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Income inequality under colonial rule. Evidence from French Algeria, Cameroon, Tunisia, and Vietnam and comparisons with British colonies 1920–1960[☆]

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ABSTRACT

We assess income inequality across French and British colonial empires between 1920 and 1960, exploiting for the first time income tax tabulations. As measured by top income shares, inequality was high in colonies. Europeans comprised the bulk of top income earners, and only a minority of autochthons could compete income-wise. Top income shares were no higher in settlement colonies, those territories were wealthier and the average European settler was less rich than the average expatriate. Inequality among autochthons was moderate, and inequality among Europeans was similar to that of the metropoles. The post-WWII fall in income inequality can be explained by the one among Europeans, mirroring that of the metropoles, and does not imply that the European/autochthon income gap was very much reduced. After independence, the mass recruitment of state employees induced a large increase in inequality among autochthons. Dualistic structures lost their racial dimension and changed shape, yet persisted.

1. Introduction

Almost by definition, colonial societies entailed huge inequalities in political power and agency, as well as in social and economic opportunities, if only along the racial divide between European and autochthonous populations. The day-to-day experience of colonized peoples is well known; from very early on, the various forms of domination and discrimination were exposed through militant pamphlets, analytical essays, and sociological works.[1,2] In contrast, the within-group inequalities of both the colonizers and the colonized have received little attention. On European settlers or expatriates, recent historical works have described opportunities offered by the colonial context (Lambert, 2009; Chambru and Viallet-Thévenin, 2019; Michel, 2018). However, success stories are only part of the picture, and not all Europeans managed to find their way into the elite. Regarding autochthons, while some chiefs, landlords, religious leaders or scholars opposed colonial domination and were wiped out, others entered into various forms of collaboration with colonial authorities and were able to reap political and economic benefits. Furthermore –and despite colonial discrimination–, commerce, urbanization, and education opened new channels for accumulation and upward mobility, and also produced some of the soon-to-be leaders of the independence era (Chater, 1993; Sraieb, 1993; Brocheux and Hémery, 1994; Pervillé, 1997; Bezançon, 2002; Vermeren, 2002).[3] Colonial societies also included autochthonous or immigrant minorities, such as Jews in North Africa, Levantines in West Africa, Indians in East Africa, or Chinese in Indochina, who played an important

☆ The paper is complemented with an Online Appendix.

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1 Among the earliest works in the French colonial context, Nguyen Ai Quoc (1925) belongs to the first category, Fanon (1952) and Memmi (1957) to the second, and Balandier (1955) and Bourdieu (1958) to the third.

2 The fate of mixed-race individuals also well demonstrated the difficulty of bridging the divide between colonizer and colonized (White 1999; Saada 2012).

3 Here again, the cited references are restricted to French colonies.

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role in trade, and who were able to occupy intermediate positions within the income and wealth distributions. Overall, the current picture of colonial inequality is incomplete.

As far as the quantitative evidence is concerned, little is known about income and wealth concentration in colonial societies, especially from a comparative standpoint, and particularly for Africa. How great was economic inequality in the colonies of the 20th century, and how did it compare to other historical cases? Could autochthonous elites compete with the richest Europeans in terms of economic affluence, and how high was inequality among the colonized, including non-European minorities? Was inequality higher where Europeans were many? Were the European enclaves homogeneous? How did the richest Europeans in the colonies compare with the richest in the mainland? As inequality fell in Europe following World War II, and colonialism became increasingly scrutinized for the treatment of its subjects, did inequality also decrease in the colonies, and why? After independence, how did the departure and replacement of settlers impact postcolonial inequality? This paper contributes to answering these questions by studying the concentration of income in four French colonies across Africa and Asia, and comparing them to those of the British Empire. Knowing more about colonial inequality is essential to better understanding the political economy of colonialism itself. It is also important for understanding the socioeconomic structures that the newly independent nations inherited with the end of the colonial rule, hence the political economy of the postcolonial era. In terms of inequality, colonial legacies varied depending on whether settlers left (Algeria) or stayed (South Africa). Furthermore, the ideological pathways chosen by newly independent nations ranged from the doctrinary Marxism-Leninism (North Vietnam, and later the whole of Vietnam), to 'planned' or 'community' liberalism (doctrines of the two successive presidents of independent Cameroon), through variations of socialism that were later either abandoned or amended (Algeria, Tunisia, India). Despite their diversity, what these doctrines had in common was an objective to reduce inequality by breaking with colonial structures.

Until recently, studies on colonial inequality have focused on the distribution of the populations across social classes, each of which is associated with an estimate of average income; today, this construct is known as a "social table". In a seminal work on French North Africa, Samir Amin estimates the average income of Muslims and non-Muslims in agricultural and non-agricultural occupations in 1955, at the end of the colonial period (1970, pp. 60–89).[4] Bigsten (1986) disaggregates national income in Kenya from 1914 to 1976 into 13 occupational groups; having estimated income inequality within each group for a given date, he assumes the within components to be time-invariant and produces a time series for the Gini coefficient of income inequality. He finds that the Gini coefficient increases sharply between 1914 and 1950, from 0.50 to 0.70, following the urban-rural income gap, and then fluctuates between 0.60 and 0.70 in the 1950s and 1960s. Bolt and Hillbom (2016) use the same method to study income inequality in Botswana from 1921 to 1974; they find a smooth increase in the Gini from the mid-1930s to the mid-1970s, followed by stagnation at a very high level. Aboagye and Bolt (2018) construct social tables for Ghana between 1891 and 1960, and also find an increase in the income Gini between 1930 and 1960. In contrast, Alfani and Tadei (2017) look at Cote d'Ivoire and Senegal, two French colonies in West Africa, and find a significant decrease in the Gini and Theil coefficients between 1939 and 1954, which they link to the reduction of inequality between Europeans and autochthons. Milanovic, Lindert, and Williamson (2011) use social tables to estimate Gini coefficients for 28 pre-industrial societies, including New Spain (1790) and precolonial (1750) and colonial (1947) India.[5] Milanovic (2018) adds 13 social tables to this database, including two from Merette (2013a, b) on colonial Southern (Cochinchina) and Northern (Tonkin) Vietnam in 1929. The social table approach entails a number of limitations. First, the method is mostly based on labor earnings linked to occupations, and often ignores (or fails to capture) other relevant sources of income (rents, profits).[6] Second, inequality within occupational groups can be severe, and can change across time. Third, the contents of each occupation may vary across space and time.

Fiscal sources allow for a more direct approach that can complement social tables in periods when survey data do not exist. After World War I, Britain and France gradually introduced progressive personal income taxes in their colonial empires, after the enactment of the same taxes in the metropole.[7] In related work, Atkinson (2014, 2015a, b, c) and Alvaredo and Atkinson (2010) exploited income tax data for former British territories in Central, West, East and South Africa. Here, we use income tax distributional tables published in French statistical abstracts to estimate and analyze the shares accruing to top income groups across four French colonial territories, Algeria, Tunisia, Vietnam, and Cameroon, between 1920 and 1960. We then compare the data to British colonies and former dominions in Africa and Asia (Atkinson 2014, 2015a, b, c; Alvaredo and Atkinson 2010; Alvaredo et al. 2017, Banerjee and Piketty, 2010), as well as with France and the United Kingdom (Piketty, 2001; Atkinson, 2005, 2007b). No data source is perfect, and this approach is not exempt from shortcomings. We discuss a number of methodological limitations: definitions of income, coverage and enforcement of the income tax, and sensitivity to population and income aggregates.

Figs. 1 and 2 provide a preview of some of our results. Unsurprisingly, we find that income inequality in the French and British empires of the 20th century was high. Although it fell significantly after World War II, as it did in mainland France or United-Kingdom, it stabilized in the 1950s at higher levels than in the metropoles. We then show that although non-Europeans were sometimes present at the top of the income distribution, this was rarely the case. In Tunisia, non-Europeans, including the Jewish minority, could represent up to 20% of top income earners; in South Vietnam, non-Europeans, including the Chinese minority, could reach up to 40% of the top income group. Inequality among non-Europeans was moderate. Thus, European settlers or expatriates always made up the majority of top income recipients, to a greater extent in Africa. Despite being wealthier, the top income shares of settlement colonies were no higher than in colonies where the number of European expatriates was far smaller. This was because in non-settlement colonies the top rich expatriates were more exclusive and/or received higher bonuses than settlers did. Inequality between Europeans must have been close to, or even lower than, inequality in the mainland of origin. We show that in the settlement colonies of South Africa, Algeria, or Zimbabwe, the post-war fall in colonial inequality can be largely explained by the fall of inequality between Europeans alone, which mirrored that of mainland Europe, and cannot be taken to imply that the income gap between Europeans and autochthons was very much

[4] See (Online) Appendix Table C1.

[5] On the basis of these estimates, Williamson (2010, 2015) contradicts Engerman and Sokoloff (1997), arguing that inequality in Spanish and Portuguese America was moderate and that it rather rose long after independence, following the first wave of globalization in the late 19th century.

[6] Frankema (2010) analyzes the colonial origins of land inequality in Malaysia, Sierra Leone and Zambia.

[7] Even if this work is related to the latest developments in the study of top incomes (Atkinson and Piketty, 2007, 2010; Alvaredo et al., 2013), it is worth recalling that this area of literature has long been concerned with the colonial territories: Frankel and Herzfeld (1943) published estimates of the European income distribution in South Africa based on the income tax returns by making use of population and income totals from census and national accounts; their use of external information to complement income tax data pre-dates Kuznets' study of upper income groups in the US by ten years (1953).

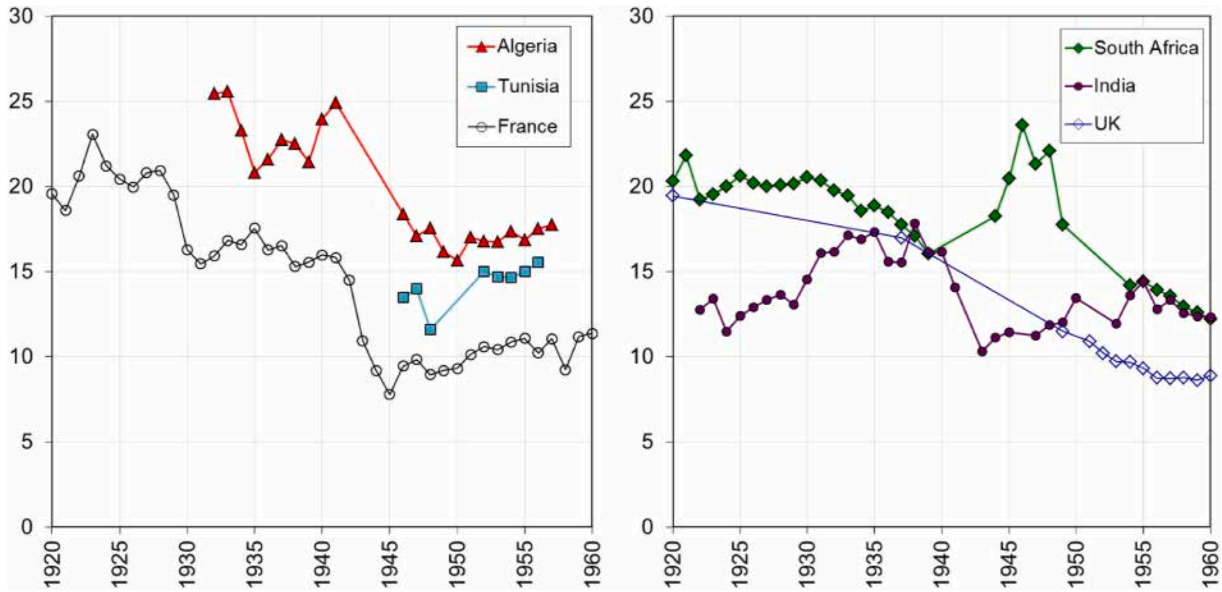

Fig. 1. Top 1% income share in the French and British colonial empires, 1920–1960. Sources: Table 4A (Algeria), Table 4B (Tunisia), Table 4C (French Cameroon), Piketty (2001) (France), Atkinson (2005, 2007a) (UK), Alvaredo and Atkinson (2010) (South Africa), Banerjee and Piketty (2010) and Alvaredo et al. (2017) (India).

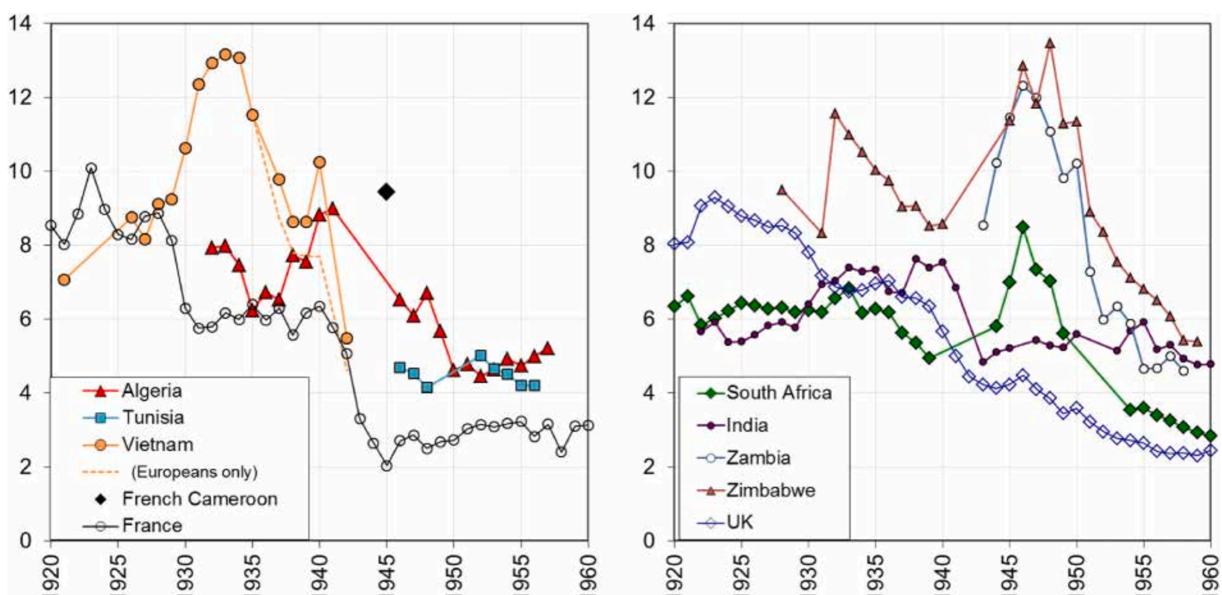

Fig. 2. Top 0.1% income share in the French and British colonial empires, 1920–1960. Sources: Table 4A (Algeria), Table 4B (Tunisia), Table 4C (French Cameroon), Table 4D (Vietnam), Piketty (2001) (France), Atkinson (2005, 2007a) (UK), Alvaredo and Atkinson (2010) (South Africa), Banerjee and Piketty (2010) and Alvaredo et al. (2017) (India), Atkinson (2015b), (Zambia and Zimbabwe).

reduced. Finally, the takeover of colonial states by independent governments triggered a mass recruitment of autochthonous state employees that more than replaced the departing French civil servants. This new social class was relatively well-paid; we show through simulation that income inequality among autochthons likely boomed in the aftermaths of independence. Even if dualistic structures lost their racial dimension and changed shape, they persisted.

