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How Rich Were the Rich? An Empirically-Based Taxonomy of Pre-Industrial Bases of Wealth

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ABSTRACT

The paper uses fifty social tables, ranging from Greece in 330 BC to Mexico in 1940 to estimate the share and level of income of the top 1 percent in pre-industrial societies. The share of the top 1 percent covers a vast range from around 10 percent to more than 40 percent of society's income and does not always move together with the estimated Gini coefficient and the Inequality Extraction Ratio. I provide a taxonomy of pre-industrial societies based on the social class and type of assets (land, control of government, merchant capital, citizenship) that are associated with the top classes as well as lack of assets associated with poverty.

Key words: Social table, inequality, classes, pre-modern

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Introduction

In the recent years, the tops of national income distributions, and especially the top 1 percent, have been studied extensively. The reasons for the increased interest lie in the rising economic and political influence and visibility of the very rich, and researchers' ability to access fiscal data that cover the very top of income distribution better than the more conventional surveys of income or consumption. The interest has carried over onto historical studies of the top 1 percent that are no longer limited to the advanced countries (e.g., Alvaredo et al. 2013, Piketty and Saez 2003) but have included a number of developing countries in Latin America (De Rosa, Flores and Morgan, 2022), China (Piketty, Yang and Zucman, 2019), the Middle East (Alvaredo, Assouad, and Piketty, 2017) etc. The historical spread of such studies however is limited by the existence of tax data, which in turn means by the existence of regular systems of annual taxation of personal revenues. For many currently rich countries such systems have become fully routinized (i.e. were not done only in an ad hoc manner as for example to finance wars) since the first or second decade of the twentieth century. In other cases, the systems are more recent: in India, since 1962, in China since 1980 (but implemented only from 1993). In many countries they do not exist at all.

The tops of income distributions have not been studied in a systematic fashion for the period predating the introduction of the modern systems of taxation. The data for such studies cannot obviously come from the fiscal sources which did not exist, but have to rely on social tables which are the only source of empirical and relatively consistent information on incomes for the pre-modern times. Social tables have been used only in limited number of cases for the study of inequality over time: Allen (2019) for England/UK 1688-1867, Lindert and Williamson (1982 and 1983) for England and the United Kingdom 1688-1911, Lindert and Williamson (2016) for the United States 1774-1870, Castañeda and Bengtsson (2020) for Mexico 1895-1940, Rodriguez Weber (2017) for Chile 1860-1971, Leon and de Jong (2019) for Germany and the UK, 1900-1950. They have not been used for the study of the rich in history though.²

Social tables have well-known limitations discussed by Milanovic, Lindert and Williamson (2011), Modalsli (2015), Milanovic (2018) and more recently by Fintel, Links and Green (2023). However, for the purpose of the study of the rich in history their advantage is that the richest social

² For an excellent survey of inequality studies in pre-modern societies, see Alfani (2021).

groups are always included. They are simply too conspicuous to be overlooked. Furthermore, a number of recently created social tables (e.g. for Sweden 1613 by Anderson and Molinder, 2022; Moscow province for 1811 by Korchmina and Malinowski, 2022) combine the data from non-regular (ad hoc) personal income taxes with the data from the occupational surveys or censuses to create social tables that more explicitly than before include the top of income distribution.

There is one advantage of social tables even compared to the modern fiscal data. The social tables yield not only information about the estimated incomes of top groups, but provide information about the type of social classes that are at the top, whether they are landlords, aristocracy, capitalists, or as is often the cases in colonial settings, foreigners who reside in the country. The same holds for social classes along the entire income distribution. The social tables thus introduce a richer, sociological dimension that is absent in modern fiscal data.

The main disadvantage of social tables is forced homogenization of the population into a relatively small number of social classes (sometimes fewer than ten). Even if we assume that the selection of social classes is well done, in the sense that the author of the social table has focused on the economically salient social groups, there is the problem of within-class inequality which is ignored by the very design of the social tables since they provide only mean class incomes. There is also the problem of overlapping incomes: some people from a mean-poorer social class may have higher incomes than some people from a mean-richer social class. This biases the estimated inequality measures downward.³ There were several attempts to account for it (e.g. Modalsli 2015; Milanovic, Lindert and Williamson 2011) but the problem is, simply because of lack of information, not easily solvable, if at all. The bias though is less the greater the number of groups, the greater the income homogeneity within classes, and thus the less the overlap between the group incomes. The overlap can be expected to be small in historical societies that were more economically stratified and where classes were legally defined and, in some cases, implied a certain economic status as well. For example, for Roman senators there was a wealth census of 1 million sesterces, and for the equestrian order 250,000 sesterces which consequently means that their annual income (assuming a standard rate of interest in the first century AD of 5% to 6%) could not have been less than 50-60,000 HS

³ When Gini coefficient is decomposed into its three parts: between-class inequality, within-class inequality and the overlap component, social tables provide only the information for the first component. If classes are relatively homogeneous and different from each other, the bias may not be strong since then both the within-class inequality and income overlap are small.

(for senators) or 12-15,000 HS (for knights). Despite that, our estimates must be regarded as the lower bounds of the top 1 percent shares.

The objective of this paper is to provide the first across-country and across-time estimation of the historical income share of the top 1 percent. For this purpose, I use the data from 50 social tables that range from the classical Athens (year 330 BC) to 1940 Mexico. Since the focus is on the period before the introduction of modern taxation and modern household surveys, the end-dates that are applied are the beginning of the First World War (1914) for the advanced countries, and approximately the beginning of the Second World War (1939) for all other countries. Section I and Annex 2 discuss the data and the method used to estimate the top 1 percent share. The method is based on the Pareto extrapolation applied across several top social classes, formally in the same way as it is applied across the top income groups in the standard studies of income inequality.

Section II provides calculations of the top 1 percent share. The fact that for most countries/regions included in the study, we also have estimates of GDP per capita from the Maddison Project means that, once the top 1 percent share is calculated, we can derive incomes of the top 1 percent expressed in real international dollars. This is shown in Section II, with the obvious caveat that given huge distances in time, differences in the availability of goods and services, and in relative prices such comparison should be regarded at best as indicative of rich groups' incomes.

Social tables show the classes spanning the entire income distribution. We use them to highlight the social basis of the richest and poorest classes in history in Section III. It looks at the sociological characteristics of the top classes (are they landlords, aristocracy, colonial elite etc.?), and bottom classes (are they landless peasants, industrial proletariat, slaves, foreigners, beggars etc.?). It provides a taxonomy that can be usefully applied in further, more detailed studies. The purely quantitative analysis conducted before thus becomes enriched by a more sociological or class-structured view of pre-industrial societies. Section IV presents the conclusions.

The contributions of the paper are the first ever estimation of income concentration (top 1 percent share) for a number of pre-industrial societies, comparison of the historically rich's income levels, and an introduction to the class analysis of such societies that goes beyond ethnographic and sociological and uses empirical data on incomes.

I. The data and methodology

The paper uses the data from 50 social tables that range, as mentioned, from the fourth century BC Athens to 1940 Mexico. A more detailed information about individual social tables and their sources is given in Annex 1. Table 1 shows various inequality and concentration measures. It is worth noting that the number of social groups included in tables varies widely. At one extreme, there are household census data from the Florentine/Tuscan census of 1427 with almost 10,000 observations. This is not a social table, not even a household survey, nor a fiscal database but a much more detailed source akin to today's administrative data that include all households living in a given region. There is no other source included here that is nearly as detailed. Next in the number of groups included come occupational surveys (created however only recently) from the late nineteenth century Brazil, or late nineteenth century and the first half of the twentieth century Mexico. They contain 100 or more categories. Prototypical social tables are those created by the contemporary authors (the famous Gregory King's social table, followed by Joseph Massie's etc.) in the eighteenth and nineteenth century England and Wales, all used here in a somewhat revised forms: they contain between 14 and 56 social classes. More recently, social tables for thirteenth and fourteenth century England and Wales have been created with fewer than ten social classes. The three social tables used for France have 8 to 9 social classes. The median number of social classes for all tables is 13. Finally, at the other extreme, with the fewest number of classes, are the tables for India 1759 and England 1381 with three groups each, and China 1880 and Mexico 1790, with four.

There are twelve colonies in the sample. They are interesting for research because the class composition in colonies is quite different from what we ordinarily find in independent countries. In colonies, the top (richest) social group is invariably composed of foreigners, i.e. of colonizers. Such colonizers can, by their position and type of assets they have, be fairly different from one colony to another. They can be rich farmers, or officials of the colonizing power, or foreign merchants. The number of social groups available for colonies is, fortunately, satisfactory: the median number is 12 groups, so that both domestic populations and foreigners are relatively well included.

