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Measuring and explaining rural inequality in a pre-industrial setting: income inequality in sixteenth-century Ottoman Manisa

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1. Introduction

Forty years later than Kuznets' (1955) seminal work, "Economic growth and income inequality", van Zanden's (1995) 'Super-Kuznets curve' hypothesis has extended the debate on distributional impacts of growth to the pre-industrial world. Focusing on the Western Europe in 1500-1800, van Zanden argued that in the centuries prior to industrialization as well, economic growth, where it occurred, was coupled with a considerable increase in inequality. Following van Zanden, in the last two decades, a literature has flourished on the evolution of income and wealth disparity in 1500-1800[1].

Inquiry into historical inequality is strongly linked with the broader debates of Great and Little Divergence. Yet, whether diverging trajectories of growth and change prior to industrialization were associated with different trajectories of change in the distribution of income and wealth has found little place in this recent literature[2] (Canbakal, 2020). Perhaps the most important barrier before us is the lack of past data on distribution, and the literature is particularly weak for non-Western societies. Despite the existence of a number of studies on early modern

[1] See for Italy, Alfani 2015; Alfani and Ammannati, 2017; Alfani and Sardone, 2015; Alfani and Di Tullio 2019; for Spain, Caballero 2011; Fernandez and Caballero, 2018; for Portugal, Reis 2017; for the Low Countries, Ryckbosch, 2016; Alfani and Ryckbosch 2016; for UK and US, Lindert, 2000, Lindert and Willliamson, 2016; for Japan, Saito, 2015; for Ottoman Empire, Canbakal, 2013; for Poland, Malinowski and van Zanden, 2017.

[2] Alfani and Ryckbosch's (2016) comparative research on the evolution of inequality in the Italy and the Low Countries in 1500-1800 and Saito (2015) on Japan are the only studies that directly handle the topic in the context of early modern divergence.

India, China, Japan and Russia[3], quantitative research on inequality in pre-industrial period predominantly concentrates on Western Europe and Northern America.

This article offers a quantitative analysis of rural income inequality in the Ottoman Empire, focusing on the Western Anatolian district of Manisa in the sixteenth century. For the first time, a methodology is developed to measure inequality between and within Ottoman direct producers' and landlords' classes during the classical period, based on data from fiscal surveys. As such, the present study seeks to add to the available evidence on inequality for the pre-industrial period by providing insights from a non-Western context.

The empire has been cited alongside Qing China and Mughal India as a site where divergence can be identified and analysed. It was "one of the greatest, most extensive, and longest-lasting empires in the history of the world," (Quataert, 2005: 3). Together with the Venetian Republic, it represents a region that stood at the centre of the pre-Columbian world economy but which gradually lost ground throughout the seventeenth and eighteenth centuries, in parallel to the rise of the North Sea area.

On the other hand, the Ottoman Empire has been often associated with a "sui generis" historical development path, finding its source in a "distinctive" socio-political order and economic institutions. Some scholars have suggested that the Ottoman land regime, which was characterised by state ownership of land and peasant small holdings, and the Islamic principles that tasked the state with the role of protecting its subjects and providing for their subsistence, created and maintained an egalitarian social structure. This literature posited the lack of concentration of land and the inhibition of wealth accumulation, as the main factors underlying the 'failed transition to capitalism' (İslamoğlu, 1994; Keyder, 1991; Kuran, 1989).

[3] See Allen et al. 2011; Mironov, 2005; Broadberry and Gupta, 2006.

Recently, research on probate inventories seriously challenged this view by showing that wealth inequality rose in many parts of Ottoman Empire during the early modern era, a pattern that was parallel to those observed in Europe prior to the Industrial Revolution (Canbakal, 2013; Coşgel and Ergene, 2012). The only long-term study on the evolution of inequality in the Ottoman realm (Canbakal, 2013) has detected considerably high levels of urban and rural wealth disparity and a rising trend in 1500-1820 in three of four Anatolian districts under study.

Yet, the research into historical inequality in the Ottoman Empire is still in its early stages and we have a long way ahead to understand how significant economic, political, and institutional transformations that the empire underwent in the pre-industrial era, affected inequality. Further evidence is required to understand whether income inequality followed the same path as wealth inequality, and to offer convincing explanations for the patterns and trends observed. Particularly, a closer look into the rural society is needed for a grasp of how surplus created by the agricultural economy –by far, the main sector of the pre-industrial economy- was distributed among different actors, and in which direction distributional structures changed over-time.

As a 'waning' power (Tabak, 2008) with institutions -particularly property rights institutions- that are argued to have been radically different from those in Europe, the Ottoman Empire provides fertile ground to explore not only the timing and sources of early divergence, but also whether a possible divergence was associated with different distributional patterns and trends. Furthermore, the sixteenth century Ottoman Anatolia offers an ideal test case for exploring which of the two lines in the recent scholarship provides a better explanation of trends in wealth and income disparities.

As the empirical findings increasingly discredited a uniform relationship between growth and inequality, economic historians have shifted their attention from *growth-related structural changes* such as urbanization or increase in skill premium for human capital to *population dynamics* and *institutional factors,* in

explaining the historical evolution of income and wealth disparities in the pre-industrial world. In a sense, the recent literature on the causes of early modern changes in inequality seems to reformulate the old Brenner debate with a new terminology.

On the one side, stand the neo-Malthusian explanations focusing on relative scarcities of factors of production, which are argued to have been ultimately determined by demographic dynamics[4]. According to these accounts, prior to the industrialization, inequality rose in periods of population growth and declined as a result of exogenous shocks such as epidemics and wars, due to alterations in the functional distribution of income to the detriment or in favour of labour. Alternative to these neo-Malthusian accounts, a political economy perspective presents institutional/political factors as major determinants of over-time changes in income and wealth disparities. The key concept here is *extractiveness*. Introduced by Milanovic, Lindert and Williamson (2011), the concept shifts the attention from 'inequality' as an abstract construct to the actual capacity of the elites and the state to extract resources from the society, in comparison to a hypothetical maximum inequality level, where everyone else is kept just at the subsistence minimum. Providing a measure for assessing inequality relative to its maximum potential (which is determined by the capacity of the economy to produce above-subsistence income), this approach helps us understand income and wealth disparities in terms of extraction and distribution processes, embedded in the institutional environment and shaped by the configuration of power in the society.