The remainder of this paper is organized as follows. Section 2 provides a brief historical background for the four French colonies, along with a description of the various forms of income taxes that were implemented after WWI. Section 3 presents the income distribution data and estimation methodology, and our estimates of the total population of tax units and of the total fiscal income. Section 4 discusses the political economy of income taxation in the colonies, and the robustness of inequality estimates. Section 5 presents the results, with details on wealthy autochthons, European settlers and expatriates, as well as an analysis of the evolution of inequality before and after World War II. Section 6 discusses postcolonial evolutions. Section 7 concludes.

2. Historical background and chronology of income taxation

Algeria. Before the French invasion of 1830, Algeria was part of the Ottoman Empire. It was officially annexed by France in 1848, although conquest wars would continue for the next four decades. French and other European groups (Spanish, Italian) more than doubled between 1871 and 1914. The Jews of Algeria were granted French citizenship in 1871. With the advent of the French Third Republic in 1871, settlers' opposition to the military administration gained momentum, and by

1900 they obtained some autonomy in government. In 1932, when our income tax data series for Algeria begins, non-Muslims accounted for 13.5% of the population (14.4% of tax units, given the differences in age structure between Europeans and Muslims).[8] After the mid-1930s, the share of non-Muslims began to slowly decrease to 10% in 1961. Following the independence war in 1962, almost all French *pied-noirs* (settlers) and Jews left Algeria. Settlers made up the majority of the urban population, and in agriculture they produced wine and grew wheat and barley, oranges, lemons, and olives. Oil and gas production only became significant at the very end of the colonial period. After WWI, tax obligations (and consequently the statistical information) made no distinction between French or European citizens and Algerian "Muslims" as colonial subjects.[9] The *impôt complémentaire sur le revenu* was set as early as in 1920, soon after the introduction of the income tax in mainland France in 1914. It came on top of schedular taxes on salaries, profits, and rental income. The income tax also replaced the old *impôts arabes* (Arab taxes) that had survived from the Ottoman period and were abandoned in 1919. Available distributional data cover the years from 1932 to 1957 (1942–1945 are missing).[10]

Tunisia. France conquered Tunisia, also formerly part of the Ottoman Empire, in 1881. It remained a protectorate, under the official rule of the *bey* of Tunis, even if the actual power was exerted by the French administration. French and Italian immigrants trickled in until WWI, by which point Europeans made up 7% of the population. As in Algeria, most of them gradually left the country in the decade that followed independence in 1956. In 1946, when our income tax series begins, Europeans represented 7.4% of population (8.9% of tax units), of which 60% were French and 35% Italian.[11] By 1956 this share had decreased to 6.6%. In contrast with Algeria, Jews were not granted French citizenship and were counted as "Tunisians" in official statistics; they represented 1.5% of the population in 1956, hence 18.5% of "non-Muslims." The Jewish population left Tunisia after independence, half of them to Israel, and the other half to France. As in Algeria, settlers produced wine and grew wheat, oranges, lemons, and olives. The personal income tax, *contribution personnelle d'État*, was established in 1928. It began as a lump-sum increasing over five income ranges, then in 1937 was transformed into a more refined income tax, under the same name. The tabulations from the income tax span from 1946 to 1956 (1949–1951 are missing) and provide a breakdown of European and Tunisian income recipients.

French Cameroon. French Cameroon resulted from the partition of the German colony of Kamerun between the British and the French at the end of WWI. In 1920, about three quarters of the territory were placed under French rule as part of a mandate from the League of Nations. By 1945, the French population was still very small, counting not more than 4000 people –a little over 0.1% of the total. Independence came in 1960. French colonists traded palm oil, bananas, groundnuts, coffee, and cocoa, and exploited the forest for lumber and rubber. The income tax was introduced in 1937. For liable taxpayers with incomes above the given threshold, it replaced the head tax. There were two versions, one for Europeans and one for Africans. In 1945, Europeans were subject to an income tax similar to that in France (*impôt général sur le revenu)*, while relatively rich Africans were subject to lower rates (*impôt personnel nominatif par tranche de revenu*). The *Annuaire Statistique du Cameroun 1938–1945* provides two separate income tabulations for Europeans and Africans for incomes accrued in 1945. This is the only year for which we have been able to locate income distribution statistics.

Indochina/Vietnam. French Indochina was composed of five territories that were gradually conquered by France between 1862 and 1899. Cochinchina (Southern Vietnam, capital city Saigon) was the first, and was ruled as a colony. The other four, Annam (Central Vietnam), Tonkin (North Vietnam), Cambodia, and Laos, were officially defined as protectorates. The *government général* of Indochina was established in 1887, putting the five territories under a federal administration. Europeans living in these territories were mostly French (95%); excluding army men, they counted some 25,000 people in 1920, and almost 50,000 at the beginning of the 1940s. In 1920, half resided in Cochinchina; this number rose to two-thirds by 1948. Most of the remainder were based in Tonkin. Overall, civilian European expatriates never represented more than 0.15% of the population of Indochina or Vietnam, or more than 0.6% in Cochinchina. Chinese people constituted a larger minority, counting around 300,000 in 1920, and over 600,000 in 1948 (over 2% of the population). After a short-lived invasion by the Japanese at the end of WWII, the French were unable to regain control over the North (Marr, 1995). In 1947, partial autonomy was granted to Vietnam, Cambodia, and Laos, with Vietnam still divided into three regions. The war for Indochina ended with the French defeat of Dien-Bien-Phu in 1954. The French invested in rice, rubber, tea and coffee plantations, and exploited coal and tin mineral resources. The first version of the income tax was implemented in 1920 in all Indochina and applied only to Europeans, other Westerners, and the Japanese (*taxe personnelle sur les européens et assimilés*). It was a lump-sum that increased in steps over twelve ranges of income. The implicit rates were pretty low (see Table 3). This tax was later replaced by an income tax similar to that in France, and applied to all households with income above a relatively high threshold (*impôt général sur le revenu*). The latter was first implemented in Cochinchina and Cambodia in 1937. It then reached Laos and Annam in 1938, and finally Tonkin in 1940; in these three territories only Europeans, Chinese and other Asians were liable, while Indochinese households were exempt. In Cochinchina and Tonkin, the published tables distinguish Europeans, Chinese, Asian foreigners, and Indochinese (the latter only in Cochinchina).[12] As we lack estimates for Cambodia and Laos' domestic income, we focus on Vietnam (the union of Cochinchina, Annam and Tonkin), and only report estimates for the two other colonies in the Appendix.

British colonies and dominions. Our main focus is not the colonial history, economic structure, or the income taxation features of the colonies and dominions of the British Empire included in our comparison; rather, we borrow results from a number of authors. We consider: Ghana (former Gold Coast), India (British India then independent India without Pakistan), Kenya, Malawi (former Nyasaland), Nigeria, South Africa, Tanganyika (mainland Tanzania, merged with Zanzibar island in 1964), Uganda, Zambia (former Northern Rhodesia) and Zimbabwe (former Southern Rhodesia). The interested reader is referred to Atkinson (2014, 2015a-c) on the British colonies in Africa, to Alvaredo and Atkinson (2010) on South Africa, and to Banerjee and Piketty (2010) and Alvaredo et al. (2017) on India. Each had its particular political arrangements, and not all remained strict colonies for the duration of the period under analysis. The Union of South Africa was a British dominion formed in 1910, and was transformed into a republic in 1961, before eventually leaving the Commonwealth; as is well known, the rule of the white minority only ended in 1994. India became independent in 1947. Following Ghana in 1957, all other British colonies gained independence after 1960. Southern Rhodesia declared unilateral independence from Britain in order to preserve the white rule, which only came to an end with the creation of Zimbabwe in 1980. For our purposes, it is enough to make brief reference to European settlement patterns. White settlers represented around 20% of the population of South Africa from the beginning of the 20th century until 1960, after which their population

[8] See Appendix Table B1A, Column (9).

[9] Until 1938, the income tax was only levied in Northern Algeria, where more than 90% of the population lived.

[10] Dates correspond to the year when incomes were earned, given that the income tax was levied the year after.

[11] See Appendix Table B1B, Column (8).

[12] See the top panel of Appendix Table A1.E for population coverage. Again, dates correspond to the year when incomes were earned; the true date of implementation is the year after.

share decreased. Zambia and Zimbabwe were settlement colonies like South Africa, although to a lesser extent, as Europeans never constituted more than 4% of the population in the former, and never more than 7.5% in the latter; these fractions increased significantly in the 1950s. Kenya was another intermediate case, with the population of white settlers at around 0.6% in 1948. In other African colonies, Europeans did not make up more than 0.15%, like in Cameroon and Vietnam. In Kenya, Uganda, and Tanganyika, a significant Indian minority could also be found. In all African colonies, except for South Africa and Zimbabwe, the majority of white settlers left the country after independence; many white Zimbabweans also left in 1980. Last, in India, Europeans represented an even smaller proportion of the population, less than 0.05%.

3. Data and estimation of inequality figures

3.1. Income tax data

The data used here do not come in the form of individual tax records, which no longer exist for the period studied; rather, we make use of published tabulations. The information necessary for the estimation of income shares of top groups is the distribution of taxpayers assessed by ranges of income and, ideally, the amount of income in each range (present in many, but not all cases). The tabulations categorize taxpayers by income range $[\tilde{y}_k; \tilde{y}_{k+1}]$; for each income range they report the number of taxpayers N_k and the total income before tax Y_k, as exemplified in Table 1.

With the total number of potential tax units, N (as if everyone had been required to file for the income tax, i.e. including those below the minimum taxable threshold), we can calculate the cumulated population share lying above the lower bound of each income bracket: $P_k = \sum_{j\geq k} N_j/N$, for tax payers whose pre-tax income lies above $\tilde{y}_k$. In addition, if we know the (before tax) total household income, Y, we are able to estimate the income share earned by people lying above $\tilde{y}_k$: $S_k = \sum_{j\geq k} Y_j/Y$. The intervals in the tabulations do not in general coincide with the percentage groups with which we are concerned (e.g. the top 1%): we have to apply interpolation methods. In this paper, the mean-split histogram method (Atkinson, 2005, 2007b) allows us to estimate S_p, the income share earned by the p richest percent, for any p lying below P_0. When the population coverage is low, we can only estimate the shares of the very rich groups (e.g. the top 0.1%).

In order to arrive at meaningful inequality estimates, the distribution of taxpayers by income ranges have to be placed in the context of external totals for the number of tax units N, and for fiscal income Y. The income tax data can only be interpreted in the light of such external information. The assembly of this information for much of the first half of the twentieth century in the colonial territories requires a considerable investment and introduces further elements of uncertainty. As also stressed in Alvaredo and Atkinson (2010), an understanding of these processes is necessary to appreciate the limitations of the estimates but may also provide confidence in their use. The next two sub-sections explain our estimates for the population total, as well as for total household income. Section 4 then discusses the reliability of our inequality figures.

Table 1
The typical income tax tabulation.

Income brackets	Total number of taxpayers	Total income declared
Between $\tilde{y}_0$ and $\tilde{y}_1$	N_0	Y_0
…	…	…
Between $\tilde{y}_k$ and $\tilde{y}_{k+1}$	N_k	Y_k
…	…	…
Above $\tilde{y}_K$	N_K	Y_K

3.2. Population data

In the four French colonies being studied, the income tax was originally levied on the tax unit (single adults and married couples), as in most countries at the time. This is still the case in France today (and in the UK until 1989). Children below 18 years old (21 in some cases) with no individual income belonged to the tax unit of their parents; if they earned some income, they would declare separately even when living with their parents. Our income shares are consequently defined with respect to the population of tax units. In principle, the derivation of the total for tax units involves the following steps: (1) estimate of total population, (2) exclusion of children aged less than 15 years old and of working age children still depending on their parents, and (3) subtraction of the number of married women. Even if reliable estimates of the total population aged 15 and over are available, only a few sources give indications on the number of children above 15 who have an independent job, and on the number of married women.

In this paper, due to the limitations of the available statistics, we estimate the number of tax units as 60% of the population aged 15 and over. This method was chosen also for the purpose of comparing our results with those of Atkinson (2014; 2015a, b, c), who made the same choice when analyzing British colonies. In the case of Algeria and Tunisia, and for Europeans in Indochina, we can confirm that this option is consistent with a more refined analysis of demographic structures. The sources, as well as the detailed description of the methods employed to arrive at the final demographic numbers are given in Appendix A2.[13]

While in Algeria and Tunisia taxpayers represented over 2% of the total tax units, in Cameroon they made up only 0.9%, and in Vietnam just slightly more than 0.1% (see Figure A2.1 in Appendix). These figures fix bounds to the top income groups that we are able to study in each colony (P_0, as defined above). In North Africa, we can observe significant variations in coverage: in Algeria, between 1.9 (for 1947) and 5% (for 1957), and in Tunisia, from 2.2 in 1946 to 4.4% in 1956. Low early figures are due to inflation and delayed adjustments of liability thresholds, particularly between the years 1946 and 1949.[14] In Tunisia, in 1955 and 1956, the noticeable increase in coverage stems from the inclusion of more non-European taxpayers following independence (see section 6).

