, Gini peaks in 1660-80 and stays in a plateau until the end of the 18th century. In the other cities where we have data from earlier periods to compare, too, the 18th century emerges as a time of accelerated deterioration in the distribution of wealth. This finding too is in agreement with Özmucur and Pamuk (2002), which finds a drop in wages in 1690-1768.
6 Conclusion

Assuming that the changes we observe over time are not related to variations in the probate population and that reweighing the database to control for biases will not alter our findings in a major way, we can conclude that the welfare of the Ottoman subjects in the selected cities fluctuated dramatically in the three and a half centuries examined. The scale of these fluctuations suggests a Malthusian regime that periodically experienced sustainability crises. Distribution of wealth too fluctuated accordingly, peaking in the 18th century (Bursa, Manisa and, probably, Diyarbekir) or the early 19th century (Kayseri). In addition, Bursa experienced a milder upward wave in the 16th century. At the same time, we observe a net increase in inequality from the earliest data point for each city to 1820-40 (except Diyarbekir). All this largely parallels changes in the distribution of wealth in western Europe up to the 19th century, which allows us to say that "the origins of a super Kuznets curve" can be located in Ottoman lands too. (when industrialization (and political change) generated a different pattern of accumulation.)

Figure 11: Wealth and Inequality (Gini)

We observe a positive if mild correlation between inequality and wealth on the one hand and population on the other (Figure 11-12). This suggests familiar economic mechanisms that are associated with the upward slope of the Kuznets curve, more specifically in this case, pressure on consumer as well as factor prices due to urbanization. This reasoning does not necessarily preclude
an institutionalist insight into the connection between growth and inequality. On the contrary, the Ottoman lands offer a test case to study the role of institutional transformation in the early modern period. While in urban areas property rights were always under legal protection, at least formally, rural property relations changed considerably during this period. Rural property in the central lands of the empire was under state control in a system that did not encourage concentration of wealth. It may be that it is a glimpse of the implications of this system for inequality that we find in the low inequality scores of rural Manisa and Kayseri (Gini 0.376; 0.298) in 1540-60. Direct state control over agricultural lands, like resources in general, is known to have declined over time (a de facto ”constraint on the power of the sovereign”) while commercial farms, some large, emerged especially in western parts of the empire (Keyder and Tabak, 1991). Though not formalized wholesale before 1858, the perception and exploitation of agricultural land as private property, too, steadily increased 17th century onwards. It may not be a coincidence that in the 18th century, which we associate with a peak in ”decentralization” and ”privatization”, mean wealth, too, peaked in the provinces.

So did inequality. In other words, as property relations in Ottoman lands came to look more like Europe, so did the overall level of inequality. With all the methodological caveats already mentioned in mind, we can conclude that around the terminus of this study, the cities examined stood closer on the
global map of inequality to the west European case than Eastern Asia.
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