The sixteenth century Ottoman Anatolian countryside is particularly an interesting context to discuss whether pre-industrial trends in inequality should be understood as an extension of Malthusian mechanisms or as a matter of

[4] While this line of explanation establishing a direct link between population and inequality, found a place in a number of recent studies, its most explicit expression was offered by Milanovic (2016), who argued that long-terms trends in inequality showed a cyclical pattern, with periods of waxing and waning, and that in the pre-industrial world the 'Kuznets cycles' replicated the Malthusian cycles.

political economy. The Ottoman rural society and economy witnessed important transformations in the sixteenth and seventeenth centuries, which have been subject to a serious discord among historians who interpret these as a reflection of "population pressure"; and those who consider them to originate in the socio-political processes associated with market development, early modern state-building, and change in the warfare technology.

With a motivation to contribute to these wider debates in the recent scholarship, this paper looks at where the Ottoman Empire stands in the early modern map of inequality and addresses three questions: First, was the Ottoman rural society during the classical period a more egalitarian society than its European counterparts, as has been generally assumed until recently? Second, did the Ottoman Anatolia witness the sixteenth century upswing in inequality, observable across many places in Europe? Finally, can trends in rural inequality in the sixteenth century Ottoman rural society best be explained in terms of "population pressure" or as an outcome of the property rights institutions and the political choices of the central government?

To answer these questions, agricultural incomes of peasants and landlords in the Western Anatolian district of Manisa, are constructed based on fiscal surveys dating 1531 and 1575. In the sixteenth century, Manisa was the centre of the Ottoman province of Saruhan in Western Anatolia. The administrative district covered an area of around 250,000 hectares and comprised around 150 villages. Boasting fertile valleys and rich river basins, Aegean Anatolia has been a prosperous and densely populated region since ancient times. Rich agricultural production, as well as a geographical position that facilitated close trade relations with other parts of the Mediterranean, shaped the region's economy over many centuries. After the Ottoman conquest, the region supplied the imperial capital with grain and other foodstuffs, while also exporting significant quantities of wheat, cotton, raisins, figs, alum, carpets, wool and hides to European markets.

Map 1. The Ottoman Empire around 1580

Source: Ceylan (2021: 5)

The findings suggest by no means a low and stagnant level of inequality in the Ottoman rural society in the sixteenth century. A comparison of Gini indexes reveals that the distribution of agricultural incomes in the Ottoman Manisa was not more equal than other rural areas in Europe around the same period. Moreover, a rise in income inequality is observed from early to the late-sixteenth century. We see that during this period, real per capita agricultural incomes in the rural society declined in general. Inequality rose as agricultural incomes declined because the decline was more pronounced at the lower echelons of the socioeconomic hierarchy. It was mainly the peasants and the small revenue holders within the *timar* system (the Ottoman surplus appropriation and sharing system) that carried the burden of falling per capita output, whereas the big absentee lords, waqfs and private owners placed in the upper 1% maintained their agricultural incomes to a great extent. During the same period, standards of living of the urban populations also seem to be kept - if not improved -, which further widened the considerable urban-rural gap of the early sixteenth century.

At a first glance, these findings on the sixteenth century Ottoman Anatolia seem to present a case supporting Milanovic's argument that the Kuznets cycles replicate the Malthusian cycles: sixteenth century population growth leading to population pressure, a decline in per capita incomes, and higher inequality. However, how the decline in per capita agricultural output from early to the late sixteenth century was translated in real incomes of different groups in the rural society was not a direct consequence of the population dynamics, but rather reflected a deliberate political choice of the central government, in favour of urban populations and big absentee lords, waqfs and private owners and to the detriment of the peasantry and small revenue holders –mainly cavalrymen- within the timar system.

The paper is organized as follows, Section 2, goes over the conceptual framework and methodology of the paper. Section 3 presents the results and Section 4 explains the rising trend of inequality throughout the sixteenth century.

2. Conceptual framework and methodology

2.1 Studying rural inequality in the Ottoman Anatolia: a conceptual framework

In the past, the nature of the Ottoman surplus extraction mechanism, and particularly the position of the *timar*-holder in the rural hierarchy have been subjected to several controversies. Many historians argued that the socioeconomic stratification in the Ottoman rural society was not comparable to that elsewhere in Europe, due to the state's control over arable land and its central role in agrarian surplus extraction and distribution. The approach adopted in this study implies that although a significant share of agricultural land was under "state ownership" and that, in general, the Ottoman surplus-extracting class exercised the right to receive income from land (and not territorially determined or full property rights), Ottoman rural society can be analysed in terms of a similar dual structure. If the "right to receive income from land in the form of rent, taxes, and commissions on taxes" (van Bavel and Hoyle, 2010: 7) is considered as the characteristic attribute of the landlord class in Western societies, then the *timar*-

holders, as well as *waqf* beneficiaries or owners of freehold estates, can be argued to have played a similar role in the Ottoman landholding regime during the classical period.

Concerning the elements of property on land in the Ottoman land regime, İnalcık (1994: 106) states that "ownership in land presupposed three basic elements, *rakaba* (*abusus* or *dominium eminens*), *tasarruf* (*usus* or possession), and *istiglal* (*fructus* or *usufruct*)". While *abusus* belonged to the state, possession rights were transferred to the peasants, with certain restrictions imposed by the law (prohibition of changing its original use by turning it into a vineyard or orchard or by constructing buildings on it), while the landlords were expressly prohibited from intervening with production activity, a characteristic feature of the Ottoman land regime. But what interests us more is the right to *fructus*, which is the right to appropriate the yields from arable land. Who had the right to agricultural yields is directly related to the question of how the agricultural value produced was distributed within rural society. Any claim on agrarian revenue can be seen as part of the *fructus*, and hence, the right to collect agricultural tax revenues, long-term tax farming, and subcontracts in tax farming can be considered as forms of property that entailed greatly varying privileges and protection as defined within the tax-collection and revenue-sharing system. In this sense, the *fructus* from arable land, or the agricultural value produced, was shared between direct producers and those who were granted the right to collect tithes and land-related taxes – that is, the surplus-extracting class. This approach enables us to go beyond the "access to land" perspective, which focuses solely on the distribution of arable land among settled Ottoman peasants registered in villages and consequently, only provides us a limited understanding of inequality.