3.3. Total income data

The tax records only cover a fraction of income, so we also need to estimate aggregate fiscal income. As Atkinson points out: “if the population totals pose problems, then control totals for household income take us into still more treacherous territory” (2014, p. 11). The difficulties in calculating national income in Africa are widely recognized, and there is much criticism of contemporary macro-economic statistics. Nonetheless, there is a long history of research on national accounts in Africa, specific to each of the countries that form the basis of our series. For the most part, we take the GDP and price data constructed by Cogneau et al. (2021). However, fiscal income also differs from GDP. In France in the 1950s, it was around 60% of gross primary household income, due to conceptual differences between the definition of income by national accounts and by the fiscal administration, for non-salaried occupations and in particular the mixed incomes of the self-employed (Piketty, 2001, pp. 843–864). Both in France and in Algeria, gross primary household income was around 83% of GDP. We estimate fiscal household income as 50% of GDP ($60\,\% \times 83\,\%$). The sources, as well as the detailed description of the methods employed to arrive at the final

[13] The series of the totals for tax units and fiscal income are given in Appendix Table B1A (Algeria), Table B1B (Tunisia), Table B1C (Cameroon), and Table B1D (Indochina).

[14] See Appendix Table B1A, Column (15), and Appendix Table B1B, Column (18).

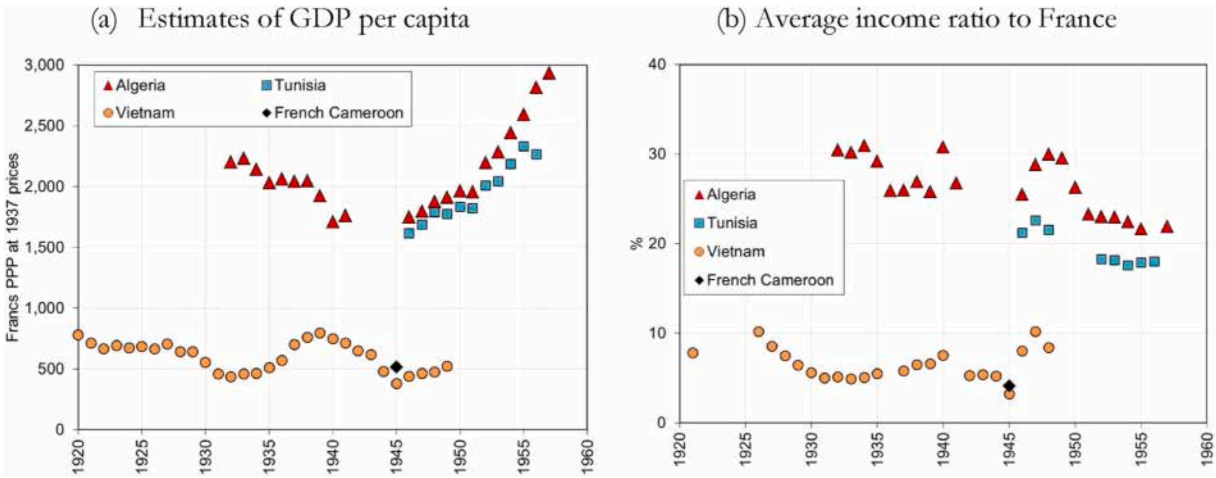

Fig. 3. Income per capita in Algeria, Tunisia, French Cameroon and Indochina, 1920–1960. Notes: In panel (a), the purchasing power parity conversion factor has been constructed using a basket of goods for years 1936–38. Compared to the reference country Algeria, prices are found to be lower by 5% in Tunisia, 20% in Cameroon, and 60% in Vietnam. See Cogneau et al. (2021, Appendix 1). In panel (b), the comparison of average incomes with France does not take into account PPP. In 1945, the estimated income per tax unit in Cameroon was around 5% that of the metropole. Sources: Panel (a): Appendix A3; Panel (b): Appendix Tables B1.A-B1.D and WID.world.

income numbers are given in Appendix A3.

Fig. 3a displays the time profile of real GDP per capita between 1920 and 1960, for the years when tax data are available. A number of comments are in order. Average incomes in Algeria and Tunisia are considerably higher than in the rest of the empire. In particular, Cameroon and Indochina were four to five times poorer than Algeria. In Algeria, GDP per capita decreased by 20% between 1930 and 1950, corresponding to the Great Depression and World War II. Very high growth rates were achieved in the 1950s, despite the independence war begun in 1954. This can be attributed to the substantial infrastructural investments financed by the metropole, as well as to growth recovery in France that pulled Algerian exports. In Tunisia, growth was also quite high between 1946 and independence in 1956. In Cameroon, GDP per capita showed no signs of change until 1946, when large, grant-financed public investments financed started, so that the only point we observe is before this growth spell. In Indochina, GDP per capita stagnated in the 1920s; subsequently, the Great Depression resulted in the collapse of the international prices of rice and rubber, causing a deep deflationary crisis in the first half of the 1930s. Growth resumed in the second half of the decade, but GDP collapsed again during WWII.

Before WWII and in nominal terms (i.e. disregarding PPP adjustments), the metropole was three times richer than Algeria, and over ten times richer than Indochina. After WWII, France experienced very high growth rates, increasing the gap with Algeria and Tunisia, which, despite their own growth processes, ended up four to five times poorer than France by the mid-1950s (Fig. 3b).

4. Reliability of inequality estimates and robustness of comparisons

Here we briefly give account of the imputations and corrections needed to arrive at our top shares estimates and argue that their impact is very limited (4.1). We then discuss the potential variations in the enforcement and hence the coverage of the income tax across space and time, as well as the underlying political economy of income taxation (4.2). Last, we examine the robustness of inequality figures to uncertainties on population and income aggregates, and establish rules for reliable comparisons (4.3).

4.1. Imputations and corrections

For some colonies and years, income tax tabulations only report the number of taxpayers in each bracket. The list of colonies and years is given in the second panel of Appendix Table A1E. We impute total declared income to each bracket. Furthermore, in Vietnam in the early years, incomes declared in the last bracket are capped, and we correct for this. The details of these imputation and correction procedures are given in Appendix A1.F.

In Algeria until 1945, lump-sum deductions for family charges applied, and reported taxable income was net of these deductions (see third panel of Appendix Table A1E). Using population census data, we estimate the average amount of deductions and correct the top income shares accordingly. Details are given in Appendix A1.G.

The direct taxes paid in the previous year were most of the time deductible from fiscal income (see fourth panel of Appendix Table A1E). Using tax schedules, we estimate these deductions and correct the income shares upward. Details are given in Appendix A1.H.

The impact of these corrections is rather limited, both for the top 1% and top 0.1% income shares estimates on the total population. They could have more impact on the estimates of the within-group distributions (Europeans and non-Europeans); this source of uncertainty is given due consideration in the analytical sections.

4.2. Enforcement of the income tax

The enforcement of the income tax is a more serious concern. Colonial administrations were not large, and tax collection services were less endowed than in the metropole. Table 2 shows the number of civil servants in financial services (Column I). As per 1000 tax units (Col. II), colonies indeed lie below France, especially those with few French settlers: in the 1930s, Algeria has four times less civil servants and Vietnam almost ten times less. In the 1950s, Algeria and Tunisia still have three times less, and Cameroon ten times less again. Yet, figures get quite close, and even the ranking is reversed, when the number of civil servants is expressed per billion of fiscal income, because colonies were much poorer (Col. III). In terms of francs to be collected there were no fewer civil servants in colonies. As per the number of reported tax payers (intensive margin), figures are again similar in colonies and in France, with the (positive) exception of Vietnam where only few taxpayers are liable, even if all Europeans are rich enough to be covered (Col. IV). Of

Table 2
Financial services in colonial administration.

	Year	# Civil servants in financial services	per 1000 tax units	per billion fiscal income (1937 Frcnch Francs)	per 1000 tax payers
		I	II	III	IV
Algeria	1937	2,930	*1.2*	393	47
	1955	6,701	*2.2*	533	54
	1960	8,313	*2.2*	454	n.a.
Tunisia	1949	2,156	*2.0*	752	64
	1955	2,689	*2.2*	639	50
French Cameroon	1949	823	0.6	740	76
Vietnam	1925	3,986	0.5	871	434
	1937	4,592	0.5	862	398
France	1922	73,100	4.7	415	71
	1936	90,600	5.4	489	55
	1947	117,900	7.1	690	79
	1956	129,000	*1.2*	406	29

Source: Cogneau et al. (2021) database for civil servants in financial services.
Notes: Number of taxpayers in Column IV is for 1948 rather than 1949 in Tunisia (1945) rather than 1949 in French Cameroon, and 1926 rather than 1925 in Vietnam.

course, not all functionaries were in charge of collecting the income tax. However, there is little reason to believe that administrative capacity meant that liable income earners could evade more easily in colonies than in the metropole. Besides, there is no visible time trend in administrative coverage. Woker (2020) mentions numerous episodes of tax resistance in the French colonies, yet also shows that they were severely punished.

Furthermore, the burden of income taxation was not heavier in the colonies, as French settlers and expatriates were reluctant to being taxed as much as in the metropole (Woker, 2020; Ogle, 2020, p. 24–25). Table 3 shows the highest marginal tax rates from the tax schedules we could gather, and our estimation of average tax rates on fiscal income for the top percentiles 1, 0.1 and 0.01%. Generally speaking, maximal marginal tax rates were lower in colonies than in France, meaning that the highest incomes were less taxed (Column I). For example, in 1937, the highest marginal tax rate was 40% in Algeria, 10% only in Cochinchina, when it already reached 67.4% in France. In 1952, it was 44% in Algeria, 25% in Tunisia, versus 70% in France. At each top percentile, average tax rates are always lower than in France (Columns II to IV). Therefore, if tax rates correlate with non-compliance or evasion, this source of underestimation of top shares should have been more limited in the colonies.

When contrasting average tax rates, it must be kept in mind that colonies were poorer, so that even if colonies had the same tax schedules as in France the average tax rate at a given percentile would look lower. The top 1% in Algeria is more comparable income wise to the top 10% in France, or the top 0.1% to the top 1%. If we compare average tax rates at a given nominal income level, we find that the tax schedules of Algeria resulted in a profile that was close to that of France, except at the very top. The same was true of Cameroon in 1945. Tunisia was more generous. Cochinchina, and for sure the rest of Vietnam also, applied very low rates. At least for Europeans, tax pressure in itself should not have generated more tax evasion in the colonies.

Average income tax rates on non-Europeans were even lower, even at the top end of the distribution. For the top 0.1% richest of them in Cochinchina, they reached 1.5% in 1937 and 1.2% in 1949; in Tunisia, 8.3% in 1946 and 6.7% in 1956. In Cameroon in 1945, autochthons were taxed at a flat 4% rate. Of course, this does not mean that they were not heavily taxed by other instruments, in particular the head tax or indirect

Table 3
Income tax rates.

	Year	Highest marginal tax rate	Average tax rate		
			Top 1%	Top 0.1%	Top 0.01%
		percent			
		I	II	III	IV
Algeria	1934	24.0	2.4	6.3	10.9
	1937	40.0	2.4	5.6	12.0
	1947	n.a	12.0	24.1	n.a
	1952	44.0	5.2	13.5	22.8
	1956	n.a	11.8	24.5	n.a
Tunisia	1946	25.0	5.3	12.9	19.1
	Non-Europeans	25.0	n.a.	8.3	16.5
	1956	30.0	5.8	13.2	22.2
	Non-Europeans	30.0	n.a.	6.7	15.1
French Cameroon	1945	*46.9*	*4.0*	*8.7*	*19.1*
	Non-Europeans	4.0	4.0	4.0	4.0
Cochinchina	1920	0.0	n.a.	0.3	0.2
	1937	10.0	n.a.	2.9	5.7
	Non-Europeans	10.0	n.a.	1.5	4.0
	1942	20.0	n.a.	2.1	6.3
	1945	60.0	n.a.	2.2	7.7
	1949	45.0	n.a.	3.4	6.8
	Non-Europeans	45.0	n.a.	1.2	6.4
Annam	1942	40.0	n.a.	1.1	4.3
France	1920	62.5	9.6	17.7	26.4
	1937	67.4	10.3	20.7	29.4
	1946	70.0	15.7	28.1	41.9
	1952	70.0	16.3	27.4	37.8
	1956	77.0	19.2	32.1	44.3

Note: The average tax rates were computed using the income tax schedules, or tabulations of income tax paid in each income bracket (Algeria, 1947–1956, Tunisia, 1956). They are based on fiscal income corrected for deductions for family charges and direct taxes payments (see sub-section 4.1). As we could not find the maximal marginal rates for Algeria 1947 and 1956, we refrained from extrapolating the top 0.01% average tax rate. As we could not find the European income tax schedule for Cameroon in 1945, we applied the one of neighboring French Equatorial Africa in the same year (*Journal Officiel de l'Afrique Equatoriale Française*, 1er Février 1946, p. 168).

taxes on consumption (Cogneau et al., 2021; Woker, 2020).[15] Yet, tax compliance under colonial rule might have been better than most would expect. Cogneau et al. (2021) argue that the capacity of colonial administrations to extract revenue was quite high, being in general higher than comparable independent countries in the same range of income per capita. In the case of the head tax in French West Africa, they also show that compliance was high, as on average 90% of the theoretical tax bill was actually collected. Of course, a head tax was easier to collect than an income tax; it required less administrative capacity and could involve the collaboration of local authorities – chiefs in the case of West Africa. In the case of the income tax, chasing autochthonous taxpayers and auditing their income declarations could have been a challenge outside of wage-earning occupations, i.e. in agriculture or commerce.

In the settlement colonies of Algeria, Tunisia or South Africa, the demographic weight and economic domination of settlers limited the opportunities for a 'parallel' or 'informal' economy to coexist, outside of small size activities. Such opportunities were likely more opened in the cases of Cameroon or Vietnam, and other non-settler colonies in British Africa. Low urbanization levels put strong limitations on the size of an urban informal sector. In the rural sector, the activity of the biggest herd or landowners and of the biggest traders most often went through export markets and as such should have been visible enough, even to colonial 'gatekeeper' states (Cooper, 2002) controlling ports of entry and exit but struggling to extend power inwards. Internal or regional trades of cattle or of food crops like rice perhaps more easily escaped scrutiny in peripheral or border areas. We doubt that these trades could concern more than a few high-income individuals.

Outside of settlement colonies, the colonial administrations also employed only a few French or British civil servants, only in high-ranking positions; this could have facilitated some 'arrangements' between autochthonous tax collectors and payers. However, financial services was precisely a sector where more expatriate civil servants could be found, for instance they represented 31% of the staff in 1925 Indochina, versus 12% on average in the colonial administration; in settlement colonies like Algeria and Tunisia, the proportion of French civil servants in administration was above 50%, and even higher in financial services (data from Cogneau et al., 2021).