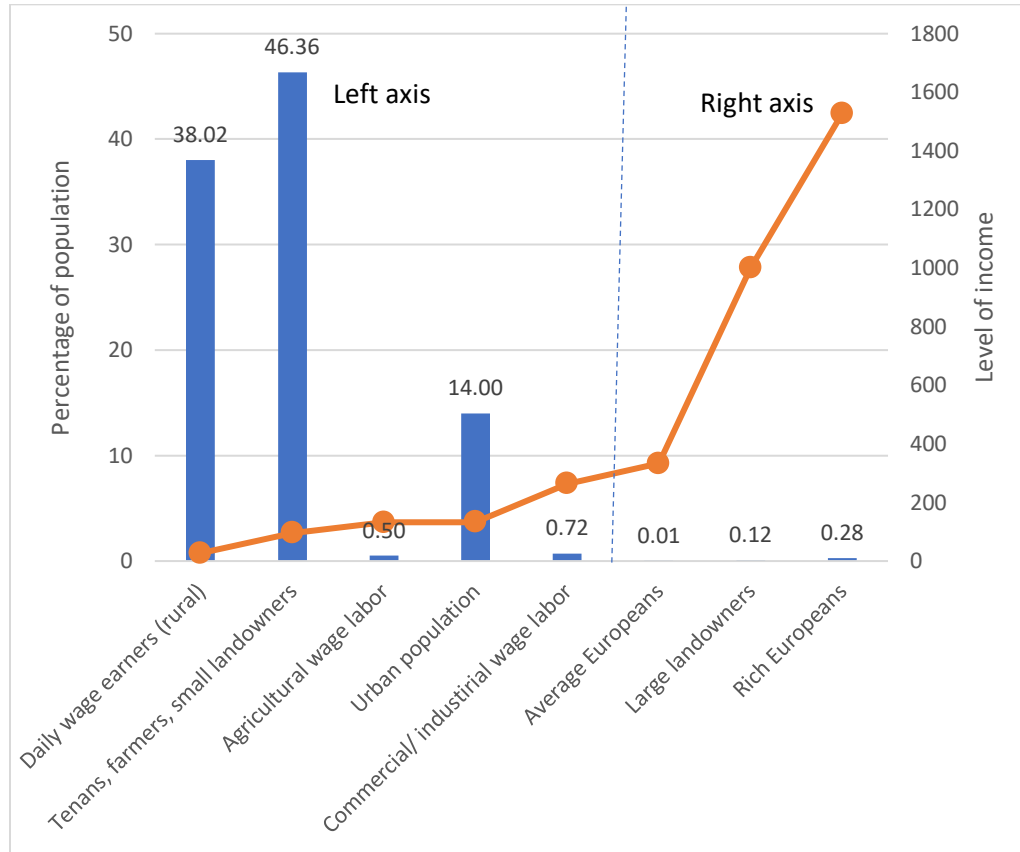
This wide heterogeneity of detail poses specific requirement in the way that the data from the tables are processed. There are two important issues. Generally, the tables with fewer classes would generate less precise estimates for the income share of the top group or inequality statistics. However, this is not always the case because the data could be very detailed at the top, while the rest of the population is treated as homogeneous, that is as having the same income. The Chinese 1880 social table is such an example: it is derived from an entire book that was concerned with incomes of

the Chinese gentry only, so the information for the top is very precise while more than 90% of the population is presented as an undistinguishable mass.

The second problem is more serious. If we have too many social classes, the top class may consist of very few people (for example, the top group could be just one individual, the King) which is not satisfactory if we want to capture more broadly the most affluent *classes* not just individual persons. On the other hand, if there are too few social classes (say, under 7 or 8), the grouping can be too broad. The classes are not sufficiently distinguished. I have tried to find a median ground between the two problems by, if the table is too detailed at the top, combining the top two groups into one (in some cases it meant simply adding the ruler to the top group); if the table is too coarse, it is desirable that the poorest class not be a group that is too large, say, in excess of 80 percent of the population because we then lose the specificity of what makes for poverty in a given society. I was not able to avoid this problem in all cases. The average population share of the poorest class is 22 percent (which seems reasonable), but in Kenya 1914 and 1927, it is more than 80 percent, in Roman Empire, 85 percent, and in China 1880, even 98 percent. The average population share of the top group is 1.4 percent. This implies that the creators of social tables tend to present rich groups in greater detail (more finely grained) than the poor groups. This also means that we may be more confident that the key characteristics of the top groups are well captured.

Typical data from a social table are shown in Figure 1. The social groups (in percentage of total population) are given by the bars and read off the left vertical axis as well as from the top of the bars. The levels of income are shown by the line and read off the right vertical axis. The names of social classes are shown on the horizontal axis. Social classes are ranked by their income level, from the left to the right. The largest social class in this case (Cochinchina 1929) are tenants, farmers and small landowners (more than 46% of the population). The richest class are the rich Europeans who account for 0.28% of the population. As the graph shows, the top 1 percent cut-off point will be located somewhere between commercial/industrial wage laborers and average-income Europeans (note the vertical dashed line at that approximate point). It would technically include the three richest classes plus some commercial/industrial wage laborers. Note that in this case, as well as in most colonies, the rich foreigners at the top of the social table represent less than 1 percent of the population (see Annex 4), and thus the real income of the top 1 percent is less than the average income of the foreigners.

Figure 1. Cochinchina 1929: Size of social groups and their average income



Source: Calculated from Merette (2013). Income is in piastres per capita per year.

To find where exactly the top 1 percent cut-off point is, and thus to calculate the top 1 percent share, I use the approximation suggested by Tony Atkinson in *Top incomes in the United Kingdom over the Twentieth Century* (December 2003 version). It is based on the idea that the top of income distribution follows Pareto distribution with the power coefficient that needs to be estimated from the available data of cumulative distributions of people and income presented in a tabulated form. The estimated Pareto coefficient uniquely determines the income share of the top 1 percent, and the cut-off point. The calculation, which needs to be explained in some detail because it is often subject to confusion, is given Annex 2.

II. Incomes of the top 1 percent

Income share of the top 1 percent

Table 1 compares the top percent share to key measures of inequality for fifty pre-industrial societies. The measures of inequality are Gini coefficient and the Inequality Extraction Ratio. The latter is the ratio between the actual inequality and the maximum feasible inequality that could exist if everybody but an elite lived at the subsistence with the elite taking all income above subsistence (see Milanovic, Lindert and Williamson, 2011). The formula for the maximum Gini is $G_{max} = \frac{\alpha-1}{\alpha}$ where α =the ratio of mean income as calculated from social tables to the subsistence. For example, if a country's mean income is twice the subsistence, the maximum (feasible) Gini is 0.5. As mentioned, the ratio between the actual Gini and the maximum feasible Gini yields the Inequality Extraction Ratio that can be seen as an estimate of how far the powerful classes have pushed inequality. Loosely speaking, it is an index of "exploitation". In the extreme case, the IER could be close to 1. For subsistence I use 300 international dollars at 1990 prices, thus making the currency units consistent with the GDPs per capita, also expressed in 1990 international dollars in the latest (2020) version of the Maddison Project.

The measures of concentration are the top 1 percent share, and the cut-off point at which the top 1 percent begins (expressed in terms of mean income). I divide the observations into six groups using the share of the top 1 percent as a criterion, from low to extraordinary high income concentration. 20% income share of the top 1 percent was considered by Piketty (2014) as the indicative of countries with excessively high concentrations of income. Here, however, there are five cases with the top 1 percent share in excess of 25% of total income.