Finally, observations from sixteenth century Manisa strongly suggests that variation in property institutions was not random across space, but showed a region-specific character in the Ottoman realm, as well. This implies that alongside attempts to provide quantitative measures of inequality, it is essential

to focus on the micro and mezzo processes and study rural inequality with a comparative regional perspective.

2,2 Sources, data set, methodology

Measurements of pre-modern income inequality mainly rely on two different types of sources: social tables and fiscal records. While each of these sources have their own shortcomings and problems, fiscal records have generally been considered as a better source of information for an investigation into historical inequality, since they enable us observe within-class alongside between-class distribution of incomes, unlike social tables. This study employs the sixteenth Ottoman fiscal surveys, which, with the detailed information they include, provide an immense opportunity to study rural inequality.

Some studies (İslamoğlu, 1994, Emecen, 1989) used tax records in the past to look at distribution of rural tax revenues according to different surplus extracting groups –i.e. members of the imperial household, provincial cavalrymen, waqfs, private owners, etc.-. Yet, the interest of these studies was to determine what share of rural revenues were allocated to each category, and thereby, to assess their relative weight in the Ottoman surplus extraction mechanism, rather than measuring inequality within the Ottoman landlords' class. Similarly, inequality within the direct producers' class has never been subject to quantitative inquiry, since the general pattern of small peasant farms observable in the tax registers and the way the plot sizes were reported in these sources led many historians to assume that the land was distributed in a considerably egalitarian manner among direct producers, making differentiation in terms of income improbable.

In an information note, Coşgel (2008) has raised the idea of using *mufassal* registers for measuring inequality in the fifteenth and sixteenth century Ottoman realm. Employing this data, he presented the first estimates of income inequality in the late sixteenth century Ottoman Empire for Hungarian districts, Levant, and for Hüdavendigar province in the Western Anatolia. However, the Gini indexes he created, has two important shortcomings. First, due to the methodology

used, these indexes are more an indicator of across-village dispersion in per capita net incomes, than a measure of income inequality in the real sense, since they do not include in the analysis the most important determinant of income inequality: size distribution of the plots held by peasants. Second, the estimations are limited to the settled peasants, and the other main component of the rural society, the landlords' class, is completely absent from the picture.

The present study proposes for the first time, a methodology to look at how the agricultural value produced was shared among different actors of rural economy during the classical period -that is within the surplus extracting class, within the direct producers' class, and across these two classes-, by using data from Ottoman tax registers. To do that, detailed registers providing village-level data, registers of waqf and freehold property, and summary registers providing data on incomes assigned to revenue holders within the timar system are used jointly[5].

The methodology employed here to construct agricultural incomes departs from the fundamental fact that in pre-modern rural economies, agricultural value produced was shared between direct producers and landlords. Thus, at a first instance, the total amount of net agricultural yields produced is computed for each village and divided into two shares: the share that was transferred to the landlords' class and the share that was kept by the direct producers. And then, these overall amounts are distributed within each class. Tax registers provide information on the individual incomes of revenue holders, waqf and private owners. However, incomes of peasant households can only be indirectly induced from the information given in these registers, since village-level, rather than household-level data is reported.

Agricultural yields (taxable produce) are traced back from tithes. Nominal tithe values over different agricultural products were multiplied by the relevant taxation factor and added up to obtain the amount of annual gross agricultural

[5] For detailed information on registers employed for this study, see the note Primary Sources at the end.

yields in nominal terms. Net agricultural produce is calculated by subtracting the amount of seed from the gross value. Subsequently, different categories of agricultural taxes (levied individually on liable male adults but reported as a lump sum amount at the village level in the tax registers)[6] are added up together to compute the overall agricultural revenue of the surplus-extracting group. This amount is then deducted from the net total yields and the share of the net agricultural output kept by the peasants is obtained. Using product prices recorded in the registers, these magnitudes are converted to wheat equivalent in tones.[7]

Peasants reaped the yields from the land in their possession and consumed or marketed what is left after taxation. Putting it differently, the right to receive income from land was strictly bound to territoriality for the landed peasants, making their agricultural income a function of the extent of the land in their control. Therefore, for estimating agricultural incomes of landed peasants, first the extent of the total arable land is computed for each village, by summing up the area of land cultivated under different land use contracts (which is calculated employing data on related taxes). Net output per unit of land is calculated and agricultural incomes are then assigned to landed peasant households in proportion to the size of the land each possessed. The agricultural incomes of the members of the landlords' class are estimated by distributing total agricultural taxes of each village among different landlords entitled to collect the village's tax revenue, in proportion to their share in the overall village revenues. Once the agricultural incomes of peasants and landlords are constructed, three different sets of Gini indexes (overall and for each class separately) are computed for the entire Manisa region and separately for its sub-regions.

Two shortcomings associated with employing tax registers and the methodology chosen for measuring inequality should be mentioned here. First, the measure of

[6] These include personal taxes on agricultural labour, land taxes levied proportionally to the area cultivated, and tithes.
[7] For a detailed explanation of how net total agricultural output as wheat equivalent is calculated see Ceylan (2021).

inequality created only looks at the distribution of agricultural incomes and does not include other sources of rural income –such as husbandry, apiculture, fishery etc.-. This is because unlike agricultural production, output from other economic activities cannot be estimated and distributed among peasant households, based on data available in the registers. Still, the distribution of agricultural incomes is believed to be a good proxy for overall incomes in the rural society. As in many other rural settings, in rural Manisa too, agricultural incomes were by far the most important source of income for the peasants as well as the landlords. Distribution of tax revenues according to economic activities can give us an idea of how representative was the agricultural production. The agricultural taxes made up slightly less than nine tenths of the overall village tax revenues, whereas other tax items (market taxes, taxes related to other rural production activities such as taxes on husbandry, etc.) held around one tenth. On the other hand, a comparison of the distribution of the rural incomes of the landlords with the distribution of their agricultural incomes suggests that these two distributions overlapped almost perfectly.

