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The colonial legacy

Income inequality in former British African colonies

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Abstract: This paper examines the distribution of top incomes in 15 former British colonies in Africa, drawing on evidence available from income tax records. It seeks to throw light on the position of colonial elites during the period of British rule. Just how unequal were incomes? How did the position of the rich in the colonies compare with that of the rich in the United Kingdom? It investigates how income concentration evolved in the last years of colonial rule, as the British government became more concerned with development, and establishes the degree of inequality at the time of independence in the late 1950s and early 1960s. What was the colonial legacy? How far did colonial inequality persist post-independence?

Keywords: inequality, income distribution, colonial Africa

JEL classification: I31, N37, O15

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1 The colonial legacy of inequality

This paper is concerned with the distribution of top incomes in former British colonies in Africa. While narrow in focus, it illuminates a broader set of issues of both historical and contemporary interest. The first issue is the position of colonial elites during the period of British rule and the extent to which resources were appropriated by the ruling class. Just how unequal were incomes? What was the distribution among the rich, mainly non-African, elite population? How did the position of the rich in the colonies compare with that of the rich in the imperial power—the United Kingdom? Secondly, how did colonial income concentration evolve in the twentieth century? Did inequality fall in the latter years of colonial rule, as the British government became more concerned with economic and social development? The third set of questions concerns the coming of independence in the late 1950s and early 1960s—the ‘winds of change’. How far were there differences at the time of independence across different former colonies? Did some countries inherit a much more concentrated distribution? How far did colonial inequality persist post-independence? Finally, there is little information for recent decades (the latest estimates presented here relate to 1984), but it is hoped that the analysis of the historical results will stimulate the assembly and publication of data on top incomes in the present day.

These issues feed in turn into a wider debate. Recently economists have become interested in the history of colonisation and its legacy on terms of current economic performance. In *Why nations fail*, Acemoglu and Robinson (2012) argue that there is a great difference between countries that developed inclusive political and economic institutions, which pave the way for economic growth, and those whose colonial institutions were extractive, and which acted as impediments to growth in the subsequently independent nations. The authors contrast in this respect the success of the ‘Western offshoots’ of the United Kingdom (UK)—Australia, Canada, New Zealand, and the United States—with the failure of other British colonies. In this explanation of failure, an important role is played by elites: ‘European colonists imposed a new brand of extractive institutions, or took over whatever extractive institutions they found, in order to be able to extract valuable resources, ranging from spices and sugar to silver and gold. ... Most of these places would be in no position to benefit from industrialization’ (Acemoglu and Robinson 2012: 299). As it has been put by Rodrik, extractive institutions ‘entailed vast inequalities in wealth and power, with a narrow elite, typically white and European, dominating a vast number of natives or slaves. ... Studies by economists and economic historians have established that this early experience with institutional development—or lack thereof—have produced a debilitating effect on economies in Africa and Latin America that is still felt today’ (2011: 140), citing the research of Acemoglu et al. (2001) and Engerman and Sokoloff (1997).

There is, however, relatively little firm empirical evidence about the inequality of colonial societies. Just how ‘vast’ were the inequalities? Were the ‘narrow elite’ a homogeneous group? How very different were the African colonies in their income distribution from the Western offshoots? Figures from the World Top Incomes Database show the top 0.1 per cent as receiving 40 times their proportionate share in Australia in 1921, a figure that rises to some 55 times in Canada, and was as high as 86 times in the United States (US) in 1913. How did the top income shares differ in the African colonies? Was Southern Rhodesia (Zimbabwe) much more unequal? Was inequality particularly associated with white settler colonies such as Kenya? Was, in contrast, the Gold Coast (Ghana) relatively egalitarian, as claimed by Kwame Nkrumah? How did top incomes change when British rule ended? The aim of this paper is to provide—within the constraints of the available data—some answer to these questions. While each African colony was under British rule, and there were considerable similarities in the policies pursued by the authorities, the colonies differed in many respects. To highlight the extent of diversity, the paper

covers 11 sub-Saharan former British colonial territories. It does not cover South Africa, which is the subject of a separate paper (Alvaredo and Atkinson 2012), nor Mauritius, which is the subject of Atkinson (2011).