Political economy could also be involved here, if colonial administrations were unwilling to harass autochthonous big men in order to avoid conflict. We found no mentions of that type of motives in administrative reports. Yet it is true that colonizers sought to preserve good relations with the autochthonous elites who were sufficiently cooperative. This is likely part of the reason why the income tax was never extended to Indochinese people outside of Cochinchina, in the protectorates of Annam and Tonkin; it was more politically feasible to tax rich Chinese traders (Amer, 2010). In other contexts where the income tax was supposed to be universal, financial services could have turned a blind eye on the wealth of some big men or could have been lenient with under-reporting. We doubt it was the case in Algeria; the colony was largely ruled by the representatives of settlers; high income settlers, who considered themselves as Algerians as well as Frenchmen, would have found it inacceptable to be taxed more than their autochthonous counterparts (Woker, 2020, p. 244–250). This concern is a bit more credible for Tunisia, which was ruled as a protectorate with a dual administration, although all technical services were managed by the French. Yet we found no indication that rich traders in Tunis or the relatives of the *bey* benefitted from special treatment.

In the end, if some liable autochthons are missed in the extensive margin–if only because they are legally exempt like in Annam or Tonkin–, or if their income is understated in the intensive margin, our inequality figures will be underestimated as well as the income share of autochthons. Yet, given the above observations, we do not think that these concerns carry a lot of weight.

4.3. Sensitivity to population and income totals

We ran simulations to evaluate the sensitivity of top shares estimates to the uncertainty on the total number of tax units. We found this sensitivity was quite limited. In the case of the top 1% in Algeria, varying the total number of tax units by 20% downward or upward (i.e. retaining either 50%, or 72% of the population aged 15 and over, rather than 60%) results in a maximum relative variation of 11% (downward or upward) of the income share, the average variation (across years from 1932 to 1957) being 9%, or 1.8 percentage points. Our conclusions are not threatened by this kind of uncertainty.

In contrast, we acknowledge the sensitivity of top shares to the uncertainty surrounding total income estimates. This uncertainty is large, given first the coarseness of some GDP estimates, and second assumptions made regarding the ratio of fiscal income to GDP. And it translates one-to-one into top shares. For this reason, cross-sectional comparisons of top income shares should be considered with caution. As a general rule, we refrain from commenting upon differences in levels that are not large enough, i.e. when the relative difference is below 30%.[16] In this respect, the time evolution of top shares can be deemed a bit more reliable, as income growth estimates are anchored to a variety of variables (imports, exports, agricultural output, wages, and public expenditure). It remains that the composition of growth itself may impact the ratio of household income to GDP in ways that are almost impossible to take into account. For this reason, we also refrain from interpreting variations across time that are too small. Let us note that part of our

Table 4A
Algeria. Shares of income of top groups 1932–1957.

Year	Percent		
	Among total (adult) population		
	Top 1%	Top 0.1%	Top 0.01%
1932	25.5	7.9	2.2
1933	25.6	8.0	2.0
1934	23.3	7.5	1.9
1935	20.8	6.2	1.6
1936	21.6	6.7	1.8
1937	22.7	6.5	1.7
1938	22.5	7.7	1.8
1939	21.4	7.6	1.8
1940	23.9	8.8	2.0
1941	24.9	9.0	1.9
1942			
1943			
1944			
1945			
1946	18.4	6.5	2.3
1947	17.1	6.1	2.3
1948	17.5	6.7	
1949	16.2	5.7	2.4
1950	15.7	4.6	1.5
1951	17.0	4.8	1.3
1952	16.8	4.5	1.2
1953	16.7	4.6	1.2
1954	17.4	4.9	1.3
1955	16.8	4.7	1.2
1956	17.5	5.0	1.3
1957	17.8	5.2	1.4

[15] The income tax was far from being the major source of revenue of colonies. It only represented 8–10% of central government tax revenue in Algeria 1947–1957, 3% in Tunisia (1955), and less than 1% in Vietnam.

[16] Cogneau et al. (2021) have tested the reliability of their preferred estimates of GDP for a few years, using an alternative estimation method involving different data on urbanization and wages, see their Appendix 1, pp. 32–36. The relative differences between main and alternative estimates remain in the range of [-20%; +20%].

Table 4B
Tunisia. Shares of income of top groups 1946–1956.

Year	Percent									
	Among total (adult) population			Among Europeans				Among Tunisians-non Europeans		
	Top 1%	Top 0.1%	Top 0.01%	Top 10%	Top 5%	Top 1%	Top 0.1%	Top 1%	Top 0.1%	Top 0.01%
1946	13.5	4.7	1.5	30.2	22.2	10.3	3.1		3.1	1.2
1947	14.0	4.5	1.5	31.2	21.9	9.6	2.9		3.3	1.4
1948	11.6	4.1	1.4	26.5	19.3	9.4	3.1		2.4	0.9
1949										
1950										
1951										
1952	15.0	5.0	1.5	35.7	26.1	12.1	3.6		2.8	0.9
1953	14.7	4.6	1.3	34.6	25.1	11.2	3.2		2.9	0.8
1954	14.6	4.5	1.2	34.9	25.1	10.9	3.0		2.8	0.7
1955	15.0	4.2	1.1	34.9	24.2	9.7	2.5	8.9	2.9	0.8
1956	15.5	4.2	1.1	35.8	24.6	9.8	2.5	11.2	3.0	0.8

Table 4C
Cameroon Shares of income of top groups 1945.

Year	Percent							
	Among total (adult) population			Among Europeans				
	Top 1%	Top 0.1%	Top 0.01%	Top 50%	Top 25%	Top 10%	Top 5%	Top 1%
1945	*13.4*	9.4	2.8	83.0	58.2	35.0	23.9	9.2

Table 4D
Vietnam. Shares of income of top groups 1921–1942.

Year	Percent							
	Among total (adult) population		Among Europeans					
	Top 0.1%	Top 0.01%	Top 75%	Top 50%	Top 25%	Top 10%	Top 5%	Top 1%
1921	7.1	1.4	89.5	72.8	48.4	28.3	19.4	8.0
1922								
1923								
1924								
1925								
1926	8.8	2.5	89.5	73.2	49.3	29.0	20.0	8.5
1927	8.2	2.3	89.5	73.4	49.5	29.2	19.9	9.0
1928	9.1	2.5	89.7	72.7	48.6	28.6	19.5	8.7
1929	9.2	2.4	89.7	73.0	48.2	27.7	18.8	8.3
1930	10.6	2.7	89.9	73.5	48.4	27.1	17.8	7.7
1931	12.3	3.1	90.6	73.8	48.4	27.0	17.7	7.3
1932	12.9	3.3	90.4	73.6	48.3	27.0	17.7	5.7
1933	13.2	3.4	90.5	73.9	48.8	27.5	18.3	7.7
1934	13.1	3.4	90.1	73.3	48.2	27.1	18.0	7.4
1935	11.5	2.9	89.6	73.5	48.3	26.9	17.6	6.9
1936								
1937	9.8	3.1		79.8	56.4	33.3	23.1	9.4
1938	8.6	2.8		80.2	58.1	35.7	24.8	11.0
1939	8.6	2.9		80.4	59.2	37.3	25.9	12.6
1940	10.2	3.9		91.4	70.4	46.8	34.6	13.9
1941								
1942	5.5	2.2		90.1	69.5	43.9	31.0	13.0

analysis does not depend on these total income estimates, when in particular it gets to inequality among settlers or to the comparison of top income Europeans with their metropolitan counterparts.

5. Income concentration in the French and British colonial empires

5.1. High colonial inequality, falling in the 1950s

Table 4 presents our estimates of top income shares for Algeria (Table 4A), Tunisia (Table 4B), French Cameroon (Table 4C), and Vietnam (Table 4D). Fig. 1 shows the income share of the top 1% in Algeria and Tunisia, compared to France, and in South Africa and India compared to the United Kingdom, between 1920 and 1960. In Algeria, this share starts from a very high 25% in 1932, then drops steadily throughout the 1930s, and drops further during WWII, like in France. It stabilizes at around 17% in the 1950s. Measured between 1946 and 1956, the figures for Tunisia are slightly lower but close, at around 15%. The two British colonies stand at lower levels in the 1930s, especially India. While the top share booms in South Africa during the 1940s, it also experiences a sharp fall in the 1950s, catching up with India at below 15%.

The inequality levels in Algeria in the early 1930s appear to be among the highest recorded in the WID. world database. Even if the available data do not allow for a precise estimate, this suggests a top 10% income share of at least 60%, if not higher. As in many other countries, the Second World War resulted in a sharp and definitive fall of top shares. French North Africa overwhelmingly depended on the mainland economy for its exports, and the fall of France resulted in a deep recession. The arrival of Allied forces in 1943 and ensuing warfare in Tunisia further deepened the disruption of trade, and most likely accelerated capital losses.[17] In contrast, South Africa suffered less of an impact, and benefitted from the price boom of mineral exports, gold in particular, in the late 1940s. Inequality peaked; however, in the 1950s top shares finally fell far below pre-war levels (Alvaredo and Atkinson, 2010). In the late 1950s, the levels of income concentration in Algeria and Tunisia were greater than in apartheid South Africa.

The set of top 0.1% shares depicted in Fig. 2 includes figures for Vietnam between 1920 and 1942, for French Cameroon in 1945, and for Zambia and Zimbabwe on the side of British colonies.[18] In the 1920s, the top 0.1% share for Vietnam is estimated to be around 9%, a level that sits in the same range as France, the UK, or Zimbabwe. As Europeans in Vietnam make up around 0.1% of tax units, this share reflects the average income of Europeans compared to autochthons, at least until 1937, when rich autochthons became liable to the income tax. After this

[17] In 1943, exports from the two colonies went down to less than 10% of their value in 1942. Cogneau et al. (2021) estimate that GDP per capita decreased by around 20% between 1938 and 1945, both in Algeria and Tunisia. The estimate for France is a 25% decrease.

[18] Top 0.01% shares are shown in Appendix Figures D1 and D2.

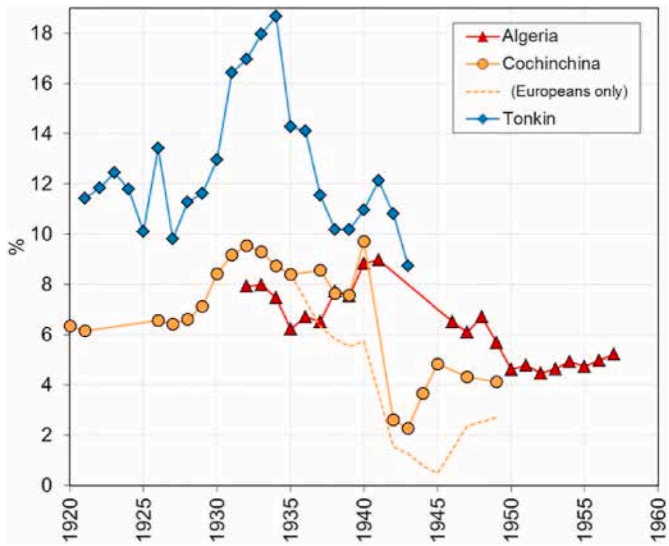

Fig. 4. Top 0.1% income share in Cochinchina and Tonkin, 1920 to 1949. Sources: Table 4A (Algeria), Appendix Table D1 (Cochinchina) and Table D2 (Tonkin).

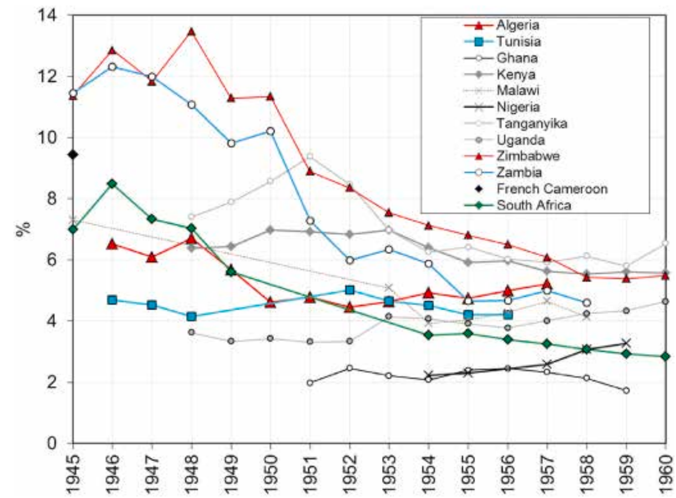

Fig. 5. Top 0.1% income share in French and British colonies and dominions, 1945–1960. Sources: Table 4A (Algeria), Table 4B (Tunisia), Table 4C (French Cameroon), Alvaredo and Atkinson (2010) (South Africa), Atkinson (2014, 2015a, b, c) (Ghana, Malawi, Tanganyika, Zimbabwe, Kenya, Nigeria, Uganda, Zambia).

date, the dotted line in Fig. 2 shows the top 0.1% share when only Europeans are considered; the difference remains minimal until 1940, when many wealthier non-Europeans came to be counted. Europeans seem to have been relatively well protected from the deflation and economic collapse of the first half of the 1930s, so that their share in total income actually jumps upward to 13% before falling back to pre-crisis levels at the end of the decade. This increase in top shares is observed across all parts of Vietnam (see Fig. 6 and Appendix Figure D2). This is striking, as historical accounts of the period describe the bankruptcies of several French firms in Indochina (Brocheux, 2009; Brocheux and Hémery, 1994). While income tax tabulations indeed show a decrease in the average income of European taxpayers, in nominal terms and even in real terms (despite deflation), this decrease is much less pronounced than the fall of GDP in Bassino's (2000) estimates. Poor Vietnamese rice producers may have suffered even more than European businesses from the collapse in rice prices and exports (Woker, 2020, pp. 325–345). The same explanation could hold for India where the top 0.1% share also increased significantly during the first half of the 1930s, although to a lesser extent.

