

The Distribution of Top Incomes in British India

An Exploration of Income Tax Records

1885-1922

AUGUSTIN BERGERON ¹

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Supervisor: Thomas PIKETTY - Referee: Facundo ALVAREDO

Abstract

We present series of the shares of income accruing to the top group of the distribution and analyse the shape of the upper part of the income distribution in British India between 1885 and 1922 using a new data set based on income tax tabulations. We obtain four main empirical results. First, income in British India was highly concentrated. The top 0.1 % of the income distribution accounted for over 8 % of total income in the 1880s. This is the highest level of income concentration experienced in India between 1885 and 2000. Second, only a minority of high income individuals were civil servants. High-income individuals in British India mainly earned their income from commerce, trade, properties and learned professions. Third, income concentration declined throughout the period, driven by the decline in income from commerce, trade, properties and learned profession and, to a lesser extent, by the decrease in employment income. Fourth, regional income concentration within British India also mattered. The evolution of top income shares can be decomposed into the decrease of income concentration in Bengal and Agra and Oudh and the increase in income concentration in Bombay, Madras, Punjab and Central Provinces.

Keywords: Top incomes, income concentration, India, Income tax

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¹ ENS Ulm and Paris School of Economics. Contact information: augustin.bergeron@ens.fr

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1 Introduction

The evolution of income inequality during the process of development has attracted much attention in the economic literature. Recent studies have constructed series for shares of income accruing to upper income groups for various countries using income tax statistics (Atkinson and Piketty, 2007, 2010). The countries studied are Australia, Canada, China, Denmark, Finland, France, Germany, India, Indonesia, Ireland, Italy, Japan, Mauritius, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland, Tanzania, the United Kingdom and the United States². Few such study focus on colonies with the exception of India (since 1922: Banerjee and Piketty, 2010), Indonesia (since 1920: Leigh and Vand der Eng, 2006), Mauritius (since 1933: Atkinson, 2011a), Singapore (since 1946: Atkinson 2010), and Tanzania (since 1948: Atkinson, 2011b). This paper proposes to start filling this gap by analyzing the experience of British India between 1885 and 1922 using a novel dataset of income tax statistics. The experience of British India sheds new lights on several important issues.

A first issue is the short term impact of colonisation on income inequality. One aspect is the position of the colonial elite during the period of British rule. To which extent were resources appropriated by the ruling class? Another aspect is the composition of the elite. How important was the European elite? Was the elite mostly agricultural, salaried, governmental, industrial or commercial? There is little firm empirical evidence about the short term impact of colonisation on income inequality in British India. Maddison (1971), Milanovic, Lindert and Williamson (2007) and Roy (2007) find high levels of income inequality during the colonial period but their results rely on scant data³.

A second issue is the evolution of colonial and post-colonial income inequality. Banerjee and Piketty (2010) have constructed series of top Indian incomes between 1922 and 2000 but little is known about the anterior evolution of income concentration in India. Constructing long run series of income concentration in British India would put in historical perspective the evolution of top incomes during the interwar and the process of decolonisation.

A third issue is the long term impact of colonisation on inequality. Recent research has emphasized the role of colonial political and economic institutions in determining subsequent economic performance (Acemoglu, Johnson and Robinson, 2001 and 2002, Acemoglu and Robinson, 2012). Angeles (2007) has argued that “Colonial History is a major explanatory factor behind today’s large differences in inequality”, finding that the percentage of European settlers is associated

² See Atkinson & Leigh (2007a), Veal (2012), Piketty and Qian (2010), Atkinson and Sogaard (2013), Jantti et al. (2010), Piketty (2003), Dell (2007), Banerjee and Piketty (2010), Leigh and van der Eng (2010), Brian (2007), Alvaredo & Pisano (2010), Moriguchi and Saez (2008), Atkinson (2011a), Atkinson and Salverda (2007), Atkinson and Leigh (2007b), Aaberge and Atkinson (2010), Alvaredo (2010), Atkinson (2010), Alvaredo & Atkinson (2011), Alvaredo & Saez (2010), Roine & Waldenstrom (2008), Dell, Piketty and Saez (2007), Atkinson (2011b), Atkinson (2007), and Piketty & Saez (2007).

³ Maddison (1971) provides a description of the social structure of India at the end of British rule based on miscellaneous budgetary and census material, and national income data. Milanovic, Lindert and Williamson (2007) use social tables for Moghul India in 1750 and for British India in 1947. They estimate that the Gini coefficient lied between 38.5 and 48.9 in 1750 and between 48.2 and 49.7 in 1947. Roy (2007) uses Atkinson’s (1902) national income estimate for 1875 and the first compilation of the national accounts in 1948. He estimates that the Gini coefficient was 35 in 1875 and 30 in 1948.

with significantly higher values of today's Gini coefficient. In the case of colonial India, Iyer (2010) has found evidence that the quality of governance in the colonial period had a significant and persistent effect on postcolonial outcomes. Areas that experienced direct rule have significantly lower levels of access to schools, health centers, and roads and higher levels of inequality in the postcolonial period than areas under indirect rule.

In order to throw new lights on these issues we construct series of top income shares and analyze the shape of the top of the income distribution in British India between 1885-1886 and 1922-1923 using new income tax data. The use of tax statistics is not without drawbacks. First, since only a fraction of the population files a tax return, studies using tax data are restricted to the upper part of the income distribution and are silent about changes in the lower and middle part of the distribution. Second, estimates may be biased due to exemptions, tax evasion and corruption. These elements, which are common to all countries, are critical in the case of British India. Yet despite their shortcomings, and because there is little concrete alternative information, results using income tax data remain a unique and useful source to describe income concentration.

We obtain four main results. First, income in British India was highly concentrated. The top 0.1 per cent of the income distribution accounted for over 8 per cent of total income in the 1880s. This is at the highest level of inequality in the period in the World Top Incomes Database sample. It is also the highest level of income concentration in India between 1885 and 2000 and about two times as high as in the recent period. Second, contrary to the traditional image of a colonial administrative elite, only a minority of high income individuals were civil servants. High-income individuals in British India mainly earned their income from commerce, trade, properties and learned professions. Third, income concentration declined throughout the period, driven by the decline in income from commerce, trade, properties and learned profession and, to a lesser extent, by the decrease in employment income. Fourth, regional income concentration within British India also mattered. The provinces of Bengal and Bombay, economically dominant, concentrated more than 60 per cent of top incomes, leaving 40 per cent to Madras, Agra and Oudh, Punjab and Central Provinces. Over the period the evolution of top income shares can be decomposed into the decrease of income concentration in Bengal and Agra and Oudh and the increase of income concentration in Bombay, Madras, Punjab and Central Provinces. This can be explained by differences in regional development patterns.

The paper is organised as follows. Section 2 describes our income tax data, outlines our estimation methods, and discusses the issues of exemption, tax evasion and corruption in British India. In section 3 we explain the derivation of the control totals for population and income. Section 4 describes the population of income tax payers. The results are analyzed in section 5, which presents estimates of the top income shares in British India, and section 6, concerned with the shape of the upper tail. Section 7 concludes. The complete details on our data and methods, as well as the complete sets of results are presented in Appendices A to D.

2 The Income Tax Data

2.1 Obtaining the Income Tax Data

The first pre-requisite for constructing the new dataset is that a personal income tax to be in existence. The income tax was introduced in British India with the *Indian Income Tax Act* of 1860 but due to strong opposition of the economic elite it was abolished in 1865⁴. The government of British India returned to the income tax with the *Indian Income Tax Act* of 1886 to correct the injustice of the fiscal regime⁵. The *Indian Income Tax Act* of 1918 and then the *Indian Income Tax Act* of 1922 repealed the *Indian Income Tax Act* of 1886.

The second factor determining the feasibility of the research is that the tax authorities assemble statistics on the taxpaying population. The information that we have been able to locate concerning the distribution of taxpayers are the income tax returns published annually by the administration of each province of British India under the *Indian Income Tax Acts* of 1886, 1918 and 1922. Two types of publications containing informations on the distribution of tax payers have been used in this study, namely the *Annual Reports on the Administration of the Income Tax Act* and the *Triennial Reports on the Administration of the Income Tax Act*. The first year for which income tax tabulations are available is 1886-1887 and the last year is 1923-1924.

2.2 Description of the Income Tax Data

The main data employed are the tabulations of taxpayers by ranges of income, giving the number of taxpayers and the amount of tax collected in the range. We estimated the total taxable income in each range by means of the statutory tax scales. The income tax was assessed on income accruing in the previous year. An assessment was thus made in year $(t + 1)$ on the total income accruing in year t . The later is referred to here as income year t . Unless otherwise stated, we refer to income year, so that the first year for which we have data is 1885-1886 and the last year is 1922-1923⁶.

⁴ According to Pagar (1920), “The *Indian Income Tax Act* of 1860 was abolished due to the strong opposition from the trade associations of Calcutta, Madras and Bombay”.

⁵ According to Niyogi (1929), Lord Dufferin, Viceroy of India, advocated in 1886 that “the growth of rich salaried positions under the Government, the increase in the number of the foreign merchants and traders, the slow but steady growth of the cotton and jute manufactures, and the rise of the learned professions, all point to the adoption of an income tax”.

⁶ Financial years run from April 1st to March 31st in British India (1886-1887 refers to the period running from April 1st 1886 to March 31st 1887, etc., 1923-1924 to the period running from April 1st 1922 to March 31st 1923). Tabulations published in the *Annual Reports on the Administration of the Income Tax Act* and the *Triennial Reports on the Administration of the Income Tax Act* always refer to assessment years, i.e. the year in which the income is assessed, while we always refer to income years. For instance, tabulations published for 1886-1887 contains the data on income year 1885-1886, etc., tabulations published for 1923-1924 contains the data on income year 1922-1923.

Under the *Indian Income Tax Act* of 1886 the income tax was not levied on individuals total income but on different sources, or schedules of income: salary, annuity, pension or gratuity (schedule one); net profit made by a company (schedule two); interest on the securities of the government of India (schedule three) and other sources of income, i.e. income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families (schedule four). In order to obtain total income tabulations we made two changes to the income tax tabulations. Firstly, to obtain the number of income taxpayers we summed the number of taxpayers under schedule one and four by income brackets. Secondly, to obtain the amount of income tax we summed the amount of tax collected under schedule one and four by income range ⁷. As a consequence, by implicitly assuming that no taxpayer is liable to both schedule one and four we underestimate individual's income to an extent that is difficult to assess ⁸. Under the *Indian Income Tax Acts* of 1918 and 1922 the schedular tax system was abolished and an overall income tax was introduced. We did not make any change to the income tax tabulation as they directly report the number of taxpayers and the amount of tax collected by ranges of total income ⁹.

2.3 Analysis of the data

Since the income tax data are in the form of grouped tabulations, and the intervals do not in general coincide with the percentage groups of the population with which we are concerned (such as the top 0.1 per cent, the top 0.05 per cent, etc.), we have to interpolate in order to arrive at the shares of total income. Under the assumption that the top tail of the income distribution is well approximated by a Pareto distribution, we can use simple parametric interpolation methods to estimate the threshold and average income levels for each fractile. This method follows the classical study by Kuznets (1953) and has been used in most of the top income studies presented in Atkinson and Piketty (2007, 2010).

⁷ We do not use the information on net profit made by a company (schedule two) as it only concerns firms. We do not include Interest on the securities of the government of India (schedule three) in our definition of total income since the *Annual Reports on the Administration of the Income Tax Act* and the *Triennial Reports on the Administration of the Income Tax Act* record the amount of tax collected by range of income but not the number of taxpayers.

⁸ For example Pagar (1920) reports the case of salaried military surgeons (income corresponding to schedule one) who are also employed as house surgeons in private hospitals (income corresponding to schedule four). We underestimate their income for two reasons. First, if one of the sources of income is below the exempt threshold then it is not reported in the tabulations. Second, if both sources of incomes are above the exempt threshold both are taxed separately and we consider two taxpayers instead of one.

⁹ The demand for systematic returns of income under the provisions of the *Indian Income Tax Act* of 1918 aroused a great deal of opposition during the assessment years 1918-1919 and 1919-1920 (income years 1917-1918 and 1918-1919) in Bengal, Bombay and Madras (details are provided in the *Reports on the Administration of the Income Tax Act for the Triennium ending 31st March 1920*). The statistical quality of the data for those years is defective with obvious and large inconsistencies which make the data non-usable.

This paper is not only concerned with top income shares. These depend crucially on the estimated control totals for income, and for this reason we also analyse the shape of the distribution that do not depend on the income totals. In order to understand more fully the distribution among the tax paying elite, we make use of two different approaches presented in Atkinson and Piketty (2007,2010) and Atkinson (2013). First, we report the inverse Pareto-Lorenz coefficient β by income range. Second, we show at different percentile points the upward slope of the income distribution M .

2.4 The Issue of Exemptions, Tax Evasion and Corruption

The income tax data are drawn from an administrative process that had shortcomings. Coverage of taxpayers and income is likely to be incomplete due to exemptions, tax evasion and corruption.

First of all, some sources of income were exempted from the income tax. Incomes from agricultural land and houses, assessed to the Land Tax and provincial cesses, were exempted¹⁰. Attempts to include agricultural incomes in a general income tax were rejected on account of strong opposition from the middle and upper class landholders¹¹. Agricultural land and houses remained exempt from the income tax under the *Indian Income Tax Acts* of 1922, 1956 and 1961 used by Banerjee and Piketty (2010)¹². Other minor exemptions existed for casual receipts; premia paid to an insurance company; savings not exceeding one sixth of total income and house insurance and repairs not exceeding ten per cent of the gross rental.

Secondly, some sources of income evaded the income tax. Tax evasion was very limited in the case of employment incomes which were taxed at source¹³. Nevertheless for other sources of incomes the income tax was directly assessed by local registrars under the *Indian Income Tax Act* of 1886 and based on taxpayer's compulsory returns of income verified by assessing officers under the *Indian Income Tax Acts* of 1918 and 1922. Tax compliance was limited since little resources were allocated to the assessment. Throughout the period, as the resources allocated to income tax assessment increased, tax evasion diminished¹⁴.

¹⁰ Sources suggest that a minority of top income earners were landowners in British India. The Census of India of 1901,1911 and 1921 report that only 4 per cent of British subjects and other Europeans derived their income from rents. According to Maddison (1971) big zamindars and jagirdars (i.e. Indian landowners) constituted 0.05 per cent of the population and took less than 1 per cent of national income.

¹¹ Pagar (1920) reports that "attempts were made to bring agricultural incomes under the income tax but the representatives of the great landed estates in combination with the official sympathisers always carried the amendment and left the law where it was before"

¹² The definition of taxable income did not change under the *Indian Income Tax Acts* of 1886, 1918 and 1922. Our top incomes series and the ones provided by Banerjee and Piketty (2010) are thus compatible and comparable.

¹³ Income tax reports always explain thoroughly changes in the number of taxed salaries, annuities, pensions and gratuities. For example, the *Report on the Administration of the Income-Tax Act in the Central Province for the year 1894-95* indicates that "the increase in the Nagpur District is due to the additions of a few employees of the Empress Mills whose salaries had been increased. In Rajpur the increase is stated to be due to the taxation for the first time of the salaries of the establishment of the recently opened Rajkumar College, and to the increase in the staff of the Executive Engineer, Chhattisgarh Feudatory States Road Division. etc. "

¹⁴ For example the *Report on the Income Tax Administration of the Punjab and North West Frontier Province*

Thirdly, other factors might have affected the accuracy of income tax figures. For example cases of corruption and identity theft of income tax assessors have been reported by the income tax administration¹⁵.

The tax data are affected by exemptions, tax evasion and corruption and must be treated with caution. The reader must bear in mind that incomes are likely to be under-stated in the results that follow to a degree that is difficult to assess. At the same time they provide an insight into the distribution of income in a country and period about which we have no other empirical information.

3 Control Totals for Population and Income

3.1 Control totals for population

The number of tax units recorded in the income tax statistics has to be related to the population of tax units as a whole. Under the *Indian Income Tax Act* of 1886, 1918 and 1922 the tax unit was the single adult individual or the married couple or the Hindu Undivided Family. The corresponding total is taken therefore to be the total population minus the number of persons aged under 15 minus the number of married women minus the number of single adults or married couples who are members of a Hindu Undivided Family. There are therefore four steps: (a) estimation of total population, (b) subtraction of those aged under 15, (c) subtraction of married women aged above 15, (d) subtraction of single adults or married couples who are members of a Hindu Undivided Family.

The total population data for British India are taken from Davis (1951). At the heart of these population figures are the Census of India and these provide the basis for the adjustment to adult population and for married women discussed below. The earlier censuses of India have however been the subject of debate. As argued by Visaria and Visaria (1983) the censuses of 1881 and 1891 should be treated with caution on the grounds that there had been under-enumeration of some 2 per cent. It is for this reason that the population figures provided by Davis (1951) for 1881 and 1891 are higher than those published at the time in the Census of India. By 1901 the entire sub-continent was covered by the census and there was important improvements in enumeration techniques. The population figures provided by Davis for 1901, 1911, 1921 and 1931 are thus those published in the Census of India.

for the Year 1922-1923 indicates that "Under the *Indian Income Tax Act* of 1886 there were 11 special Income-tax Officer and a staff of 30 Naib-Tahsildars for enquiry and survey. Under the *Indian Income Tax Act* of 1918 the new department started with a staff of two assistant commissioners to hear appeals, 20 Income-tax Officers to do the work of assessment and 54 Inspectors for survey and enquiry. In addition there were 17 temporary Munims or Accountants. Under the new *Indian Income Tax Act* of 1922 the number of Income-tax Officers and Inspectors increased to 26 and 56 respectively".

¹⁵ The *Report on the Administration of the Income Tax Act in the lower provinces during the triennium ending on the 31st March 1902* indicates that "the income tax assessors worked on the whole satisfactorily with two exceptions. A serious charge of corruption was brought in the Dinajpur district and in Calcutta a man who used to personate the assessor was caught by the Police. Both were sentenced by the Court of the Presidency Magistrate to imprisonment for nine years".

We first subtract individuals aged under 15 to the total population figures. The Census of India of 1881, 1891, 1901, 1911, 1921 and 1931 have attempted to record the exact ages of the population, which have been tabulated in quinquennial age groups. Over the period there was little variations in the proportion of the total population aged under 15: 38.6 per cent in 1881, 38.8 per cent in 1891, 38.4 per cent in 1901, 38.3 per cent in 1911, 38.8 per cent in 1921 and 38.7 per cent in 1931. The average proportion of 38.6 per cent of the total population aged under 15 has been applied throughout the period.

We then subtract married women aged above 15 to the population figures. The Census of India of 1881, 1891, 1901, 1911, 1921 and 1931 record the number of married men and women for each quinquennial age group. According to the census figures, there had been little variations in the proportion of married women aged above 15: 17.8 per cent of the total population in 1881, 18 per cent in 1891, 18.4 per cent in 1901, 17.9 per cent in 1911, 18.3 in 1921 and 18.2 in 1931. Throughout the period considered here we apply the average proportion and consider that married women aged above 15 constituted 18.1 per cent of the total population.

Finally, we subtract single adults or married couples who are members of a Hindu Undivided Family. There is very little evidence on the total number of Hindu Undivided Family. Throughout the period considered here we apply the figure provided by Visaria and Visaria (1983) who estimate that Hindu Undivided Family constituted roughly 10 per cent of the total population in the early twentieth century. Applying the adjustment to adult population and for married women discussed above we can consider that 43.4 per cent of the members of a Hindu Undivided Family are single adults or married couples. Throughout the period considered here single adults or married couples who were members of a Hindu Undivided Family can thus be considered to constitute 4.3 per cent of the total population.

Taken together this means that the tax unit total is equal to 39 per cent of the total population. In their study on top Indian Incomes between 1922 and 2000 Banerjee and Piketty (2010) set the theoretical number of tax units to be equal to 40 per cent of the total population of India throughout the period¹⁶. Since we want our top incomes series to be comparable to those provided by Banerjee and Piketty (2010) and because the number of tax units are only being used here to provide a sense of scale, the number of tax unit is set to be equal to 40 per cent of the total population of British India throughout the period¹⁷.