The research reported in this paper has been possible because the colonial administrators were assiduous in their record-taking—even when faced with arduous conditions—and their published reports contain a wealth of information. Nonetheless, the first challenge in writing the paper has been the location of the underlying data, which are drawn from published income tax records. The tracking down of the published data, the subject of Section 2, has been a time-consuming and difficult task. It was first necessary to establish the scope of the possible data—which turned out to be much richer than anticipated—and then to identify where copies of the relevant publications were held. Once located, the statistical material needs to be interpreted. In using income tax data, the paper follows long-established precedents in Organisation for Economic Co-operation and Development (OECD) countries, notably in the World Top Incomes Database, but administrative sources of this type have evident limitations. As is discussed here, the limitations are even more serious in the colonial context.

The second challenge has been setting the distributional data in the wider context of the total population and total income, which is the subject of Sections 3 (total population) and 4 (total income). There has been much discussion of the limitations in the contemporary measurement of these aggregates, and we have to ask how far these apply to the historical African data employed here. There are undoubtedly major problems. In the 1930s, the League of Nations noted in its statistical yearbook that ‘the population of Africa is only known very roughly’ (1938: 15). At the same time, the African economies were the subject of pioneering research on national income accounting in the 1940s, on which the paper draws extensively, notably the research carried out by Frankel (1945) for Southern Rhodesia and by Deane (1948 and 1953) on colonial national accounts in general. The sources and methods are discussed in Sections 3 and 4 (and in greater detail in three background papers).¹ The reader may be tempted to go straight to the results, but it is important to understand what lies behind the income distribution estimates. The estimates are not simply the mechanical application of the techniques developed for OECD countries.

The findings for the 11 former British colonies are presented in Sections 5 to 10. In Section 5, we ask first who were the income taxpayers who form the basis for the statistical estimates. From what groups were they drawn? The paper then examines the evidence about the distribution of income. In presenting the results, a clear distinction is drawn between, on the one hand, the estimates in Sections 6 and 7 that rely solely on control totals for population and, on the other hand, the income share analysis of Sections 8 and 9 that requires the income control totals. For the reasons set out in Section 4, the estimated income shares are surrounded by a greater margin of error. Sections 6 and 7 are organized chronologically. Section 6 covers the period up to 1945 and is more limited in its geographic coverage, drawing heavily on the rich data for Southern Rhodesia commencing in 1917. (Where the evidence relates purely to the colonial period, the colonial name is used; when describing the country as a whole, the modern name is used.² The colonial and modern names are summarized in Table 1.) Section 7 considers the much fuller evidence for the post-Second World War period and the years up to

¹ The methods and findings are discussed at greater length in three background papers covering Central Africa (Atkinson 2014), East Africa (Atkinson 2014a) and West Africa (Atkinson 2014b). These are being made available on the website of the World Top Incomes Database.

² In the case of Tanzania, formed by the union of Tanganyika and Zanzibar in 1964, the colonial name is used on occasion for Tanganyika where the data refer to this geographical entity.

independence. In Section 8, the income of the top taxpayers is related to the estimated country totals to examine their share in the total. Just how much did the top x per cent receive? Finally, Section 9 examines the evidence about the upper tail at the point of independence and the years following. The main conclusions are summarized in Section 10.

2 Creating a new dataset

The raw materials employed in this study are published tabulations of income taxpayers by ranges and amounts of gross income. (No micro-data are employed in the paper.) These income tax tabulations, scarcely used in the past, form the basis for the new data set presented here.