The second shortcoming concerns the groups excluded from the analysis. Whereas the entire landlords' class is represented, for the direct producers' class, agricultural incomes could only be constructed for regular peasant households holding land. That other forms of agricultural labour, including the landless peasants, are completely absent from the picture is an important limitation. The reason for this absence is the lack of data on access to land for these groups. However, since the regular peasant households holding land under the perpetual lease agreement was a major component of the Ottoman direct producers' class across Anatolia during the classical period, the indicator of inequality to be created here, can be considered representative to great extent. To understand differences in levels and in trends, average regular peasant income will be compared with the average per capita income of the direct producers' class overall. To note, non-representation of other groups (particularly of the landless peasants and owners of private farms of considerable size, which proliferated in the late sixteenth

century Manisa) in the analysis, leads to an underestimation of the degree of inequality in the society.

For this study, in total 92 villages are selected from among around 200 villages that appear in the tax surveys belonging to Manisa[8]. In constructing the sample, the following selection criteria were applied: Since the size of peasant plots are the only variable to determine how the agricultural value produced at the village level was distributed among direct producers, only villages inhabiting at least one regular peasant in both periods were included. From among these villages, a few were excluded because information reported in the *tahrirs* is visibly missing, inconsistent, or erratic.

2.3 Inequality in the Ottoman realm prior to nineteenth century: Arguments to be tested

The notion that inequality in the empire was low and stagnant before the nineteenth century – in sharp contrast to growing and more dynamic regions of the pre-industrial world-, is a longstanding, yet empirically untested assumption in the traditional Ottoman historiography. One of the sources of the assumption of the Ottoman rural society as an egalitarian one is the idea that the Ottoman state protected the peasantry from over-exploitation through setting limits to surplus extracting groups. For one, by expressly prohibiting these from possessing and cultivating land reserved for peasants, agricultural laws provided a safeguard that prevented this class from concentrating land in its hands. For another, neither *timar*-holders, nor waqfs or freeholders had a free hand in determining the amount of agricultural surplus to appropriate. The rate of taxation, hence, of extraction[9], was fixed by the agricultural codes specific to each province and claims over agricultural surplus beyond what is stipulated by the codes could be brought in front of the court by the peasants. This led many historians to assume that

[8] In this study, only villages under the ownership of the state, waqfs and private individuals are included in the sample. Villages inhabited by infantrymen cultivating their own small holdings, are excluded due to lack of detailed information in registers.

[9] "Rate of extraction" here is used as in the Marxist terminology and is different from "inequality extraction ratio".

compared to its European counterparts the exploitation rate, therefore, between-class inequality was relatively low in the Ottoman rural society.

The second point concerns inequality among direct producers. It is stated that the Ottoman land tenure system was shaped by the central government's desire to keep peasants on their land so as to maintain a permanent and stable source of tax revenue (Teoman and Kaymak, 2008). As a result, it is argued, the Ottoman agrarian economy was characterised by small-scale production in which the usufruct rights over arable land were distributed among direct producers in an egalitarian way (Keyder, 1991). Masking the real degree of inequality among direct producers, the way the size of the peasant plots are reported in the tax registers, has also reinforced the assumption that the Ottoman land regime created an undifferentiated peasant class in terms of their access to land.[10].

Finally, stagnant levels of rural inequality are generally attributed to the lack of substantial changes in the property rights institutions throughout the early modern era. Several historians in the past emphasized that institutional environment in the Ottoman Empire ensured that commercial expansion did not result in the formation of large estates or force peasants into serfdom or wage labour on large holdings, developments that accompanied the commercialization of the agriculture in the Western Europe. Instead, in the Ottoman realm production for the market occurred largely on small plots worked by free peasants (İslamoğlu, 1994; Keyder, 1991).

The way agricultural incomes are estimated in this study enables us to assess the validity of the above-mentioned points, which underlie the assumption of low and stagnant levels of inequality in the Ottoman realm. The income estimations it captures the impact of four main factors that determined the distribution of surplus across the rural society: first, extraction rate in association with the

[10] The soil quality-controlled surface measure of *çift* varied significantly across the Anatolian provinces. In the Western Anatolia, it ranged between 6 hectares on first quality soil and 14 hectares on low quality soil. Furthermore, size of the plots held by peasant households was given as a categorical rather than continuous variable (two çifts, one çift, half çift, less than half çift, etc).

relative size of the surplus extracting class; second, within-class distribution of property rights over land (size distribution of peasant plots and size distribution of revenue grants); third, regional differences in productivity; and four, prices and relative prices of agricultural goods.

Perhaps the most important factor that determined inequality levels in pre-modern agrarian societies was extraction rate that is how much of the agricultural surplus produced by the direct producers' class was transferred to the landlords through extra-economic means. In a system where surplus extraction occurred within the fiscal system, taxation rates were the major determinant of the extraction rate. Tithes, levied proportionally on the agricultural yields were by far the dominant component (about nine tenth) of the agricultural taxes and were in general collected in kind from the peasants. The rate of tithes –as well as of other taxes- were determined by the agricultural codes of each Ottoman province, making the taxation rate more or less constant over large areas. But extraction rates alone cannot provide adequate information on between-class inequality and should be considered together with the size of the landlord class relative to the size of the entire rural society. The higher the extraction rate and the smaller the landlords' class are the higher will be the between-class inequality.

The second factor that this study takes into account is the distribution of the right to receive income from land within each class. For the direct producers, size distribution of plots can be considered as an appropriate indicator of the distribution of property rights, since the peasants reaped the yields from the land in their possession and consumed or marketed what is left after taxation. Putting it differently, the right to receive income from land was strictly bound to territoriality for the landed peasants, making their agricultural income a function of the extent of the land in their control. State played a central role in the distribution of surplus extracted from the producers among the landlords. Thus, the size distribution of centrally assigned revenue grants is taken to reflect within-class distribution of right to receive income from land for the surplus extracting class.