¹⁶ According to Banerjee and Piketty (2010), this number is lower than India's adult population (the 15-year-and-over population makes about 60 per cent of total population since the 1920s), very close to India's labor force (the labor force consists of about 45 per cent of total population since the 1920s) and represents a rough estimate of the potential "positive-income population" of India.

¹⁷ When, for instance, considering the 446,634 income taxpayers in British India in 1901-1902, it is enough to know that they constitute between 0.5 and 0.51 per cent of all tax units depending on whether we consider the tax unit total as equal to 39 per cent or 40 per cent of the total population.

3.2 Control totals for income

The income reported in the income tax statistics has to be related to the total household income. It is obtained in two steps: (i) obtaining a measure of total current national income; (ii) identifying the part of national income that accrues to households.

One difficulty when seeking a measure of total national income is that estimates of national income for India are of recent origin. The first official attempt at preparing national income estimates started in 1949 with the appointment of the National Income Committee (NIC). In 1951 it submitted its First Report presenting the estimates of national income for 1948-1949. This was followed by the Final Report in 1954, setting out the estimates for 1948-1949 to 1950-1951. The compilation of the annual estimates of national income was thereafter continued by the National Income Unit (NIU) and later transferred to the Central Statistical Organisation (CSO).

Since we are seeking control totals for the period 1885-1886 to 1922-1923 we can not rely on official estimates. Throughout the period considered here a number of pioneer estimates of national income have been made. Particular mention may be made for the estimates by Atkinson (1902) for 1895-1896, Digby (1901) for 1898-1899 and Shah and Khambatta (1924) for 1921-1922. There have also been a number of attempts to extend point estimates backward and forward. Notable among them are the series by Patel (1958), Arora and Iyengar (1960) and Mukerjee (1969). Nevertheless, these studies are very dissimilar, rely on scanty data and use rough and ready methods¹⁸. For these reasons they should be considered as mere approximations and are not used in this study.

We make use in this paper of the later estimates by Heston (1983) and Sivasubramonian (2000). Heston (1983) provides annual estimates of domestic product for the 1868-1869 to 1899-1900 period. He uses the output approach for the agricultural sector, based on official statistics of crop yields and on all-India crop cutting results. For industry and services he extrapolates backwards the initial estimates of Sivasubramonian (1965) with the help of labour force estimates. Sivasubramonian (2000) presents annual estimates of national income for the 1900-1901 to 1946-1947 period. National income is obtained by direct computation on the basis of available data in a large number of official and non-official publications, annual reports and blue books, report of various committees and commissions, ad hoc enquiries and investigations, as well as the works of various scholars. The output approach is adopted for the whole of the primary sector and also for mining, manufacturing, and house property, while the income approach is adopted for the other sectors. Net income from abroad is estimated separately and added to the net domestic product to obtain national income. The figures provided by Heston (1983) and Sivasubramonian (2000) are subject to qualification but they provide the best available series for the period considered here¹⁹.

¹⁸ see Mukerjee (1969) pp. 46-55 Sivasubramonian (2000) pp. 3-4 and Roy (2011) pp. 83 for a critical survey of early national income estimates

¹⁹ Heston (1983) pp. 409 "Our historical income estimates have limitations for at least two reasons. First of all, the crop reporting system is subjective and biased downward. Secondly, the distribution of the working force

Heston (1983) does not provide estimates of national income but of domestic product. Consequently for the 1885-1886 to 1899-1900 period, the national income series is obtained by extending Sivasubramonian (2000) backwards using year-to-year variations in the domestic product series provided by Heston (1983). For the 1900-1901 to 1922-1923 the national income series are directly provided by Sivasubramonian (2000). Our series are compatible with Banerjee and Piketty (2010) who also make use of the national income series provided by Sivasubramonian (2000) for their control totals for income.

The second step concerns the breakdown of national income. Household income is less than national income to the extent that income accrues to the government and there are undistributed company profits; operating in the opposite direction, government transfers and payment of debt interest add to household income. Typically, this leads household income to be less than national income. In their study on top Indian Incomes between 1922 and 2000, Banerjee and Piketty (2010) set household income as 70 per cent of national income for the entire 1922-2000 period. In order to be able to compare our top incomes series with the one provided by Banerjee and Piketty (2010) and in the absence of more reliable estimates, household income is set to 70 per cent of the national income throughout the 1885-1886 to 1922-1923 period.

4 The Colonial Income Taxpayers

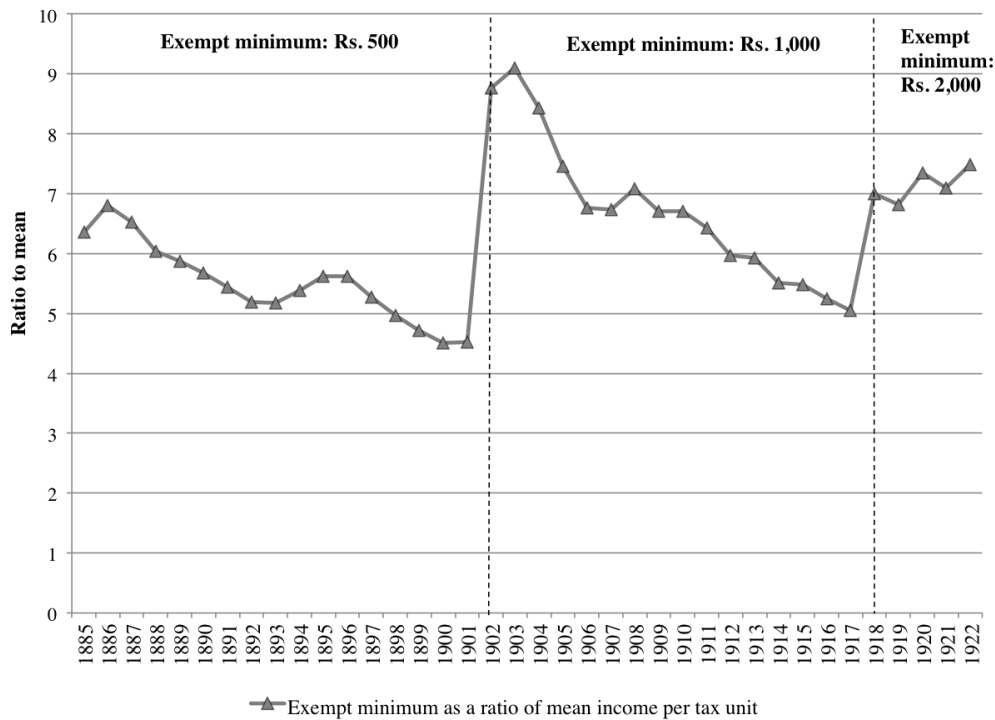
4.1 Who were the income taxpayers?

From the level at which the tax threshold was set, it is evident that tax payers were an extremely well-off minority. Figure 1 displays the exempt minimum as a ratio of mean current income per tax unit. In 1885-1886 the exempt minimum was Rs. 500, which was six times the average income per tax units. In 1902-1903 when the exempt minimum increased to Rs. 1,000 it represented nine times the mean income per tax unit. Finally, in 1918-1919 the exempt minimum was set to Rs. 2,000, which was seven times the average income per tax unit²⁰.

seems to have varied more with the changes in census questions than with the economy". Sivasubramonian (2000) pp. 9 "Compelled by the staggering gaps in the Indian statistics, we had to resort to some bold assumptions to arrive at some of the estimates. These assumptions would naturally affect the reliability of the estimates. So varied is the material that has been pressed into service and so many have been the adjustments that became necessary to make them comparable that any precise statement of the margin of error is likely to be misleading."

²⁰ According to Pagar (1920) the increases in the exempt minimum were "a concession of the government to the group of rich traders, lawyers and industrialists who pleaded for lower taxation"

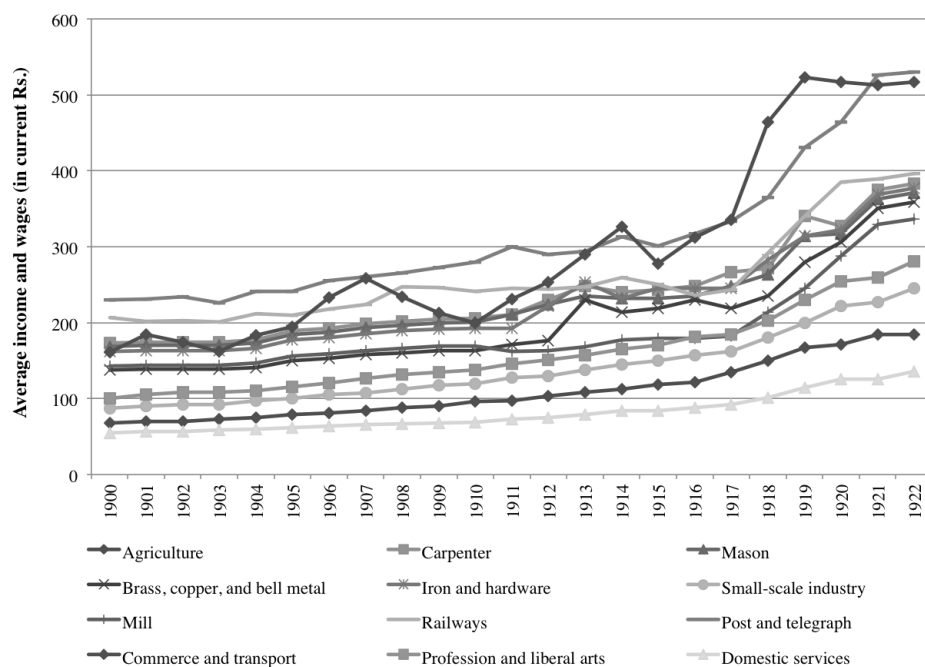
Figure 1. Exempt minimum as a ratio of mean income in British India, 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix C, Table C.1, Column 9

Available data on income and wages in British India confirm that only a tiny elite was liable for the income tax. The mean income and wages by occupation in British India between 1900-1901 and 1922-1923 reported by Sivasubramonian (2000) and displayed in Figure 2 are all below the exempt minimum. Atkinson (1902) provides a more detailed overview of wages and income in British India in 1895. According to his study, were liable for the income tax: civil and military officers, high-ranking government officials (deputy collector, extra assistant commissioners, subordinate judges and higher law officers), high-ranking professions (barristers, solicitors, surgeons, engineers, priests) and high-ranking traders (bankers, money lenders, merchants, brokers, shopkeepers, factory managers, estate agents)²¹.

²¹ The yearly salaries of the civil and military officers and of the high-ranking government officials is ascertained with accuracy as they rely on pay draws: Covenanted civil officer Rs. 18,840, Uncovenanted officer Rs. 7,920, Staff corps officer Rs. 10,560, Army British service officer Rs. 7,920, Marine officer Rs. 6,000, Native commissioned officer Rs. 900, European non-commissioned officer Rs. 800, High-ranking government officials (deputy collector, extra assistant commissioners, subordinate judges and higher law officers) Rs. 6,420. For the other classes the approximate average wage and income is obtained from the income tax figures: Barristers and solicitors Rs. 923, Surgeons Rs. 948, Engineers Rs. 832, Priests Rs. 776, Bankers Rs. 1,200, Money lenders Rs. 861, Merchants Rs. 706, Brokers Rs. 600, Shopkeepers Rs. 526, estate agents and managers Rs. 1,200.

Figure 2. Earnings and income in British India, 1900-1922

Sources: Sivasubramonian (2000)

Were the taxpayers mostly Europeans? The European population was relatively small in British India. The Census of India of 1901 reports 127,621 British subjects and 11,329 other Europeans. Subtracting individuals aged under 15 (22,168 and 1,693 respectively) and married women aged above 15 (15,884 and 1,803 respectively) gives a total of 89,569 British tax units and 7,833 other European tax units. The same year there were 88,815,579 estimated tax units and 446,634 taxpayers. Assuming that all were liable for the income tax, British tax units thus constituted 0.1 per cent of tax units and 20 per cent of taxpayers while other Europeans represented 0.01 per cent of tax units and 2 per cent of taxpayers. The Census of India of 1911 and 1922 report numbers of the same order of magnitude²². The actual proportion must have been lower since many Europeans were certainly not receiving sufficient income to be liable for the income tax²³.

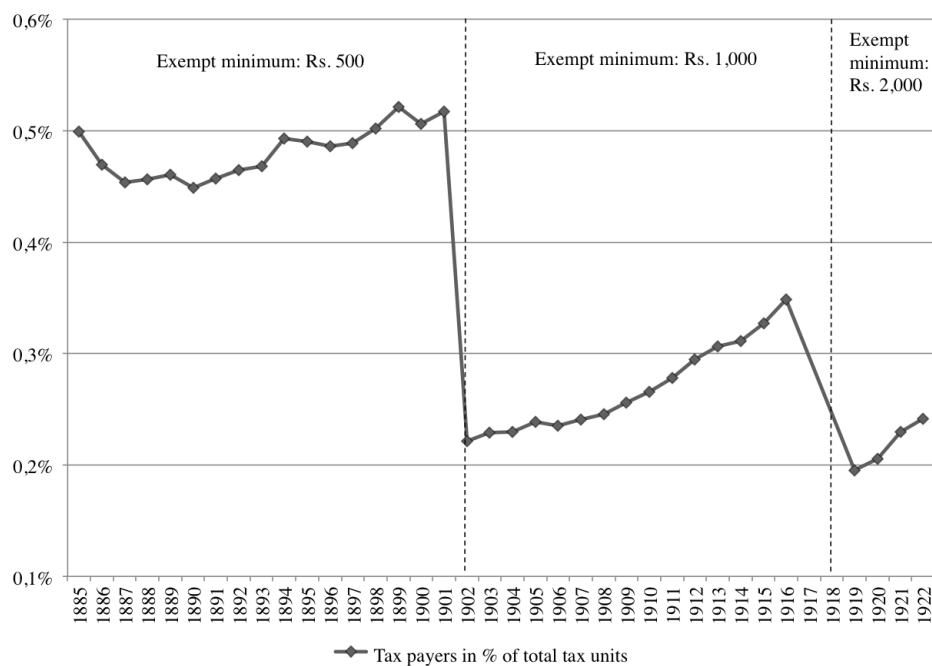
²² The Census of India of 1881 and 1891 only report population by birthplace and do not specify the decomposition by age and gender which makes the data non-usable to estimate the share of Europeans tax units. The Census of India of 1911 reports for British India 148,000 British subjects and 9,779 other Europeans. Subtracting individuals aged under 15 (25,128 and 1,355 respectively) and married women aged above 15 (19,204 and 1,739 respectively) gives a total of 103,668 British tax units and 6,676 other European tax units. The same year there were 92,501,974 estimated tax units and 245,487 taxpayers. Assuming that all of them were liable for the income tax, British tax units thus constituted 0.1 per cent of tax units and 42 per cent of taxpayers while other Europeans represented 0.01 per cent of tax units and 3 per cent of taxpayers. The Census of India of 1921 reports for British India 133,010 British subjects and 8,559 other Europeans. Subtracting individuals aged under 15 (22,188 and 1,957 respectively) and married women aged above 15 (17,967 and 1,695 respectively) gives a total of 92,855 British tax units and 4,907 other European tax units. The same year there were 93,617,443 estimated tax units and 215,048 taxpayers. Assuming that all of them were liable for the income tax, British tax units thus constituted 0.1 per cent of tax units and 43 per cent of taxpayers while other Europeans represented 0.01 per cent of tax units and 2 per cent of taxpayers.

²³ According to Atkinson (1902) in British India in 1895 there were 66,500 European soldiers, whose average yearly wage was Rs. 372, i.e. below the exempt minimum

4.2 The erosion of the income tax

Figure 3 presents the evolution of the percentage of taxable tax units. In 1885-1886, 0.49 per cent of the tax units paid the income tax. In 1902-1903 with the increase in the exempt minimum the number of taxpayers diminished by more than half and only 0.22 per cent of the tax units paid the income tax. The proportion of taxpayers once again diminished with the second increase in the exempt minimum in 1918-1919 when 0.18 per cent of the tax units paid the income tax. Over the period the increase in the exempt minimum implied a decrease in the proportion of taxpayers and an erosion of income taxation. The proportion paying the income tax might seem low but in this context it is worth remembering that in the early day of the US personal income tax (1913-1915) the corresponding proportion of taxpayers was 0.9 per cent (Piketty and Saez, 2007).

Figure 3. Taxpayers in per cent of total tax units in British India, 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix C, Table C.1, Column 5

5 Top Income Shares and Composition

5.1 Historical Background

At the beginning of the period, British India was predominantly a rural society based on agriculture and handicraft industry. its GDP per capita was around \$550 (in 2012 dollars), similar to poor countries such as Burundi, Central African Republic, Niger and Togo today²⁴. Throughout the period studied here, agricultural expansion was the mainstay of economic growth. The colonial regime played a role in enhancing the productive power of agriculture by means of the railways and investments in large irrigation schemes. Industrial expansion suffered from European manufactures flooding the market. As a result most economic historians regard the period as an episode of “de-industrialisation” (Bagchi, 1976, Twomey, 1983, Guha, 1989, Harnetty, 1991). The share of agriculture in total employment rose from 72.4 per cent to 74.5 per cent. In small-scale industries that used no machinery like handloom weaving and leather manufacture employment fell from 13.4 to 11.3 per cent of the workforce. In large-scale industries like cotton, jute, iron and steel employment increased from 0.2 to 1.2 per cent²⁵.

Figure 4. Real income per tax unit and consumer price index in British India, 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix C, Table C.1, Column 8 and 10

²⁴ See the historical series of real GDP per capita provided by Bolt and van Zanden (2013)

²⁵ Employment composition is provided by Krishnamurty (1983)

To provide an overview of our sample period figure 4 depicts the average real income per capita, per adult and per tax unit, estimated from the total controls for population and income along with the price index for the period 1885-1886 to 1922-1923. Before the First World War, as the world demand for agricultural goods increased commercialisation of agriculture increased and the average income rose by 1.3 per cent per year. In the war and inter-war period, land scarcity relative to population led to a rural crisis. While land became scarce, land-saving investments did not occur to the extent required. Consumer prices rose by 76 per cent and the average income declined by 1.2 per cent per year .

5.2 Trends in Top Income Shares

Figure 5 displays the top 0.1 per cent income share from 1885-1886 to 1999-2000 using our new series as well as the series provided by Banerjee and Piketty (2010)²⁶. Figure 6 decomposes the top 0.1 per cent between 1885-1886 and 1922-1923 into three subgroups: the top 0.01 per cent, the next 0.04 per cent (top 0.05 - 0.01), and the bottom half of the top 0.1 per cent (top 0.1 - 0.05 per cent). Two findings emerge from these figures.

Firstly, the highest income concentration occurs in the 1880s. The top 0.1 per cent share was around 8 per cent and about two times as high as in the recent period. This finding is not surprising as British India was characterized by low average income and the presence of an extremely well-off elite. However, lack of any statistics on income concentration made this claim impossible to establish rigorously. The income tax statistics used here demonstrate that Indian income concentration was indeed much higher in the colonial period than it is today²⁷.

Secondly, the *Indian Income Tax Acts* of 1886, 1918 and 1922 display an overall decrease in the top 0.1 per cent income share. Only the First World War period saw an increase in top income shares. The higher income group experienced the faster and larger fall in their top income shares between 1885-1886 and 1922-1923. While the share of the top 0.1-0.05 per cent group declined by 12 per cent (from 8.1 per cent to 5.5 per cent), the next 0.04 per cent group fell by more than 18 per cent (from 1.7 per cent to 1.2 per cent) and the top 0.1 per cent income share decreased by 31 per cent (from 8.1 per cent to 5.6 per cent).

²⁶ Our top incomes series and the series provided by Banerjee and Piketty (2010) have the income year 1922-1923 in common. Our estimate of the top 0.1 per cent as well as the estimate provided by Banerjee and Piketty (2010) have been reported in Figure 4. They only differ by 1% (i.e. 0.06 percentage point). It reinforces our conviction that our top incomes series and the ones provided by Banerjee and Piketty (2010) are compatible and comparable.