Among the countries with an excessively high income concentration (above 20% but less than 25% of total income) are Latin American countries (Mexico, Chile, Peru) in the second half of the 19th century, China (1880), European Russia (1904) and colonial Kenya (1927). But, as Table 1 shows, there are in our sample countries with a top 1 percent share that is exceeding 30%, and even 40%. Among the countries with an extraordinarily high income concentration are medieval societies of Byzantium (year 1000) and Iraq-Mesopotamia (year 900), and more recently the Moscow area just before the Napoleonic invasion (year 1811), colonial Kenya (year 1938), and the United Kingdom

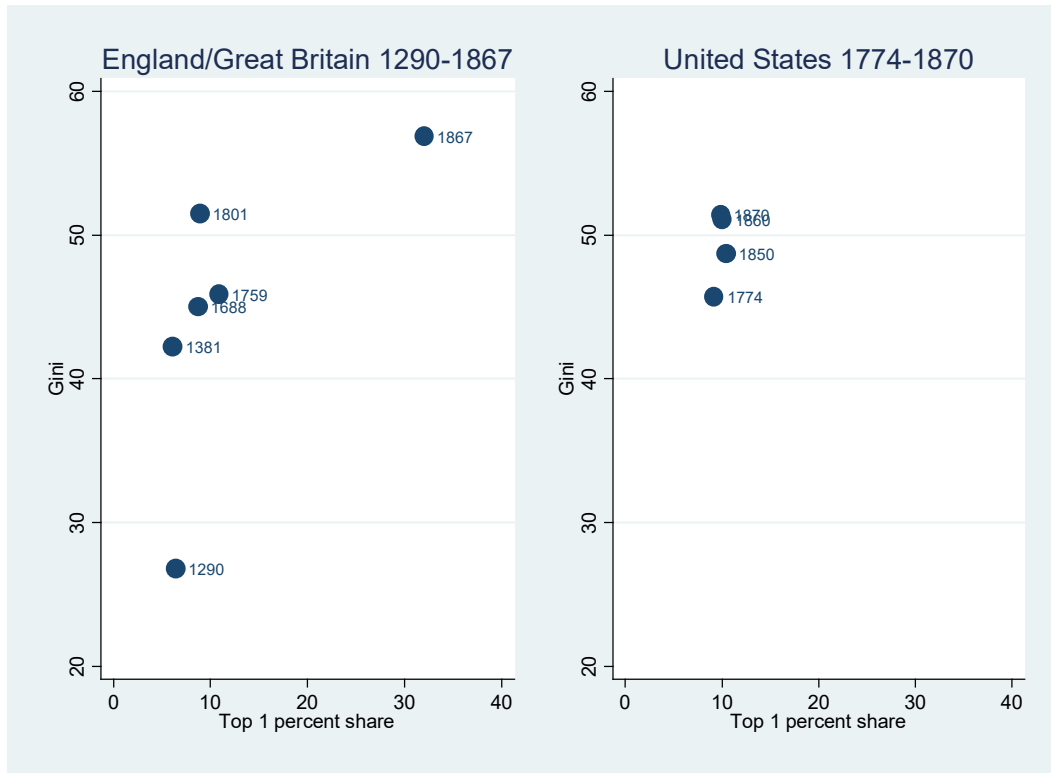
(year 1867), probably then at the peak of its historical inequality.⁴ The latter case is interesting because the data regarding England/UK, for which we have more observations than for any other country, show much lower levels of income concentration for the earlier periods (Figure 2, left panel), and moreover the data from the 13th and 14th century show England to have had the lowest income concentration among all the countries included here (see Table 1). The top 1 percent share was around 10% (which is low or moderate income concentration according to the definitions used here) in all observations for England/UK except the last one for 1867. This fairly stable top 1 percent share coincided with the steadily rising Gini from under 30 in 1290 to over 50 in 1801 (Figure 2, left panel). The social tables thus imply the rising gaps in incomes among the 99 percent of the population as England grew richer but not the rising concentration among the top 1 percent. This changed in the second half of the 19th century as the share of the top 1 percent drastically increased to more than 30% of total income and drove overall income inequality up. (A part of the increase may be due to the coverage of the 1867 data that include all of the United Kingdom, whereas other social tables were done for England and Wales only.)

A similar but less pronounced increase in inequality coinciding with the broadly constant share of the top 1 percent is shown by the US data for a century after its independence (Figure 2, right panel). Here too, the share of the top 1 percent is consistently low (around 10 percent) while inequality measured by the Gini is quite high (between 45 and more than 50 points). The data for the United States come from the same authors (Lindert and Williamson, 2016), are methodologically similar, and cover a shorter time period. They are thus more reliable too. An obvious implication of the finding is that synthetic measures of inequality (like Gini) need not always move together with the measures of concentration (like the share of the top 1 percent).⁵

⁴ According to Allen (2016; Tables 11 and 12), the peak of English inequality was in 1846 (Gini of 61); according to Milanovic, Lindert and Williamson (2011), the peak was in 1867 (Gini of 57). Both sources are working with the same underlying social tables but are organizing them differently.

⁵ This can be seen from the Gini formula as derived by Alvaredo (2011) $G \approx G_{99}(1 - s) + s$ where G_{99} is the Gini among the bottom 99 percent of the population and s =top 1 percent income share. If s is broadly constant, movements in the overall Gini will be determined by what happens to the inequality among the bottom 99 percent. Similarly, with very high s , what happens to inequality within the bottom 99 percent becomes less important in influencing the overall Gini (because it is weighted by a decreasing $(1-s)$).

Figure 2. Top 1 percent share and Gini in the pre-industrial England/Great Britain (1290-1867) and the United States (1774-1870)



Note: The graph displays the top 1 percent share estimated from social tables (see Annex 1) and the Gini calculated from the same sources. It shows that Gini can increase substantially while the top 1 percent remains relatively stable.

Figure 3 illustrates the relationship between the top 1 percent share and respectively Gini (left panel) and the Inequality Extraction Ratio (right panel) for all social tables included here. In both cases, the correlation is positive but not very strong: 0.47 between the top 1 percent share and Gini, and 0.43 between the top 1 percent share and the Inequality Extraction Ratio. It is noticeable that if income concentration is less than 20 (i.e. the share of the top 1 percent is less than 20%), inequality, measured by Gini or the IER, can vary quite widely. Inequality in those cases seems to be determined largely by income gaps within 99 percent of the population. However, at some point, the top 1 percent share becomes so overwhelming, essentially squeezing out whatever remains for the 99 percent, that it tends to dominate measures of inequality too, both Gini and the IER. This is why we observe that where the top 1 percent share is in excess of 22%, it always goes together with high values of Gini and the Inequality Extraction Ratio.

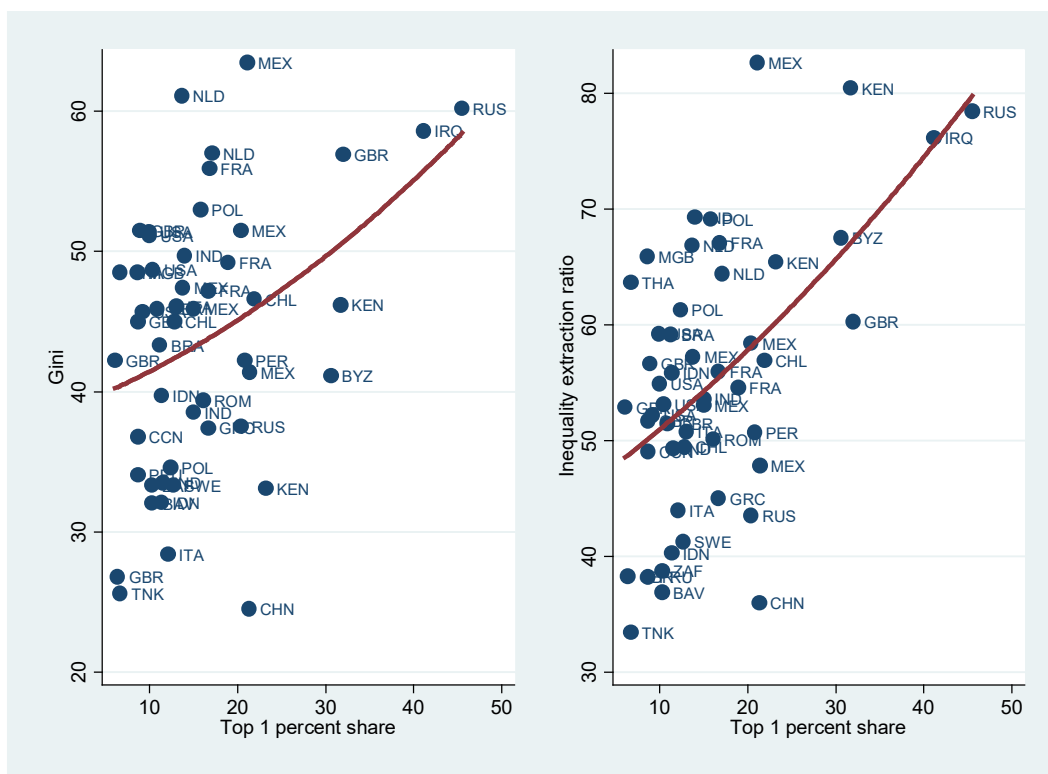
Table 1. Income inequality and income concentration measures for pre-industrial economies:

	Year	Gini	Extraction Ratio	Top 1 percent Share	Top 1 percent cut-off point (in terms of mean)	Colony	Number of groups
Low income concentration (<10%)							
England	1381	42.2	52.8	6.1	4.4	0	4
England	1290	26.8	38.3	6.4	3.7	0	7
Tonkin	1929	25.6	33.4	6.7	2.8	1	9
Siam	1929	48.5	63.7	6.7	5.1	0	21
Maghreb	1880	48.5	65.9	8.6	5.8	1	12
Cochinchina	1929	36.8	49.0	8.7	2.5	1	8
England	1688	45.0	51.7	8.7	8.1	0	31
Prussia	1863	34.1	38.2	8.7	7.9	0	66
England	1801	51.5	56.6	8.9	6.2	0	44
USA	1774	45.7	52.2	9.2	6.8	0	74
USA	1870	51.4	59.2	9.9	6.3	0	6
Moderate income concentration (10%-15%)							
USA	1860	51.1	54.9	10.0	5.8	0	6
Cape Colony	1757	33.3	38.7	10.3	4.8	1	10
Bavaria	1847	32.0	36.9	10.3	5.5	0	18
USA	1850	48.7	53.1	10.4	5.6	0	6
England	1759	45.9	51.4	10.9	4.2	0	56
Brazil	1872	43.3	59.2	11.2	5.7	0	813
Java	1924	32.1	40.2	11.4	4.1	1	14
Java	1880	39.7	55.8	11.4	3.9	1	32
Bihar	1807	33.5	49.3	11.5	3.8	1	10
K. of Naples	1811	28.4	44.0	12.1	6.1	0	12
Warsaw	1810	34.6	61.3	12.4	6.6	0	10
Sweden	1613	33.3	41.2	12.7	4.5	0	36
Chile	1900	45.0	49.4	12.8	6.3	0	49
Tuscany	1427	46.1	50.8	13.0	7.2	0	9780
Holland	1732	61.1	66.8	13.7	9.1	0	10
Mexico	1895	47.4	57.2	13.8	4.1	0	19
India	1938	49.7	69.3	14.0		1	8
High income concentration (15%-20%)							
Mexico	1910	45.9	53.1	15.0	6.1	0	19

	Year	Gini	Extraction Ratio	Top 1 percent Share	Top 1 percent cut-off point (in terms of mean)	Colony	Number of groups
India-Moghul	1750	38.5	53.6	15.0		1	4
Cracow	1578	53.0	69.1	15.8	7.1	0	13
Roman Empire	14	39.4	50.1	16.1	12.4	0	11
France	1831	47.2	56.0	16.7	7.7	0	9
Athens	-330	37.4	45.0	16.7	7.5	0	34
France	1788	55.9	67.1	16.8	3.9	0	8
Netherlands	1808	57.0	64.4	17.1	9.8	0	20
France	1866	49.2	54.6	18.9	8.4	0	9
Excessive income concentration (20%-25%)							
Mexico	1940	51.5	58.4	20.4	8.0	0	100
European Russia	1904	37.5	43.5	20.4	3.5	0	19
Peru	1876	42.2	50.7	20.8	9.6	0	9
Nueva España	1790	63.5	82.7	21.1	9.8	1	3
China	1880	24.5	35.9	21.3	5.6	0	3
Mexico	1930	41.4	47.8	21.4	5.4	0	101
Chile	1860	46.6	56.9	21.9	7.2	0	49
Kenya	1914	33.1	65.4	23.2	20.5	1	13
Extraordinary high income concentration (>25%)							
Byzantium	1000	41.1	67.5	30.6	3.7	0	8
Kenya	1927	46.2	80.4	31.7	20.9	1	13
England	1867	56.9	60.3	32.0	8.9	0	14
Iraq	900	58.6	76.1	41.1	2.9	0	17
Moscow region	1811	60.2	78.4	45.5	11.3	0	10

Note: Observations are ranked by the top 1 percent share.

Figure 3. The relationship between the top 1 percent share and Gini (left panel) and top 1 percent share and Inequality Extraction Ratio (right panel)



Source: Social tables cited in Annex 1. Gini and the Inequality Extraction Ratio (IER) are shown in percent. IER is calculated on the assumption that the subsistence minimum is \$PPP 300.

I do not discuss the extraction ratios here (for more discussion, see Milanovic 2018), but one may note that the most extractive societies seem to have been Nueva España 1790, Moscow region 1811 and the British-ruled Kenya in 1927. The latter two also displayed extraordinary high income concentration (above 30%).

Real income of the top 1 percent

Table 2 shows the estimated real income of the top 1 percent in international 1990 dollars. As explained before, once we have estimated the top 1 percent share, it is easy to calculate real income of the top 1 percent by applying the GDP per capita estimates from the most recent (2020) round of the Maddison Project. The size of income received by the elites covers a very broad range, and there may be a varieties of explanations why this is so. Consider first the relatively poor top 1 percent (under \$PPP 10,000 per person per year). It includes the medieval England that was very

poor, and so was its elite; but it includes also the early 20th century colonies of Siam, Tonkin and Cochinchina where the real elite (the European colonists) was smaller than 1 percent and where drawing the line at 1 percent brings in, as seen in Figure 1, some local industrial and commercial workers. We are dealing here with very poor agricultural societies where, in part because of their very poverty, inequality is low amongst the majority of the population, and where a very tiny rich colonial group is “tacked on” at the top. The situation appear to have been the same among the slightly richer elites (under \$PPP 20,000 per capita) in Bihar 1807, Moghul India 1750, and British-ruled India 1938 as well as in Java at the end of the 19th and early 20th century, and Kenya in 1914. For example, in Java 1880, all European colonists (including those who were not super rich) represented only 0.23% of the population; in Kenya 1914, they were only 0.12% of the population, in the British-ruled India in 1938, British officials and traders were just 0.06% of the population.

When we look at the historically highest-income top 1 percent groups, we also have several varieties there. First, rich early industrial or commercial societies with a huge concentration of income. This would be the case of the richest elite in our sample, the British top 1 percent in 1867 with an estimated income of \$PPP 167,000 per capita, France in 1866 with the top 1 percent income of \$PPP 58,000, and of the just slightly less well-off Netherlands in 1732 and 1808 with around \$PPP 50,000. We can add there, as an example of a very rich commercial society, Florence where the individual data from Catastro allow us to estimate the top income share very accurately: there the income of the top 1 percent is calculated at \$PPP 43,000. Second, there are very unequal pre-industrial societies: Moscow in 1811 and the European Russia with respectively \$PPP 59,000 and \$PPP 45,000, and Mexico in 1930 and 1940 (both around \$PPP 50,000). Third, traditional societies with an extremely high inequality like Iraq (Mesopotamia) in 900 with the top 1 percent income estimated at \$PPP 54,000. Thus, the richest elites considered here come from very different societies, and, as we shall see next, they have different social basis for their economic power.

The data allow us to compare elite incomes in the 19th century Europe, among the then top 1 percent that frequently interacted and intermarried. The British top 1 percent stands out with an extremely high income, followed by the Russian and French (almost equal) and the Dutch, but only at a distance by the Bavarian and Prussian top 1 percents. The latter were distinctly poorer. By 1860 also, the US elite was not dissimilar, in terms of income, from the French and Russian. The same is true for the Latin American elites in Chile and Peru.

Table 2. Top 1 percent estimated real per capita income (in 19990 \$PPP dollars)

Income range	Country, year
Under \$PPP 10,000	England 1290 Siam 1929 Duchy of Warsaw 1810 Tonkin 1929 England 1381 Maghreb 1880
Between \$PPP 10,000 and \$PPP 20,000	K of Naples 1811 Cochinchina 1929 Bihar 1807 Java 1880 Brazil 1872 Kenya 1914 India 1938 India-Moghul 1759 Java 1924 Sweden 1613
Between \$PPP 20,000 and \$PPP 30,000	China 1880 England/Wales 1688 Cracow 1578 USA 1774 Cape Colony 1757 Kenya 1927 Rome 14 USA 1870 Bavaria 1847 Byzantium 1000 Mexico 1895 Prussia 1863 Nueva España 1790 Athens -330 England/Wales 1801
Between \$PPP 30,000 and \$PPP 40,000	France 1788 England/Wales 1759 France 1831 Mexico 1910 Chile 1860 Peru 1876 USA 1850
Between \$PPP 40,000 and \$PPP 50,000	Florence/Tuscany 1427 Chile 1900 USA 1860 European Russia 1904 Netherlands 1808 Mexico 1930 Netherlands 1732
Over \$PPP 50,000	Mexico 1940 Iraq (Mesopotamia) 900 France 1866 Moscow region 1811 United Kingdom 1867

III. The social bases of the rich and the poor

Table 3 shows the richest social class (according to social tables) in each of the societies studied here. (For more detail, see Annex 3.) I divide the top classes into four different types, in function of the predominant asset that allows them to be the richest group. These assets are (1) ownership of land, (2) control of government, (3) ownership of capital (including merchant capital), and (4) belonging to the conquering nation. There are no cases where human capital or superior entrepreneurship were listed as key characteristics of the richest group.⁶

As the Table makes clear, the asset classes are not always exclusive. Land ownership was throughout history combined with aristocratic titles. In some cases, being a part of aristocracy led to the assignment of a land domaine; in other cases, ownership of land led to being given an aristocratic title. However, the asset was always land, and its value came from the output it produced, whether it was rented out or directly used to hire workers (that is, regardless of whether the land was worked by slave labor, hired labor, tenant-farmers, or share-croppers). It is the ownership of land that ensured wealth in England/Wales throughout the entire period of more than five centuries for which we have the data here (from 1290 to 1801), with the landowning class being consistently on the top (see columns 1 and 3). In Mexico, Chile and Peru, it was also large landownership that distinguished the top class, even if in Chile and Peru it also consisted of what may be considered a more capitalistic element implicit in mining activity (column 2).