The third factor is productivity differences across space. Concentrating on the size of peasant family plots; economic historians have largely ignored the differences in productivity levels as a source of agricultural income disparity among the Ottoman peasantry. In fact, agricultural productivity considerably varied from one area to other, and even within a village, generating significant income gaps among peasant households holding plots of about the same size.

And finally, the fourth factor is prices and relative prices of agricultural goods. This study looks at real incomes expressed as wheat equivalent in tones. Over-time rising prices would imply lower real incomes for *timar*-holders, constituting a large part of the Ottoman landlord class, as the revenue grants were assigned as nominal amounts and were kept constant over long-periods. On the other hand, relative prices of different crops were a determinant of the peasant incomes as wheat equivalent and therefore, a source of inequality among the peasants, particularly between those cultivating cash crops and those cultivating subsistence crops.

3. Results

Table 1 presents the Gini indexes for each class separately and for the rural society overall. The distribution of agricultural incomes points to a high and increasing inequality in the sixteenth century Ottoman rural Manisa. The Gini indexes computed for the whole rural society in the Manisa region are fairly high (0.50 in 1531 and 0.55 in 1575).

The indexes computed for direct producers and landlords' classes separately (0.57 for landlords in both periods, and 0.42 and 0.44 for peasants in early and late sixteenth century) suggest that rural inequality did not merely result from between-class gap in agricultural incomes, but there was a considerable degree of economic stratification within each social class as well. Whereas distribution of agricultural surplus among landlords was more unequal than that among producers, as can be expected; the idea that the Ottoman peasant community was

a homogenous class sharing the same standards of living as a whole was definitely not right. Once the impact of relative prices and productivity differences are included in the analysis, the real degree of differentiation in producers' agricultural incomes has become apparent, although the differences in peasant plot sizes are to a certain extent masked by the measurement unit of *çift* and the exclusion of landless peasants and owners of private farms leads to an underestimation of the real inequality among producers.

Table 1. Estimated Gini indexes, 1531 and 1575

	Share of top 10%	Share of top 5%	GINI (All)	GINI (Landlord)	GINI (Peasant)
1531	0.40	0.31	0.50	0.57	0.42
1575	0.47	0.37	0.55	0.57	0.44

To understand whether the Ottoman rural society can be classified as an egalitarian one among its counterparts, we look at how the Gini indexes computed for sixteenth century Manisa compare to indexes for other rural regions in Europe around the same period. Malinowski and van Zanden's (2017) calculations of rural income inequality in Krakow voivodeship on 1578 give Gini indexes of 0.58 and 0.30, respectively including and excluding the elite. For rural Netherlands on 1561 the Gini index is estimated at 0.35 (van Zanden, 1995; Soltow and van Zanden, 1998); for Portuguese countryside on 1564, at 0.55 (Reis, 2017); and for countryside around Madrid in the last quarter of the sixteenth century the index is computed as 0.50 and 0.60 (Fernandez and Caballero, 2018). Among these figures, Manisa does not single out as a region of particularly low-income equality, and hence, empirical evidence does not lend support to the argument that the Ottoman land regime created an egalitarian socioeconomic structure in the fifteenth and sixteenth centuries, which in turn inhibited economic development in the long-run. And that is despite that inequality among peasants is highly likely to be to some extent underestimated here, due to limitation of the sources.

In terms of over-time change, within less than half a century the Gini index for the whole region rose by 0.05 points (from 0.50 to 0.55). The rising inequality is accompanied by a trend towards polarization at the upper echelons. The share of the top 10 and 5% both increased significantly, from 40 to 47%, and from 31% to 37%. The extent of the change in inequality can be assessed as follows. In our sample, doubling the income of the bottom 8% would reduce the Gini index by 0.01 points. To reduce it by 0.05 points, the income of the bottom 35% needs to be doubled (Caballero, 2011). This suggests that the increase in the level of inequality within a relatively short period of time was considerable.

Overall, quantitative evidence from the sixteenth century Ottoman Manisa depicts a picture, which rejects the well-established but empirically unfounded presumption that the Ottoman society prior to the nineteenth century was an egalitarian one with low and stagnant levels of inequality. Disparities in agricultural incomes in the rural society were high and increasing over-time, and neither landed peasants nor the landlords were economically homogenous classes. Overall, these results are in line with the findings of Canbakal (2013), which evidence significantly high levels of wealth inequality and a rising trend in different regions of the Ottoman Anatolia in 1500-1800, including rural and urban Manisa.

The results also lend support to Alfani and Ryckbosch's (2016) argument that inequality grew everywhere in the early modern world, whether or not coupled with economic growth. In the context of sixteenth century Ottoman rural Manisa, inequality rose over-time, as the economic performance fell (as measured by per capita real incomes), discrediting the hypothesis of a positive association between growth and inequality. Furthermore, Manisa a common feature of the early modern economies, that is the considerable level of concentration at the highest echelons and the ability of the top decile to determine the inequality trend. This suggests that the general tendency of the rising inequality being associated with rising share of the top 10% observable across pre-industrial Europe, remained true not only in times of economic growth, but also of decline.

4. Why did sixteenth century rural Manisa become more unequal?

To explain the increase in inequality in Manisa from early to late sixteenth century, we look at the over-time change in the agricultural incomes of different producer and landlord groups and explore how different socioeconomic strata were affected by the developments in the agricultural economy throughout this century. Table 2 demonstrates the over-time change in average and median incomes.