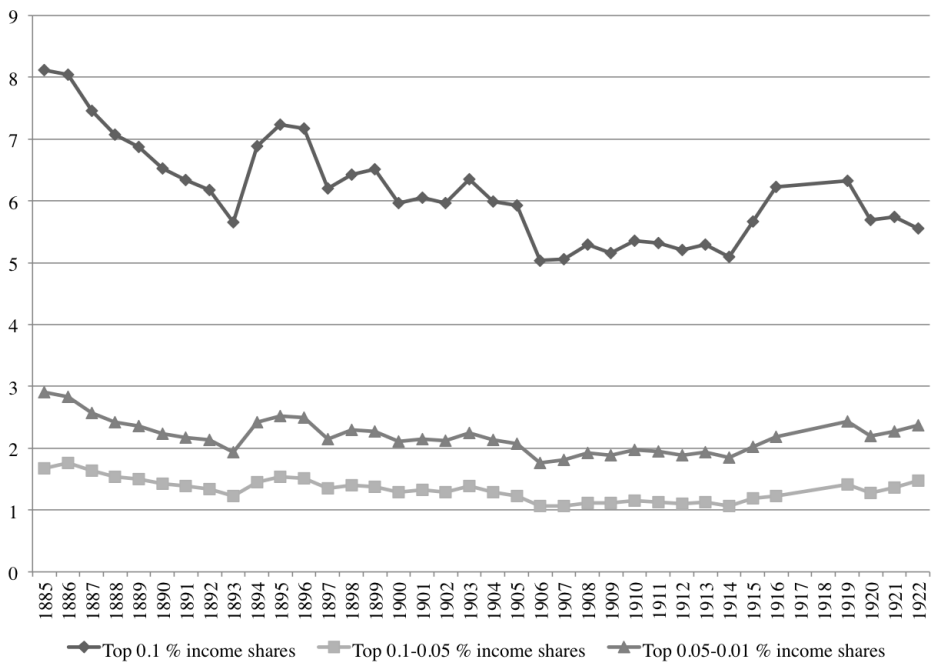
²⁷ If tax evasion at the very top was higher during the colonial period than today, then this reinforces our finding that income concentration was higher during the colonial period

Figure 5. Top 0.1 per cent income shares in India, 1885-1999



Source: Banerjee and Piketty (2010) and authors' computations using income tax returns and tax units estimates. See Appendix D, Table D.1

Figure 6. Composition of the top 0.1 per cent income shares in India, 1885-1922

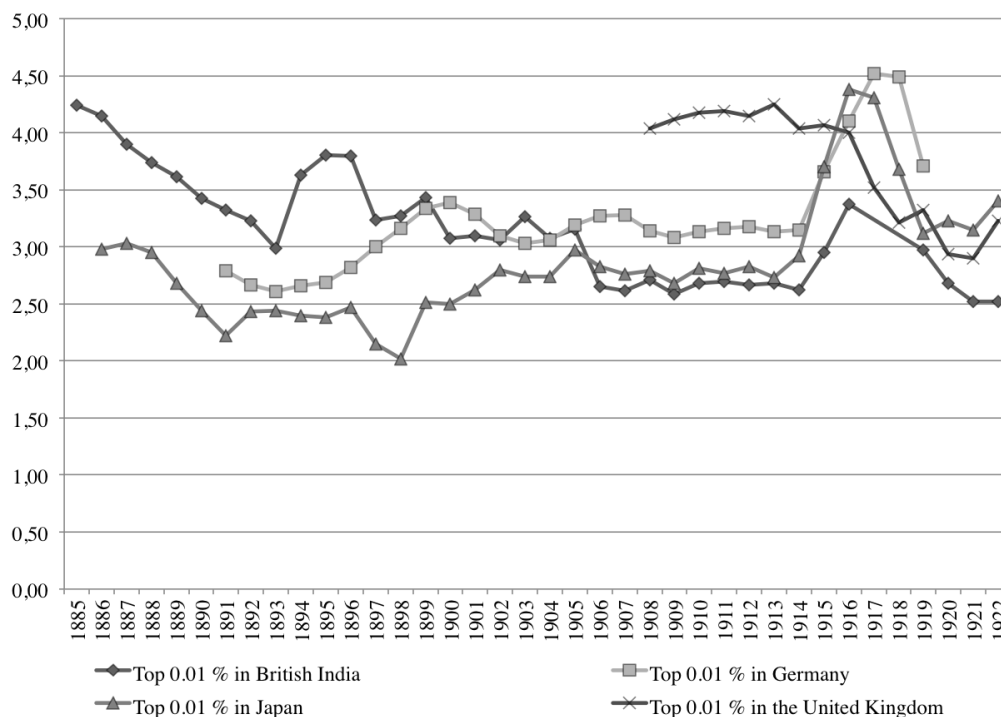


Source: authors' computations using income tax returns and tax units estimates. See Appendix Appendix D, Table D.1

In light of our discussion in the Introduction about the specificity of colonies in terms of inequalities relative to western countries it is interesting to compare the trends in income concentration between colonial India and other countries. Figure 7 displays the top 0.01 per cent income share in British India, United Kingdom (from Atkinson, 2007), Germany (Dell, 2007) and Japan (Moriguchi and Saez, 2010) between 1885-1886 and 1922-1923²⁸.

British India started with a level of income concentration in the late nineteenth century that was higher than Germany or Japan. However, income concentration in British India declined during the early twentieth century while it increased in Germany and Japan. By the end of the period top income shares in British India were slightly lower than in Germany, Japan and the United Kingdom. Differences in the evolution of top income shares over the period can be explained by different growth trajectories. In the United Kingdom, Germany and Japan the ongoing industrial revolution led to high pace industrialization and large profits²⁹. In contrast British India experienced an episode of de-industrialisation.

Figure 7. Decomposition of the top 0.01 per cent income shares in India, 1885-1922



Source: Atkinson (2007), Dell (2007), Moriguchi and Saez (2010) and authors' computations using income tax returns and tax units estimates. See Appendix Appendix D, Table D.1

²⁸ The series are estimated using similar methodologies across countries although there are of course differences in the details. However, it is important to note that the denominator (as a fraction of national income) is comparable across countries. It is actually lower in British India (70 % of national income) than in United Kingdom (85% of national income), Germany (85 % of national income) and in Japan (80 % of national income).

²⁹ In Germany, the industrial revolution started in the late 1870s with the development of iron, steel and coal industries as well as chemical industries. In Japan the industrial revolution started in the late 1880s with the formation of large-scale corporation in modern industries such as railroads or textiles

5.3 Trends in Top Income Composition by source of income

To better understand the mechanisms that led to the progressive decline in the top income shares in British India between 1885-1886 and 1922-1923, we use composition data from the income tax statistics. In Figure 8 we decompose the top 0.1 per cent income share into three categories: (i) employment income paid by the government or by local authorities; (ii) employment income paid by companies, associations and private employers; (iii) income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families³⁰. Figure 9 displays the composition of income across top groups within the top 0.1 per cent income share for 1885-1886 and 1922-1923.

Because our estimates are based on the composition of total income reported in the income tax statistics, immediate caveats are in order. Firstly, as incomes from agricultural land and houses were exempted they are missing from the assessed income tax statistics. Secondly the series are not perfectly homogeneous since the income tax was schedular under *the Indian Income Tax Act* of 1886 while an overall income tax was introduced under the *Indian Income Tax Acts* of 1918 and 1922. Thirdly, taxation at source likely reduced tax evasion of employment income relative to other sources of income.

With these caveats in mind, we make the following observations from the top income composition data. First, throughout the 1885-1886 to 1922-1923 period, approximately 72 per cent of the top 0.1 income consisted of income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families with roughly 62 per cent for commerce and trade, 4 per cent for property, 3 per cent for professions, 2 per cent for manufacture and 2 per cent for the rest³¹. Employment income paid by the government and local authorities constituted 16 per cent of the top 0.1 per cent income, slightly more than employment income paid by companies, associations and private employers, which represented 12 per cent of the top 0.1 per cent income. Contrary to the traditional image of a colonial administrative elite, only a minority of high income earners were civil servants. Top income earners were much more likely to be traders, bankers, money lenders, etc.

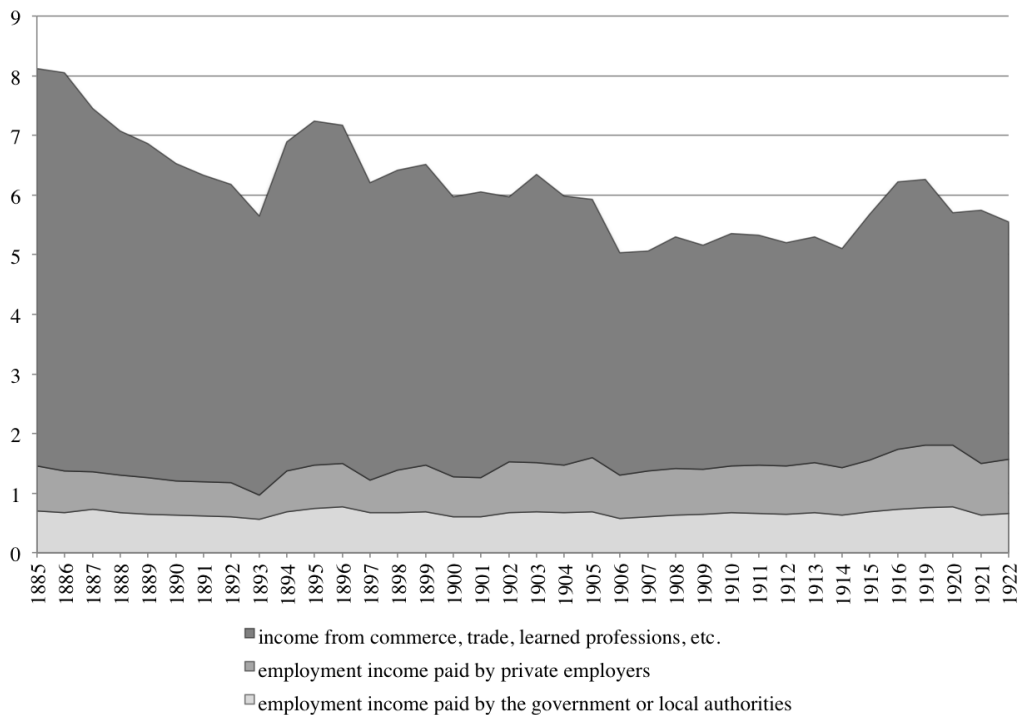
³⁰ Under the *Indian Income Tax Acts* of 1886, 1918 and 1922 the income tax tabulations report the number of taxpayers and the amount taxed by income brackets separately for (i) salaries, pensions, annuities and gratuities paid by the Government; (ii) salaries, pensions, annuities and gratuities paid by local authorities; (iii) salaries, pensions, annuities and gratuities paid by companies, public bodies, associations and private employers; (iv) Other sources of Income (i.e. income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families).

³¹ The income tax tabulations do not systematically report the distribution of assessment of income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families. Nevertheless, a few *Reports on the Administration of the Income Tax Act* provide some informations. In the *Annual Reports on the Administration of the Income Tax Act in the North-West Frontier Province for the year 1902-1903* one can read that “commerce and trade head the list with 84 per cent of the collections. Property comes next with 5 per cent, while professions contribute 4 per cent and manufacture only 3 per cent. Under commerce and trade bankers and money-lenders have contributed to no less than 28 per cent, dealers in food-grains contributed 16.7 per cent, dealers in animals 13.2 per cent, and contractors and piece-good merchants 11 per cent. Under professions education is responsible for 2 per cent, barristers for 17 per cent, other legal practitioners 59 per cent and medical 33 per cent. Under manufacture builders paid 2 per cent, cotton spinning and weaving 5 per cent, flour mills 6 per cent, silk reeling and weaving 6 per cent, spirits 5 per cent, sugar making and refining 19 per cent and tanneries and leather works 16 per cent.”

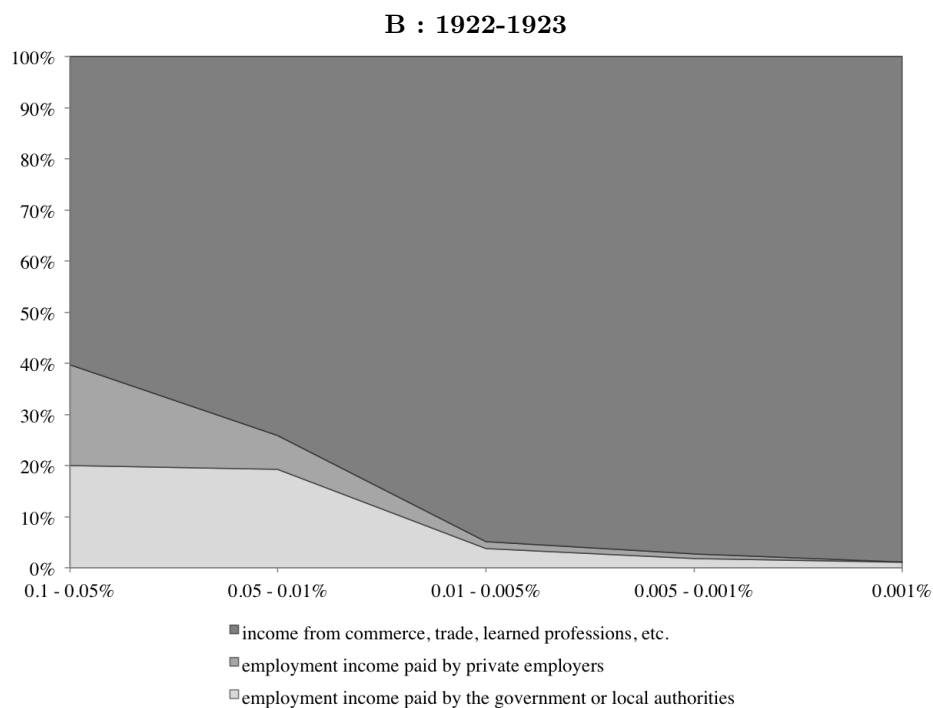
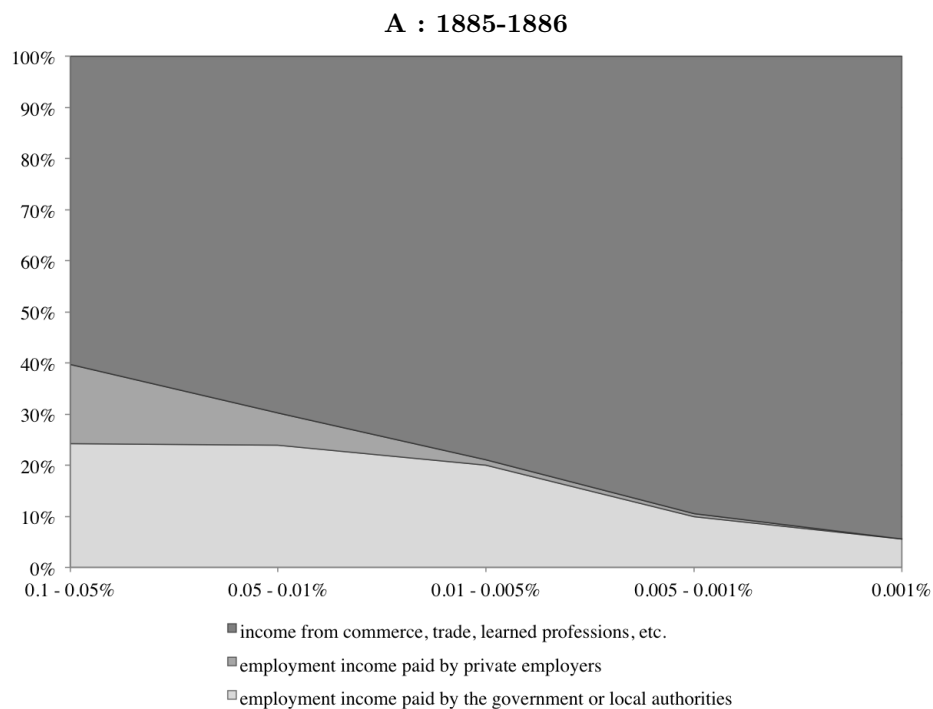
Second, the composition of income varied substantially within the top 0.1 per cent. In 1885-1886 the income of the bottom half of the top 0.1 per cent (top 0.1-0.05 per cent), could be decomposed into employment income paid by the government and local authorities (24 per cent), employment income paid by companies, associations and private employers (16 per cent) and income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families (60 per cent). The share of employment income paid by the government or by local authorities dropped with rank, constituting only 5.5 per cent of the income of the top 0.001 per cent group. Employment income paid by companies, associations and private employers also fell with rank, representing only 0.1 per cent of total income of the top 0.001 per cent group. In contrast, income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families made up the largest share of the very top of the distribution. 1922-1923 displays a similar pattern with an even stronger drop in employment income with rank.

Third, the decrease in top income shares between 1885-1886 and 1922-1923 is due to a 40 per cent decrease in income from commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families and to a 7 per cent decrease in income paid by the government and local authorities. Employment income paid by companies, associations and private employers increased by 20 per cent.

Figure 8. The top 0.1 per cent income share and composition in British India, 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix D, Table D. 3.

Figure 9. Income composition of top groups within the top 0.1 per cent in 1885-1922

Source: authors' computations using income tax returns and tax units estimates. See Appendix D, Table D.3

5.4 Trends in top Incomes composition by Province

To further understand the trends in income concentration in British India between 1885-1886 and 1922-1923, we analyze variations in income concentration within British India, using the fact that income tax statistics were published separately by each province of British India. This is new in the top income literature³². In Figure 10 we decompose the top 0.1 per cent income share in British India into six groups of provinces : (i) Bengal; (ii) Bombay; (iii) Madras; (iv) Agra and Oudh; (v) Punjab; (vi) Central Provinces³³. Figure 11 represents the provincial composition of income across top groups within the top 0.1 per cent income share for 1885-1886 and 1922-1923. Keeping in mind that income from agricultural land and houses is missing from the assessed income tax statistics, we make the following observations from the provincial composition.

First of all, high income earners were mostly concentrated in Bengal and Bombay. Throughout the 1885-1886 to 1922-1923 period approximately 60 per cent of the top 0.1 per cent income belonged to these two provinces with 34 per cent accruing to Bengal and 26 per cent to Bombay. Madras, Agra and Oudh, Punjab and Central Provinces concentrated 15 per cent, 14 per cent, 8 per cent and 3 per cent of the top 0.1 per cent income, respectively.

Secondly, the provincial composition of income varied substantially within the top 0.1 per cent. In 1885-1886 the income of the bottom half of the top 0.1 per cent (top 0.1-0.05 per cent), could be decomposed into Bengal (25 per cent), Bombay (25 per cent), Agra and Oudh (21 per cent), Punjab (14 per cent), Madras (12 per cent) and Central Provinces (3 per cent). The share of Bengal and Bombay increased with rank, constituting 44 per cent and 29 per cent of the income of the top 0.001 per cent group, respectively. In contrast, the share of Madras, Agra and Oudh, Punjab and Central Provinces dropped at the very top of the distribution.