2.1 Obtaining the data

The first pre-requisite for constructing the new dataset is that a graduated personal income tax be in existence. This limits our coverage to the later years of colonialism. Income tax was first introduced in colonial Africa after the First World War: in 1918 in Southern Rhodesia, followed shortly by Northern Rhodesia and Nyasaland (see Table 1). Under these taxes, income tax was paid on the basis of incomes in the previous year, so that the first data for Southern Rhodesia relate to the ‘income year’ (IY) 1917. In Kenya, there was an Income Tax Ordinance of 1920, but this ‘was soon repealed on account of strong opposition’ (Vallibhoy 1965: 9). A graduated Non-Native Poll Tax was passed in Kenya in 1933 (*Report of the Commission appointed to enquire into and report on the financial position and system of taxation of Kenya 1936*: para. 87), to be replaced by the income tax as such in May 1937. It was superseded in April 1940 by the Income Tax Ordinance, 1940, which introduced the income tax in the three other East African territories. In Nigeria, the Lagos Tax Office came into being on 1 April 1937, administering the Colony Taxation Ordinance 1937. 1940 saw the introduction of the income tax in the Gambia, to be followed in 1944 by the Gold Coast and Sierra Leone. Since the Gold Coast became independent as Ghana in 1957, this means that the potential coverage of the colonial period is shortest in this case, whereas for Southern Rhodesia (now Zimbabwe) there is nearly a half century of data (48 years).

The second factor determining the feasibility of the research is that the tax authorities, or the statistical office, assemble and publish statistics on the taxpaying population. These statistics may take a variety of forms. At their most limited, they may simply record the total taxpayers assessed and their total income. (In all cases, ‘income’ refers to income before deduction of tax.) In Ghana in 1944, for example, when the income tax was introduced, there were 6,272 cases recorded, who constituted 0.4 per cent of the estimated total number of tax units and their income was some five per cent of the estimated total. However, the main data employed are those that show the distribution of taxpayers by ranges, giving the numbers in the range and their total income. The existence of such ‘distributional data’ cannot be taken for granted. The colonial power, the UK, only began to publish distributional tabulations covering all income taxpayers in 1918–19 (apart from data for a single year in 1801) and the publication of annual data commenced in the UK as recently as 1962–63. Prior to 1962–63, there were data for only six years.³

³ The years covered by the UK data for all taxpayers were 1918–19, 1919–20, 1937–38, 1949–50, 1954–55, and 1959–60. There were also data, from 1908, on surtax payers but these covered only a small fraction of taxpayers.

What has made this project possible is that the colonial administrators published richer data than were available for the UK. In the Gold Coast, for example, the first *Report on the Income Tax Department for the years 1944–45 and 1945–6*⁴ contained a tabulation of income in IY1943 by seven ranges from GBP150–499 to GBP10,000 and upwards, the last of these containing eight taxpayers with an average annual income of GBP18,764. On the basis of the estimated total income (see Section 4), it can be calculated that the top 0.05 per cent of tax units received some two per cent of total income, or 40 times their proportionate share.

For how many countries, and for how many years, do such distributional data exist? This is not easy to say. While the form of the income tax was broadly similar across countries, the location of published information varied a great deal across countries and over time. If every colony had published an annual report of the income tax department, then the search would have been relatively straightforward, although the location of the publications has itself proved a major challenge, since no complete collection appears to exist and little of the material appears to be available online. It proved necessary to draw on the Rhodes House Library in Oxford, the British Library of Politics and Economic Science at the London School of Economics, the British Library, the Senate House Library of the University of London, the Royal Commonwealth Society Library in the University Library Cambridge, and the Official Documents section of the Lamont Library at Harvard University. These have been invaluable sources, but it has been necessary to consult all of them. If, moreover, attention had been limited to the annual reports of income tax departments, then the coverage would have been significantly less complete than shown in Table 1. In some cases, the alternative sources were obvious, such as the *Statistical Yearbooks* published by the colonial authorities, but in other cases it was necessary to go through documents such as the annual *Financial Report* (in the case of the Gambia). It also turned out that data for isolated years could be found in one-off reports, such as the *Report of the Taxation Enquiry Committee* in 1947 in Kenya (Colony of Kenya 1947), or were supplied to individual researchers such as Deane (1948, 1953).

The end product of these laborious library searches is summarized in Figure 1 and Table 1, which show the coverage of the income tax distributional data for 14 African countries, grouped into West, East, Central, and Southern Africa. In the analysis that follows, attention is focused on 11 of the 14 countries. The three Southern countries (Botswana, Lesotho, and Swaziland) have income tax data for a long run of years, but pose particular problems with regard to the construction of control totals, in view of their inter-linkages with the economy of South Africa.