Table 2. Average and mean household income in Manisa and change as %

	1531		*1575*			*1531*		*1575*			
	Total revenue	*N*	*Total revenue*	*N*	*Change in total revenue as %*	*Average income*	*Median income*	*Average income*	*Median income*	*Change in mean income as %*	*Change in median income as %*
Royal household	344.8	1	469.4	1	0.36					0.36	
Big absentee lords	290.7	6	313.7	11	0.08	48.45	26.83	28.52	29.97	-0.41	0.12
Waqfs and freeholders	135.1	9	106.15	8	-0.21	15.01	10.55	13.27	10.81	-0.12	0.03
Small revenue holders	796.1	62	839.5	72	0.05	12.84	10.57	11.66	8.92	-0.09	-0.16
Regular Peasants	5014.26	1602	4250.38	1906	-0.15	3.13	1.98	2.23	1.52	-0.29	-0.23

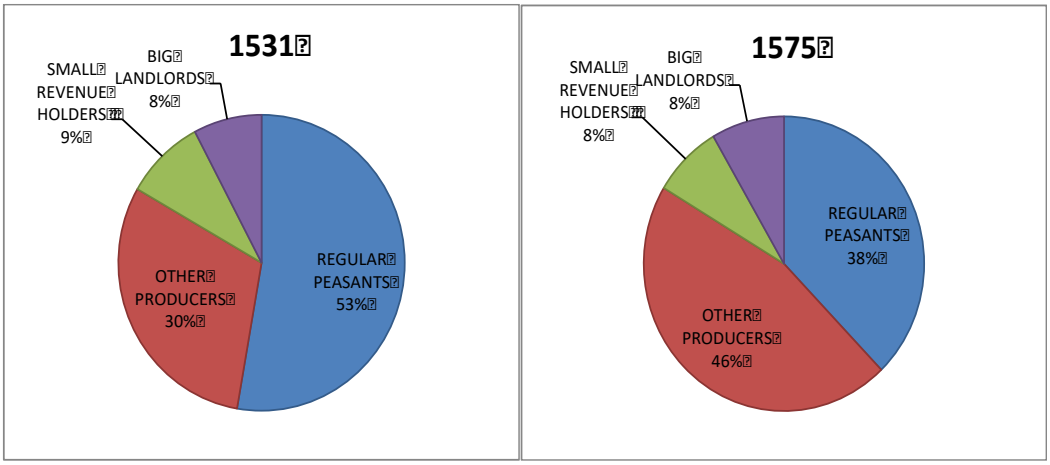
* Incomes reported as wheat equivalent in tonnes

The findings suggest that the real agricultural incomes of all components of the rural society declined in the district, except the royal household. The decline was more pronounced in the lower echelons, and affected the regular peasant households on state-owned land, the most. Within the producers' class, both peasants in waqf and freehold villages and producers cultivating land under simple tenancy agreement (mainly the semi-nomadic groups with clan status) were touched less by the decline in living standards compared to this group. The small revenue holders, most of which were locally based cavalrymen, were another looser of the sixteenth century, although their position considerably improved relative to peasants. While the number of big absentee lords, who held high positions in the imperial bureaucracy multiplied, they were receiving relatively more modest agricultural incomes in the later part of the century, a factor that counter-acted the trend of growing inequality in the rural society. On the other hand, average agricultural incomes of waqfs and freeholders remained stagnant, with only a marginal decrease of 5%. Whether this resulted from more efficient organization of production on such land, requires further investigation.

Figure 1 looks at the distribution of agricultural surplus among actors of the rural economy. First, I ask whether the rise in inequality was brought about by an increase in the rate of extraction. We have seen that the Ottoman landlords' class did not have a free hand in determining the amount of agricultural surplus to appropriate, and instead, the rate of taxation was fixed by the agricultural codes specific to each province and in general was kept constant throughout the sixteenth century in Ottoman Anatolia and the Balkans. Accordingly, the findings show that the agricultural surplus appropriated by landlords as a proportion of the overall agricultural output in the rural Manisa did not change throughout the sixteenth century, mainly because both the tax rates and the tax base set by the agricultural codes were kept constant. 16.7% of the net agricultural produce in 1531 and 16.4% in 1575 was transferred from the direct producers to the landlords' class. This being said, extraordinary taxes, which multiplied from the second half of the sixteenth century onwards and which have not included in the analysis here,

due to lack of data, is highly likely to have substantially increased the tax burden of the producers' class during this period.

Figure 1- Distribution of agricultural surplus among actors of the rural economy



On the other hand, constant rate of extraction in a context of rising total yields but falling labour productivity implied that the overall amount appropriated increased in absolute terms; and taken together with a contraction in the relative size of the landlords' class (from 3.5% to 2.9% of the entire rural society) this brought about widened between-class disparity in agricultural incomes. It suggests that the Ottoman surplus extraction and sharing mechanism favoured landlords in the context of declining per capita output, through limiting access to the elite class, if not through imposing higher rates of extraction.

As to landed regular peasants in state-owned, waqf and freehold villages, their agricultural revenues fell by around 30% on average, from the early to the late sixteenth century. For the entire direct producers' class, land scarcity and falling labour productivity due to rapid population growth accounted for the decline in living standards, and thus, have played a significant part in the widening income gaps. Cultivating smaller holdings in a less productive manner; the producer households in the later part of the century were poorer than their counterparts in the early century. Yet, this does not mean that Malthusian mechanisms alone were responsible for the situation of the regular peasantry or the rising rural inequality.

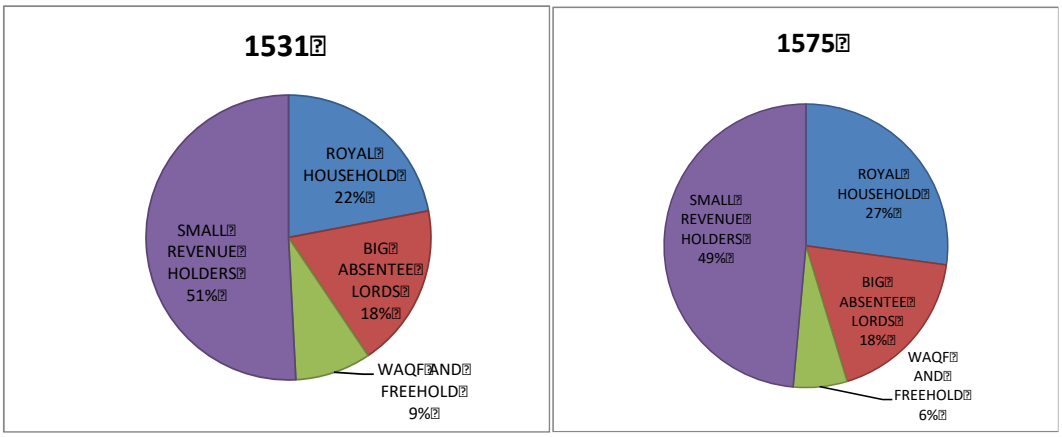
It is important to notice that not all components of the producers' class were affected by the decline in standards of living at the same extent. Taking into consideration the climb in the number of landless peasants as well, the *Ottoman regular peasantry on state-owned land* (the paramount producer groups associated with the classical land regime) was definitely the main loser of the sixteenth century. If we remember that the decrease in per capita output in the producers class as a whole was only 15%, it will be clear that the regular peasants who lost one third of their incomes over the same period, were in a more disadvantageous position than other components of this class, which could not be involved in this study due to lack of information (i.e. groups with clan status and landless or poor regular peasants cultivating land under simple tenancy contract; sharecroppers; owner-occupiers; etc.). And among the regular peasants, it was those on state-owned land -rather than those on waqf and freehold land- that carried the real burden. Overall, the declining share of output held by this group within the entire producers' class is an important factor explaining the rising inequality, and this shift in the within-class distribution cannot be accounted in Malthusian terms.