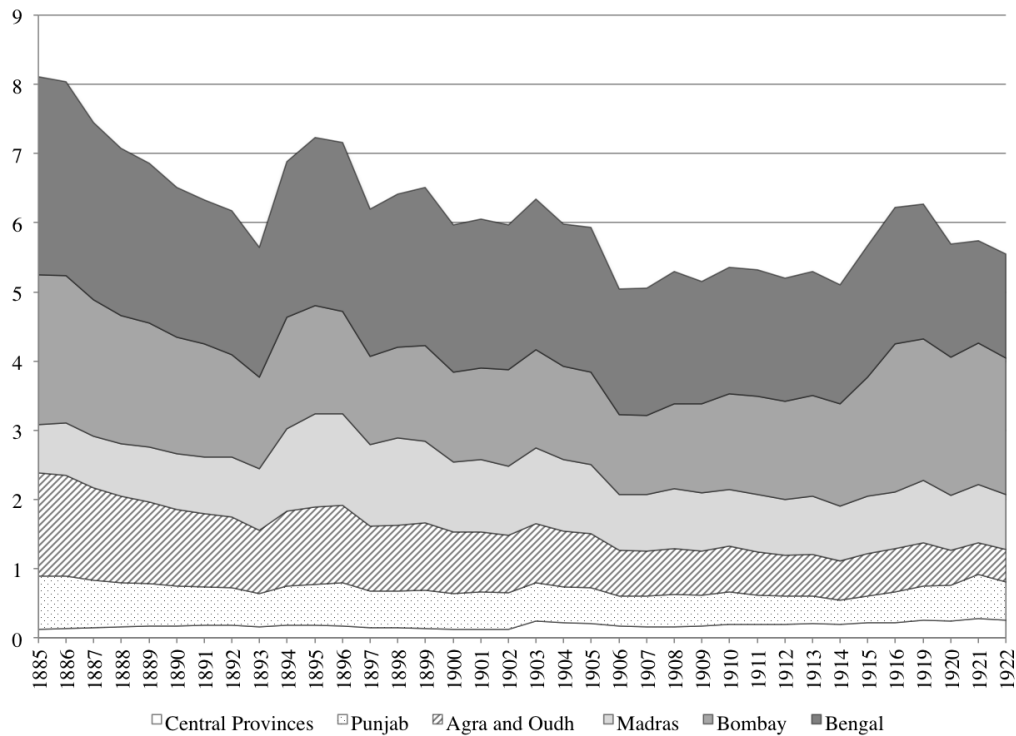
Thirdly, over the period the share of Bengal and Agra and Oudh in the top 0.1 per cent decreased by 23 per cent and 54 per cent, respectively. In contrast the share of Bombay, Madras, Punjab and Central Provinces increased by 32 per cent, 66 per cent, 6 per cent and 96 per cent, respectively. The provincial composition of income within the top 0.1 saw a large increase in the share of Bombay with rank throughout the period.

³² None of the studies gathered in Atkinson and Piketty (2007, 2010) analyze within country variations in income concentration. The reason is that in most of the cases the income tax tabulations used were only published at the national level.

³³ During the period covered by this study, the geographic delimitations as well as the number of provinces varied considerably in British India due to administrative and political changes. In order to provide consistent series we present our results for six groups of provinces whose delimitation did not vary between 1885-1886 and 1922-1923 : (i) Bengal (Assam, [1885-1904 & 1911-1922], Eastern Bengal and Assam [1905-1910], Lower Provinces of Bengal [1885-1922] and Bihar and Orissa [1912-1922] ; (ii) Bombay (Bombay [1885-1922]); (iii) Madras (Madras [1885-1922]); (iv) Agra and Oudh (North Western Province and Oudh [1885-1901] and United Provinces of Agra and Oudh [1902-1923]); (v) Punjab (Punjab [1885-1922], North-West Frontier [1901-1922], Delhi [1912-1922]); (vi) Central Provinces (Central Provinces [1885-1922]; Coorg [1885-1922]).

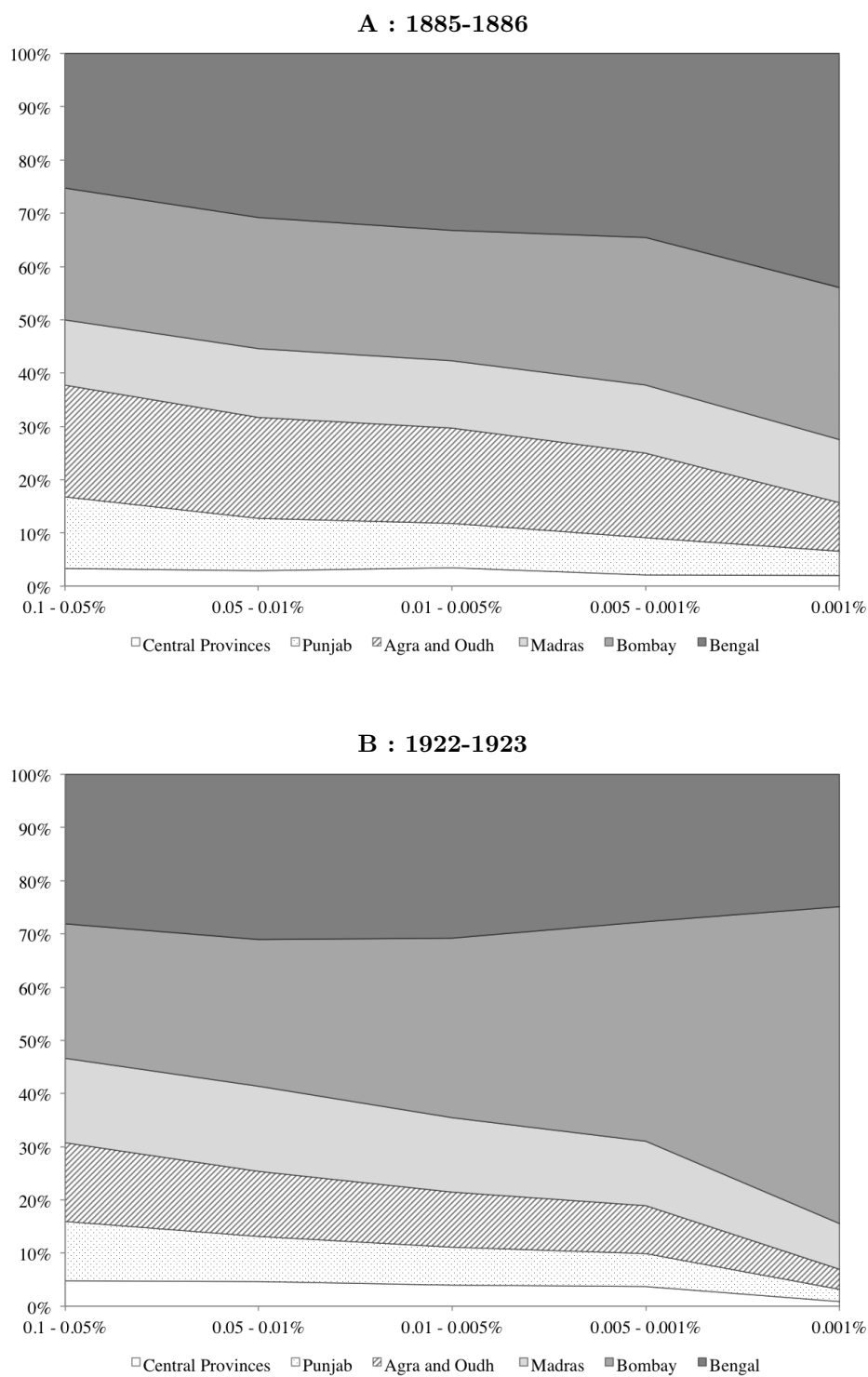
The concentration of top incomes in Bengal and Bombay can be explained by their economic dominance. Throughout the period large-scale agricultural and industrial activities and infrastructures were mostly concentrated in the provinces of Bengal and Bombay. Along with the development of suitable infrastructures (railways, electric power, banking sector, etc.) these provinces and the city ports of Calcutta and Bombay benefited from exceptional growth of foreign trade and from important natural resources. In Bengal, the vast inland provided jute, tea, barley, silk, coal and weaving industries flourished. Bombay with its inland rich in cotton specialized in cotton spinning and heavy metal industries. The increase in top income composition in some of the provinces of British India might be explained by asymmetric provincial development. As described by Bagchi (1976), Bombay benefited from heavy expenditures on railways, large-scale irrigation works, the development of an Indian capitalist class and the boom in cotton demand. In Madras, Punjab and Central Provinces the government undertook large-scale irrigation works and encouraged the use of improved implements in agriculture.

Figure 10. Provincial decomposition of the top 0.1 per cent income share in British India, 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix D, Table D.5

Figure 11. Provincial composition of top income groups within the top 0.1 per cent in 1885-1922



Source: authors' computations using income tax returns and tax units estimates. See Appendix D, Table D.5

6 Studying the Shape of the Income Distribution

One of the most important qualifications surrounding the top income share estimates is that relating to the control total for income. The uncertainties surrounding the control totals for income can be avoided if we look at the shape of the upper part of the income distribution.

6.1 Pareto in British India

The general interpolation technique used to compute top income shares is based on the well known empirical regularity that the top tail of the income distribution is very closely approximated by a Pareto distribution. A Pareto distribution has the following cumulative distribution function:

$$F(y) = 1 - (k/y)^a, k > 0, a > 1 \quad (1)$$

k and a are constants, and a is the Pareto parameter of the distribution. The corresponding density function is given by:

$$f(y) = \frac{ak^a}{y^{1+a}} \quad (2)$$

Such a distribution has the key property that the ratio of average income $y^*(y)$ of individuals with income above a given threshold y is always exactly proportional to y :

$$y^*(y) = \left(\int_{z>y} z f(z) dz \right) / \left(\int_{z>y} f(z) dz \right) = \left(\int_{z>y} dz / z^a \right) / \left(\int_{z>y} dz / z^{1+a} \right) = a / (a - 1) y \quad (3)$$

The ratio $y^*(y)/y$ does not depend on the income threshold y :

$$y^*(y)/y = a / (a - 1) \quad (4)$$

The standard way of investigating the shape of the upper part of the income distribution is to compute the Pareto-Lorenz coefficient α by regressing the logarithm of the reverse cumulative distribution, $1 - F(y)$ on the income level y ³⁴. The value of α is most easily interpreted in terms of the upward slope of the logarithm of income line as one moves up the distribution, where a smaller α indicates a steeper slope. Shirras (1935) adopted this approach using income tax statistics for British India between 1913-1914 and 1929-1930 and estimated $\alpha \simeq 1.45$ ³⁵.

³⁴ The relationship between $\log(1 - F(y))$, $\log(y)$ and α is $\log(1 - F(y)) = \log((k/y)^\alpha) = \alpha \log(k) - \alpha \log(y)$

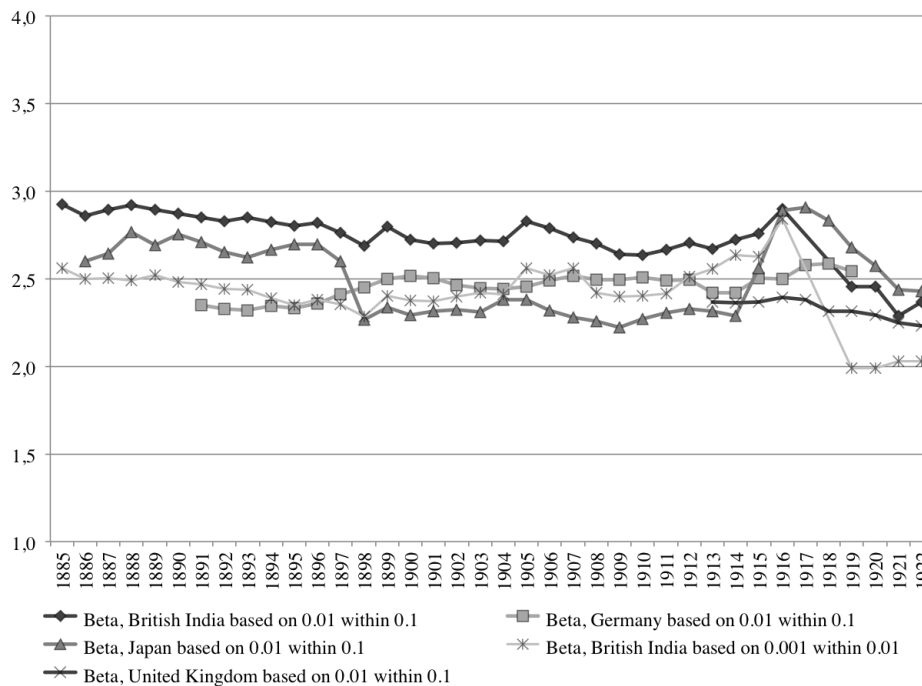
³⁵ Shirras (1935) estimates of α vary year by year: 1.45 in 1913-1914, 1.46 in 1914-1915, 1.46 in 1915-1916, 1.44 in 1916-1917, 1.39 in 1917-1918, 1.13 in 1923-1924. Consequently, the author concluded that "there is indeed no Pareto law. It is time that it should be entirely discarded in studies on the distribution of income". This point of view has been criticized by Adarkar and Sen Gupta (1936).

6.2 Inverse Pareto-Lorenz coefficients

This way of investigating the shape of the upper part of the income distribution, however, ignores the information on the total income received by each income range. A possible alternative is to consider by income range the inverse Pareto-Lorenz coefficient $\beta = a/(a - 1)$. A higher inverse Pareto-Lorenz coefficient means a fatter upper tail of the distribution and thus higher inequality. In Figure 12 we display the inverse Pareto-Lorenz coefficient β for British India, Japan, Germany and the United Kingdom between 1885-1886 and 1922-1923³⁶. Figure 13 represents the Inverse Pareto-Lorenz coefficient β , separately by source of income in British India between 1885-1886 and 1922-1923. Two findings emerge from these figures.

First of all, β coefficients were high and decreased slightly throughout the period. This indicates a high level of income concentration and a progressive decrease in income concentration. β coefficients were also always higher in British India than in Japan, Germany and the United Kingdom. Nevertheless, when comparing values of the inverse Pareto-Lorenz coefficient β we have to bear in mind that the value of the Beta coefficient as a summary measure depends on how closely the Pareto assumption holds. In the case of British India we can see that the values of β coefficients strongly depend on the points chosen on the distribution.

Figure 12. Inverse Pareto coefficient in British India, 1885-1886 to 1922-1923

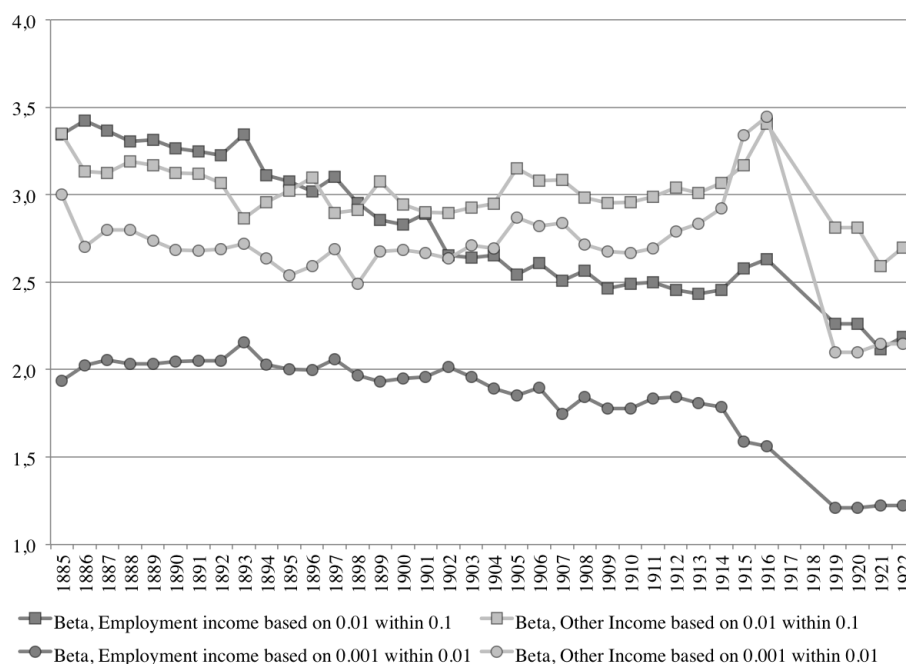


Source: Atkinson (2007), Dell (2007), Moriguchi and Saez (2010) and authors' computations using income tax returns and tax units estimates. See Appendix Appendix D, Table D.2

³⁶ Inverse Pareto-Lorenz coefficients can be computed from top income shares. Assuming that the cumulative distribution F within the top group is such that $(1 - F)$ is proportional to y^{-a} , then the within-group share of the top 0.01 per cent within the top 0.1 per cent, denoted $S_{0.01}/S_{0.1}$ is given by $(0.1)^{1-1/a}$. The previous relationship can be written $a = 1/(1 + \text{Log}_{10}(S_{0.001}/S_{0.1}))$.

Secondly, β coefficients for employment income were lower than β coefficients for commerce, trade, properties, learned professions, manufacture, construction and income of Hindu undivided families. Income concentration was thus lower for employment income than for other sources of income. β coefficients for employment income significantly decreased and β coefficients for other sources of income slightly declined. Employment income and other source of income experienced a decline in income concentration of different magnitudes.

Figure 13. Inverse Pareto coefficient by source of Income in British India, 1885-1886 to 1922-1923



Source: authors' computations using income tax returns and tax units estimates. See Appendix D, Table D.4

6.3 The M Ratio

The inverse Pareto-Lorenz coefficient β takes into account the share of total income and the share of total population but ignores the information about the income at which each range commences. An alternative, initiated by Atkinson (2013), consist in mapping the upward slope of the income distribution as summarized by the ratio $M = y^*(y)/y^{37}$. This approach takes into account the share of total income, the share of total population and the income at which each range commences. In Figure 14 we map the M curves in British India between 1885-1886 and 1922-1923. Figure 15 and 16 display the M curves in British India by source of income and Province for a selection of years of the 1885-1886 to 1922-1923 period. We make the following observations:

³⁷ With the Pareto distribution this curve is constant. But the evidence for British India suggests that this is not generally the case.

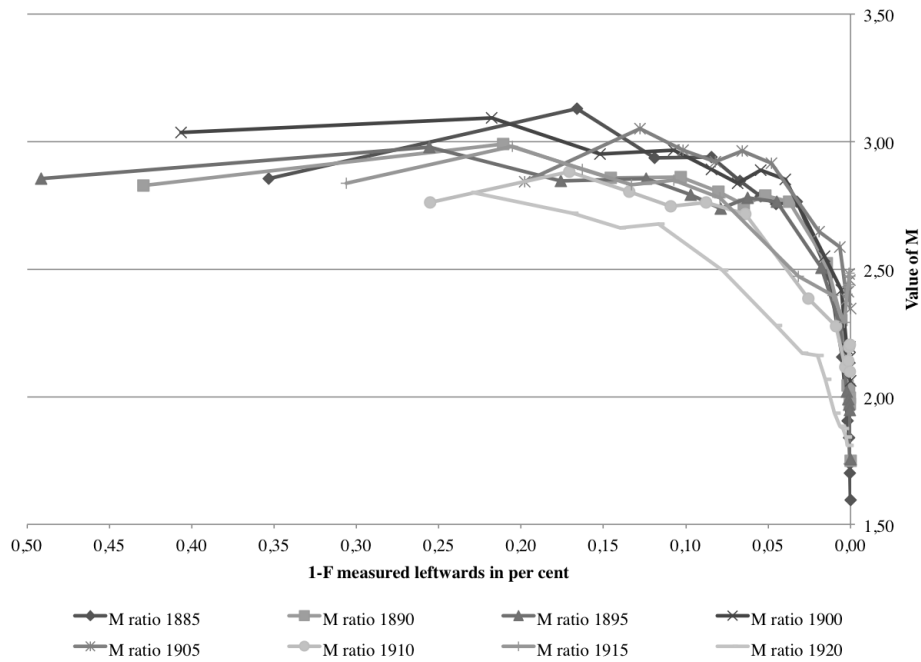
First of all, the M curves were high and slightly moved downward throughout the period, meaning that income concentration was high but decreased between 1885-1886 and 1922-1923.

Secondly, M curves for employment income significantly moved downward throughout the period, indicating a decrease in employment income concentration. M curves for other sources of income slightly moved downward, suggesting a smaller decline in income concentration for other sources of income. While during the late nineteenth century, M curves for employment income and other sources of income intersected, during the early twentieth century M curves for employment income were always below M curves for other income. Progressively employment income became less concentrated than other sources of income at all percentiles.

Thirdly, at the beginning of our period, the M curves of Bengal and Bombay are the highest, indicating high income concentration in these two provinces. Throughout the period the M curves of Bengal and Agra and Oudh moved downward and the M curves of Bombay, Madras, Punjab and Central Provinces moved upward. Income concentration increased in Bombay, Madras, Punjab and Central Provinces and decreased in Bengal as well as in Agra and Oudh.