Nobility combined with landownership was a feature of the top class in Byzantium 1000, England 1688-1801, Moghul India in 1750, Russia 1811, Russia 1904, and China 1880 (see column 3). In those cases, it could be argued that the title of nobility as such becomes an asset.

The fusion of nobility, government power, and landholding is clear in our next grouping (column 4) that includes Roman Empire and pre-revolutionary France. In Rome, the senatorial class and the equestrian order had privileged access to top government jobs and owned land. It was also the case in France before 1789. Thus, all three assets (land, government control, and nobility as an asset) were combined.

⁶ Fochesato and Bowles (2022) propose a taxonomy of societies based on institutions. It ranges from non-state and archaic proto-state to modern democratic and non-democratic state. Their classification covers a much greater variety of historical cases, but, as is clear, is not based on the asset-ownership but the type of social organization..

The following grouping No. 5, is more clearly distinguished by the importance of control of government. The control might bring various titles of nobility over one's lifespan but the key asset is power. Iraq 900, Sweden 1617, Bavaria 1847 and Prussia 1863, are the examples. A more "modern" top class structure combines government control (whether in the form of high officials as in Brazil 1872 or King and his entourage as in Poland 1578) with merchant and industrial capitalists (column 6).

Countries in group 7 are more capitalistic: post-Revolutionary France and 20th century Mexico. The notable feature here is legal equality of social classes which dispensed with de jure advantage of access to top government positions held by aristocracy. The importance of land as asset has also declined with development. The top landholders thus lost the right to the most lucrative government positions, while their principal asset (land) declined in relative value. The capitalist class is now dominant.

The final group No. 8 is composed of heterogeneous social classes. However they are on the top because they share one important asset: citizenship of a country that rules another country. In Cape Colony 1757, they were *pachters*, the large farming monopolists of Dutch origin; in Maghreb 1880, they were the urban European population (especially in Tunisia; richer than Morocco and Algeria); in India 1938, they were British officials and traders; in Java, European traders and Dutch officials with an average income eight times greater than the next highest group composed of Asian foreigners.

Was there a relationship between the type of asset that ensured the top position, and the lack of ownership of that same asset that "ensured" poverty? In other words, we ask whether the wealth at one end of the spectrum, acquired through a particular asset-type, was associated with that same specific type of poverty on the other side of the spectrum. Table 4 is the analog of Table 3 but now with the focus on social characteristics of the poorest social classes.

Not surprisingly, the poorest social classes are those without full legal rights (slaves or serfs in Cape Colony 1759 and Moscow 1811), and landless or day laborers in agricultures in many other countries. Their lack of ownership of land is reflective of what is (on the other end of the income spectrum), wealth associated with large ownership of land. In the case of England/United Kingdom in all social tables up to 1867, the poorest class were landless peasants, rural cottagers and paupers. As development proceeded, the bottom class changed to becoming manual workers in

manufacturing (in 1867). We see the same evolution in other modernizing societies: Chile 1861, Brazil 1872, Peru 1876, and Russia 1904. In France, however, the bottom class remained marked by landlessness.

The distinctions however are fluid: servants in the poorest class could be women with no land ownership living in the poorest region of Sweden, or rural servants (without gender distinction) as in Poland in 1578, or private servants as in Russia 1904. These are indeed “pre-modern” poor where several characteristics are united to deepen poverty: lack of assets, female gender, and residence in the poor part of the country. Such poor were more likely to be servants than agricultural laborers.

In colonized societies (Nueva España 1790, Kenya 1914, 1927, Cochinchina and Tonkin 1929, India 1938), the poorest groups were indigenous landless peasants or small landholders.

In the more urbanized ancient societies of Iraq 900 and Byzantium 1000, it is the urbanized proletariat that was the poorest. The same was true in Bavaria 1867 and in Mexico 1890-1940. In BC Athens and Moghul India the poorest groups were “foreigners”: the official foreigners (meteques) in Athens, and de facto foreigners (the tribal populations in India).

Table 3. Richest social class in various societies according to the dominant type of asset owned

Land			Government control			Non-agricultural capital	Citizenship
1	2	3	4	5	6	7	8
Landowners	Landlords-capitalists	Nobility combined with landownership	Nobility combined with government functions	Government notables	Merchants, capitalists combined with government	Bourgeoisie (incl. merchants)	Colonizers
England 1290 1381 Mexico 1895, 1910, 1930	Chile 1861 (mining owners) Peru 1876	Byzantium 1000 England 1688, 1759, 1801 (temporal lords) India 1750 (nobility & zamindars) Moscow 1811 China 1880 Russia 1904	Rome 14 (senatorial order) France 1788 US 1774 (officials, titled)	Iraq 900 Sweden 1613 Bavaria 1847 Prussia 1863	Poland 1578 Brazil 1872	France 1831, 1866 Mexico 1940 (probably) UK 1867	Cape Colony (landowners) 1757 Nueva España 1790 Maghreb (urban Europeans) 1880 Java 1880, 1924 Kenya 1914, 1927 Tonkin 1929 Cochinchina 1929 India 1938 (officials, traders)

Note: The exact definitions of top social classes for some countries are shown between brackets. The detailed list of top social classes is in Annex 3.

Table 4. Poorest social class in various societies according to the lack of ownership of crucial asset

No legal rights	No land	No capital		No citizenship
Slaves and serfs	Peasants	Workers or soldiers	Jobless (the reserve army of labor)	Foreigners
1	2	3	4	5
Cape Colony 1757 (boy & girl slaves) Moscow 1811 (serfs in manufacturing)	Rome 14 (free or slave) England 1290, 1381 Poland 1578 (rural servants) Sweden 1613 (women rural servants) England 1688, 1759, 1801 (landless, paupers) France 1788 (landless) France 1831, 1866 (agricultural workers) Nueva España 1790 (indigenous peasants) Maghreb (rural Muslims) 1880 Kenya 1914, 1927 Cochinchina 1929 Tonkin 1929 India 1938 (landless)	Bavaria (soldiers) 1847 Chile 1861 England 1867 Brazil 1872 Peru 1876 Russia 1904 (private servants)	Iraq 900 Byzantium 1000 Prussia 1863 Mexico 1895, 1910, 1930, 1940	Athens 330 BC (meteques) India 1750 (tribals)

Note: The exact definitions of top social classes for some countries are shown between brackets. The detailed list of poorest social classes is in Annex 3.

IV. Conclusions

Social tables are often the only source of information about social classes and inequality in pre-industrial societies. They typically list the most important social classes and provide estimates of their mean incomes and population shares. In the past they have been created by contemporary authors; more recently, economic historians have used historical sources to create them. The paper uses 50 such social tables ranging from ancient Greece (Athens, 330 BC) to Mexico in 1940 to estimate the share of the top 1 percent, overall inequality (Gini), and the Inequality Extraction Ratio (IER).

Several conclusions can be made. The top 1 percent share varies from around 10 percent of total income (which may be considered a very low value) to more than 40 percent. Despite positive correlation between the top 1 percent share, Gini, and the IER, the results show that the top 1 percent share can be fairly stable while inequality measured by Gini varies substantially. This is most evident on the examples of England/Great Britain where social tables done over a period of 500 years register a substantial increase of inequality but little change in the top 1 percent share until the second half of the 19th century. The same is true for the United States in the period 1774-1870. This second example is even more striking because of the methodological consistency and the same authorship of the social tables. The implication is that both in the UK and the US, incomes among the bottom 99 percent diverged while the top share remained constant or changed but little. However, once the top 1 percent share exceeds 20-22 percent, the bottom 99 percent get “squeezed” and it seems that the movements in inequality and the top share become more tightly correlated.