In fact, a closer look suggests that an institutional change in the land regime stood behind this shift. In our sample, the land given to regular peasants under *tapu* (perpetual lease agreement) has contracted both in absolute and relative terms against other forms of landholding. It declined from 8275 hectares (53% of all arable land) in 1531 to 7637 hectares (47%) in 1575. Accordingly, we see that on state-owned land, average peasant plot shrank by one third from 5.1 hectares in 1531 to 3.4 hectares in 1575; and on waqf and freehold land from 4.7 hectares to 4 hectares (14%). Unfortunately, it is not possible to detect how the average size of plots cultivated under other contract types, particularly plots cultivated under simple tenancy agreement has changed throughout the sixteenth century. But, the expansion of this latter both in absolute and relative terms suggests that the fragmentation was much less emphasized in this legal category. Whether this was a phenomenon indicative of the dissolution of the classical Ottoman landholding regime relying on the *tapu* contract, in favour of more flexible yet, less secure simple tenancy agreement; whether it was also observable in other parts of

Anatolia; and which dynamics engendered such a change are important questions beyond the scope of this research. Yet, it is clear that at least in sixteenth century Manisa demographic expansion was not the only and perhaps the most important cause of the fragmentation of regular peasant plots and of the widening gaps in agricultural incomes. Institutional changes had played an important part.

The other group affected by the economic decline was the small revenue holders within the *timar* hierarchy, which mainly comprised of the provincial cavalrymen. The mean and median income of this group overall decreased by 9 and 15% respectively. Within this group of small landlords too, the drop increased as one descended the socioeconomic ladder. Revenues of those with an annual income equivalent to 10 tonnes or below, fell by 17%, and those who had a real income equivalent to 5 tonnes or below rose from one fifth to one third of all landlords. The decline in real incomes of small timar-holders was partly a result of inflation. Due to lagging supply of goods in the face of rapid rise in the demand, the prices increased by around 80% the early sixteenth century to 1580s, eroding the nominally assigned revenue grants of this group.

Figure 2- Distribution of appropriated surplus within landlords' class



Provincial cavalrymen were closely associated with the classical imperial revenue-collection and sharing system of *timar,* and the decline in their living standards reflects the decay of the system from the second half of the sixteenth century onwards. *Timar* system was a system strongly embedded in the military

organization of the Ottoman Empire. The locally based cavalrymen, who held centrally allocated rural revenue grants within the *timar* system, in exchange of military services during wartime; and who collected taxes from the peasantry, constituted the backbone of the Ottoman army during the classical period. The Military Revolution however, shifted the balance away from these provincially based mounted bowmen to the permanent central army comprised of foot-soldiers carrying firearms. As the provincial cavalrymen became obsolete in the army with the introduction of the firearms, the government increasingly side-lined this group, economically as well as socially. Thus, the fall of their real incomes is in line with our expectations. Yet, interestingly, their material conditions improved vis-à-vis the regular peasant households, as the widening gap between incomes of the two groups shows. The average income of the small landlords was 6.4 times that of the regular peasants in 1531 and 8.3 times in 1575. This refutes Moutafchieva's (1988) argument that the provincial cavalrymen with modest incomes only slightly above those of peasants, did not represent the landlord class, but rather a category in-between.

Another institutional change with distributional consequences was the expansion of revenues channelled towards the royal household and the big absentee lords, from 40% to 45% of all revenues appropriated. Indeed, the real revenue of the royal household increased by one third during this period (See Figure 2). This suggests that in allocating the agricultural surplus extracted from the peasantry on state owned land, the central state seems to have increasingly favoured big absentee lords over small revenue holders. Although the change might seem trivial at a first instance, it is highly likely to be a precursor of a general trend we observe in the seventeenth century, namely, that of consolidation of small fiscal revenue units into larger ones.

A possible explanation resides in the commercial expansion that Ottoman Anatolia experienced in this century, parallel to high urbanization rates. Change in the fiscal system in a way to enable higher levels of concentration of agricultural surplus might have been a requirement imposed by the market development. If

peasants participated in local markets and sold their products for paying cash taxes and meeting their consumption needs, men of wealth and power holding high positions in the *timar* hierarchy, who appropriated substantial amounts of agricultural surplus in the form of in-kind taxes, played a key role in the long-distance trade. Thus, the preference of the government in favour of these groups might have been driven by a concern to facilitate inter-regional trade. Allocation of revenues from villages producing cotton and rice (the most important cash crops in the region) to the royal household and big absentee lords in general, supports the possibility that trade-related considerations played a key role in shaping the fiscal structure.

Overall, the findings on sixteenth century Ottoman Manisa do not lent support to the view that Malthusian dynamics were behind the general trend of rising inequality in 1500-1800. Although the decline in living standards of the producers' class can be partially attributed to scarcity of arable land and falling labour productivity in the face of rapid population growth; institutional and policy-related factors, mainly, structure of the Ottoman surplus extraction (i.e. taxation) system and central government's preferences in favour of certain groups, provide a more satisfying explanation of the widening income gaps in the rural society over the sixteenth century. It would not be misleading to conclude that the Ottoman surplus extraction mechanism ensured that the surplus-extracting groups was affected to a lesser extent by the drop in per capita agricultural production than the producers, or not affected at all.