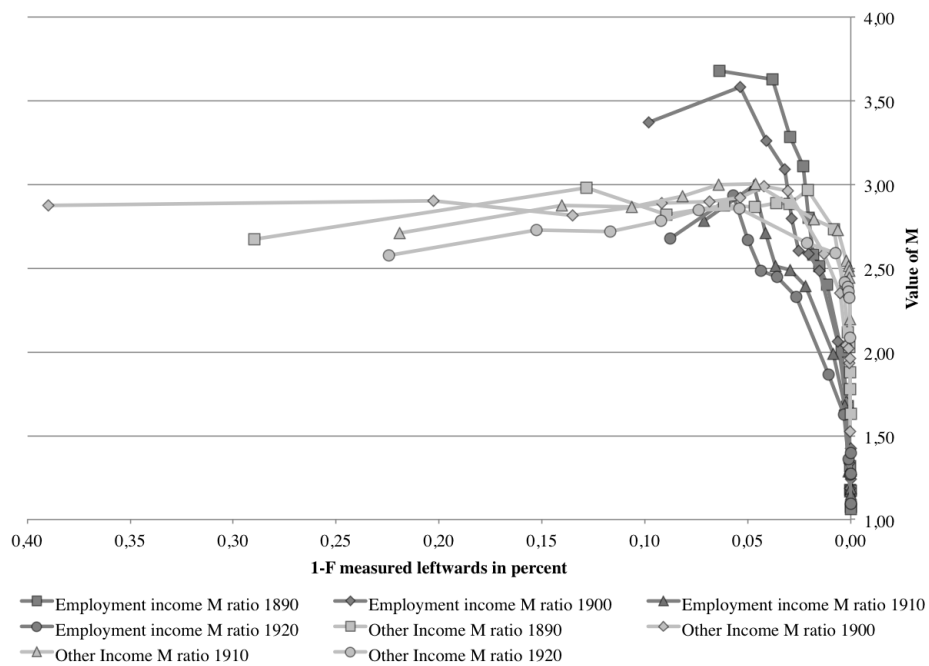
The analysis of the shape of the upper part of the income distribution confirms the main results presented in section 5. Income concentration was high in British India and decreased throughout the period. It also provides some further evidence that the decrease in income concentration was due to both a decrease in employment income concentration and to a decrease in income concentration for other sources of income. Finally it confirms that there was a great deal of variation in income concentration within British India. Throughout the period income concentration increased in Bombay, Madras, Punjab and Central Provinces and decreased in Bengal as well as Agra and Oudh.

Figure 14. M curves in British India, 1885-1886 to 1922-1923



Source: authors' computations using income tax returns and tax units estimates.

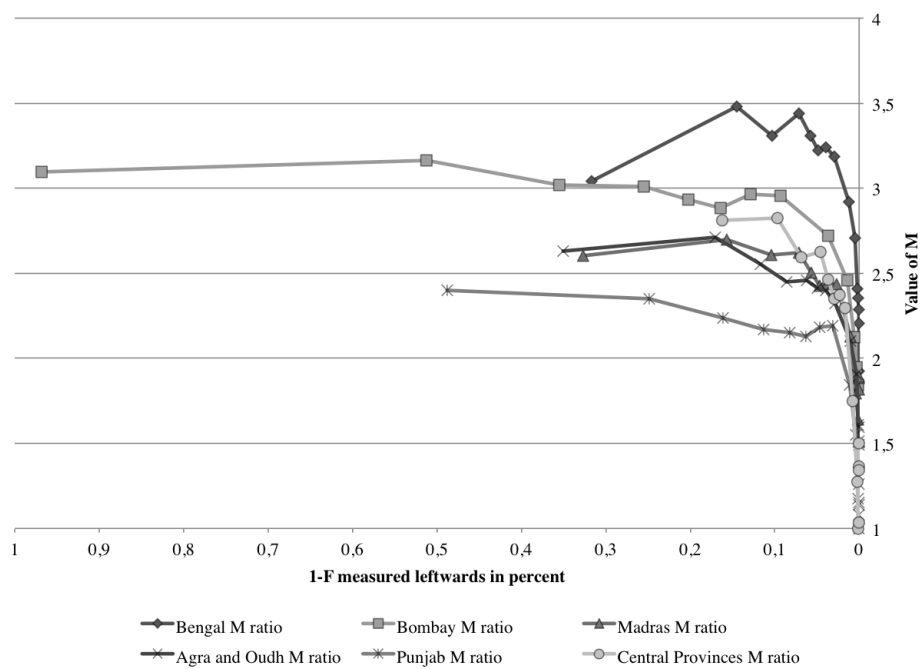
Figure 15. M curves by source of income in British India, 1885-1886 to 1922-1923



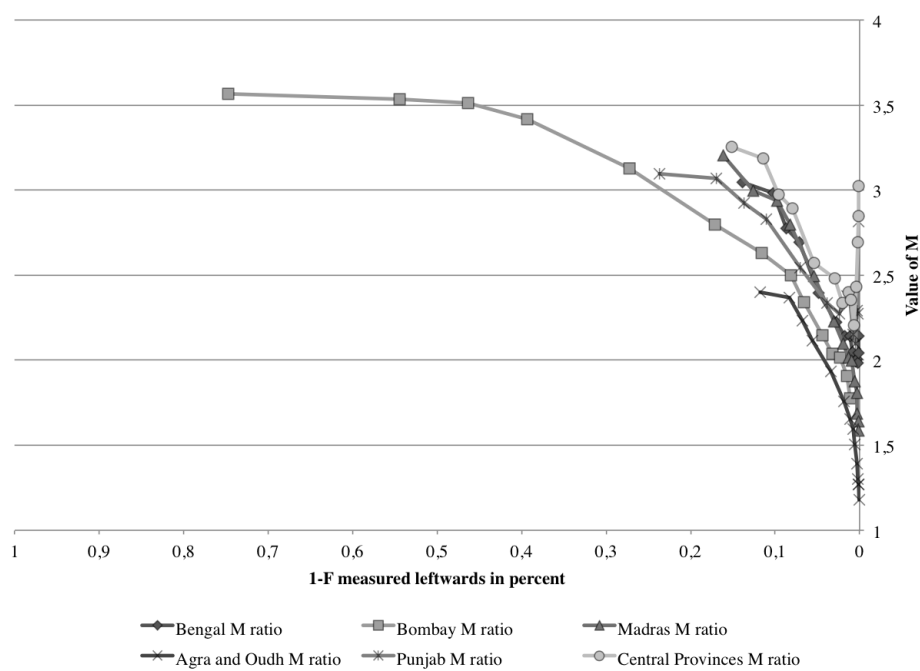
Source: authors' computations using income tax returns and tax units estimates.

Figure 16. M curves in the Provinces of British India, 1890-1891 and 1920-1921

A : 1890-1891



B : 1920-1921



Source: authors' computations using income tax returns and tax units estimates.

7 Conclusion

This work constitutes an effort to estimate top income shares and to study the shape of the upper part of the income distribution in British India based on individual tax returns as well as population and national income estimates. These data are used to assess income concentration and its change over time.

The results suggest that income inequality was very high in British India. In particular, income concentration was much higher during the colonial period than it has ever been since Independence. Moreover, for most of the 1885-1886 to 1922-1923 period income concentration in British India is at the highest level in the World Top Incomes Database sample. Throughout the period studied here concentration at the top declined. The dynamic of top incomes have been mainly driven by the decline in income from commerce, trade, properties and learned professions which constituted the major part of top incomes. Employment income also contributed in the decline in income concentration but to a lesser extent.

Regional income concentration within British India also mattered. The provinces of Bengal and Bombay, economically dominant, concentrated more than 60 per cent of top incomes, leaving 40 per cent to Madras, Agra and Oudh, Punjab and Central Provinces. Over the period the dynamics of the top income shares can be decomposed into a decrease in income concentration in Bengal and Agra and Oudh and an increase in income concentration in Bombay, Madras, Punjab and Central Provinces. This can well be explained by differences in regional development patterns.

Our findings must be interpreted with caution due to the shortcomings of the available data (not the least the importance of tax exemption and evasion). Despite this, our work has sought to show that tax records remain a unique and useful source to provide insights on the evolution of income inequality for periods of times when there is little concrete alternative information.

APPENDICES

Appendix A. The Income Tax in British India

This section draws extensively from Niyogi (1929), Pagar (1920) and Rao (1931).

A.1. The period of Experiment, (1860-1886)

The *Indian Income Tax Act* of 1860 was enforced to meet the losses sustained by the government on account of the military mutiny of 1857. Income was divided into four schedules taxed separately: (1) Income from landed property; (2) Income from professions and trades; (3) Income from Securities and (4) Income from Salaries and pensions. Under each schedule the tax rate was 2 % for incomes below Rs. 500 and 4 % for incomes above that amount.

Were exempted: (1) the persons with less than Rs. 200 a year income from all sources; (2) officers and soldiers of any military or police force, whose pay and allowances were less than Rs. 500; (3) naval and marine officers; (4) peasants or tenant farmers having less than Rs. 600 yearly as land revenue. Moreover, some belongings and estates were not included in the definition of taxable income: (1) government properties; (2) houses owned or rented for the purpose of habitation only; (3) properties devoted to charitable and religious purposes; (4) life insurance premiums not exceeding one-sixth of the income. To avoid double taxation, wages, pensions and allowances paid by the British government or by a company located in Great Britain as well as the income from property situated in Great Britain were not liable for the Indian Income tax- even though received in India - as they were taxable under the Income tax in Great Britain.

Returns of income were required from all who were liable for taxation. In the rural districts, the assessment was made by the Panchayat, a local committee, appointed by the collector of a district. In large towns, special commissioners and collectors were entrusted with the work. Understatement was high due to the low minimum of Rs. 200 and to relative high taxation rates compared to the flat rate of 0,83 % of the Income Tax, for example, in Great Britain over the same period.

When the temporary Income Tax expired in 1865 no income tax was re-imposed. The Government preferred the License-Tax with its much less troublesome methods of assessment (individuals were divided into income brackets and a fixed fee had to be paid by members of each brackets). Accordingly, a license-tax was imposed in 1867 and replaced by a certificate tax in 1868. Nevertheless, financial difficulties compelled the Government to replace the certificate-tax by an income tax between 1869 and 1873. Under the *Indian Income-tax Act, 1869*, companies and salaries were taxed at 2 pies per rupees and individuals, divided into classes, paid fixed fees that went from Rs 6 on an income of Rs. 500 up to Rs. 1,140 on an income of Rs. 1,10,000. The exemptions were practically the same as those in the *Indian Income Tax Act* of 1860. The act expired in 1873 and was not renewed. During the following period, Indian experimented

with various forms of licence and certificate taxes: The *Pandhari Tax Act* of 1867 in the Central Provinces, *The Licensing Act* of 1877 in Northern India and the *License Tax Act* of 1878 in Bombay, Bengal, Madras, Punjab, North Western Province and Oudh.

A.2. The Period of Integration, (1886-1916)

With the *Indian Income Tax Act* of 1886, the government returned once again to the income tax. This was needed in view of the financial stringency that confronted the Government at the time. Income was divided into four schedules taxed differently: (Schedule 1) salaries, pensions or gratuities paid in Colonial India; (Schedule 2) net profits made in colonial India by a company; (Schedule 3) interests on the securities of the Government of India payable in colonial India; (Schedule 4) other sources of Income (i.e. income from learned professions, manufacture construction and manipulation, commerce and trade, property and other taxable estates, etc.). Incomes under Schedule 1 and 4 were taxed at the same rate, reported in Table A. Incomes under Schedule 2, provided they were superior to Rs. 1,000 were taxable at 5 pies in the rupee. Incomes under Schedule 3 were charged a progressive fee: Rs. 10 for income between Rs. 500 and 750, Rs. 15 for income between Rs. 750 and 1,000, Rs. 20 for income between Rs. 1,000 and 1250, Rs. 28 for income between Rs. 1,250 and 1,500, Rs. 35 for income between Rs. 1,500 and 1,750 and Rs. 42 for income between Rs. 1,750 and 2,000. The exempt minimum was raised to Rs. 1,000 in 1903 in order to relieve the higher middle classes.

Were exempted: (1) foreign consuls and consular employees; (2) officers whose salary was less than Rs. 500 and (3) inhabitants of specific territories like the hill tribes regions. Some companies in specific sectors were also exempted from the tax: (1) railway companies; (2) shipping companies and (3) companies producing indigo. Furthermore, some belongings and estates were not included in the definition of taxable income: (1) agricultural incomes; (2) properties devoted to charitable and religious purposes; (3) savings up to one sixth of total income; (4) capital gains and (5) casual profits.

Incomes under Schedule 1 and 3 were taxed at source while local registrars assessed incomes under Schedule 2 and 4. Several difficulties regarding its applicability and a high exemption and non-compliance rate forced the progressive substitution of the *Indian Income Tax Act, 1886*.

A.3. Legislative Consolidations, (1916-1922)

A modification was introduced in 1916 with the establishment of more progressive tax rates for incomes under schedule 1 and 4. In 1916, tax rates thus went from 4 pies in the rupee for incomes between Rs. 500 and Rs. 2,000 to 12 pies in the rupee for incomes over Rs. 25,000. In 1921 and 1922 new rates were introduced for the upper income brackets. Details of the tax rates are provided in Table A.

The main reforms were due to administrative and financial difficulties and were implemented between 1918 and 1922. The *Indian Income Tax Act* of 1918 repealed the *Indian Income Tax Act* of 1886 and introduced several important changes: (1) the system moved from a scheduler one to an overall income one; (2) the definition of “income” was made uniform throughout the country; (3) some of the exemptions allowed under the *Indian Income Tax Act* of 1886 such as the military and political exemptions or the exemptions of railway, shipping, or indigo companies were disallowed; (4) returns of income were made compulsory (5) the income taxed was the current year income. In 1919, due to the rise in the level of prices, which had followed the war, and the consequent distress of the middle classes, the taxable minimum was raised from Rs. 1,000 to Rs. 2,000. The *Indian Income Tax Act* of 1922 was implemented to overcome some unsuccessful aspects of the *Indian Income-Tax Act* of 1918 and introduced two important changes (1) the basis of assessment was the previous year’s profits; (2) the tax rates were not embodied in the *Income Tax Act* but fixed by the annual *Finance Acts*. It remained in force until the year 1961.

Table A. Tax Scale under the Income Tax Act, 1886, 1918, 1922 in colonial India

Tax Scale Under schedule 1 and 4 of the *Income Tax Act, 1886*

Taxable Income	1886-1903		1903 - 1916		1916 - 1918	
	Rate (pies in the Rupee)	Rate (%)	Rate (pies in the Rupee)	Rate (%)	Rate (pies in the Rupee)	Rate (%)
500 – 1,000	4	2,083	Not taxed	0	Not Taxed	0
1,000 – 2,000	4	2,083	4	2,083	4	2,083
2,000 – 5,000	5	2,604	5	2,604	5	2,604
5,000 – 10,000	5	2,604	5	2,604	6	3,125
10,000 – 25,000	5	2,604	5	2,604	9	4,687
25,000 and over	5	2,604	5	2,604	12	6,25

Tax Scale Under the *Income Tax Act, 1918, 1922*

Taxable Income	1919-1920		1921-1922		1922-1923	
	Rate (pies in the Rupee)	Rate (%)	Rate (pies in the Rupee)	Rate (%)	Rate (pies in the Rupee)	Rate (%)
1,000 – 2,000	Not taxed	0	Not taxed	0	Not taxed	0
2,000 – 5,000	5	2,604	5	2,604	5	2,604
5,000 – 10,000	6	3,125	6	3,125	6	3,125
10,000 – 20,000	9	4,687	9	4,687	9	4,687
20,000 -25,000	9	4,687	12	6,25	12	6,25
25,000 – 30,000	12	6,25	12	6,25	12	6,25
30,000 – 40,000	12	6,25	14	7,292	15	7,812
40,000 and over	12	6,25	16	8,333	18	9,375

Source: Niyogi (1929)

Appendix B. Data Sources for British India

Available statistical information about distribution of income or tax paid by brackets under the 1886, 1918 and 1922 Income Tax Act have been published annually by each Province of Colonial India in two types of documents: The *Annual Reports on the Administration of the Income-Tax Act* and The *Triennial Reports on the Administration of the Income-Tax Act*. The sources used in this study for the Income tax data are indicated in Table B.1, while Table B.2 shows the years and provinces of Colonial India covered by the Income tax reports indicated in Table B.1.

Table B.1. Sources for the Income Tax data in British India, 1885-1886 to 1922-1923

Province	Source	Table
Assam	Annual Report on the working of the Income Tax Act : 1886-1887, 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1921-1922, 1922-1923	1888-1922 : Return N°III 1922-1923 : Return N°IV
	Triennial Report on the working of the Income Tax Act : 1899/1902, 1902/1905, 1911/1914, 1914/1920, 1917/1920	
Bihar and Orissa	Annual Report on the working of the Income Tax Act : 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1921-1922, 1922-1923	1911-1918 : Return N°III 1918-1919 : Return N°II 1919-1920 : Return N°I 1920-1921 : Appendix III 1921-1923 : Return N°II
	Triennial Report on the Working of the Income Tax : 1911/1914, 1914/1917, 1917/1920	
Bombay	Reports on the Operations in Connection with the Income Tax: 1886-1887, 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1895-1896, 1896-1897, 1897-1898, 1899-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1917-1918, 1920-1921, 1921-1922, 1922-1923	1886-1918 : Return N°III 1918-1923 : Return N°I
	Report on the Administration of the Income Tax Act 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1896-1897, 1897-1898, 1898-1899, 1899-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1921-1922, 1922-1923	1891-1918 : Return N°III 1918-1920 : Return N°I 1921-1922 : Return N°II
Coorg	Annual Report on the working of the Income Tax Act : 1886-1887, 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1899, 1899-1900	Return N°III
	Annual Report and Returns of the Income Tax Department : 1922-1923	Return N°IV

Table B.1. (Cont.) Sources for the Income Tax data in British India, 1885-1886 to 1922-1923

Province	Source	Table
Eastern Bengal and Assam	Report on the working of the Income Tax Act : 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911	Return N°III
Lower Provinces	Report on the Financial Results of the Income Tax Administration 1886-1887, 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1899, 1899-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1921-1922	1886-1918 : Return N°III 1918-1919 : Appendix II 1919-1920 : Appendix I
	Triennial Report on the Administration of Income Tax : 1899/1902, 1902/1905, 1905/1908, 1908/1911, 1911/1914, 1914/1917, 1917/1920	1922-1923 : Return N°IV
Madras	Report on the Administration of the Income Tax : 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1899, 1899-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1922-1923	Return N°III
North West Frontier Province	Brief Note on Income Tax Operations : 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915,	Return N°III
North Western Province and Oudh	Report on the Administration of the Income Tax : 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1899, 1899-1900,	Appendix III
Punjab	Report on the Income Tax Administration : 1886-1887, 1887-1888, 1888-1889, 1889-1890, 1890-1891, 1891-1892, 1892-1893, 1893-1894, 1894-1895, 1895-1896, 1896-1897, 1897-1898, 1898-1899, 1899-1900, 1900-1901, 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1905-1906, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1921-1922	1886-1918 : Return N°III 1918-1919 : Return N°II 1919-1923 : Return N°III
	Triennial Report on the Income Tax Administration: 1902/1905, 1905/1908	
Punjab & NWF	Report on the Income Tax Administration : 1922-1923	Return N°IV
United Provinces of Agra and Oudh	Report on the Administration of the Income Tax : 1901-1902, 1902-1903, 1903-1904, 1904-1905, 1906-1907, 1907-1908, 1908-1909, 1909-1910, 1910-1911, 1911-1912, 1912-1913, 1913-1914, 1914-1915, 1915-1916, 1916-1917, 1917-1918, 1920-1921, 1921-1922, 1922-1923, 1923-1924	1902-1919 : Appendix III 1919-1923 : Return N°I
	Triennial Report on the Administration of the Income Tax : 1902/1905, 1905/1908, 1908/1911, 1911/1914, 1914/1917, 1917/1920	

Appendix C. Control Totals for Individuals and Income

When estimating top incomes share from tax records, a more or less standard methodology has been established, combining tax data with external source for the reference population and total income (Atkinson and Piketty, 2007, 2010).