Using Maddison Project data on GDPs given in international dollars, we can easily convert the estimated top income shares into absolute incomes of the rich. There too, we find a huge variety. Poor societies, like England in the 13th and 14th century, 19th century Poland, and 20th century Siam had relatively poor top 1 percents, earning less than \$10,000 international dollars per capita annually. In most pre-industrial societies considered here, the top 1 percent earned between \$20,000 and \$40,000 international dollars. But in some, the top 1 percent achieved income levels not too dissimilar from today's, exceeding \$PPP 50,000. They include relatively poor but extremely unequal societies of Iraq in year 900, pre-Napoleonic Moscovy, and the 1940s Mexico. But they also include the advancing and unequal societies of the 19th century France and the United Kingdom. Even the medieval Tuscany and the ante-bellum United States come close to it.

The advantage of social tables even over the modern, more detailed data from household surveys and tax authorities is that they explicitly list and rank social classes. We are especially interested in top and bottom social classes. The paper provides a taxonomy of societies according to the type of asset (land, control of government, merchant capital, or citizenship) that was crucial for belonging to the richest class. Several valuable asset types were often fused to keep the rich safely on the top. This is particularly evident in the combination of land ownership and government control (often going through the acquisition of titles of nobility). In colonies, the top classes were mutually different, but they all possessed one asset in common: citizenship of the conquering nation.

The lack of desirable assets, most frequently the land, was associated with being poor. And there too, the lack of one asset was often combined with the lack of another. People without full legal rights and foreigners (in sharp distinction from foreigners in colonies) were more likely to be on the bottom.

REFERENCES

- Guido Alfani (2021), “Economic inequality in pre-industrial times: Europe and beyond”, *Journal of Economic Literature*, vol. 59, No. 1, pp. 3-44.
- Robert C. Allen (2019), “Class structure and inequality during the industrial revolution: lessons from England's social tables, 1688–1867”, *Economic History Review*, vol. 72, No. 1, February 2019, pp. 88-125. Originally published as “Revising England's Social Tables Once Again”, Oxford Economic and Social History Working Papers No 146, University of Oxford, Department of Economics, 2016.
- Facundo Alvaredo (2011), “A note on the relationship between top income shares and the Gini coefficient”, *Economic Letters*, vol. 110, No. 3, pp. 274-277.
- Facundo Alvaredo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez (2013), “The Top 1 Percent in International and Historical Perspective”, *Journal of Economic Perspectives*, vol. 27, no 3, pp. 3-20.
- Facundo Alvaredo, Lydia Assouad, and Thomas Piketty (2017). “Measuring Inequality in the Middle East 1990-2016: The World’s Most Unequal Region?” *Review of Income and Wealth*, pp. 665–711.
- Samir Amir (1966), *L'economie de Maghreb*, Editions de minuit, Paris.
- Martin Andersson, Martin and Jakob Molinder (2022), “Persistently egalitarian? Swedish income inequality in 1613 and the four-estate parliament”, *Lund Papers in Economic History* No. 2022:235.
- Luis Bertola, Cecilia Castelnuevo, Javier Rodriguez Weber and Henry Willebald (2008), ‘Income distribution in the Latin American Southern Cone during the first globalization boom: ca 1870-1920’. Paper presented at the Midterm conference of the international sociological association (University of Neuchâtel, June 26-28, 2008).
- Albert Berry (1990), “International trade, government and income distribution in Peru since 1870”, *Latin American Research Review*, vol. 25, No. 2, pp.31-59..
- Arne Bigston (1987), *Income Distribution and Growth in a Dual Economy: Kenya 1914-1976*, Gothenburg University, Department of Economics, Memorandum No. 101.
- Arne Bigston(1986), "Welfare and Economic Growth in Kenya, 1914-76," *World Development*, vol. 14, No. 6: 1151-60.
- Anne Booth (1988), "Living Standards and the Distribution of Income in Colonial Indonesia," *Journal of Southeast Asia Studies*, vol. 19, No. 2 (September 1988): 310-334; Table 7, p. 325.
- Steven Broadberry, Bruce Campbell, Alexander Klein, Marc Overton, and Bas van Leeuwen, *British economic growth, 1270-1870* (Cambridge 2015).
- Chung-li Chang (1962), *The income of the Chinese Gentry*, University of Washington Press, Seattle 1962.

Diego Castañeda and Erik Bengtsson (2020), “Income Inequality in Mexico 1895-1940: Industrialization, Revolution, Institutions”, *Lund Papers in Economic History*, No. 2020:212.

Mauricio De Rosa, Ignacio Flores and Marc Morgan (2022), “More unequal or not as rich? Revisiting the Latin American exception”, *Stone Center on Socio-economic Inequality Working Paper No. 53*, August.

Philipp Erfurth (2022), “Essays on Inequality, Growth, and Economic Policy”, Ph D dissertation defended at the Graduate Center, City University of New York, September 2022.

Mattia Fochesato and Samuel Bowles (2022), “Ancient and historical evidence on inequality and institutions: Accounting for uncertainties”, mimeo, December 22, 2022.

Johan Fourie and Dieter von Fintel (2010), “A history with evidence: income inequality in the Dutch Cape Colony”, *Universiteit Stellenbosch and Universiteit Utrecht, Working Paper No. 184*.

Maria Gómez León and Herman de Jong (2019), “Inequality in turbulent times: income distribution in Germany and Britain, 1900–50”, *The Economic History Review*, vol. 72, No. 3, pp. 1073-1098.

David Herlihy (1978), “The distribution of wealth in a Renaissance Community: Florence 1427”, in P. Abrams, E. A. Wright (eds.). *Towns in societies : essays in economic history and historical sociology* (Cambridge), pp. 131-157.

Elena Korchmina and Mikołaj Malinowski (2022), “Inequality under serfdom: income and its distribution in early 19th century Russia”, mimeo, 21 December 2021.

Peter Lindert and Steven Nafziger (2014), “Russian Inequality on the Eve of the Revolution”, *Journal of Economic History*, vol. 74, No. 3 (September): 767-798.

Peter Lindert and Jeffrey Williamson (1982), “Revising England's social tables 1688–1812”, *Explorations in Economic History*, vol 19, No.4 (October), pp. 385-408.

Peter Lindert and Jeffrey Williamson (1983), “Reinterpreting Britain’s social tables 1688-1911”, *Explorations in Economic History*, vol. 20, pp. 94-109.

Peter Lindert and Jeffrey Williamson (2016), *Unequal gains: American growth and inequality since 1700*, Princeton University Press.

Angus Maddison (2001). *The world economy: a millennial perspective*, Paris: OECD.

Paolo Malanima (2006). “Pre-modern equality: income distribution in the Kingdom of Naples (1811)”. Paper presented at XIV International Congress of Economic History (Helsinki 2006). Available at <http://www.helsinki.fi/iehc2006/papers3/Malanima.pdf>.

Mikołaj Malinowski and Jan Luiten van Zanden "National income and its distribution in pre-industrial Poland in a global perspective", *European Historical Economics Society Working paper No. 76*, May 2015, p.17.

Robert M. Martin (1838), *The history, antiquities, topography, and statistics of eastern India. Surveyed under the orders of the supreme government, and collated from the original documents at the E.I. house*, London: W. H. Allen and Co.

Anne McCants (2007), “Inequality among the poor of eighteenth century Amsterdam”, *Explorations in Economic History*, vol. 44, pp. 1-21.

Sarah Merette (2013), “Preliminary analysis of inequality in colonial Tonkin and Cochinchina”, mimeo, June.

Branko Milanovic (2006), “An estimate of average income and inequality in Byzantium around year 1000”, *Review of Income and Wealth*, vol. 52, No. 3, pp. 449-470.

Branko Milanovic (2018), “Towards an explanation of inequality in pre-modern societies: the role of colonies and high population density”, *The Economic History Review*, vol. 71, No. 4, 2018, pp. 1029-1047.

Branko Milanovic, Peter Lindert and Jeffrey Williamson (2011), “Pre-industrial inequality”, *Economic Journal*, March, pp. 255-272.

Christian Morrisson and Wayne Snyder (2000), “The income inequality of France in historical perspective”, *European Review of Economic History*, vol. 4, pp.59-83

Jørgen Modalsli (2015), “Inequality in the very long run: inferring inequality from data on social groups”, *Journal of Economic Inequality*. Vol. 13, No.2, pp. 225–247.

Esteban Nicolini and Fernando Ramos-Palencia, “Decomposing income inequality in a backward pre-industrial economy: Old Castille (Spain) in the middle of the 18th century”, *Economic History Review*, 69 (2016), pp. 747–772.

Joshua Ober (2015), *The rise and fall of classical Greece*, Princeton University Press.

Thomas Piketty (2014), *Capital in the Twenty-First Century*, Harvard University Press.