The findings support the argument that the explanation of the widening income gaps in early modern era resided in the fiscal regimes. Alfani and Ryckbosch (2016) and Alfani and Di Tullio (2019) depart from the fact that Italian states (Tuscany, Piedmont, Kingdom of Naples), the Netherlands and the Southern Low Countries all experienced a common trend of growing inequality in 1500-1800, despite different phases of economic growth, stagnation and decline; and, they identify the increase in per capita taxation in the presence of a regressive fiscal

system, as a potential cause of the overall tendency for inequality growth reported for the early modern period.

Coşgel (2006b) suggests that the structure of Ottoman taxation was regressive, as well. Through a regression analysis conducted based on a sample of 1348 villages in Ottoman Palestine, Southern Syria, and Transjordan in the sixteenth century, he reveals that taxation rates were negatively correlated with income (output) per household. Putting it differently, a greater share of the total output was appropriated by landlords, as income per household declined. Coşgel further shows that discriminatory rates decreased the shares of total income received by the poorest 80% of the households, while increasing the share of the richest 20%. Coşgel's study focuses on a region where discriminatory taxation system was practiced, with tax rates varying from one region to another. This was quite exceptional in the Ottoman Empire, where in general, the same rate applied uniformly to all villages within a district. However, from a more general perspective, the study sheds light on fundamental dispositions underlying the Ottoman taxation system, which determined its distributional outcomes. Despite the rhetoric of 'justice', the sixteenth century Ottoman State was probably no different than other early modern states, which favoured the elites over the commons in fiscal arrangements.

This being said, the Ottoman Empire in the classical period presents an interesting case, where the fiscal mechanism enforced by the central state also functioned as the mechanism of surplus extraction by landlords. This makes the linkages between inequality and social stratification, and power and property relations more visible, and reminds us of the necessity to include these in the analysis, when explaining widening gaps in income and wealth, beyond the structure of early modern taxation.

A final point concerns how the urban-rural inequality evolved during the same period. Unfortunately, we do not have data on urban wages from the city of Manisa, and a comparison with the wages of Istanbul (the only city for which we

have a wage series), might be quite misleading, because of the exceptional situation of the giant capital city. Still, looking at trends might give us some clues. Employing Pamuk's (2000) data of daily urban wages, annual incomes of unskilled and skilled workers in the first half of the sixteenth century, are estimated at respectively, 3.98 and to 7.17 tonnes as wheat equivalent [11]. Unlike the agricultural incomes, the urban real wages seem to have resisted to inflation over the century, and material conditions of both skilled and unskilled workers have improved, albeit marginally. In late-sixteenth century, the annual income of an unskilled worker (4.16 tonnes as wheat equivalent) was almost double the average peasant income and that of a skilled worker (7.55 tonnes) was more than triple.

There are also signs other than urban wages that in this period of rapid urbanization, urban-rural distribution has shifted in favour of the urban areas. Commercial expansion leading to a rise in trading profits should have resulted in the enrichment of different urban groups involved in trade. Furthermore, although agricultural goods' prices rose more rapidly than that of manufactured goods throughout the century, high urbanization rates and expanding urban markets should have benefited the urban manufacturing sector as well. And, the transfer of rural surplus to the growing towns, through the provisionist policies of the Ottoman central state, for which supplying the urban centres was a top priority throughout its history, was probably an important channel that contributed to the widening urban-rural inequality. Briefly, if the trends in other Anatolian towns were similar to Istanbul, this would suggest that inhabitants of towns did not share the destiny of the Ottoman peasants and small revenue-holders in the countryside, and towns became more prosperous as rural economy reached its limits.

5. Conclusion

In this study, for the first time, a methodology is developed to measure income inequality between and within Ottoman direct producers' and landlords' classes

[11] Estimations are based on an assumption of 200 workdays per year.

during the classical period. Based on data from fiscal surveys belonging to the sixteenth century Western Anatolian district of Manisa, agricultural incomes are constructed. In line with the recent research on the evolution of wealth inequality in the pre-industrial Ottoman realm, the findings of the present study refuted the assumption of low and stagnant levels of inequality in the Ottoman Empire prior to the nineteenth century. A high and rising agricultural income inequality is detected within and across direct producers and landlords' classes.

Can these results be generalized to elsewhere in the Ottoman Anatolia and the Balkans? Manisa was located in an advantageous position in terms of market access. Therefore, the high levels of inequality in the 16th century Manisa might be a consequence of the developed market economy in the region. Indeed, Canbakal (2013) also points to the rather distinct position of Manisa as an area of high inequality among other Anatolian regions. Thus, one needs to be cautious in extending these results to the rest of the Ottoman realm. Having said that, these findings evidence that the Ottoman land regime was not necessarily associated with an egalitarian social structure and could have created a considerable degree of inequality under certain circumstances.

On the other hand, sixteenth century Ottoman Manisa presents a case of rising inequality in a context of falling per capita output, discrediting a uniform relationship between inequality and economic growth. Here, it is argued that the trends in inequality are determined by how the benefits of growth or burdens of recession were distributed in the society, and that the relationship between production and distribution in a society is not a direct one but mediated through institutions, particularly property rights institutions.

A closer look into the over-time changes in real incomes of different actors of the rural economy, lent to support to Alfani and Ryckbosch (2016) and Alfani and Di Tullio's (2019) argument that the explanation of the widening income gaps should be sought in the distributional impact of fiscal regimes, associated with early modern state formation. In the Ottoman countryside too, taxation shifted the

burden of falling per capita agricultural production in the sixteenth century towards peasants and small revenue holders within the *timar* system, whereas the real incomes of the top 1% were maintained and even enhanced.

Overall, the picture depicted by the findings of this study positions the Ottoman Empire next to Central-Northern Italy in the early modern map of inequality (Alfani and Ryckbosch, 2016). It offered another example where higher levels of surplus concentration at the upper echelons –which was required by the early modern state-formation and market development processes-, could only be ensured by higher *extractiveness*, in the absence of economic growth which would leave more surplus available above the subsistence minimum to be extracted by the elites and the state.

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