C.1. Total Number of Individuals and Tax Units

Table C.1 reports the total population of British India (column 1), the population of the Provinces of British India covered by the income tax tabulations (column 2), the number of tax units (column 3), the number of tax returns actually filed (column 4) and the taxpayers in per cent of total tax units (column 5).

C.2. Total Income Denominator

Table C.1 reports the total nominal income (column 6) as well as the total real income, base 1900 (column 7) and the average real income per tax unit (column 8).

C.3. Prices

Table C.1, column 10 shows the weighted index of all commodity prices (base 100 in 1900) from the *Index Numbers of Indian Prices* as reported by McAlpin (1983).

Table C.1. Reference totals for population, income and inflation in British India, 1885-1886 to 1922-1923

(1) Total Population of British India	Tax Units				Total Income			Inflation (10) CPI		
	(2) Total population of the covered Provinces (¹ 000s)	(3) Tax Units (¹ 000s)	(4) Number of Assessed (¹ 000s)	(5) (3)/(2) (%)	(6) Total Income (million Rs. Current)	(7) Total Income (million Rs. 1900)	(8) Average Income per Tax Unit (Rs. 1900)		(9) Exempt minimum as a ratio of mean current income per tax unit (ratio to mean)	
1885	267300	113936	52411	227	0.50%	2457	3297	105	6.36	74.53
1886	269800	160892	74010	302	0.47%	3251	4504	102	6.80	72.17
1887	272200	196105	90208	356	0.45%	4142	5740	106	6.52	72.17
1888	274400	197305	90760	360	0.46%	4515	5836	107	6.04	77.36
1889	277200	198938	91511	366	0.46%	4685	5708	104	5.87	82.08
1890	279700	213438	98182	383	0.45%	5207	6344	107	5.68	82.08
1891	282100	214871	98840	393	0.46%	5482	6566	110	5.44	83.49
1892	282400	215504	99132	401	0.46%	5769	6240	104	5.19	92.45
1893	282800	197241	90731	323	0.47%	5290	5903	108	5.18	89.62
1894	283100	216846	99749	427	0.49%	5591	6585	109	5.39	84.91
1895	283400	217478	100040	427	0.49%	5375	6438	107	5.62	83.49
1896	283700	218110	100330	424	0.49%	5391	5921	98	5.63	91.04
1897	284000	199932	91969	347	0.49%	5274	4904	88	5.27	107.55
1898	284300	219372	100911	440	0.50%	6152	7050	115	4.96	87.26
1899	284700	172262	79241	359	0.52%	5075	5978	125	4.72	84.91
1900	285000	220711	101527	447	0.51%	6821	7121	111	4.51	100.00
1901	286200	222039	102138	243	0.52%	7069	7685	124	4.52	95.75
1902	288000	223043	102600	207	0.22%	6848	7977	128	8.77	91.98
1903	289700	223970	103026	205	0.23%	6645	8420	135	9.09	85.85
1904	291500	224975	103488	207	0.23%	7427	8200	140	8.43	88.21
1905	293300	178205	81974	180	0.24%	6645	6940	140	7.46	95.75
1906	295100	226986	104413	213	0.23%	9336	8316	132	6.77	112.26
1907	296900	227991	104876	220	0.24%	9429	7932	125	6.74	118.87
1908	298700	228998	105339	225	0.25%	9017	7496	117	7.08	120.28
1909	300500	230004	105802	236	0.26%	9569	8897	139	6.70	120.28
1910	302100	230858	106195	245	0.27%	9596	9042	140	6.71	106.13
1911	303100	231255	106377	257	0.28%	10076	8975	139	6.43	112.26
1912	303400	231442	106464	273	0.29%	10856	9025	139	5.97	120.28
1913	303700	231630	106550	284	0.31%	10944	8822	136	5.92	124.06
1914	304000	231817	106636	289	0.31%	11778	9213	142	5.51	127.83
1915	304200	231929	106687	304	0.33%	11834	8252	127	5.49	143.40
1916	304500	232116	106773	323	0.35%	12370	7558	116	5.25	163.68
1919	305300	172215	79219	116	0.15%	14152	5650	117	6.81	250.47
1920	305600	190543	87650	157	0.21%	14528	5630	106	7.34	258.02
1921	307300	234044	107660	215	0.23%	18363	8027	123	7.10	228.77
1922	310400	236229	108665	228	0.24%	17598	7821	119	7.48	225.00

Appendix D. Estimating Top Shares

As the income or earning brackets in the income tax reports do not generally coincide with the percentage groups of the population with which we are concerned (such as the top 0.1 per cent, the top 0.05 per cent, etc.), it is necessary to interpolate to obtain the shares of total income. As the top tail of the earnings or income distribution is in general very well approximated by Pareto distributions, this study uses simple parametric interpolation methods to estimate the thresholds and average income levels for each fractile. This method follows the classic study by Kuznets (1953) and has been used in many of the top income studies presented in Atkinson and Piketty (2007, 2010).

D.1. Key Properties of the Pareto Law

The general interpolation technique is based on the well known empirical regularity that the top tail of the income distribution is very closely approximated by a Pareto distribution. A Pareto distribution has a cumulative distribution function of the form $F(y) = 1 - (\frac{k}{y})^a$, $k > 0$, $a > 1$ where k and a are constants, and a is the Pareto parameter of the distribution. The corresponding density function is given by $f(y) = \frac{ak^a}{y^{1+a}}$. Such a distribution has the key property that the ratio of average income $y^*(y)$ of individuals with income above a given threshold y is always exactly proportional to y :

$$y^*(y) = \frac{\int_{z>y} zf(z)dz}{\int_{z>y} f(z)dz} = \frac{\int_{z>y} dz/z^a}{\int_{z>y} dz/z^{1+a}} = a/(a-1)y$$

i.e. the ratio $y^*(y)/y$ does not depend on the income threshold y :

$$y^*(y)/y = a/(a-1).$$

The inverted Pareto coefficient $a/(a-1)$ is related to the shape of the income distribution. A higher inverted Pareto coefficient means a fatter upper tail of the distribution and thus a larger top income shares and higher inequality.

D.2. First Step of the Estimation

This step consists in estimating the income or earnings thresholds for each of the percentiles (top 0.1 per cent, top 0.05 per cent, etc.) that define the top earnings and income groups. For each percentile p , we first look for the bracket of income or earnings $[r, s]$ containing p . We then estimate the parameters (a, k) of the Pareto distribution by solving the system of two equations: $k = rp^{1/a}$ and $k = sq^{1/a}$ with p the fraction of tax returns above r and q the fraction of tax returns above s . Note that the Pareto parameters (a, k) may vary from bracket to bracket. Once we have estimated the density distribution on the interval $[r, s]$ it is straightforward to estimate the earnings or income threshold, y_p , corresponding to percentile p .

D.3. Second Step of the Estimation

This step consists in estimating the amount of income or earnings reported above the earnings or income threshold y_p . The amount reported between y_p and s (the upper bound of the published brackets $[r, s]$ containing y_p) is estimated using the estimated Pareto density with parameters (a, k) . We then add to that amount the amounts in all the published brackets above s . Once the total amount of income or earnings above y_p is computed, we obtain directly the mean income or earnings above percentile p by dividing the amount by the number of individuals above percentile p . Finally, the share of income or earnings accruing to individuals above percentile p is obtained by dividing the total amount above y_p by the income or earnings denominator series. Average incomes and income shares for intermediate fractiles (top 0.1-0,05 per cent, top 0.05-0,01 per cent, etc.) are obtained by subtraction.

D.4. Adjustment to Raw Pareto Interpolations

Statistics for each provinces of British India are organized by ranges of income and they display for each income bracket the number of tax files as well as the amount of tax collected. For each income bracket we estimated the amount of income by means of the statutory tax scale and the taxable thresholds given in Table A. When, for a given year, the income tax tabulation of a provinces is missing we do not include its population in the control total for population. We also deduce from the control total for income a proportion equal to the proportion of the population of the province in the total population of British India. Since we do not have estimates of the decomposition by province of the national income this is the best possible approximation for the control total. Finally, when computing the composition of top income shares by province, we consider that top shares for missing provinces follow the same trend as the average of the provinces for which we have observations.

The estimates of top income shares in British India are presented in table D.1. Table D.2 presents the Inverse Pareto-Lorenz coefficients. The decomposition of top income shares and Inverse Pareto-Lorenz coefficients by source of income are given in table D.3. and D.4., respectively. The decomposition of top income shares and Inverse Pareto-Lorenz coefficients by province are given in table D.5. and D.6., respectively.

Table D.1. Top Income Shares in British India, 1885-1922

	Top 0.1 %	Top 0.05 %	Top 0.01 %	Top 0.005 %	Top 0.001 %	Top 0.0005 %	Top 0.0001 %
1885	8,11	6,44	4,24	2,67	1,25	0,86	0,35
1886	8,05	6,28	4,14	2,62	1,20	0,86	0,34
1887	7,46	5,82	3,90	2,41	1,16	0,83	0,35
1888	7,08	5,54	3,74	2,38	1,15	0,83	0,35
1889	6,87	5,37	3,62	2,26	1,13	0,83	0,36
1890	6,52	5,09	3,43	2,14	1,07	0,78	0,34
1891	6,33	4,94	3,32	2,08	1,04	0,76	0,34
1892	6,18	4,83	3,23	2,07	1,01	0,73	0,33
1893	5,65	4,43	2,99	1,87	0,94	0,69	0,32
1894	6,89	5,44	3,63	2,31	1,13	0,81	0,36
1895	7,24	5,70	3,81	2,46	1,18	0,83	0,33
1896	7,17	5,66	3,80	2,47	1,20	0,86	0,35
1897	6,20	4,84	3,23	2,06	1,01	0,74	0,34
1898	6,42	5,02	3,27	2,10	1,00	0,70	0,28
1899	6,52	5,14	3,43	2,19	1,10	0,80	0,37
1900	5,97	4,68	3,08	1,95	0,97	0,74	0,38
1901	6,05	4,73	3,10	1,97	0,98	0,73	0,36
1902	5,97	4,67	3,06	1,94	0,98	0,72	0,36
1903	6,35	4,96	3,27	2,08	1,05	0,78	0,38
1904	5,99	4,69	3,08	1,95	0,99	0,74	0,36
1905	5,93	4,71	3,15	2,03	1,07	0,81	0,41
1906	5,04	3,97	2,65	1,70	0,89	0,67	0,33
1907	5,06	4,00	2,62	1,69	0,89	0,67	0,34
1908	5,30	4,17	2,71	1,72	0,87	0,65	0,33
1909	5,15	4,04	2,58	1,64	0,82	0,61	0,29
1910	5,35	4,21	2,68	1,70	0,86	0,64	0,31
1911	5,33	4,20	2,69	1,71	0,87	0,64	0,32
1912	5,20	4,11	2,67	1,70	0,89	0,67	0,35
1913	5,30	4,18	2,68	1,71	0,91	0,69	0,36
1914	5,10	4,03	2,63	1,69	0,91	0,72	0,41
1915	5,67	4,48	2,95	1,91	1,12	0,91	0,56
1916	6,23	4,99	3,38	2,22	1,36	1,08	0,65
1919	6,27	4,87	2,97	1,76	0,77	0,54	0,23
1920	5,70	4,43	2,68	1,60	0,70	0,49	0,21
1921	5,75	4,38	2,52	1,50	0,68	0,46	0,19
1922	5,55	4,08	2,52	1,50	0,68	0,46	0,19

Table D.1. Top Income Shares in British India, 1885-1922

	Top 0.5- 0.1 %	Top 0.1- 0.05 %	Top 0.05- 0.01 %	Top 0.01- 0.005 %	Top 0.005- 0.001 %	Top 0.001- 0.0005 %	Top 0.0005- 0.0001 %
1885	5,86	1,68	2,90	0,86	1,43	0,38	0,52
1886	6,03	1,76	2,83	0,84	1,42	0,34	0,52
1887	5,66	1,63	2,58	0,84	1,25	0,33	0,48
1888	5,28	1,54	2,42	0,74	1,23	0,32	0,48
1889	5,17	1,50	2,35	0,76	1,12	0,30	0,47
1890	4,91	1,43	2,24	0,72	1,07	0,29	0,44
1891	4,76	1,39	2,17	0,69	1,04	0,28	0,42
1892	4,61	1,34	2,14	0,63	1,06	0,28	0,40
1893	4,27	1,22	1,94	0,62	0,93	0,25	0,37
1894	5,06	1,45	2,42	0,71	1,18	0,32	0,45
1895	5,30	1,54	2,52	0,72	1,28	0,35	0,50
1896	5,19	1,51	2,49	0,70	1,26	0,34	0,51
1897	4,55	1,36	2,15	0,63	1,05	0,27	0,41
1898	4,76	1,40	2,29	0,63	1,10	0,30	0,42
1899	4,63	1,38	2,28	0,67	1,10	0,30	0,43
1900	4,37	1,30	2,11	0,61	0,98	0,24	0,36
1901	4,47	1,32	2,15	0,61	0,99	0,25	0,37
1902	5,02	1,30	2,12	0,61	0,96	0,26	0,36
1903	5,27	1,39	2,24	0,64	1,03	0,27	0,40
1904	4,87	1,29	2,13	0,61	0,96	0,25	0,37
1905	4,55	1,23	2,08	0,60	0,96	0,26	0,40
1906	3,95	1,07	1,76	0,51	0,81	0,22	0,34
1907	3,97	1,06	1,82	0,49	0,80	0,22	0,33
1908	4,22	1,12	1,92	0,54	0,85	0,22	0,33
1909	4,09	1,11	1,89	0,51	0,82	0,22	0,31
1910	4,19	1,15	1,97	0,54	0,84	0,22	0,33
1911	4,11	1,13	1,95	0,54	0,84	0,22	0,32
1912	3,94	1,10	1,88	0,52	0,81	0,22	0,32
1913	4,01	1,12	1,94	0,53	0,80	0,22	0,33
1914	3,78	1,07	1,85	0,50	0,78	0,19	0,32
1915	3,85	1,19	2,02	0,55	0,79	0,20	0,35
1916	3,83	1,23	2,18	0,60	0,86	0,28	0,43
1919	4,15	1,40	2,41	0,70	0,99	0,23	0,30
1920	3,77	1,27	2,20	0,63	0,90	0,21	0,28
1921	4,01	1,37	2,28	0,60	0,83	0,22	0,27
1922	4,32	1,47	2,37	0,63	0,85	0,13	0,09

Table D.2. Inverse Pareto-Lorenz coefficients in British India, 1885-1922

	based on 0.01 within 0.1%	based on 0.005 within 0.05%	based on 0.001 within 0.01%	based on 0.0005 within 0.005%	based on 0.0001 within 0.001%
1885	2,77	2,62	2,21	2,04	1,79
1886	2,72	2,63	2,17	2,07	1,82
1887	2,77	2,61	2,24	2,17	1,93
1888	2,81	2,72	2,31	2,19	1,96
1889	2,79	2,66	2,36	2,31	2,02
1890	2,79	2,65	2,34	2,28	1,99
1891	2,78	2,66	2,35	2,28	2,07
1892	2,77	2,71	2,35	2,22	2,07
1893	2,81	2,67	2,37	2,31	2,15
1894	2,80	2,69	2,34	2,19	2,02
1895	2,79	2,74	2,33	2,13	1,82
1896	2,82	2,77	2,38	2,19	1,87
1897	2,76	2,70	2,35	2,25	2,08
1898	2,69	2,64	2,29	2,10	1,82
1899	2,80	2,70	2,40	2,29	2,14
1900	2,72	2,64	2,38	2,36	2,43
1901	2,70	2,63	2,37	2,32	2,33
1902	2,71	2,62	2,40	2,33	2,29
1903	2,72	2,64	2,42	2,34	2,24
1904	2,71	2,62	2,41	2,36	2,30
1905	2,83	2,73	2,56	2,50	2,40
1906	2,79	2,71	2,52	2,46	2,32
1907	2,73	2,68	2,56	2,49	2,41
1908	2,70	2,59	2,42	2,38	2,34
1909	2,64	2,55	2,40	2,32	2,23
1910	2,63	2,54	2,40	2,36	2,25
1911	2,67	2,56	2,42	2,36	2,33
1912	2,71	2,61	2,51	2,47	2,47
1913	2,67	2,58	2,56	2,54	2,50
1914	2,72	2,65	2,63	2,70	2,83
1915	2,76	2,70	2,92	3,13	3,37
1916	2,90	2,84	3,16	3,20	3,10
1919	2,46	2,26	1,99	1,94	1,92
1920	2,46	2,26	1,99	1,94	1,92
1921	2,29	2,15	2,03	1,95	1,81
1922	2,37	2,31	2,03	1,95	1,81

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.1 %			Top 0.05 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	16,89	12,17	70,94	18,58	12,56	68,86
1886	16,19	10,36	73,45	18,51	10,88	70,61
1887	17,62	10,32	72,05	20,13	10,85	69,02
1888	16,78	10,34	72,89	19,05	10,63	70,32
1889	16,99	10,12	72,89	19,34	10,40	70,25
1890	16,63	10,04	73,33	18,82	10,36	70,82
1891	16,61	9,85	73,53	18,75	9,99	71,26
1892	16,81	10,36	72,83	19,07	10,68	70,25
1893	17,48	9,06	73,46	20,04	9,80	70,15
1894	16,88	11,14	71,98	18,85	11,3	69,85
1895	16,43	11,22	72,35	18,20	11,38	70,41
1896	16,70	11,54	71,76	18,34	11,64	70,02
1897	16,52	10,61	72,87	18,51	11,33	70,16
1898	16,12	12,12	71,76	17,66	12,31	70,03
1899	15,40	12,68	71,92	16,47	12,45	71,08
1900	15,21	11,62	73,16	16,39	11,50	72,11
1901	15,31	11,54	73,16	16,62	11,51	71,87
1902	15,51	11,69	72,80	16,87	11,50	71,64
1903	15,01	11,71	73,28	16,11	11,36	72,53
1904	15,16	11,84	73,00	16,04	11,41	72,55
1905	14,71	13,19	72,1	15,11	12,25	72,63
1906	15,23	12,62	72,15	15,73	11,99	72,28
1907	15,61	13,08	71,31	16,04	12,32	71,65
1908	15,60	13,69	70,71	15,90	13,23	70,87
1909	15,84	13,62	70,54	15,95	12,93	71,12
1910	16,52	13,60	69,89	16,76	12,71	70,53
1911	16,11	13,67	70,21	16,19	12,71	71,1
1912	15,43	13,33	71,24	15,34	12,23	72,43
1913	15,31	13,42	71,27	15,27	12,26	72,47
1914	14,44	13,22	72,34	14,36	12,12	73,51
1915	14,14	14,44	71,42	14,50	13,51	71,99
1916	12,30	13,75	73,95	12,20	13,02	74,78
1919	11,51	14,02	74,47	11,86	12,66	75,48
1920	11,40	13,96	74,64	11,68	12,60	75,72
1921	11,89	13,30	74,81	11,63	12,42	75,95
1922	12,84	14,35	72,81	12,66	13,51	73,83