Thomas Piketty and Emmanuel Saez (2003), “Income inequality in the United States, 1913-1998”, *Quarterly Journal of Economics*, vol. 118, 1: 1-39.

Thomas Piketty, Li Yang and Gabriel Zucman (2019), “Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015”, *American Economic Review*, vol. 109, no. 7, July.

Javier Rodriguez Weber (2017), *Desarrollo y desigualdad en Chile 1850-2009: historia de su economic politica*, Centro de Investigaciones Diego Barros Arana (Dibam).

Walter Scheidel and Steven J. Friesen (2009), “The size of the economy and the distribution of income in the Roman Empire”, Princeton/Stanford working Papers in Classics, January 2009.

Lee Soltow and Jan Luiten van Zanden (1998), *Income and Wealth Inequality in the Netherlands, 16th-20th Century*. Het Spinhuis.

Dieter von Fintel, Calumet Links and Erik Green (2023), "Estimating historical inequality from social tables: Towards methodological consistency", mimeo.

Bas van Bavel (2016), *The invisible hand?": How market economies have emerged and declined since AD 500*, Oxford University Press

Jan Luiten van Zanden (2003), "Rich and Poor before the Industrial Revolution: A Comparison between Java and the Netherlands at the Beginning of the 19th Century," *Explorations in Economic History* 40, 1 (January): pp. 1-23.

Marcin Wronski (2021), "Income inequality in the Duchy of Warsaw (1810/11)", *Scandinavian Economic History Review*. Available at <https://www.tandfonline.com/doi/abs/10.1080/03585522.2022.2148736?journalCode=sehr20>

Annex 1. Social tables used in the text (in chronological order)

County/region	Year	Number of social classes	Colony (1) or not (0)	Source/authors
Athens	-330	34	0	Ober 2015, data kindly provided by Joshua Ober
Roman Empire	14	11	0	Scheidel and Friesen 2009; Milanovic, unpublished notes
Iraq	900	17	0	van Bavel 2016, p.73.
Byzantium	1000	8	0	Milanovic 2006, Table 5, p. 465.
England	1290	7	0	Broadberry et al. 2015, Table 8.02, p. 317
England	1381	4	0	Broadberry et al. 2015; Table 8.03
Tuscany	1427	9780	0	Catastro micro data from Herlihy 1987
Cracow	1578	13	0	Malinowski and van Zanden 2015, Table 6, p.17.
Sweden	1613	36	0	Anderson & Molinder 2022
England & Wales	1688	31	0	King (reworked by Lindert & Williamson 1983, final version available from Lindert's website http://www.econ.ucdavis.edu/faculty/fzlinder/)
Holland	1732	10	0	Data kindly provided by Jan Luiten van Zanden
India (Moghul)	1750	4	1	Maddison 2001, pp. 110-11
Cape Colony	1757	10	1	Fourie & Frentel 2010
England & Wales	1759	56	0	Massie (reworked by Lindert & Williamson 1983, final version available from Lindert's website http://www.econ.ucdavis.edu/faculty/fzlinder/)
USA (13 colonies)	1774	74	0	Lindert & Williamson 2016; data kindly provided by Peter Lindert
France	1788	8	0	Morrisson & Snyder 2000, Table 3, p. 66.
Nueva España	1790	3	1	Milanovic, Lindert and Williamson 2011, Appendix. Based on 1813, Manuel Abad y Queipo, Bishop of Michoacán, census published in his <i>Colección</i> .
England & Wales	1801	44	0	Colquhoun (reworked by Lindert & Williamson 1983, final version available from Lindert's website http://www.econ.ucdavis.edu/faculty/fzlinder/)
Bihar	1807	10	1	Martin 1838
Netherlands	1808	20	0	Soltow & van Zanden 1998; data kindly provided by J.-L. van Zanden
Duchy of Warsaw	1810	10	0	Wronski 2021; data kindly provided by Marcin Wronski.
Kingdom of Naples	1811	12	0	Malanima 2006, Appendix p. 31
Moscovy	1811	10	0	Korchmina & Malinowski 2022

County/region	Year	Number of social classes	Colony (1) or not (0)	Source/authors
France	1831	9	0	Morrisson & Snyder 2000, Table 7, p. 73.
Bavaria	1847	18	0	Erfurth 2022; data kindly provided by Philipp Erfurth.
USA	1850	6	0	Lindert & Williamson 2016; data kindly provided by Peter Lindert.
Chile	1860	49	0	Rodriguez Weber 2014; data kindly provided by Rodriguez Weber.
USA	1860	6	0	Lindert & Williamson 2016; data kindly provided by Peter Lindert.
Prussia	1863	66	0	Erfurth 2022; data kindly provided by Philipp Erfurth.
France	1866	9	0	Morrisson & Snyder 2000; Table 7, p. 73
Great Britain	1867	14	0	Baxter (reworked by Lindert & Williamson; data kindly provided by Peter Lindert.
USA	1870	6	0	Lindert & Williamson 2016; data kindly provided by Peter Lindert.
Brazil	1872	813	0	Bertola et al.; data kindly provided by Luis Bertola.
Peru	1876	9	0	Berry 1990; table 4, p. 47. (Original estimates by Shene Hunt.)
Maghreb	1880	12	1	Amin 1966.
China	1880	3	0	Chang 1962, pp. 326-33.
Java	1880	32	1	van Zanden 2003; data kindly provided by J-L. van Zanden
Mexico	1895	19	0	Castañeda & Bergtsson 2020; data kindly provided by Diego Castañeda.
Chile	1900	49	0	Rodriguez Weber 2014; data kindly provided by Rodriguez Weber.
Russia	1904	19	0	Lindert & Nafziger 2014, data kindly provided by Peter Lindert.
Mexico	1910	19	0	Castañeda & Bergtsson 2020; available at https://swopec.hhs.se/luekhi/abs/luekhi0212.htm
Kenya	1914	13	1	Bigston 1986, 1987; Tables VI.2 and VI.4; data Kindly provided by Arne Bigston and Jeffrey Williamson.
Java	1924	14	1	Booth 1988
Kenya	1927	13	1	Bigston 1986, 1987; Tables VI.2 and VI.4; data kindly provided by Arne Bigston and Jeffrey Williamson
Cochinchina	1929	8	1	Merette 2013, Table 4.
Siam	1929	21	0	Zimmerman, data kindly provided by Jeff Williamson.
Tonkin	1929	9	1	Merette 2013, Table 3
Mexico	1930	101	0	Castañeda & Bergtsson 2020; available at https://swopec.hhs.se/luekhi/abs/luekhi0212.htm
India (British)	1938	8	1	Maddison 2013, pp. 110-11.
Mexico	1940	100	0	Castañeda & Bergtsson 2020; available at https://swopec.hhs.se/luekhi/abs/luekhi0212.htm

Annex 2. The derivation of the top 1 percent share and the cut-off point from a tabulated distribution (when the underlying distribution is assumed to be of a Pareto type)

We know that with a Pareto distribution, the inverse cumulative distribution is

$$(1) \quad H(y) = Ay^{-a}$$

where $H(y)$ =cumulative percentage of people with incomes higher than y , A =constant, and a =the Pareto coefficient.

We also know that the mean income of people with income greater than y , denoted by y_h , is:

$$(2) \quad y_h = \frac{a}{a-1} y$$

Define now $G(y)$ = total income of those with incomes above y divided by total population.

$$G(y) = \frac{\text{total income received by people with income} > y}{N \text{ (total population)}} = \frac{y_h H(y) N}{N}$$

It then follows

$$(3) \quad G(y) = \frac{a}{a-1} y A y^{-a} = \frac{a}{a-1} A y^{-(a-1)}$$

And analogously, the share of income received by people with income $> y$ is

$$(4) \quad s(y) = \frac{G(y)N}{\mu N} = \frac{G(y)}{\mu}$$

or

$$(5) \quad \ln s(y) = \ln G(y) - \ln \mu$$

It remains to find the distribution specific α . If we put the equation (3) to the exponent a :

$$\begin{aligned} (G(y))^a &= \left(\frac{a}{a-1}\right)^a H^a y^a = \left(\frac{a}{a-1}\right)^a H^a y^a = \left(\frac{a}{a-1}\right)^a H^a \frac{A}{H} \\ &= \left(\frac{a}{a-1}\right)^a A H^{a-1} = K o H^{a-1} \end{aligned}$$

where $K_0 = \text{constant}$, we can further write.

$$a \ln G = \ln K_0 + (a - 1) \ln H = K_1 + (a - 1) \ln H$$

or

$$(6) \ln H = \frac{\alpha}{\alpha - 1} \ln G - \frac{K_1}{\alpha - 1}$$

When we have the data for the inverse cumulative distributions of people and income, respectively points (H_1, s_1) and (H_2, s_2) , we can, using relations (6) and (5), retrieve the implicit α

$$\frac{\ln H_1 - \ln H_2}{\ln s_1 - \ln s_2} = \frac{\frac{a}{a-1} \ln G_1 - (\frac{a}{a-1}) \ln G_2}{\ln G_1 - \mu - \ln G_2 + \mu} = \frac{(\frac{a}{a-1})(\ln G_1 - \ln G_2)}{\ln G_1 - \ln G_2} = \frac{a}{a-1}$$

Finding α determines the income share. From the data for Cochinchina in 1929 given in Figure 1, the relevant range that encompasses the 99th percentile is $H_1=1.1223$, $s_1=8.965$, $H_2=0.3985$ and $s_2=6.6156$ meaning that the top 1.1223% of people receive 8.965% of total income, and the top 0.3985% of people receive 6.6156% of total income. Inserting these values in the last relationship,

$$\frac{a}{a-1} = \frac{\ln H_1 - \ln H_2}{\ln s_1 - \ln s_2} = \frac{\ln 1.1223 - \ln 0.3985}{\ln 8.965 - \ln 6.6156} = \frac{1.0354}{0.339} = 3.407$$

from which $\alpha=1.415$.