For the 11 countries, the coverage is extensive. In the Gambia, for example, the data span the period from 1944 to 1974, with the exceptions of 1960–62. In Kenya, there are data for 1936, 1943, and then annually from 1948 to 1970. From 1948, the income tax was administered by the East African Income Tax Department for all of the East African territories. The annual departmental reports provide annual data for all four countries from 1948. For Zambia, we have data for 1929 to 1937, and then again from 1943–61, 1963, 1968, and 1970, giving a total of 31 observations. For Zimbabwe, the coverage is even longer: from 1917 to 1984 (except for 1981 and 1982). In all cases, the publication of income tax tabulations appears to have ceased. There is a sharp contrast with other former British colonies that continued to provide this information, such as Hong Kong, Malaysia, Mauritius, Singapore, and Sri Lanka. The last years covered were 1959 in Ghana; 1960 in Sierra Leone; the 1970s in the Gambia and East Africa; and the early 1980s in Malawi and Zimbabwe. This limits what we can say about the post-independence period, but there is information post-independence for eight of the 11 countries.

⁴ Regular official reports and statistical publications are not listed separately in the bibliography.

To summarize, the analysis here is based on 275 observations for 11 countries. In addition, there are a number of years for which there is information on the total number of taxpayers, and these are also used in Section 5.

2.2 Analysis of the data

Since the basic income tax data are in the form of grouped tabulations, and the intervals do not in general coincide with the percentage groups of the population with which we are concerned (such as the top 0.1 per cent), we have to interpolate in order to arrive at the shares of total income and statistics based on the relative shares of different groups. In the results presented here, the interpolation is based on the mean-split histogram. The rationale is as follows. Assuming, as seems reasonable in the case of top incomes, that the frequency distribution is non-increasing, then restricted upper and lower bounds can be calculated for the income shares (Gastwirth 1972). These bounds are limiting forms of the split histogram, with one of the two densities tending to zero or infinity—see Atkinson (2005)—where the lower bound on the top share can be reached from the upper bound by a sequence of mean-preserving equalising transfers. Guaranteed to lie between these is the histogram split at the interval mean with sections of positive density on either side. For example, in Kenya in 1949, taxpayers above GBP1,000 constituted 0.210 per cent of total tax units and received 9.65 per cent of total income, and those above GBP1,500 were 0.092 per cent of taxpayers and received 6.13 per cent of total income. These bracket the top 0.1 per cent. If we make no assumption about the distribution, then the ‘gross’ bounds for the share of the top 0.1 per cent are from 6.38 to 6.44 per cent (these are calculated by assuming the extremes: *either* that all incomes are equal to the mean for the range *or* that people are concentrated at the end points). If we assume that the frequency distribution is non-increasing (which rules out both of the bounds just described), then the restricted bounds give a range from 6.42 to 6.43 per cent, which are very close. The mean-split histogram method gives a value for the share of the top one per cent of 6.43 per cent. With the data at our disposal, errors of interpolation are probably the least of our worries, and the bounds on income shares are not further discussed.⁵

The paper is not however only concerned with top income *shares*. As is explained in Section 4, these depend crucially on the estimated control totals for income, and for this reason we begin in Sections 6 and 7 with analyses of the shape of the distribution that do not depend on the income totals. It was the shape of the distribution that concerned Pareto (1896), and the functional form that he proposed for the distribution of income provides a natural starting point, not least because it is widely assumed today that income distributions tend to towards a Pareto upper tail. If that is the case, then it means that the ‘climb’ to the top of the income distribution is a steady one: the people above you always have a constant advantage. Stated more formally, the average income of those above percentile F , with income $y(F)$ or more, is a constant multiple β of $y(F)$. But the evidence for the African colonies suggests that this is not generally the case. In order to understand more fully the shape of the distribution among the tax paying elite, the paper examines how the advantage ‘multiple’, $M(F)$, changes at different percentile points, referred to here as ‘ M curves’. Elites can have different ‘shapes’, and in a number of countries the structure of incomes has changed over time to a significant degree.

⁵ The refined bounds do not apply to percentiles, since the argument involving mean-preserving transfers does not apply (see Atkinson 2005). The percentiles have been calculated by Pareto interpolation applied to each interval using the cumulative distribution.