Data for Cochinchina (South Vietnam) allow us to extend the estimation to 1949 (Fig. 4). In 1921, the top 0.1% share for this single colony is below that of the whole Vietnam (i.e. 7% against 9%), and is much lower than that of the poorer Tonkin (around 12%), and it remains so throughout the 1920s and 1930s.[19] The share in Cochinchina then abruptly falls from around 8% in 1937–1940 to 2.3% in 1943, and stabilizes at around 4% between 1944 and 1949. The beginning of the drop is also observed for Tonkin in 1943. After 1943, the economy of Cochinchina collapsed. In March 1945, the Japanese army took hold of Saigon, and the Vietminh rebel forces entered into action; famine and epidemics spread, and Europeans fled (Marr, 1995). Between 1939 and 1945, the number of European taxpayers in Cochinchina fell by 30%, and few came back; in 1949, they still counted for 28% less than the 1939 numbers. But the income of those who remained also fell. Cogneau et al. (2021, Appendix 5), show that the average real wage of European civil servants decreased by 60% between 1925 and 1945 due to inflation; those civil servants represented more than one third of employed Europeans, even excluding army men. In colonial India, the top 0.1% share also went down during WWII, although much less so, from 7.5% in 1940 to less than 5% in 1945, in particular because India was less impacted by warfare; as in Vietnam, the share never recovered the pre-war levels, neither before independence in 1947 nor even after. In contrast, and much like in South Africa, the top shares peaked in the late 1940s in Zambia and Zimbabwe, due to the mining boom; it is only in the 1950s that they converged to the levels reached by the other colonies, and finally broke with the high pre-war levels.

To summarize, colonies displayed higher levels of income concentration than the mainland. During the Great Depression, and in contrast with France or the United Kingdom, top income shares did not fall (Algeria, South Africa), and in some cases they even increased (Vietnam, India, Zimbabwe). After World War II, and once the boom in mineral prices had faded away in British Southern Africa, inequality stabilized to levels much lower than before, although still significantly higher than in the metropoles.

While inequality was higher in colonies, this does not mean that top income earners were as rich as their mainland counterparts. The two North African colonies were four to five times poorer than France in the 1950s (Fig. 3b), yet their top 1% shares were "only" 50% higher, meaning that the average income of top 1% earners in the colonies was 30–50% that of the top 1% in the metropole (the comparison of top 1% income level is given in Appendix Figure D4). In other words, by 1955 the average income of the top 1% rather corresponded to the average income of the top 10% in France. In Vietnam, both in 1921 and 1932, the top 0.1% earned on average the mean income of the top 4% or 5% in France. The same was true of Cameroon in 1945. The South African elite were more affluent. In the 1950s, the average income in South Africa was half that of the UK at market exchange rates, and the mean income the top 1% earners in South Africa was 75% of the mean income of the British top 1%.

The comparison of top 0.1% shares (Fig. 2) would also suggest that inequality was not systematically different in settlement colonies like Algeria or South Africa compared to colonies where the Europeans only

[19] These results are at odds with the low Gini coefficients from Milanovic (2018, p. 1033) where Cochinchina (36.8) appears more unequal than Tonkin (25.6) in 1929. The social tables and Gini coefficients are supposed to come from Merette (2013a). Yet in the latter paper the Gini coefficients are higher and closer (39.0 and 38.6 respectively), even if they are just a little bit higher than the reported figure of 35.6 for Vietnam in 2008, after a few decades of socialism. Both authors provide little clue as to their calculations. Besides, in Milanovic (2018) Cochinchina's GDP per capita is just 40% higher than in Tonkin, whereas in our data, Cochinchina is almost three times above, like in Merette (2013a, b), who also used Bassino's (2000) estimates.

represented a very small minority, like Vietnam, or India. In the second half of the 1930s, the top 0.1% share lies between 6 and 9% in these four colonies. In the late 1950s, it lies between 3 and 5%. Fig. 5 displays the top 0.1% shares for another set of British African colonies between 1945 and 1960. Once again, in the late 1950s, the highest top shares (above 5%) are those of Kenya, Tanganyika and Zimbabwe, while the lowest shares (below 4%) are those of Ghana, Nigeria and South Africa. It is hard to discern any patterns linked to the presence of Europeans.

To shed more light on the comparison of top-income earners, both between colonies and the metropoles and among colonies, we must dig further into the composition of these groups in terms of citizenship and ethnicity.

Let us more formally portray how Europeans and autochthons enter the colonies' income distribution. The top p% share reads:

$$S_p \equiv p.\frac{\overline{y}_p}{\overline{y}} \tag{1}$$

where $\overline{y}_p$ and $\overline{y}$ are, respectively, the average income of the top p% and the colony average income. The average income $\overline{y}$ combines the average income of Europeans ($\overline{y}^e$) and of autochthons ($\overline{y}^a$):

$$\overline{y} = \varepsilon\overline{y}^e + (1-\varepsilon)\overline{y}^a = [\varepsilon + (1-\varepsilon)\,/\,\delta].\overline{y}^e \tag{2}$$

where ε is the share of Europeans in the total population of tax units, and δ is the Europeans to autochthons average income ratio, which our data cannot capture because they focus on top income earners. Likewise, the average income $\overline{y}_p$ combines the average income of Europeans and of autochthons in the top p%:

$$\overline{y}_p = \varepsilon_p\overline{y}_p^e + \left(1-\varepsilon_p\right)\overline{y}_p^a = \left[\varepsilon_p + \left(1-\varepsilon_p\right)\,/\,\delta_p\right].\overline{y}_p^e \tag{3}$$

where ε_p is the share of Europeans in the top p%, and δ_p is the Europeans to autochthons average income ratio within the top p%, which we can only measure when the two groups are distinguished in income tax tabulations. If p is small, we can expect δ_p to be close to 1, as the incomes of autochthons and Europeans at the top of the distribution do not differ much. By knowing ε_p, the ethnic composition of the top p%, we can find out to which top q% among Europeans it corresponds to:

$$q = p.\varepsilon_p / \varepsilon \tag{4}$$

Among Europeans, the top share of the q% richest then reads:

$$S_q^e \equiv q.\frac{\overline{y}_q^{ee}}{\overline{y}^e} \equiv q.\frac{\overline{y}_p^e}{\overline{y}^e} \tag{5}$$

where $\overline{y}_q^{ee}$ is the average income of the top q% Europeans among Europeans, equal to $\overline{y}_p^e$ by definition. S_q^e can only be known when we have separate income tax tabulations for Europeans, and when we can make a safe calculation of the average income of Europeans, like in Cameroon and Vietnam (see next section).

Combining all terms yields:

$$S_p = \frac{\varepsilon}{\varepsilon_p}\frac{\varepsilon_p + \left(1-\varepsilon_p\right)/\delta_p}{\varepsilon + (1-\varepsilon)/\delta}.S_q^e \tag{6}$$

The top p% share is the product of S_q^e, which measures inequality among Europeans in the colony, and of a first term that combines the between-group inequality (δ), and the inequality among non-Europeans. When $\varepsilon_p = 1$ the European and autochthon distributions do not overlap at the top, either because autochthons are not liable –their incomes are not reported, as in Vietnam before 1937–, or else because the richest autochthons are too poor to enter the top p% –as in Cameroon or South Africa, as we will see.

The next sub-section looks for autochthons at the top of the colonial income distributions. Sub-section 5.3 then analyzes the inequality among Europeans, within colonies, and between the colonies and the metropoles.

5.2. *Were there non-Europeans among the rich?*

One unsurprising characteristic of the concentration of income in territories under colonial rule is that most members of the top groups were Europeans. In Kenya and Tanganyika in 1949, Atkinson (2014) shows that Europeans made up 73 and 74% of taxpayers, respectively. The remaining fraction was not necessarily composed of Africans, for these colonies also had significant Asian, and in particular Indian, minorities. The relatively large size of the Indian community also explains

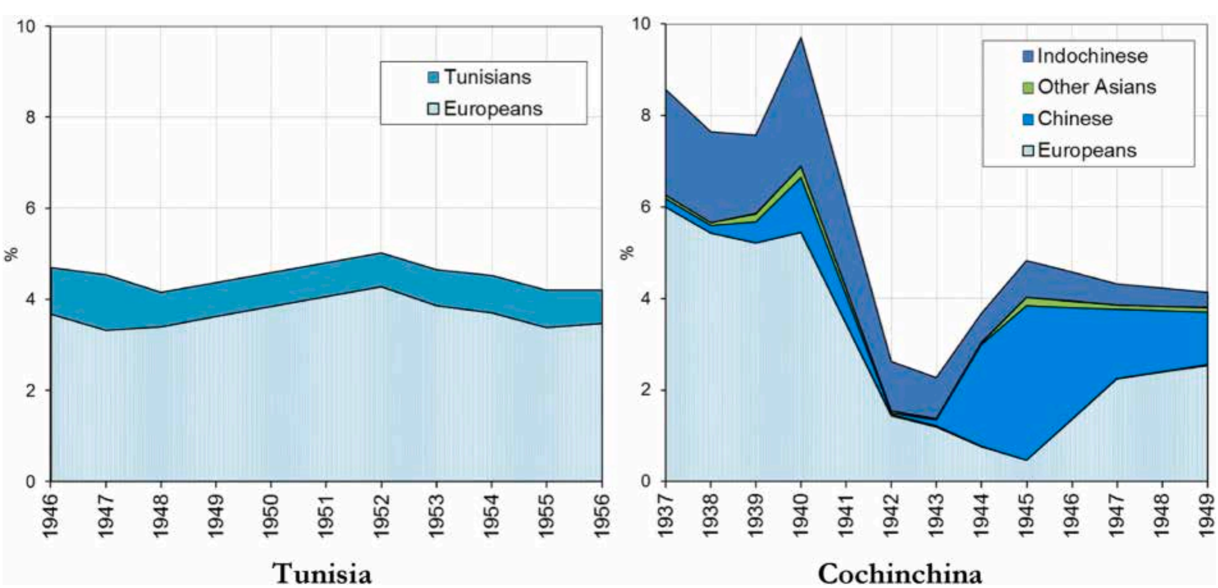

Fig. 6. The ethnic composition of the top 0.1% income share in Tunisia and Cochinchina. Sources: Table 4B (Tunisia) and author's calculations.

why Europeans only made up 50% of taxpayers in Uganda in 1949. In Ghana, in 1951, and Nigeria in 1957, the shares of Europeans reached 70 and 79%, respectively, while the shares of Africans were 18% and 14%, the rest being from India or the Middle East (Atkinson, 2015a). Furthermore, the proportion of Europeans in the upper range of the income distribution (ε_p) is often likely to surpass the fraction of Europeans in the taxpaying population as a whole. Alvaredo and Atkinson (2010) show that in South Africa in the late 1950s, when the breakdown of taxpayers by race becomes available, the fraction of non-whites is less than 2%, whether in the top 1% or the top 5% group. In contrast, in British India, top income earners were mainly Indian: Alvaredo, Bergeron and Cassan (2017) argue that, even if income tax data do not provide information on nationality or origin, the demographic weight of the European population was small enough to conclude that they could not possibly represent more than 40% of the top 0.1% group in 1921.

What about the French colonies? We can provide some insight for the cases of Tunisia, Cameroon, and Vietnam (the income tax in Algeria applied to all residents, but the breakdown according to ethnic origin is not given). On average, Europeans in Tunisia usually made up over three quarters of taxpayers between 1946 and 1955.[20] The fraction of Tunisian taxpayers went up from 20% in 1946 to 26% in 1955. As shown in Fig. 6, Tunisians earned between 15 and 22% of the top 0.1% group in each year, the proportion being similar for the top 1%.[21] This suggests that, despite similar levels of inequality, the racial divide in the income dimension may have not been as acute in colonial Tunisia as it was in apartheid South Africa. However, a qualification is in order: Jews constituted a significant minority; they were concentrated in cities, were on average richer than Muslim Tunisians, and were not counted as Europeans in the statistics. In 1956, Tunisian Jews represented 18% of non-Muslims, so it would be demographically possible that they made up the majority of non-European top-income earners. Most of them also left the colony after independence, to France or to Israel. The income tax tabulation for 1956 adds the occupational distribution of taxpayers, separately for both Tunisians and Europeans (labeled as "Foreigners"). 61% percent of Tunisians belonging to the top 1% were salaried, 7% were self-employed professionals, 18% traders, and 8% farmers. Europeans were even more likely to be wage earners, 70% were salaried and 7% were retired, 4% were professionals, 8% traders, and 7% farmers. In the top 0.1% the occupational distribution changes dramatically, as fewer wage earners are found. Among Tunisians, the majority is made up of big traders (46%) and farmers (8%), 12% are self-employed professionals, while only 23% are salaried. Among Europeans, salaried and retired individuals still make up 49% of the total, professionals 13%, traders 15% and farmers 16%.

In 1945 in Cameroon, due to the existence of a flat rate income tax targeting rich autochthons, Africans made up 89% of registered taxpayers. However, their income distribution overlaps very little with that of Europeans. Out of 9,967 African taxpayers, only 22 had incomes above the liability threshold for Europeans (60,000 francs); and out of the estimated 1,814 European tax units, two thirds (1,203) earned more than this threshold. As the European threshold roughly corresponds to the top 0.1% percentile, Africans represented a negligible share of the top 0.1%, like in South Africa, even if they made up the great majority of the top 0.5% or 1%.

Following 1937, the gradual introduction of the progressive income tax in Indochina meant that certain non-Europeans became liable. In 1938 in Annam, this extension of liability was restricted to Asian minorities (Chinese and others); published statistics do not include a breakdown by ethnicity; however the total number of taxpayers increases by 65% between 1937 and 1942. In 1940 in Tonkin, a few Chinese and other Asians appear separately in the income tax tabulations, and their number increases in the top 0.1%, from 5% of tax units in 1940 to 13% in 1943. As they were relatively rich (i.e. $\delta_{0.1}$ is below 1, in the notations introduced above), they received an even larger share of the income pie of the top 0.1%, growing from 9% in 1940 to 23% in 1943. In Cochinchina after 1937, Indochinese also became liable. While Cochinchina counted only for one fifth of Vietnam in terms of population, it was by far the richest region, with twice the average income of Vietnam (Bassino, 2000; Merette, 2013a). It was home to over 40% of the Europeans in Vietnam before WWII, and over 66% after. It also attracted many Chinese immigrants, whose number more than tripled between 1937 and 1949, many of them fleeing the Sino-Japanese war then the Chinese civil war (Amer, 2010). As visible in the right-hand panel of Fig. 6, the fraction of Europeans within the top 0.1% decreased from 70% in 1937 to 56% in 1940, with the gradual inclusion of more Indochinese, Chinese, and other Asian taxpayers. During WWII, even if the number of non-European taxpayers stopped growing, the share of European taxpayers continued to fall because their number decreased, and a greater proportion of those who remained declared incomes below the liability threshold. After 1944, the number of Chinese taxpayers boomed, yet the share of Europeans in the top 0.1% recovered, from 52% in 1947 to 61% in 1949.[22] Whereas rich Indochinese made up over 90% of non-Europeans at the beginning, it is the inflow of Chinese taxpayers from 1939 that drove up the non-Europeans' share, given the impoverishment of the Vietnamese elite during the war. In 1940, the non-European taxpayers in the top 0.1% were composed of 66% of Indochinese and 34% of Chinese and other Asians. In 1949, the ordering of shares was reverted, as they were respectively 21% and 79%. There were more non-Europeans at the top in Vietnam than in Tunisia or Cameroon, though never as many as in British India, where they were a majority. Furthermore, as was potentially the case with Jews in Tunisia, after WWII it was mainly the prosperous Chinese diaspora that would have been able to compete with Europeans. In contrast with Jews, however, not all Chinese taxpayers were, strictly speaking, autochthons, as some of them were new migrants. Unlike Jews, they did not leave just after independence. Yet many of them left later as "boat people" (or via land to China), after the collapse of South Vietnam in 1975 and especially during the exodus of 1978–1979.