To obtain the share of the top 1 percent, we substitute 1 instead of H_2 . This yields

$$\frac{\ln H_1 - \ln 1}{\ln s_1 - \ln s_2} = \frac{\ln 1.1223 - \ln 1}{\ln 8.97 - \ln s_2} = \frac{0.1154}{2.193 - \ln s_2} = 3.407$$

from which the top 1 percent share is 8.67 percent.⁷

The implicit cut-off point where the top 1 percent begins can be obtained from (5). Since we know $s(y)$ and α , and $H(y)=1$

$$s(y) = \frac{G(y)}{\mu} = \frac{\frac{a}{a-1} H(y)y}{\mu} = \frac{\frac{a}{a-1} y}{\mu}$$

From which

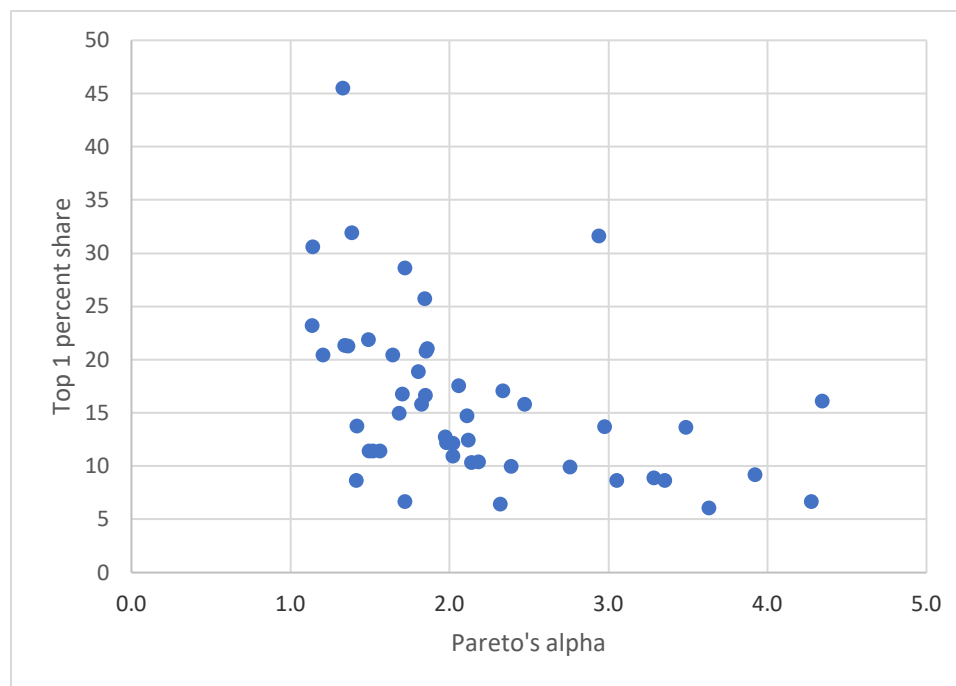
$$\frac{y}{\mu} = \frac{s(y)}{\alpha/(\alpha-1)}$$

⁷ The same result is obtained if we do the calculation “backwards”, namely substitute the top share for s_1 and keep s_2 as in the original equation.

In the Cochinchina case given here, y/μ will be $8.67/3.407=2.54$. This means that the people whose income is at least 2.54 times greater than the mean income belong to the top 1 percent. We thus obtain two key values for each distribution that we shall use in the rest of the paper: top 1 percent share, and income level (expressed in terms of mean income) where the top 1 percent begins.

Figure A1 shows the empirical relationship between Pareto's α estimated, as explained, at the very top of income distribution and the top 1 percent share. The relationship is broadly negative. This means that the distribution with very short end-tails (low absolute-value α) that imply a sharp discontinuity between the top income classes and the rest of the population are also associated with high top income shares.

Figure A1. Empirical relationship between Pareto's α and top income share in social tables



Note: the graph shows the empirical relationship between α (expressed in absolute amounts) calculated at the very top of each social tables' income distribution and the estimated top 1 percent share.

Annex 3. Richest and poorest social classes			
Country/region	Year	Richest class	Poorest class
Athens	-330	Top citizens (category 15)	Lowest meteques
Roman Empire	14	Senatorial order	Workers (free or slave)
Iraq	900	Caliph,viziers & governors	Semi-unemployed
Byzantium	1000	Civil & military nobility	Marginals
England & Wales	1290	Landowners	Agricultural laborers
England & Wales	1381	Landowners	Laborers
Florence	1427		.
Poland (Cracow)	1578	King, merchant elite	Servants (rural)
Sweden	1613	King and top nobility	Female servants, poor (in Uplandia)
England	1688	Temporal lords	Cottagers and paupers
Netherlands	1732		.
India (Moghul)	1750	Nobility & zamindars	Tribal economy
Cape Colony	1757	Farming monopolists	Boy and girls slaves
England	1759	High titled classes 1	Cottagers & paupers
USA	1774	Officials, titled, professions	Zero-wealth free HHs
France	1788	Nobles and clergy	Agricultural day laborers
Mexico	1790	Spanish upper class	Indigenous peasants
England	1801	Temporal peers	Paupers
Bihar	1807	Top 10 percent	.
Netherlands	1808		.
Duchy of Warsaw	1810	Highest tax class	Indigent (not paying tax)
Moscovy	1811	Aristocrats	Serfs in manufacturing
Kingdom of Naples	1811	Top 1 percent	Indigent (not paying tax)
France	1831	Employers	Agricultural workers
Bavaria	1847	Commanding generals, bishops	Soldiers
USA	1850	Top 1 percent	.Bottom 40 percent
USA	1860	Top 1 percent	.Bottom 40 percent
Chile	1860	Top decile	.Bottom decile
Prussia	1863	Generals, government ministers	Unemployed
France	1866	Employers	Agricultural workers
United Kingdom	1867	Large income (in England)	Unskilled manual workers
USA	1870	Top 1 percent	Bottom 40 percent
Brazil	1872	Top public officials/industrialists	Unskilled workers
Peru	1876	Potentates	Female spinners
Java	1880	Rich Europeans	
Maghreb	1880	European urban (Tunisia)	Muslim rural (Algeria)

Annex 3. Richest and poorest social classes			
Country/region	Year	Richest class	Poorest class
China	1880	Upper gentry	Commoners
Mexico	1895	Hacendados (large landowners)	Without occupation
Chile	1900	Top decile	.Bottom decile
European Russia	1904	Nobility	Private servants
Mexico	1910	Hacendados (large land owners)	Without occupation
Kenya	1914	Self employed Europeans	African small holders
Java	1924	Europeans	Sharecroppers
Kenya	1927	Self employed Europeans	African small holders
Cochinchina	1929	Rich Europeans	Daily wage earners (rural)
Tonkin	1929	Rich Europeans	Daily wage earners (rural)
Siam	1929		
Mexico	1930	Large landowners	People without occupation
India (British)	1938	British officials, traders	Landless peasants
Mexico	1940	Businessmen	People without occupation

Annex 4. The size of European population in colonized countries (in percent of overall population)

Country/region	Europeans (in % of total population)
Cape Colony 1757	10.5
Mexico 1790	10
Java 1880	0.23
Maghreb 1880	7.2
Kenya 1914	0.12
Java 1924	0.18
Kenya 1924	0.35
Cochinchina 1929	0.29
Tonkin 1929	0.19
India 1938	0.06