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.01 %			Top 0.005 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	19,85	6,58	73,57	19,11	3,68	77,21
1886	20,70	5,98	73,31	20,57	3,58	75,85
1887	22,22	6,18	71,60	21,77	3,63	74,61
1888	20,71	5,79	73,50	20,23	3,29	76,48
1889	21,01	5,91	73,08	20,39	3,34	76,27
1890	20,33	5,99	73,67	19,66	3,50	76,84
1891	20,14	5,88	73,98	19,63	3,41	76,95
1892	20,91	6,01	73,09	20,75	3,53	75,72
1893	22,82	5,91	71,27	23,50	3,44	73,06
1894	21,31	6,49	72,20	21,83	3,88	74,29
1895	19,63	7,23	73,14	19,47	4,77	75,76
1896	19,39	7,33	73,28	19,00	4,92	76,08
1897	20,31	6,96	72,73	20,89	4,12	75,00
1898	19,00	8,07	72,93	18,76	5,64	75,61
1899	17,14	6,87	75,99	16,52	4,24	79,24
1900	17,43	6,51	76,07	17,15	3,94	78,91
1901	18,04	6,59	75,37	17,88	3,94	78,18
1902	18,81	6,65	74,54	18,94	4,25	76,8
1903	17,75	6,27	75,98	17,54	3,87	78,59
1904	17,40	6,42	76,18	17,04	3,97	79,00
1905	15,71	6,02	78,27	14,70	3,53	81,77
1906	16,78	6,23	76,99	16,09	3,71	80,20
1907	17,49	5,94	76,58	16,81	3,55	79,64
1908	17,12	7,17	75,71	16,60	4,37	79,03
1909	17,31	6,80	75,89	16,56	4,27	79,17
1910	17,99	6,61	75,40	16,89	4,21	78,90
1911	16,92	6,39	76,69	15,82	4,12	80,06
1912	15,84	6,00	78,16	14,50	3,90	81,61
1913	15,62	6,00	78,38	14,14	4,04	81,82
1914	14,54	6,04	79,42	13,33	3,75	82,91
1915	14,19	7,73	78,08	11,60	3,51	84,89
1916	10,75	6,46	82,79	8,26	2,91	88,83
1919	11,24	6,76	82,00	9,49	3,34	87,17
1920	11,41	6,85	81,74	9,90	3,49	86,61
1921	10,24	6,15	83,61	8,43	2,97	88,60
1922	11,09	6,67	82,24	8,79	3,09	88,12

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.001 %			Top 0.0005 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	13,62	0,59	85,79	8,14	0,36	91,5
1886	15,08	0,98	83,95	10,67	0,44	88,89
1887	15,78	1,29	82,94	11,46	0,87	87,68
1888	14,40	1,00	84,60	9,91	0,52	89,57
1889	13,40	0,67	85,93	8,90	0,29	90,81
1890	13,53	0,83	85,64	9,54	0,58	89,88
1891	13,18	0,67	86,15	8,96	0,33	90,72
1892	13,44	0,63	85,92	9,34	0,14	90,52
1893	18,79	0,73	80,48	12,10	0,45	87,45
1894	15,86	0,6	83,55	9,55	0,18	90,27
1895	12,95	0,94	86,10	7,26	0,36	92,38
1896	11,97	1,04	86,99	7,02	0,46	92,52
1897	14,68	0,98	84,34	10,02	0,48	89,5
1898	12,48	1,15	86,37	8,18	0,58	91,25
1899	9,26	0,88	89,86	4,88	0,58	94,54
1900	10,1	0,7	89,20	6,86	0,3	92,83
1901	10,62	0,77	88,61	6,41	0,24	93,35
1902	13,54	0,64	85,82	8,99	0,34	90,68
1903	10,8	0,45	88,75	6,02	0,22	93,76
1904	9,96	0,50	89,54	5,40	0,14	94,46
1905	6,97	0,35	92,67	2,62	0,00	97,38
1906	8,18	0,45	91,37	3,12	0,18	96,7
1907	8,23	0,54	91,23	3,03	0,18	96,79
1908	8,57	0,58	90,85	4,11	0,28	95,61
1909	8,04	0,71	91,24	3,21	0,11	96,68
1910	8,44	0,75	90,81	3,57	0,09	96,34
1911	7,75	0,69	91,56	3,04	0,16	96,8
1912	6,59	0,69	92,72	2,96	0,17	96,87
1913	5,91	0,90	93,19	2,64	0,18	97,18
1914	5,33	0,60	94,06	2,56	0,28	97,16
1915	3,73	0,64	95,63	1,57	0,35	98,08
1916	1,34	0,56	98,11	0,73	0,33	98,93
1919	3,19	1,34	95,47	2,98	1,35	95,68
1920	3,82	1,59	94,59	3,73	1,68	94,59
1921	3,33	1,39	95,28	3,25	1,47	95,28
1922	5,24	2,19	92,57	5,12	2,31	92,57

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.1-0.05 %			Top 0.05-0.01 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	10,40	10,67	78,92	17,03	19,84	63,13
1886	7,92	8,51	83,57	15,84	16,86	67,31
1887	8,68	8,43	82,85	17,49	16,74	65,77
1888	8,63	9,30	82,12	16,91	16,87	66,22
1889	8,60	9,12	82,32	17,20	16,15	66,63
1890	8,85	8,90	82,25	16,89	15,94	67,18
1891	9,02	9,35	81,58	16,98	15,23	67,80
1892	8,68	9,21	82,12	16,76	16,55	66,68
1893	8,21	6,38	85,44	16,47	14,80	68,71
1894	9,48	10,54	79,98	15,77	17,32	66,91
1895	9,90	10,63	79,51	16,40	16,59	66,98
1896	10,56	11,17	78,27	17,01	17,12	65,88
1897	9,42	8,04	82,54	16,25	16,81	66,94
1898	10,62	11,44	77,94	16,06	17,36	66,58
1899	11,41	13,54	75,05	15,63	19,46	64,91
1900	10,95	12,05	76,95	15,13	17,56	67,30
1901	10,63	11,65	77,76	14,91	17,43	67,66
1902	10,60	12,38	76,99	14,54	17,32	68,16
1903	11,07	12,96	75,97	14,12	17,54	68,34
1904	11,96	13,40	74,63	14,40	17,41	68,18
1905	13,18	16,79	70,07	14,35	20,14	65,49
1906	13,37	14,96	71,67	14,42	19,20	66,38
1907	13,99	15,94	70,03	14,30	19,97	65,74
1908	14,48	15,40	70,11	14,47	20,36	65,18
1909	15,44	16,13	68,43	14,40	19,92	65,68
1910	15,64	16,86	67,54	15,37	19,62	65,02
1911	15,81	17,24	66,90	15,35	19,98	64,67
1912	15,77	17,45	66,79	14,75	19,58	65,67
1913	15,46	17,74	66,80	14,87	19,48	65,65
1914	14,74	17,39	67,91	14,15	19,33	66,51
1915	12,79	17,93	69,28	14,88	20,55	64,57
1916	12,71	16,71	70,58	14,07	21,48	64,45
1919	13,94	18,33	67,73	14,88	22,72	62,41
1920	15,17	19,95	64,88	15,69	23,95	60,36
1921	12,46	16,37	71,17	12,31	18,80	68,89
1922	13,09	17,20	69,71	13,01	19,86	67,13

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.01-0.005 %			Top 0.005-0.001 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	22,14	15,56	62,30	23,90	6,38	69,72
1886	21,11	13,48	65,37	25,20	5,78	69,01
1887	23,51	13,51	62,95	27,33	5,80	66,87
1888	22,24	13,78	63,97	25,69	5,44	68,87
1889	22,86	13,58	63,56	27,45	6,04	66,52
1890	22,32	13,37	64,27	25,80	6,17	68,03
1891	21,67	13,29	65,07	26,10	6,16	67,71
1892	21,44	14,20	64,41	27,73	6,30	65,97
1893	20,78	13,32	65,90	28,29	6,19	65,52
1894	19,63	14,94	65,44	27,56	7,03	65,40
1895	20,18	15,66	64,16	25,48	8,30	66,22
1896	20,76	15,80	63,43	25,71	8,62	65,66
1897	18,41	16,25	65,30	26,88	7,15	66,00
1898	19,80	16,16	64,01	24,44	9,70	65,88
1899	19,18	15,50	65,32	23,80	7,61	68,59
1900	18,32	14,71	67,01	24,15	7,16	68,69
1901	18,55	15,09	66,35	25,06	7,07	67,87
1902	18,40	14,30	67,34	24,41	7,91	67,66
1903	18,43	14,01	67,56	24,44	7,37	68,18
1904	18,54	14,20	67,23	24,29	7,52	68,21
1905	19,10	14,39	66,51	23,33	7,08	69,59
1906	19,09	14,66	66,25	24,71	7,26	68,03
1907	19,84	14,20	66,00	26,28	6,87	66,85
1908	18,78	16,09	65,13	24,87	8,27	66,86
1909	19,70	14,87	65,42	25,16	7,86	66,98
1910	21,47	14,19	64,34	25,49	7,73	66,78
1911	20,40	13,57	66,02	24,14	7,66	68,20
1912	20,23	12,87	66,87	23,15	7,41	69,46
1913	20,44	12,39	67,17	23,45	7,59	68,96
1914	18,65	13,81	67,58	22,73	7,45	69,81
1915	23,16	22,35	54,49	22,70	7,56	69,74
1916	20,01	19,67	60,32	19,18	6,62	74,19
1919	18,40	18,09	63,51	17,15	5,92	76,93
1920	16,79	16,51	66,70	15,12	5,22	79,66
1921	14,60	14,35	71,05	12,53	4,33	83,14
1922	14,44	14,20	71,36	10,26	3,54	86,20

Table D.3. Top Income Shares in British India, 1885-1922
By income sources (in %)

	Top 0.001-0.0005 %			Top 0.0005-0.0001 %		
	government employment income	private employment income	other sources	government employment income	private employment income	other sources
1885	25,95	1,11	72,94	9,87	0,60	89,53
1886	26,25	2,35	71,43	13,60	0,73	85,68
1887	26,78	2,36	70,87	15,76	0,61	83,65
1888	26,03	2,24	71,72	14,06	0,91	85,03
1889	25,80	1,72	72,49	12,31	0,51	87,17
1890	24,13	1,49	74,37	13,65	0,28	86,07
1891	24,47	1,58	73,93	12,51	0,59	86,91
1892	24,18	1,91	73,87	13,98	0,25	85,78
1893	37,08	1,50	61,42	18,92	0,83	80,25
1894	31,60	1,65	66,79	14,14	0,33	85,53
1895	26,69	2,34	70,94	9,65	0,60	89,76
1896	24,50	2,51	72,99	8,99	0,78	90,23
1897	27,50	2,36	70,14	15,71	0,32	83,97
1898	22,70	2,50	74,77	10,28	0,59	89,15
1899	21,13	1,69	77,18	7,37	0,61	92,02
1900	20,11	1,94	77,99	12,00	0,15	87,84
1901	22,95	2,32	74,73	10,77	0,02	89,21
1902	26,35	1,48	72,13	11,41	0,24	88,36
1903	24,35	1,10	74,54	9,38	0,23	90,39
1904	23,38	1,56	75,06	7,70	0,28	92,02
1905	20,30	1,42	78,24	3,76	0,00	96,24
1906	23,50	1,27	75,23	4,65	0,36	94,99
1907	24,29	1,65	74,06	4,68	0,37	94,96
1908	21,85	1,47	76,68	6,97	0,56	92,47
1909	21,55	2,39	76,02	5,46	0,19	94,34
1910	22,78	2,69	74,53	4,75	0,17	95,07
1911	21,33	2,22	76,45	4,14	0,32	95,54
1912	17,63	2,27	80,10	4,19	0,36	95,45
1913	16,39	3,21	80,41	3,46	0,38	96,16
1914	15,66	1,79	82,50	4,50	0,50	95,00
1915	13,46	1,95	84,60	4,10	0,83	95,07
1916	3,71	1,45	94,93	1,82	0,82	97,33
1919	3,80	1,49	94,76	2,77	1,25	95,96
1920	3,89	1,52	94,59	3,73	1,68	94,59
1921	3,39	1,33	95,28	3,25	1,47	95,28
1922	5,34	2,09	92,57	5,12	2,31	92,57

Table D.4. Inverse Pareto-Lorenz coefficients in British India, 1885-1922
By income sources

	Employment Income				
	based on 0.01 within 0.1%	based on 0.005 within 0.05%	based on 0.001 within 0.01%	based on 0.0005 within 0.005%	based on 0.0001 within 0.001%
1885	3,34	2,88	1,93	1,81	1,52
1886	3,42	2,98	2,03	1,90	1,49
1887	3,37	2,91	2,05	1,93	1,56
1888	3,30	2,86	2,03	1,99	1,50
1889	3,31	2,86	2,03	1,92	1,52
1890	3,27	2,82	2,04	1,99	1,55
1891	3,25	2,82	2,05	1,97	1,55
1892	3,23	2,88	2,05	1,89	1,51
1893	3,35	2,96	2,16	2,00	1,55
1894	3,11	2,87	2,03	1,84	1,57
1895	3,08	2,78	2,00	1,82	1,57
1896	3,02	2,74	2,00	1,82	1,59
1897	3,10	2,77	2,06	1,89	1,55
1898	2,95	2,65	1,97	1,82	1,55
1899	2,85	2,49	1,93	1,78	1,51
1900	2,83	2,51	1,95	1,79	1,52
1901	2,89	2,54	1,96	1,81	1,51
1902	2,65	2,54	2,02	1,86	1,64
1903	2,64	2,50	1,96	1,78	1,42
1904	2,65	2,46	1,89	1,74	1,45
1905	2,54	2,37	1,85	1,71	1,46
1906	2,61	2,41	1,90	1,74	1,51
1907	2,51	2,30	1,75	1,72	1,59
1908	2,57	2,35	1,85	1,67	1,41
1909	2,47	2,28	1,78	1,67	1,43
1910	2,49	2,27	1,78	1,69	1,52
1911	2,50	2,27	1,83	1,69	1,45
1912	2,46	2,26	1,84	1,71	1,48
1913	2,44	2,22	1,81	1,68	1,46
1914	2,46	2,22	1,79	1,65	1,47
1915	2,58	2,17	1,59	1,48	1,48
1916	2,63	2,25	1,56	1,53	1,49
1919	2,26	1,88	1,21	1,17	1,15
1920	2,26	1,88	1,21	1,17	1,15
1921	2,12	1,80	1,22	1,17	1,11
1922	2,19	1,91	1,22	1,17	1,11

Table D.4. Inverse Pareto-Lorenz coefficients in British India, 1885-1922
By income sources

	Other Sources of Income				
	based on	based on	based on	based on	based on
	0.01 within 0.1%	0.005 within 0.05%	0.001 within 0.01%	0.0005 within 0.005%	0.0001 within 0.001%
1885	3,35	3,26	2,45	2,29	1,86
1886	3,14	3,14	2,50	2,30	1,89
1887	3,12	3,16	2,59	2,38	1,98
1888	3,19	3,21	2,62	2,44	2,04
1889	3,17	3,22	2,74	2,54	2,08
1890	3,13	3,16	2,68	2,47	2,06
1891	3,12	3,14	2,68	2,49	2,12
1892	3,07	3,09	2,69	2,49	2,15
1893	2,86	3,00	2,72	2,59	2,28
1894	2,96	3,04	2,64	2,49	2,12
1895	3,02	2,90	2,54	2,46	1,92
1896	3,10	2,96	2,59	2,55	1,99
1897	2,89	2,90	2,69	2,55	2,18
1898	2,91	2,80	2,49	2,41	1,93
1899	3,08	3,04	2,68	2,53	2,20
1900	2,95	2,93	2,68	2,59	2,47
1901	2,90	2,89	2,67	2,58	2,40
1902	2,90	2,87	2,64	2,55	2,33
1903	2,93	2,91	2,71	2,62	2,34
1904	2,95	2,91	2,69	2,62	2,40
1905	3,15	3,13	2,87	2,72	2,45
1906	3,08	3,04	2,82	2,73	2,40
1907	3,08	3,06	2,84	2,75	2,47
1908	2,98	2,94	2,71	2,64	2,40
1909	2,95	2,88	2,68	2,58	2,29
1910	2,96	2,90	2,67	2,55	2,30
1911	2,99	2,92	2,70	2,59	2,40
1912	3,04	2,98	2,79	2,68	2,54
1913	3,01	2,95	2,83	2,76	2,56
1914	3,07	3,02	2,92	2,92	2,91
1915	3,17	3,19	3,34	3,41	3,45
1916	3,41	3,42	3,45	3,36	3,21
1919	2,81	2,62	2,10	2,00	1,96
1920	2,81	2,62	2,10	2,00	1,96
1921	2,59	2,48	2,15	2,01	1,84
1922	2,70	2,68	2,15	2,01	1,84

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.1 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	35,25	26,76	8,59	18,40	9,47	1,53
1886	34,85	26,58	9,33	18,11	9,35	1,76
1887	34,45	26,40	10,07	17,82	9,23	1,99
1888	34,05	26,22	10,81	17,53	9,11	2,22
1889	33,65	26,04	11,55	17,24	8,99	2,45
1890	33,25	25,86	12,29	16,95	8,87	2,68
1891	32,85	25,68	13,03	16,66	8,75	2,91
1892	33,56	23,90	14,04	16,68	8,80	2,89
1893	33,10	23,58	15,72	16,20	8,52	2,75
1894	32,63	23,26	17,40	15,71	8,23	2,61
1895	33,54	21,62	18,62	15,48	8,12	2,51
1896	34,10	20,64	18,45	15,52	8,75	2,44
1897	34,32	20,54	18,97	15,24	8,47	2,36
1898	34,54	20,43	19,49	14,96	8,19	2,28
1899	35,12	21,14	18,11	14,95	8,49	2,15
1900	35,69	21,85	16,73	14,93	8,79	2,01
1901	35,55	21,91	17,12	14,44	8,88	2,09
1902	34,97	23,44	16,67	13,98	8,91	2,03
1903	34,30	22,51	17,20	13,43	8,79	3,78
1904	34,48	22,43	17,35	13,35	8,77	3,61
1905	35,21	22,65	16,76	13,16	8,78	3,46
1906	35,94	22,86	16,16	12,96	8,78	3,30
1907	36,58	22,44	16,25	12,74	8,81	3,19
1908	36,01	23,16	16,54	12,46	8,76	3,06
1909	34,36	24,90	16,42	12,42	8,65	3,26
1910	34,09	25,78	15,44	12,29	8,79	3,61
1911	34,43	26,70	15,47	11,91	7,92	3,58
1912	34,27	27,30	15,44	11,38	7,81	3,80
1913	33,97	27,41	15,94	11,19	7,64	3,86
1914	33,76	28,88	15,53	11,11	6,95	3,77
1915	33,47	30,32	14,74	10,86	6,76	3,85
1916	31,73	34,34	13,28	9,93	7,09	3,62
1919	31,11	32,66	14,35	9,93	7,91	4,04
1920	28,76	34,99	13,96	9,01	9,06	4,23
1921	25,78	35,64	14,64	8,08	11,03	4,84
1922	27,27	35,32	14,30	8,54	10,05	4,54

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.05 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	37,32	27,49	8,72	17,02	7,88	1,56
1886	36,96	27,22	9,44	16,78	7,82	1,75
1887	36,60	26,95	10,16	16,54	7,76	1,94
1888	36,24	26,68	10,88	16,30	7,70	2,13
1889	35,88	26,41	11,60	16,06	7,64	2,32
1890	35,52	26,14	12,32	15,82	7,58	2,51
1891	35,16	25,87	13,04	15,58	7,52	2,70
1892	36,06	23,76	13,89	15,68	7,63	2,86
1893	35,41	23,43	15,70	15,22	7,41	2,71
1894	34,75	23,10	17,50	14,75	7,18	2,56
1895	35,75	21,48	18,67	14,52	7,03	2,44
1896	36,12	20,98	18,23	14,53	7,60	2,40
1897	36,44	20,66	18,84	14,25	7,37	2,32
1898	36,76	20,33	19,45	13,97	7,14	2,24
1899	37,46	21,08	17,92	14,01	7,43	2,05
1900	38,16	21,83	16,38	14,05	7,72	1,85
1901	38,02	21,58	16,80	13,45	8,07	2,09
1902	37,13	23,66	16,23	12,96	8,04	1,99
1903	36,33	22,44	17,14	12,44	8,02	3,63
1904	36,46	22,46	17,21	12,44	7,97	3,45
1905	37,16	22,92	16,58	12,15	7,95	3,25
1906	37,86	23,37	15,94	11,86	7,92	3,05
1907	38,58	22,88	16,17	11,63	7,84	2,91
1908	37,85	23,71	16,38	11,33	7,87	2,86
1909	35,74	25,75	16,26	11,43	7,80	3,01
1910	35,44	26,72	15,08	11,34	8,04	3,40
1911	35,66	27,82	15,15	10,96	7,08	3,35
1912	35,43	28,40	15,16	10,40	7,00	3,62
1913	35,10	28,42	15,70	10,28	6,87	3,61
1914	34,98	30,05	15,21	10,17	6,06	3,52
1915	34,58	32,06	13,95	9,87	5,95	3,59
1916	32,63	36,56	12,66	8,72	6,09	3,34
1919	31,88	34,62	13,66	8,93	7,06	3,86
1920	29,18	37,17	13,37	7,99	8,18	4,12
1921	25,73	37,78	14,08	7,25	10,26	4,90
1922	27,46	37,48	13,73	7,62	9,22	4,51