Can we calculate inequality among non-Europeans? We need an estimate of their average income, or equivalently of the income of Europeans. For Tunisia, according to Amin (1966, 1970) the average non-Muslim earned eight times the average income of Tunisian Muslims in 1955. If we additionally assume that Jews had the same average income as Europeans, we can compute the income total for the population of Tunisian autochthons (Muslims and Jews together). Under these two assumptions, Fig. 7 and Table 4B suggest that inequality among Tunisians was moderate, with the top 1% share reaching 9% in 1955, and the top 0.1% share standing near 3%. These figures are close to the ones obtained for the income distribution of Europeans (also shown in Table 4B and in Fig. 9 below) and are also close to the income distribution of mainland France. The higher level of overall inequality in Tunisia is then essentially due to the gap in average income between Europeans and non-Europeans.

In Cameroon in 1945, the 1,203 European taxpayers represent 66% of our estimated population total. The rest must earn incomes below the liability threshold, hence representing the poorest 34%. If we assume that the income ratio between these two groups is the same as in mainland France in 1945, we get an estimate of the total income of

[20] See Appendix Table B1B.

[21] See Appendix Figure D3 for the ethnic composition of the top 1% compared to South Africa. To calculate the income share of each group, we look at the two income brackets that surround the top 0.1% or top 1% population share, compute the share of cumulated income earned by Europeans above each threshold, and linearly interpolate the share for the 0.1% or the 1%. Within the top 0.1% or the top 1%, the average income gap between Europeans and non-Europeans, i.e. $\delta_{0.1}$ or δ_1 in the notations introduced above, is not far from 1: in 1946 $\delta_{0.1} = 0.86$ and $\delta_1 = 0.90$, and in 1955 $\delta_{0.1} = 1.03$ and $\delta_1 = 0.98$.

[22] Data for Europeans in 1948 is incomplete and cannot be used.

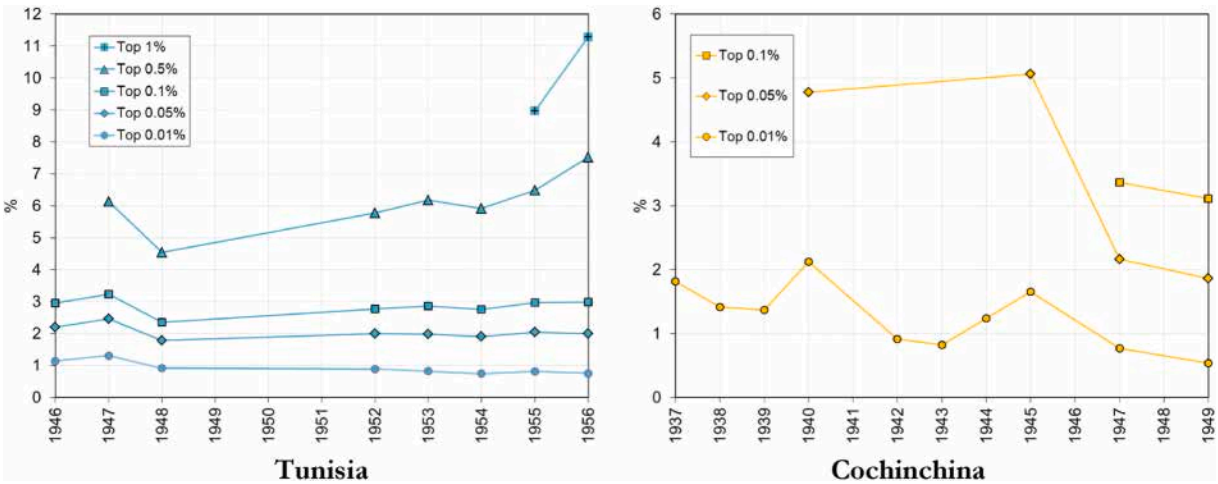

Fig. 7. Top shares among non-Europeans in Tunisia and Cochinchina. Sources: Table 4B (Tunisia) and Appendix Table D1 (Cochinchina).

Europeans, hence of non-Europeans. Autochthonous registered taxpayers make up 0.8% of the total of tax units and earn 4.5% of the estimated non-European income. In any case, this would put the extrapolated top 1% share below 6% thus far below the share for non-Europeans in Tunisia in 1955–56. We also get a 1.2% share for the top 0.1%, again much lower than the 3% figure for non-Europeans in Tunisia or Cochinchina (Fig. 7).

In Vietnam, all European tax units are in principle recorded, as well as their taxable income. We thus just use the reported figures alone to separately calculate the top shares for Europeans and for non-Europeans. For the latter, this is only possible when they are supposed to be taxed, i.e. only for Cochinchina after 1937. Before WWII, we find rather high top shares, especially in 1940 when the number of non-European taxpayers reached a local maximum (before an additional inflow of Chinese migrants during the 1940s, see above). As shown in the right-hand panel of Fig. 7, the top 0.01% share is then as high as 2.1%, very much above Tunisia in 1946 (1.1%). This figure is lower than the estimates for India by Alvaredo et al. (2017) which lie above 2.5% across most of the 1930s and above 3% in 1940, yet these estimates must include a large proportion of rich Europeans. After WWII, in the years 1947 and 1949, the non-European income distribution in Cochinchina becomes more equal and gets close to that among Tunisians in Tunisia.

Caution around estimates of top shares among non-Europeans is certainly warranted, given the assumptions involved in estimating the income total. Tax enforcement might also be a concern; yet the fact that the massive inflow of Chinese migrants in the 1940s is reflected in the tabulations is a testimony of the fact that the colonial administration was able to identify liable taxpayers, even when recently arrived in the territory. It seems safe to conclude that inequality among autochthons was not very high during the post-WWII period, although higher in the 1930s. Given the under-representation of autochthons in the top percentiles, even a significant fall in autochtons' within-group inequality would have played a minor role in the post-war reduction in overall inequality (see sub-section 5.4).

5.3. European expatriates and settlers

If a few autochthons or non-Europeans could compete with European

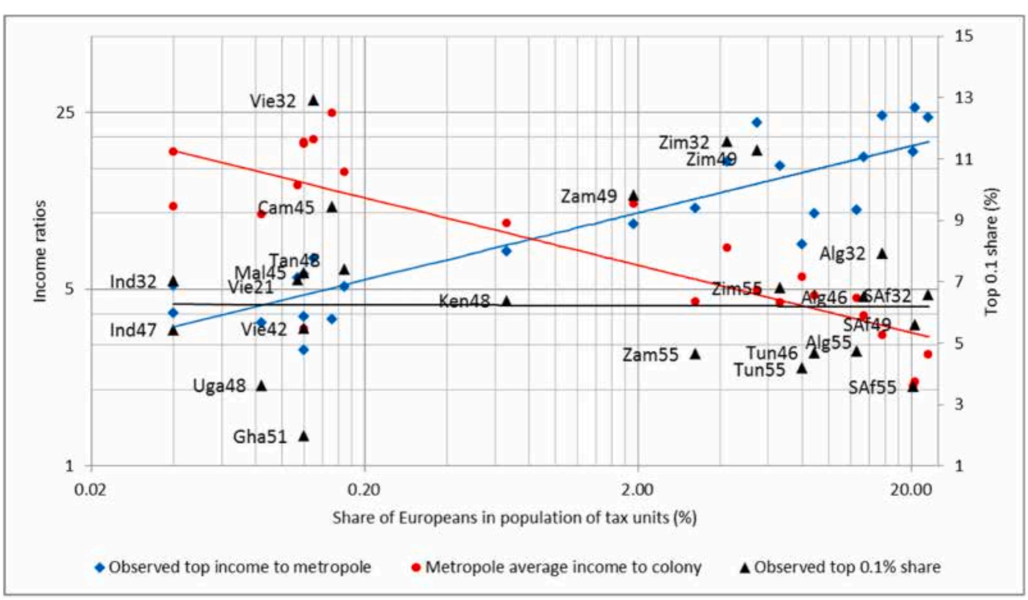

Fig. 8. The top 0.1% income share and settlement patterns.Source: Authors' data; Alvaredo and Atkinson (2010) and Atkinson (2014) for British colonies. Notes: Both the availability of the top 0.1% share and of an estimate of the European population commanded the selection of the analysis sample. It is composed of colonies observed in 1921 (Vietnam), 1932 (Algeria, Tunisia, Vietnam, South Africa and Zimbabwe), between 1945 and 1951 (Algeria, Tunisia, Cameroon, Vietnam, South Africa, Zimbabwe, Zambia, Kenya, Ghana, Malawi, Tanganyika, Uganda and India), and in 1955 (Algeria, Tunisia, South Africa, Zimbabwe and Zambia). The number of British tax units in India is not precisely known, so we took the upper bound of 0.04% mentioned by Alvaredo et al. (2017). Black dots represent the top 0.1% share, while the black line is the slope of a simple linear regression of the logarithm of the top 0.1% share on the logarithm of the share of Europeans. Blue dots and red dots indicate, respectively, the ratio of the top 0.1% average income to the average income of the metropole, and the ratio of the average income of the metropole to the average income of the colony. Blue and red lines represent the slope of a log-log regression on the share of Europeans; the slope of the black line is the sum of the two slopes of opposite sign.

expatriates or settlers in terms of income, it remains that the latter represented the majority of top-income earners. Better understanding how European top incomes were formed is therefore important to analyzing cross-country differences in top shares, as well as their evolution over time. As already underlined, the number of Europeans varied greatly across colonies.

In the colonies where there were fewer European expatriates, such as Cameroon or Vietnam, the majority formed the top 0.1%, whereas in the colonies where settlers resided in greater numbers, like in Algeria, Tunisia, or South Africa, those found in the top 1% or top 0.1% were much more exclusive than the wider European population. For this reason, we would expect the top shares to be higher in settlement colonies. As already mentioned, this is not what we found. Two factors counterbalance this selection effect. First, settlement colonies are richer. Even before colonization, North Africa was already wealthier and more urbanized due to its secular inclusion in the Mediterranean economy. Settlement regions, from North Africa to the Cape Colony, through the Kenyan highlands, offered favorable health conditions and opportunities to develop European-like agriculture.

Fig. 8 uses a subsample of country-years to look at the relationship between inequality levels and settlement patterns. The top 0.1% share can be decomposed as the product of two elements: the ratio of the top 0.1% average income to the mainland average income, and the ratio of the mainland average income to the average income of the colony. As shown in the logarithmic scales that transform this product into a sum, the two elements co-vary with the share of Europeans in the population, with slopes of equal magnitude and opposite signs. It is indeed the case that the top 0.1% is richer in settlement colonies, yet the bigger wealth of these colonies compensates for this advantage, so that in the end the relationship between the top share and the weight of Europeans is flat.

A second factor contributes to the flattening of this relationship. Compared to the metropole, expatriates also formed a more select group than settlers. European incomes were not randomly drawn from the overall income distribution of the metropole; in particular the incomes of expatriates in non-settler colonies were more often drawn from the upper parts of this distribution. The average European settler was closer to the average French in France or the average British in the UK, whereas expatriates in non-settler colonies were more likely to be high-ranking civil servants or adventurous businessmen. Occupation-wise, the North African settler population indeed resembled a "small France". According to the 1948 population census in Algeria, among the 331,595 non-Muslims who were economically active, two thirds (219,714) were classified as blue collars or low-ranking white collar workers (*ouvriers, employés, cadres inférieurs*). In the social table established by Samir Amin (1966, 1970) for Algeria and Tunisia in 1955, blue collars and low-ranking white collars workers accounted for 50% of the workforce in Algeria, and 46% in Tunisia, while small business managers and middle-rank white collars represented 33 and 38% respectively (Appendix Table C1). The 1937 census of Europeans in Indochina unfortunately does not provide much detail on occupational ranks and skills, although it is obvious that low rank occupations were largely missing. Civil servants made 40% of the 9,730 employed civilians, 12% were professionals (*profession libérale*) and 15% were in trade (*commerce*). In Cameroon in 1938, one third of the 1944 male Europeans were civil servants, another third were traders (*commerçants*), 10% ran plantations (*planteurs*), and another 10% were missionaries.

Table 5
Top 5% Europeans.