The paper is concerned with the distribution of income among *residents*. In some cases, it is not possible to distinguish non-resident taxpayers, but in most cases they are shown separately, and the estimates are in these cases based on residents only. In the same way, the population totals relate to the resident population, and the income total to national income rather than to domestic product. The distinction is most important in the case of the company sector, which does not form part of the analysis. For individuals, it means that we are likely to be excluding, for example, absentee landlords/estate owners, some employees on short term contracts, and some pensioners. In that sense we are not measuring the extraction of resources; rather we are asking about the economic advantage of the elite engaged in the colonial society.

The analysis of income tax data is affected by the structural features of the tax. Three features in particular should be highlighted here. First, there have been two instances where several colonies were taxed under the same or co-ordinated laws: the Federation of Rhodesia and Nyasaland, created in 1954 and operating until independence, and the East African Income Tax Department, created at the beginning of the 1950s and abolished in 1973, involving Kenya, Tanganyika, Uganda, and Zanzibar.⁶ Secondly, there have in some colonies been at times both income tax and supertax. In the case of the Federation of Rhodesia and Nyasaland, a key difference was that supertax, but not income tax, was levied on dividends received. This is discussed in the case of those countries, where there can be significant differences in top income shares in certain years. Thirdly, many countries adopted in the 1960s a system of Pay as You Earn (PAYE), typically covering employment income, which led in some cases to no tax assessments being levied where the income consisted only of earnings. Again this is discussed where relevant, although in most cases estimates can still be made for the upper ranges of the income distribution.

In using income tax data, the research reported here is following a long line of enquiries, including the original Pareto curves. The strengths and weaknesses of the source have been extensively discussed in the recent literature initiated by Piketty (2001). The data are drawn from an administrative process and reflect in their definitions of income and the tax unit the underlying legislation rather than any concept of equity. The administrative process doubtless had many shortcomings, and tax data are affected by avoidance and evasion. One has only to read the reports of the tax administrators to realize the limits to the coverage. As was noted by the Income Tax department of Sierra Leone, ‘with an effective assessing staff of 6 inspectors it is physically impossible to cover a country the size of Sierra Leone and ensure that no potential tax payers are missed’ (*Annual Report for the year ended 31st March 1961*: para. 1). The data must therefore be treated with considerable caution. As Pareto himself remarked, ‘taxpayers’ income tax returns should always be taken with a pinch of salt’ (1896 (2001): 236–37). At the same time, they provide an insight into the distribution of income in countries and periods about which we have no other empirical information.

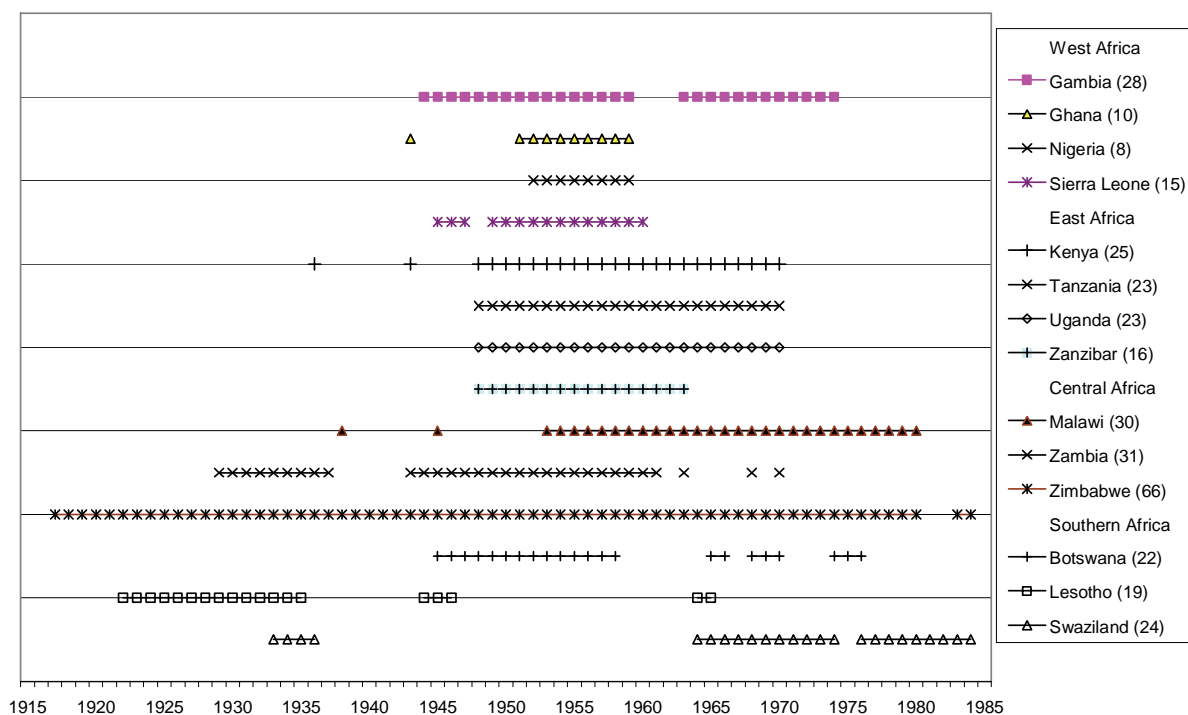
⁶ As explained by the East African Income Tax Department, it was ‘agreed in principle to introduce separate laws in each East African territory which would be for all practical purposes identical and which would allow for the taxation in one territory only of the whole East African income’ (Annual Report of the Department for 1950: 1).