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.01 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	40,44	27,72	10,28	14,33	6,18	0,98
1886	40,21	27,65	10,60	14,13	6,12	1,22
1887	39,98	27,58	10,92	13,93	6,06	1,46
1888	39,75	27,51	11,24	13,73	6,00	1,70
1889	39,52	27,44	11,56	13,53	5,94	1,94
1890	39,29	27,37	11,88	13,33	5,88	2,18
1891	39,06	27,30	12,20	13,13	5,82	2,42
1892	40,30	23,80	13,74	13,37	5,95	2,79
1893	39,26	23,62	15,79	12,80	5,82	2,66
1894	38,22	23,44	17,83	12,22	5,69	2,52
1895	38,63	24,13	18,37	11,33	5,34	2,14
1896	38,53	24,43	17,61	11,39	5,80	2,19
1897	39,26	23,50	18,11	11,28	5,67	2,14
1898	39,99	22,56	18,61	11,16	5,54	2,08
1899	41,61	22,05	17,28	11,38	5,84	1,83
1900	43,23	21,53	15,94	11,59	6,13	1,58
1901	42,69	21,33	15,89	11,14	6,97	1,98
1902	41,14	24,07	14,98	10,86	7,09	1,85
1903	39,77	22,89	16,80	10,38	7,25	2,91
1904	40,30	23,34	16,41	10,37	6,87	2,69
1905	40,53	24,56	15,48	10,14	6,78	2,52
1906	40,76	25,77	14,55	9,90	6,68	2,35
1907	41,90	25,11	15,23	9,20	6,43	2,13
1908	40,72	26,55	14,60	9,17	6,65	2,30
1909	37,75	29,39	14,54	9,19	6,77	2,35
1910	37,61	30,45	13,08	9,05	7,06	2,76
1911	37,58	31,93	13,37	8,62	5,91	2,59
1912	37,51	32,72	13,01	8,20	5,76	2,79
1913	37,23	32,63	13,55	8,13	5,75	2,71
1914	37,43	34,65	12,43	7,94	4,89	2,66
1915	37,22	37,41	10,89	7,58	4,41	2,50
1916	33,86	43,57	10,06	5,93	4,31	2,27
1919	33,10	40,45	10,93	6,73	5,68	3,13
1920	28,98	43,48	10,97	5,88	6,95	3,75
1921	24,10	43,39	11,87	5,82	9,59	5,23
1922	33,87	20,06	20,06	6,41	12,79	6,82

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.005 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	41,76	28,30	11,92	12,62	5,04	0,25
1886	41,68	28,31	11,86	12,46	5,04	0,55
1887	41,60	28,32	11,80	12,30	5,04	0,85
1888	41,52	28,33	11,74	12,14	5,04	1,15
1889	41,44	28,34	11,68	11,98	5,04	1,45
1890	41,36	28,35	11,62	11,82	5,04	1,75
1891	41,28	28,36	11,56	11,66	5,04	2,05
1892	42,54	24,25	13,24	12,16	5,22	2,57
1893	41,32	24,02	15,38	11,63	5,19	2,44
1894	40,09	23,79	17,51	11,10	5,15	2,30
1895	40,57	24,73	18,02	10,11	4,68	1,87
1896	39,96	25,42	17,17	10,29	5,19	1,94
1897	40,95	24,11	17,65	10,27	5,05	1,94
1898	41,94	22,79	18,13	10,25	4,91	1,93
1899	44,01	22,04	16,82	10,35	5,13	1,64
1900	46,07	21,29	15,50	10,45	5,34	1,35
1901	45,14	21,38	15,22	10,12	6,33	1,81
1902	43,24	24,36	14,24	9,92	6,53	1,71
1903	41,59	23,16	16,54	9,46	6,78	2,48
1904	42,42	23,88	15,81	9,41	6,23	2,26
1905	42,32	25,52	14,81	9,16	6,07	2,14
1906	42,22	27,16	13,80	8,90	5,91	2,02
1907	43,59	26,34	14,59	8,06	5,65	1,77
1908	42,33	28,00	13,52	8,13	6,03	2,00
1909	38,82	31,33	13,56	8,07	6,20	2,02
1910	38,85	32,25	12,17	7,99	6,33	2,41
1911	38,66	34,07	12,41	7,50	5,13	2,23
1912	38,73	34,69	12,06	7,05	5,05	2,43
1913	38,72	34,40	12,57	7,03	4,96	2,32
1914	39,14	36,21	11,18	6,92	4,25	2,29
1915	38,41	39,06	10,00	6,64	3,80	2,10
1916	34,68	46,22	9,01	4,73	3,56	1,80
1919	33,82	42,60	9,86	5,79	5,12	2,83
1920	29,22	46,15	9,71	4,93	6,44	3,56
1921	23,76	46,07	10,41	5,13	9,31	5,32
1922	26,49	46,11	10,06	5,03	7,87	4,44

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.1-0.05 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	27,89	24,11	8,13	23,37	15,21	1,43
1886	27,35	24,26	8,94	22,89	14,86	1,80
1887	26,81	24,41	9,75	22,41	14,51	2,17
1888	26,27	24,56	10,56	21,93	14,16	2,54
1889	25,73	24,71	11,37	21,45	13,81	2,91
1890	25,19	24,86	12,18	20,97	13,46	3,28
1891	24,65	25,01	12,99	20,49	13,11	3,65
1892	24,57	24,40	14,58	20,28	13,01	3,00
1893	24,62	24,13	15,80	19,80	12,59	2,90
1894	24,67	23,86	17,02	19,31	12,17	2,80
1895	25,38	22,14	18,44	19,02	12,14	2,77
1896	26,53	19,37	19,27	19,23	13,06	2,59
1897	26,57	20,08	19,45	18,87	12,50	2,51
1898	26,61	20,79	19,63	18,50	11,94	2,42
1899	26,69	21,36	18,81	18,31	12,30	2,51
1900	26,77	21,92	17,99	18,11	12,66	2,59
1901	26,74	23,09	18,26	17,97	11,77	2,09
1902	27,18	22,65	18,26	17,66	12,05	2,17
1903	27,03	22,76	17,41	16,98	11,55	4,31
1904	27,29	22,32	17,86	16,66	11,68	4,19
1905	28,05	21,65	17,42	16,86	11,83	4,21
1906	28,81	20,97	16,98	17,05	11,97	4,23
1907	29,06	20,79	16,55	16,91	12,46	4,24
1908	29,16	21,11	17,14	16,67	12,07	3,81
1909	29,34	21,81	17,00	16,02	11,74	4,17
1910	29,14	22,33	16,76	15,77	11,54	4,38
1911	29,86	22,54	16,66	15,44	11,04	4,43
1912	29,92	23,18	16,49	15,05	10,84	4,48
1913	29,76	23,65	16,83	14,58	10,50	4,79
1914	29,13	24,45	16,74	14,67	10,32	4,71
1915	29,30	23,78	17,71	14,58	9,80	4,83
1916	28,07	25,33	15,80	14,84	11,15	4,76
1919	28,15	25,42	16,91	13,68	11,06	4,77
1920	27,01	27,07	16,12	12,79	12,32	4,71
1921	25,94	28,80	16,43	10,73	13,49	4,65
1922	27,79	21,20	21,20	9,89	13,94	5,96

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.0005 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	41,66	25,61	19,49	6,29	5,08	1,88
1886	43,55	26,15	17,73	6,20	4,61	1,77
1887	45,44	26,69	15,97	6,11	4,14	1,66
1888	47,33	27,23	14,21	6,02	3,67	1,55
1889	49,22	27,77	12,45	5,93	3,20	1,44
1890	51,11	28,31	10,69	5,84	2,73	1,33
1891	53,00	28,85	8,93	5,75	2,26	1,22
1892	54,50	22,27	13,32	6,10	2,26	1,55
1893	52,83	22,61	15,34	5,69	2,10	1,44
1894	51,16	22,94	17,36	5,27	1,94	1,33
1895	53,42	19,06	20,10	4,56	1,58	1,29
1896	51,74	23,99	16,72	4,79	1,61	1,15
1897	53,85	20,05	17,02	5,71	2,17	1,21
1898	55,95	16,11	17,32	6,63	2,73	1,27
1899	57,99	17,46	15,06	5,76	2,61	1,13
1900	60,03	18,80	12,80	4,89	2,49	0,99
1901	58,55	20,01	12,96	4,65	2,42	1,41
1902	56,12	23,77	11,03	4,59	3,06	1,42
1903	52,09	22,87	15,00	4,72	3,80	1,53
1904	53,84	24,49	12,61	5,25	2,55	1,26
1905	51,83	28,23	11,62	4,75	2,43	1,16
1906	49,81	31,96	10,62	4,24	2,30	1,06
1907	52,80	29,94	11,73	2,62	1,77	1,15
1908	53,08	31,37	9,15	3,04	2,04	1,32
1909	46,81	37,40	9,48	2,51	2,50	1,29
1910	47,28	38,80	7,51	3,18	1,72	1,50
1911	46,68	40,82	8,00	2,30	0,92	1,28
1912	48,14	39,59	7,27	2,55	1,45	1,00
1913	48,44	37,83	7,76	2,94	2,06	0,95
1914	49,37	40,14	5,34	2,72	1,61	0,81
1915	48,79	41,12	5,22	2,50	1,71	0,65
1916	44,25	46,41	6,06	1,52	1,41	0,36
1919	41,33	44,36	6,24	2,66	3,60	1,82
1920	33,86	47,60	7,27	2,82	5,49	2,98
1921	23,47	48,78	8,47	4,12	9,57	5,60
1922	39,45	17,76	17,76	5,18	12,75	7,10

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.05-0.01 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	33,20	27,17	6,73	20,50	10,05	2,28
1886	32,70	26,65	7,96	20,20	9,99	2,41
1887	32,20	26,13	9,19	19,90	9,93	2,54
1888	31,70	25,61	10,42	19,60	9,87	2,67
1889	31,20	25,09	11,65	19,30	9,81	2,80
1890	30,70	24,57	12,88	19,00	9,75	2,93
1891	30,20	24,05	14,11	18,70	9,69	3,06
1892	30,73	23,71	14,08	18,59	9,74	2,95
1893	30,57	23,19	15,59	18,26	9,40	2,78
1894	30,40	22,67	17,09	17,92	9,05	2,61
1895	32,13	18,15	19,05	18,53	9,15	2,82
1896	33,05	16,60	19,02	18,52	9,89	2,67
1897	32,99	17,14	19,74	17,92	9,47	2,55
1898	32,92	17,68	20,45	17,31	9,04	2,43
1899	32,46	19,94	18,68	17,18	9,35	2,31
1900	32,00	22,19	16,91	17,04	9,65	2,18
1901	32,40	21,88	17,89	16,23	9,39	2,22
1902	32,32	23,17	17,73	15,48	9,18	2,16
1903	32,15	21,89	17,55	14,94	8,95	4,50
1904	31,84	21,40	18,17	14,93	9,29	4,36
1905	33,04	20,89	17,93	14,62	9,38	4,15
1906	34,23	20,37	17,68	14,31	9,47	3,93
1907	34,60	20,20	17,30	14,55	9,53	3,85
1908	34,48	20,37	18,47	13,87	9,30	3,52
1909	33,45	21,60	18,22	13,98	8,98	3,76
1910	32,98	22,50	17,34	13,93	9,15	4,12
1911	33,45	23,09	17,20	13,65	8,43	4,22
1912	32,97	23,30	17,70	12,99	8,46	4,59
1913	32,64	23,57	18,18	12,76	8,16	4,65
1914	32,08	24,60	18,51	12,81	7,45	4,54
1915	31,36	25,54	17,68	12,66	7,83	4,92
1916	31,04	27,52	16,01	12,32	8,39	4,72
1919	30,25	27,80	16,87	11,55	8,73	4,79
1920	29,14	30,07	16,07	10,45	9,64	4,66
1921	27,24	32,61	16,12	8,57	10,88	4,60
1922	30,41	21,51	21,51	8,63	12,29	5,67

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.01-0.005 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	36,90	26,16	5,30	19,16	9,42	3,11
1886	36,15	25,82	6,77	18,89	9,21	3,18
1887	35,40	25,48	8,24	18,62	9,00	3,25
1888	34,65	25,14	9,71	18,35	8,79	3,32
1889	33,90	24,80	11,18	18,08	8,58	3,39
1890	33,15	24,46	12,65	17,81	8,37	3,46
1891	32,40	24,12	14,12	17,54	8,16	3,53
1892	32,90	22,31	15,39	17,37	8,36	3,52
1893	32,54	22,31	17,13	16,61	7,90	3,38
1894	32,17	22,31	18,87	15,85	7,44	3,23
1895	31,98	22,07	19,57	15,51	7,60	3,07
1896	33,50	20,95	19,16	15,26	7,95	3,07
1897	33,50	21,37	19,69	14,73	7,80	2,83
1898	33,50	21,79	20,21	14,19	7,64	2,58
1899	33,84	22,05	18,78	14,71	8,15	2,45
1900	34,17	22,30	17,34	15,23	8,65	2,31
1901	34,83	21,17	18,04	14,41	9,02	2,53
1902	34,45	23,15	17,34	13,86	8,88	2,30
1903	33,90	22,02	17,64	13,35	8,77	4,30
1904	33,57	21,63	18,31	13,42	8,91	4,06
1905	34,72	21,38	17,69	13,33	9,09	3,76
1906	35,87	21,12	17,06	13,24	9,26	3,46
1907	36,06	20,86	17,44	13,14	9,12	3,37
1908	35,59	21,93	18,04	12,48	8,63	3,26
1909	34,34	23,20	17,67	12,76	8,59	3,40
1910	33,69	24,76	15,96	12,40	9,37	3,87
1911	34,16	25,16	16,41	12,16	8,38	3,73
1912	33,51	26,27	16,12	11,96	8,09	3,97
1913	32,37	26,86	16,74	11,71	8,32	3,98
1914	31,63	29,36	16,67	11,40	7,06	3,91
1915	33,10	31,69	13,97	10,84	6,52	3,88
1916	30,81	33,71	13,97	10,39	7,10	4,02
1919	30,49	33,43	14,37	9,91	7,61	4,20
1920	27,89	35,18	14,76	8,98	8,70	4,51
1921	24,96	36,64	15,55	7,56	10,29	5,00
1922	28,86	22,21	22,21	7,47	12,26	7,01

**Table D.5. Top Income Shares in British India, 1885-1922
by province (in %)**

	Top 0.005-0.001 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	40,01	29,89	9,87	14,31	6,58	1,46
1886	38,92	29,44	10,45	14,60	6,66	1,60
1887	37,83	28,99	11,03	14,89	6,74	1,74
1888	36,74	28,54	11,61	15,18	6,82	1,89
1889	35,65	28,09	12,19	15,47	6,90	2,03
1890	34,56	27,64	12,77	15,76	6,98	2,17
1891	33,47	27,19	13,35	16,05	7,06	2,78
1892	35,32	23,89	13,99	16,41	6,95	3,41
1893	34,695	23,66	16,02	15,35	6,96	3,24
1894	34,07	23,43	18,05	14,30	6,97	3,07
1895	33,44	26,85	17,49	13,21	6,69	2,28
1896	33,27	25,69	17,55	13,41	7,45	2,55
1897	33,775	25,68	18,22	12,90	6,87	2,44
1898	34,28	25,68	18,90	12,40	6,30	2,33
1899	35,605	24,1	18,42	13,01	6,82	1,98
1900	36,93	22,52	17,95	13,62	7,35	1,63
1901	36,65	21,54	17,29	13,90	8,53	2,09
1902	35,49	23,48	17,36	13,08	8,74	1,83
1903	34,89	22,92	17,79	12,50	8,61	3,30
1904	34,83	23,25	17,98	12,14	8,77	3,07
1905	36,19	23,00	17,03	12,05	8,71	3,03
1906	37,55	22,76	16,09	11,97	8,65	2,99
1907	37,73	22,54	16,84	11,70	8,69	2,51
1908	36,12	24,71	16,52	11,08	8,93	2,66
1909	34,5	26,03	16,51	11,49	8,68	2,78
1910	33,71	26,84	15,22	11,32	9,53	3,39
1911	33,63	28,29	15,54	11,24	8,11	3,20
1912	32,77	29,76	15,35	10,76	7,71	3,65
1913	32,2	29,93	16,40	10,47	7,42	3,59
1914	32,02	30,58	16,17	10,79	6,67	3,75
1915	29,34	35,11	14,54	11,04	6,07	3,92
1916	27,72	41,28	12,12	8,90	6,24	3,72
1919	27,6	38,84	13,30	9,23	6,87	4,16
1920	25,86	42,56	12,06	7,43	7,67	4,40
1921	24,00	43,85	12,00	5,96	9,10	5,09
1922	36,01	19,11	19,11	5,97	13,19	6,60

Table D.6. Inverse Pareto-Lorenz coefficients in British India, 1885-1922 by province

	based on 0.01 within 0.1 %					
	Bengal	Bombay	Madras	Agra and Oudh	Punjab	Central Provinces
1885	1,48	1,96			1,42	
1886	1,51	1,88		1,60	1,53	
1887	1,67	1,93	1,86	1,48	1,36	
1888	1,49	2,15	1,73	1,58	1,42	
1889	1,64	2,15	1,86	1,61	1,65	
1890	1,70	2,10	1,89	1,55	1,61	1,95
1891	1,86	2,27	1,76	1,59	1,55	1,92
1892	1,72	2,35	1,94	1,48	1,48	1,83
1893		2,15	2,28	1,45	1,48	1,79
1894	1,87	2,14	1,99	1,51	1,54	1,86
1895	1,68	2,32	2,07	1,49	1,50	1,92
1896	1,75	2,20	1,72	1,49	1,37	1,82
1897		2,29	1,56	1,42	1,60	1,82
1898	2,00	2,31	1,52	1,53	1,60	1,77
1899	2,12	2,28	1,68		1,57	1,86
1900	2,00	2,50	1,67	1,53	1,63	1,85
1901	1,88	2,77	1,74	1,51	1,91	1,95
1902	2,08	2,70	1,63	1,52	1,93	1,78
1903	1,92	2,67	1,83	1,69	2,09	1,90
1904	1,83	2,69	1,94	1,62	2,04	1,88
1905	2,11	2,84	1,75		2,03	1,77
1906	2,04	2,86	1,56	1,57	2,02	1,57
1907	2,02	2,92	1,77	1,51	1,99	1,62
1908	2,08	2,79	1,65	1,54	1,89	1,80
1909	1,88	2,64	1,82	1,53	1,99	1,87
1910	1,88	2,73	1,81	1,59	1,97	1,73
1911	2,18	2,83	1,59	1,53	1,79	1,72
1912	2,20	3,14	1,68	1,56	1,84	1,55
1913	2,15	3,21	1,73	1,62	1,86	1,61
1914	2,23	3,36	1,62	1,64	1,97	1,69
1915	2,07	3,78	1,78	1,74	2,23	1,70
1916	2,11	3,93	2,21	1,76	2,34	1,65
1919	2,32	3,93	2,43	1,94	2,58	1,81
1920	2,30	3,64	2,61	1,91	2,58	1,79
1921	2,14	3,64	2,37	1,79	2,35	1,67
1922	2,00	3,38	2,04	1,68	2,12	1,57

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