	Year	Europeans in tax units	Assumption: Europeans at the top	Top p % of population	Average income to metropole top 5%
		ε	ε_p percent	$=5.\varepsilon/\varepsilon_p$	θ_5 (ratio)
		I	II	III	IV
1932					
South Africa	1932	23.2	*98.0*	1.182	1.12
Algeria (North)	1932	15.7	*90.0*	0.873	1.29
Vietnam	1932	0.13	*not needed*	0.0065	3.05
1940s					
South Africa	1949	20.6	*98.0*	1.051	1.74
Algeria	1946	13.5	*90.0*	0.748	1.22
Tunisia	1946	8.9	*not needed*	0.443	0.94
Zimbabwe	1949	5.5	*98.0*	0.280	2.89
Zambia	1949	1.9	*98.0*	0.099	1.94
Kenya	1948	0.66	*73.2*	0.045	2.15
French Cameroon	1945	0.15	*not needed*	0.0076	2.79
Vietnam	1942	0.12	*not needed*	0.0060	2.11
Ghana	1951	0.12	*70.3*	0.0086	3.70
Uganda	1948	0.08	*49.6*	0.0085	2.52
1955					
South Africa	1955	20.3	*98.0*	1.036	1.64
Algeria	1955	12.7	*90.0*	0.703	0.84
Tunisia	1955	8.0	*100.0*	0.399	0.74
Zimbabwe	1955	6.6	*98.0*	0.338	2.14
Zambia	1955	3.3	*98.0*	0.166	2.08

Source: Authors' data; Alvaredo and Atkinson (2010) and Atkinson (2014) for British colonies.
Notes: Within each decade, countries are ordered according to the share (ε) of European tax units in the population, reported in Column I. We estimated the average income of the top 5% richest Europeans. In the cases of Tunisia, Cameroon and Vietnam, we used the separate tabulations of Europeans. In the cases of Algeria and of British colonies, tabulations do not break down taxpayers by citizenship or ethnicity; for them, we make an assumption on the proportion of Europeans at the top of the income distribution (ε_p), reported in Column II. The top 5% Europeans is then matched with the top percentile p ($=5.\varepsilon/\varepsilon_p$) of total population, reported in Column III. For Algeria, we assumed that the top of the income distribution was composed of ($\varepsilon_p =$) 90% of Europeans. For South Africa, Zambia and Zimbabwe, we assumed that Europeans made 98% of top taxpayers, like in 1956 in South Africa. For other British colonies, we used the share of Europeans in taxpayers given in Atkinson (2014, 2015a) for the years around to 1948. We additionally assumed that there was no difference in average income between Europeans and non-Europeans within the top p, i.e. $\delta_p = 1$, or $\overline{y}_p^e = \overline{y}_p^a$; given that ε_p is large this assumption is innocuous (estimates of $\delta_{0.1}$ for Tunisia are 0.86 in 1946 and 1.03 in 1955). Then we estimate the average income $\overline{y}_p$ using Pareto interpolations. Column IV reports the ratio of the average income of the top 5% Europeans to the average income of the top 5% income-earners in the metropole. The top 5% income shares for France and United-Kingdom are from the WID.world database. For the United Kingdom, the top 5% share in 1932 is interpolated at 30.2% using figures for 1919 and 1937, and the top 5% share in 1955 is interpolated at 21.0% using figures for 1954 and 1959.

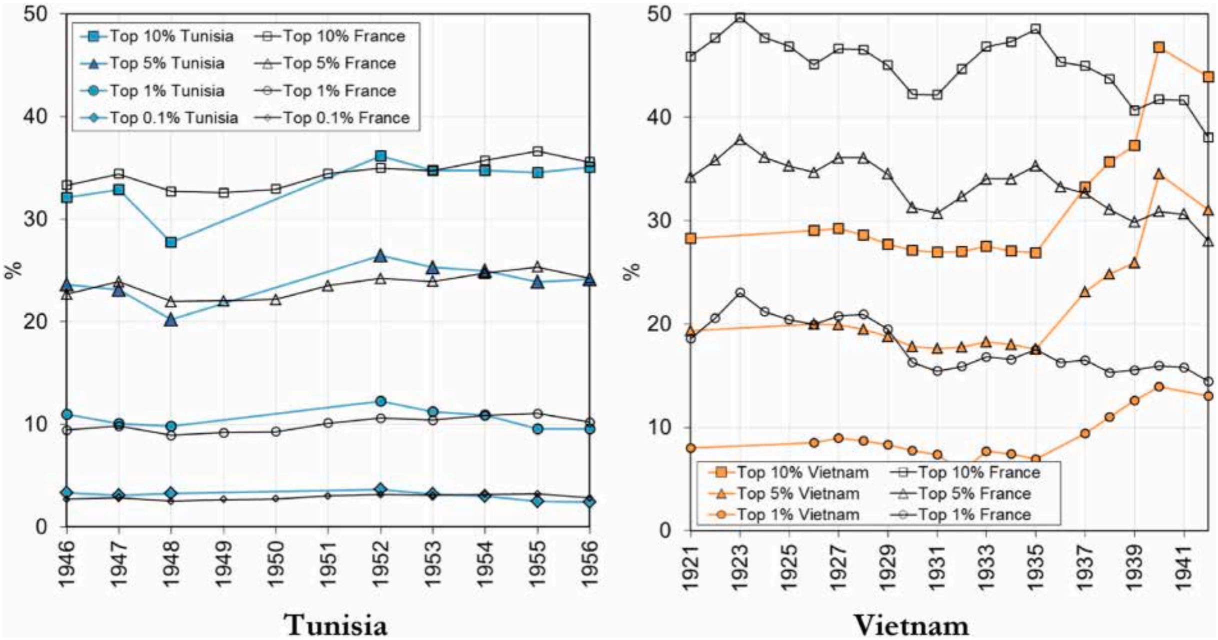

Fig. 9. Inequality among Europeans in Tunisia and Vietnam, and comparison with France.Sources: Table 4B (Tunisia), Table 4D (Vietnam), and Piketty (2001) (France).

More formally, getting back to the notations introduced in subsection 5.1, we write the average income ($\overline{y}_q^{ee}$) of the top q% Europeans as a factor θ_q of the average income ($\overline{y}_q^{m}$) of the top q% in the metropole:

$$\overline{y}_q^{ee} = \theta_q.\overline{y}_q^{m} \tag{7}$$

We are interested in computing θ_q, with for instance $q = 5\%$. In the cases of Tunisia, Cameroon and Vietnam, separate tabulations for Europeans allow us to directly compute $\overline{y}_q^{ee}$. In the other cases, we make assumptions about ε_p for sufficiently low top p percentiles (below 1.5%), and, for a given q, compute $\overline{y}_p$ at $p = q.\varepsilon/\varepsilon_p$, by inverting equation (5) above. We also assume $\delta_p = 1$, i.e. that at the top of the income distribution the income gap between Europeans and autochthons is negligible (see also Table 5 footnote). Inverting equation (3) gets us from $\overline{y}_p$ to $\overline{y}_p^{e}$, which is by definition equal to $\overline{y}_q^{ee}$.

Table 5 Column IV shows the estimates of the average income of the top 5% Europeans ($\overline{y}_5^{ee}$), expressed as a factor θ_5 of the average income of the corresponding top 5% ($\overline{y}_5^{m}$) in the metropole. Among the French colonies, European top income earners systematically earn less in settlement colonies. In 1932, the top 5% of Europeans in Vietnam earn three times the average income of the top 5% in France, while the top 5% in Algeria only earn 29% more. In 1945–46, the top 5% of Europeans in Cameroon earn 2.9 times the metropole's top 5% average income, while the top 5% in Algeria earn only 22% more and in Tunisia 6% less. After WWII, the rich settlers in North Africa lost ground compared to the metropole. In 1955, those in Algeria and Tunisia earned 16% and 26% less than the top 5% in France, respectively. In contrast, the top rich settlers in South Africa increased their advantage as in 1955 they were earning 64% more than the top 5% average income in the UK, compared to only 12% in 1932. According to Maddison (2003) estimates of GDP per capita, the average income in the UK was always higher than in France by 30% in 1932, 50% in 1948 and 27% in 1955, and top shares were close, so that the top rich settlers in South Africa were always richer than the top rich settlers in Algeria, even as early as in 1932. Yet, among British colonies, the top rich Europeans are also better off the lower their weight in the colony's population. The richest white South Africans earned less than their counterparts in Zambia or Zimbabwe, and also in Kenya, Ghana or Uganda.[23] As argued above, the main reason for this regularity is the selection of skills and occupations. Another factor was the wage premium paid to attract European expatriates in less enjoyable or more remote non-settler colonies. In French colonies, civil servants received higher wage bonuses in Cameroon and Vietnam than in Algeria and Tunisia (Cogneau et al., 2021).

Within each colony, inequality among settlers or expatriates was similar to the inequality observed in the metropoles. This is the case for Tunisia 1946 to 1956 (Table 4B and Fig. 9 below). In Vietnam we also find that until 1937 the richest 10% Europeans earned 27–29% of the European income, i.e. a much lower share than in France at the time, and closer to the share that prevailed in post-WWII France or Tunisia. As soon as the general income tax was introduced in 1937 (see section 2), income concentration among Europeans seems to have caught up with the levels in mainland France (Fig. 9). Yet the total amount of declared fiscal income sees little change, and no discontinuity is observed in the top shares for the total population. As the general income tax introduced a liability threshold, a bit of income bunching can be observed below the threshold. However, correcting for this behavioral response only explains a small part of the difference. It seems that under the new tax, some taxpayers declare less in the middle of the distribution while others declare more at the top. As the general income tax is closer to the one

[23] Even in India in 1932, the top 0.01% of the total population, which potentially included the top 25% of Europeans, earned 13 times more than the UK average income, i.e. they earned twice as much as our estimate for the top 5% in the metropole, and in 1947 this grew to 25.5 times more, which was more than twice the average income of the top 1%.

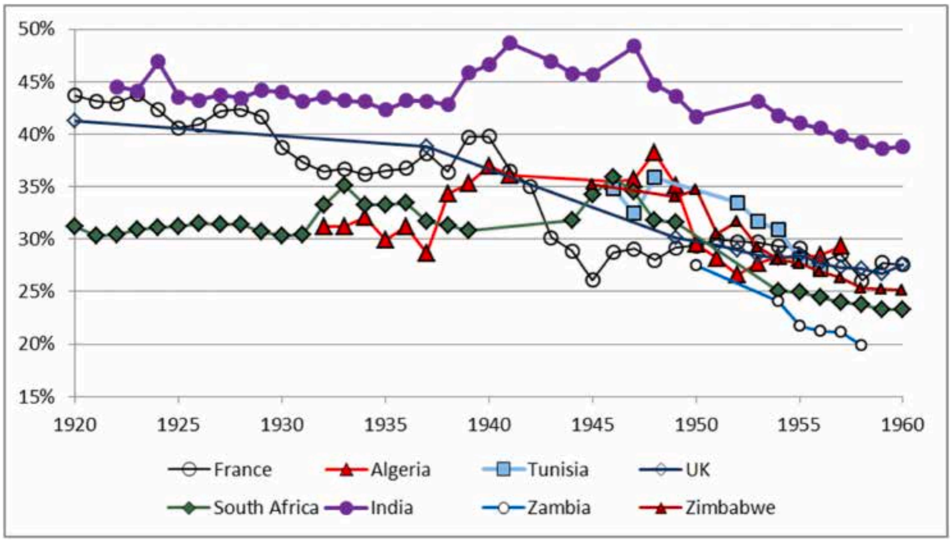

Fig. 10. Share of top 0.1% in top 1%, 1920–1960. Sources: Table 4A (Algeria), Table 4B (Tunisia), Piketty (2001) (France), Atkinson (2005) (UK), Alvaredo and Atkinson (2010) (South Africa), Banerjee and Piketty (2010) and Alvaredo et al. (2017) (India), Atkinson (2015b) (Zambia and Zimbabwe).

that was implemented in the metropole, we conclude that inequality among Europeans was close to that of the mainland, as in Tunisia.[24]

Another way to capture the inequality among Europeans is to run the same computations as in Table 5 for even richer expatriates or settlers belonging to the top 0.5% rather than the top 5%. When referring to the standardized income ratio, i.e. the average income of the top 0.5% of Europeans to the average income of the top 0.5% in the metropole, the figures are quite close to those seen in Table 5. This reflects the similarity between the income distributions among Europeans in the colonies and the metropoles. In most cases, in comparison to Table 5, the "colonial advantage" is slightly attenuated at this level, meaning that the colonial income distribution is more equal at the very top than in the mainland. This can also be seen in the cases of Tunisia and Vietnam in Fig. 9.

5.4. Analyzing the fall in inequality before and after WWII

The similarity between top income shares among Europeans in the colonies and in the mainland suggests that they co-moved, due of the integration of the labor and capital markets.[25] In particular, the large reduction in inequality observed in France and the UK after WWII could account for the reduction observed also in the colonies between the 1930s and the 1950s. Fig. 10 shows the evolution of the share of the top 0.1% richest among the top 1%. Notice that this indicator no longer depends on the estimates of total fiscal income. In all colonies except India, Europeans make the majority of both top percentiles; hence the Figure mainly reflects the evolution of income inequality among top rich Europeans. India is an exception as British settlers are concentrated in the top 0.1%. Before 1940, inequality at the top was lower among the Europeans in Algeria and South-Africa than among their metropolitan counterparts; again, by metropolitan standards super-rich settlers were rare birds. In the metropoles inequality at the top collapses during the 1940s, while in the colonies the top 0.1% share remains in the 30–35% range, meaning that the richest tenth still earns more than three times the average of the top 1%. However, during the 1950s, everywhere except in India, inequality at the top falls below the 30% bar; Zambia and South Africa experience the sharpest reductions, as their share falls below 25%.

In order to analyze the relationship between the fall in top income inequality in the colonies and the fall in the metropoles, we further elaborate the accounting equation (6) that related the colonial top income shares to the top income share among European settlers or expatriates.

We write the average income of Europeans $\overline{y}^e$ as a factor θ of the average income in the metropole $\overline{y}^m$:

$$\overline{y}^e = \theta.\overline{y}^m \tag{8}$$

Then, with the notations introduced before, the top q% share among Europeans reads:

$$S_q^e \equiv q.\frac{\overline{y}_q^{ee}}{\overline{y}^e} = q.\frac{\theta_q}{\theta}\frac{\overline{y}_q^m}{\overline{y}^m} = \frac{\theta_q}{\theta}S_q^m \tag{9}$$

where S_q^m is mainland's top q% income share. The ratio θ_q/θ captures the differences between the two European income distributions, the first in the colony, the second in the mainland. Finally, getting back to the decomposition introduced in section 5.1, equation (6) becomes:

$$S_p = \frac{\varepsilon}{\varepsilon_p}\frac{\varepsilon_p + (1-\varepsilon_p)/\delta_p}{\varepsilon + (1-\varepsilon)/\delta}.\frac{\theta_q}{\theta}S_q^m \tag{10}$$

This expression directly relates the top share S_p in the colony to that in the metropole S_q^m. The two main unknowns in this equation are δ and θ, as in all cases except Vietnam and Cameroon, we do not observe the average income of Europeans. We make use of equation (10) to analyze the evolution of top income shares before and after WWII across the five colonies where this evolution is observed. The details of this analysis are reported in Appendix E.

Cochinchina between 1932 and 1949 is the only case where we can estimate all the parameters of equation (10), hence reach an exact decomposition; this is because in Cochinchina all European taxpayers are recorded. Between the two dates, the top 0.1% income share fell from 9.5 to 4.1 (Fig. 6). However, the fall of inequality in mainland France only played a little role. The bulk of the fall in inequality is explained by the reduction in the income ratio between Europeans and autochthons, i.e. the fall of δ from 59 to 32 (see top end of Appendix Table E1). The "between-groups" dimension dominates. However, as mentioned earlier, this reduction in the racial divide took place in a context of economic collapse, whereby Europeans' incomes

[24] In Cameroon in 1945, the concentration figures among Europeans is above that of France, the share of the top 1% richest being 9.2% (Table 4C) versus 7.8% in the metropole; yet 1945 is a very peculiar year for France, as in 1946 the top 1% share jumps to 9.4% and remains above 9% afterwards.

[25] Allen et al. (2014) make a similar argument on the integration of the labor markets of European powers and their American colonies.

fell more than autochthons' ones.

We then analyze the cases of South Africa, Algeria and Zimbabwe between 1932 and 1955, and Zambia between 1943 and 1955. In contrast with Cochinchina, the parameters ε_p, δ_p, and, most importantly, θ and δ, cannot be estimated from the data. The first two can be quite confidently set at values close to 100% and 1, as in the estimations conducted for Table 5. We then predict the top income shares for the year 1955 under the two following assumptions: (i) the income ratio δ between Europeans and autochthons remained the same as before WWII; (ii) inequality among Europeans shifted alongside inequality in the metropole ($\theta = \theta_q$).

This prediction fits relatively well with the figures observed in the cases of South Africa, Algeria, and Zimbabwe, less well in the case of Zambia. Although a good fit is not evidence of causation, it nonetheless suggests that the fall of inequality in the colonies might have been driven by the same factors as the fall of inequality in Europe. The lack of fit between the predicted income share and the observed value can be explained by the failure of one of the two assumptions (i) and (ii), or of both. In the case of Zambia 1943–1955, it is plausible that both fail. The expansion of copper mining from the 1930s likely paved the way to some income convergence between Europeans and autochthons (Butler, 2007). In the meantime, after WWII, a very large inflow of new settlers resulted in an accelerated reduction in inequality among Europeans, as the population of settlers became less selected. Although Fig. 10 only depicts the evolution at the top between 1950 and 1958, it indeed indicates a sharp decrease in inequality among Europeans in the 1950s, while at the same time inequality stabilized in the UK.

Given the over-representation of Europeans in the top percentiles, the fall in within-group inequality, mirroring the inequality reduction in Europe, should have played an important role in the fall of the colonial top income shares after WWII. In the settlement colonies of South Africa, Algeria, and Zimbabwe, the decline in top income shares had not much to do with a reduction in the between-groups inequality, i.e. of the gap in average incomes between Europeans and autochthons. Although this cannot be tested, it is plausible that Tunisia followed the same model. However, in other cases such as Vietnam or Zambia, idiosyncratic shocks like the independence war or the copper boom impacted the between-group component, while the population of Europeans also changed in size, composition, and income distribution.

6. Postcolonial developments

The situation of inequality just before independence weighed on postcolonial developments, even when European settlers had left. In particular, the takeover of the colonial states and the replacement of French civil servants by relatively well-paid autochthonous state employees significantly impacted inequality among autochthons.

In Algeria, French settlers and Jews fled in mass just after the Evian peace agreements in 1962. In Tunisia, the departure of Europeans and Jews was more gradual yet the majority of them also had left by 1969.[26] Of course, they also moved away a great part of their liquid assets, sometimes to tax havens (Ogle, 2020). Both countries chose a 'socialist' orientation. Little is known about the takeover of European farms and firms (Amin, 1970, pp. 223–224). Settlers' land was nationalized, and large farms were either self-managed by the settlers' former employees organized in cooperatives, or else transformed in state farms. Despite radical plans in the mid 1960s and 1970s, the redistribution of land to poor farmers did not go very far (Bessaoud, 2016). We know a bit more about the takeover of the colonial state (Amin, 1970, pp. 188–218). Both countries expanded the public sector to a large extent. Fanon (1961) worried early about the rise of a 'bourgeoisie of civil service.' Dumont (1962) criticized the exorbitant pay of domestic officials who had replaced colonizers, and the neglect of the majority of poor farmers. Amin (1970) described a turn towards a 'petty-bourgeois nationalist socialism' that mostly benefitted a new class (in sociological terms) of state employees in administration, army and public firms.

The emergence of this social class meant a significant increase in inequality among autochthons. In Tunisia, as early as in 1956 –formal independence was in March–, about 8,500 more Tunisian taxpayers appear in the income tax tabulation, in comparison with 1955. Four fifths or these 'newcomers' are salaried workers, and many of them are likely promoted within the administration to replace the French; an equivalent number of French salaried workers (6,000) disappear from the tabulation. This shift contributed to a visible increase in concentration among Tunisians, as the top 1% income share jumps from 9 to 11% between 1955 and 1956 (Fig. 7). In 1955, the civilian administration counted around 12,000 Tunisian employees who represented 1% of the Tunisian tax units (Amin, 1966 pp. 164). Five years later, in 1960, 80,000 Tunisian state employees were found, making 5.7% of Tunisian tax units (Amin 1970, pp. 151); this mass recruitment meant more than a mere replacement of departing French civil servants, who were only 18, 000 in 1955. Wages paid to Tunisian civil servants went up from 2.5 to 10.2% of GDP, while the total public wage bill decreased from 11.5 to 10.2%. According to our estimates, the average income of Tunisians increased by around 20% in real terms between 1955 and 1960; all this increase actually corresponded to the additional wage bill. We simulated how the mass recruitment of civil servants impacted the income distribution among Tunisians. The details of this simulation are reported in Appendix F. We first assumed, conservatively, that none of the departed French civil servants were replaced at the same base wage, and rather that new entrants were paid according to the wage schedule that applied to Tunisians before independence. In this case, we calculated that the expansion of civil service resulted in a jump of the top 1% share by more than 3 percentage points, from 8.9% in 1955 to 10.4 in 1956 up to 12.2% in 1960. In a second simulation, we assumed that the 18,000 French civil servants were replaced by Tunisians at the same base wage (excluding the 33% colonial bonus received by the French). In this case, we obtained a 5 percentage points increase, up to 14%. Recall that taking Europeans and Tunisians together, the colonial top 1% share was estimated at 15.0% in 1955 (Table 4B). Irrespectively of the assumption made on the replacement of French civil servants, the top 5% Tunisians in 1960 should have reached at least 29%.[27] Note that in our simulation, we disregarded that some privileged Tunisians took over some of the land and of the physical capital left behind by Europeans –at least before nationalization. Given the reproduction of dualistic structures, it seems plausible that inequality among Tunisians was pulled quite close to the colonial level. Public employment then carried on increasing at a high pace from the 1960s to the 1980s, going from 6 to 11% of total tax units, and then plateaued at this level in the 1990s (own computations from International Monetary Fund archival data). While public employment more than doubled between 1960 and 1980, the average real public wage remained stable. However, due to economic growth, the public wage 'premium' was halved: while the average public wage reached four times the average income per tax unit in 1960, it fell to only twice this value in the 1980s and 1990s. By mitigating the dualistic polarization of the income distribution, this evolution should have been inequality reducing, except if wage inequality increased at the same time, which is also plausible.

The same developments were observed in Algeria. In 1963, one year after independence, 300,000 Algerian state employees were found

[26] In Algeria, from more than one million in 1961, the total number of Europeans had gone down to less than 300,000 as early as in 1962, and likely less than 100,000 in 1969. In Tunisia, from 250,000 in 1956, it had gone down to 136,000 in 1960 and to less than 33,000 in 1966.

[27] From a household survey implemented in 1957, we estimated that the top 5% income share could have been around 19%, so that the increase in the top 5% share between 1955 and 1960 could have reached 10 percentage points or more (see Appendix C, Table C3, and Appendix F).

(Amin 1970, p. 136), against only 31,000 in 1955. They represented 8% of the total of Algerian tax units, and this proportion remained stable until 1969. The public wage bill went from 10 to 13.6% of GDP between 1957 and 1969, and from 1.6 to 13.6% if we consider only the wages paid to Algerian civil servants. We implemented the same kind of simulations as for Tunisia, starting from the last year in which we observe the colonial income distribution, i.e. 1957; we assumed that in this year the top percentiles were composed by 90% French and 10% Algerian tax units, as in other computations done before. As in the case of Tunisia, we found that the state mass recruitment at high wages significantly increased the top income shares among Algerians. We estimated that the top 1% could have been pulled upward by 4.5 percentage points, from 8.2 in 1957 to 12.5–13% in 1969, while the top 5% could have reached 29%. These figures are very similar to Tunisia. They are rather high, even though they are much lower than the corresponding figures of 17.8 and 36.7% found for colonial Algeria in 1957, which included French settlers.[28] Again, the simulations are quite conservative regarding the overall transition to independence, as they only consider state recruitment. In particular, they do not take into account that some Algerians in the private sector might have benefitted from the departure of the French, as argued by Amin (1970, p. 137–138). From 8% in 1969, the share of state employees in the population of tax units climbed to 11 in 1979, up to 15 in 1989, then declined during the economic and political crisis of the 1990s and stabilized around 12% in the 2000s. Despite continued recruitment, the average real public wage little moved over thirty years and then declined a bit in the 1990s (own computations from Office National des Statistiques de l'Algérie, 2013 and IMF archival data). Oil and gas revenue allowed the government to sustain a large wage bill, and the public wage premium remained quite high. In 1969 the average public wage reached 3.5 times the (non-oil) average income per tax unit, and then between 1972 and 2006 this ratio ranged between 2.5 and 3.

In Cameroon, around 20,000 civil servants were found in 1955, representing only 1.4% of total tax units; only one tenth of these were high-ranking French functionaries, yet average public wage reached 13 times the average income per tax unit (Cogneau et al., 2021). As early as in 1968, eight years after independence, 45,000 federal state employees are reported in IMF archives (2% of total tax units). In the 1980s, thanks in particular to significant oil revenue, total public employment peaked above 4% of total tax units, then dropped to 3% in the 1990s. Data on wage are a bit uncertain, yet it seems that average public wage was still fourfold the average income at the beginning of the 2000s, even after very severe wage cuts in 1993 and 1994, under structural adjustment (Cogneau et al., 1996).

The same evolutions applied to many other former colonies in the aftermath of independence; of course not to apartheid South Africa, or to apartheid Rhodesia before it became Zimbabwe in 1980. They were for instance observed in Kenya, Tanzania and Uganda studied by Simson (2019, 2020). Yet, trajectories were heterogeneous. In the three latter cases, it seems that the expansion of public employment was soon preferred to the preservation of high real wages, and that the bureaucracy lost ground within the income distribution. Wage dualism seems to have been more persistent in former French colonies compared to British ones in Sub-Saharan Africa (Bossuroy and Cogneau, 2013), and again this difference could have taken root in the late colonial period (Cogneau et al., 2021). The persistence of dualistic features also very much hinged on inequalities in access to education, as secondary or tertiary level were passports to good jobs in the civil service or elsewhere. More research is warranted on the evolution of postcolonial inequality.

[28] See Table 4A for the top 1% income share. In 1957, the total number of taxpayers in the tabulation represents 4.99% of the total number of tax units, so that the top 5% income share can be safely extrapolated.

7. Conclusion

Using income tax tabulations from administrative archives, we produced estimates of income concentration for four French colonies between 1920 and 1957. Drawing from previous work, we were able to compare these colonies with the British Empire in Africa and Asia, but also with the two metropoles, France and the United Kingdom. Perhaps unsurprisingly, income inequality in the French and British empires of the 20th century was very high. In the mid-1930s, the share of the top 1% was around 20% in Algeria and 15% in France. In the aftermath of World War II, both metropoles and colonies experienced a significant drop in concentration; yet in the 1950s, the colonial top shares stabilized at a higher level than the metropoles, ranging from 13 to 15% for the top 1%, and from 3 to 6% for the top 0.1%. Beyond this broad picture, detailed data analysis adds several insights relative to what has been known so far on colonial and postcolonial inequality.

European expatriates and settlers comprised an overwhelming majority of top income recipients in the French Empire and in the British colonies of Africa; this differs from the case of India, where British and Indians cohabited at the top 0.1%. Prosperous Tunisians made up one fifth of the top-rich in the 1950s. Concerning non-Europeans, Tunisian Jews represented another significant minority, so that the divide between non-Muslims and Muslims may well have been no less salient than the divide between whites and Africans in South Africa. In Southern Vietnam in the late 1930s and 1940s, locals constituted a greater proportion of the top than in Tunisia, although not as great as in British India; another minority, the Chinese, was also well represented among the richest. The available data provide first evidence on the income concentration among the non-Europeans, which is found to be rather moderate.

The top income shares in settlement colonies do not appear to be higher than in colonies where Europeans were a smaller minority. On the one hand, where Europeans populations were larger, top income settlers represented a smaller and relatively richer fraction of all Europeans. On the other hand, settlement colonies were wealthier, and, in them, European settlers were much closer to the mainland averages in terms of occupation or skill, whereas European expatriates in non-settler colonies were more exclusive and received higher wage bonuses or risk premia. The richest Europeans were better off outside settlement colonies; this is true of both French and British territories, even if the rich white South Africans always fared better than the rich French settlers in Algeria or Tunisia. Inequality among Europeans in the colonial territories was close to, or sometimes even lower than that of the corresponding mainland. For Europeans, the integration of labor and capital markets between each metropole and its colonies meant that incomes were partly determined in France or in the UK. In settlement colonies, a significant part of the decrease in the top shares following World War II can thus be linked to the decrease in inequality in Europe and the dynamics of international commodity prices rather than to a local reduction of the income gap between the Europeans and the colonized. Therefore, national developments have to be seen also in the light of common global forces.

In the aftermath of independence, the takeover of the colonial state very often involved the mass recruitment of relatively well-paid state employees. According to our simulations, this development resulted in a significant increase in income inequality among autochthons. Beyond this, the takeover of the land and of the capital left behind by European settlers could also have benefited a few privileged individuals, thus pulling inequality even higher. Dualistic structures changed shape and lost their racial dimension, yet survived. Then, not all countries followed the same trajectory, if only with respect to the trade-off between the average wage and the level of employment in the public sector. More research is needed to analyze how countries dealt with the colonial legacy of inequality.

Author statement

Facundo Alvaredo: All stages Denis Cogneau: All stages Thomas Piketty: All stages.

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Appendix. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jdeveco.2021.102680.

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