Table 1: Income tax data for former British colonial territories in Africa

Modern name (colonial name) and year of independence	Income tax introduced (IY denotes first income year)	Coverage of data
<i>West Africa</i>		
The Gambia 1965	1940	1944 to 1959, 1963 to 1974
Ghana (Gold Coast) 1957	1944 (IY1943)	1943, 1951 to 1959
Nigeria 1960	1943	1952 to 1959
Sierra Leone 1961	1944 (IY1943)	1945 to 1960 (except 1948)
<i>East Africa</i>		
Kenya 1963	1921 then 1937 (IY1936)	1936, 1943, 1948 to 1970
Tanzania (Tanganyika) 1961	1940	1948 to 1970
Uganda 1962	1940	1948 to 1970
Zanzibar 1963	1940	1948 to 1963
<i>Central Africa</i>		
Malawi (Nyasaland) 1964	1921 (IY1920)	1938, 1945, 1953 to 1980
Zambia (Northern Rhodesia) 1964	1919 (IY1918)	1929 to 1937, 1943 to 1961, 1963, 1968, and 1970
Zimbabwe (Southern Rhodesia) 1980	1918 (IY1917)	1917 to 1980, 1983, and 1984
<i>Southern Africa</i>		
Botswana (Bechuanaland) 1966	1921 (IY1920)	1945 to 1958, 1965 and 1966, 1968 to 1970, 1974 to 1976
Lesotho (Basutoland) 1966	1920 (IY1919)	1922 to 1935, 1944 to 1946, 1964 and 1965
Swaziland 1968	1920 (IY1919)	1933 to 1936, 1964 to 1974, 1976 to 1984

Source: Author.

Figure 1 Availability of tax data on income by ranges



Source: Author.

3 Putting the data in context: total population

In order to put the income tax data in context, we need information about the total population of potential taxpayers. More precisely, where the income tax is levied on a tax-paying unit, we need the total number of *tax units*, defined as the adult population minus dependent adults. The total is reached by three steps. The first is the total population; the second is the proportion aged 15 and over; the third is the subtraction for the proportion who are married women and assumed to be dependants. Each of these steps poses major problems in colonial Africa, and the last step is typically based on very little evidence. It should be stressed that, in this calculation, we are imposing an administrative definition and not seeking to consider the definition of the household unit that might be appropriate when assessing the living standards of the taxpayers in question. A taxpayer may have obligations that extend far beyond the narrow administrative definition; and the boundaries may be drawn in quite different ways in different societies.⁷ The tax unit control total should be seen simply as a scaling factor.

The essential source is provided by the population censuses that were carried out with varying degrees of regularity and effectiveness in the different colonies. The early history of such censuses is described at length by Kuczynski (1948, 1949). As he had commented in an earlier study, ‘official data on the total population are available for every colony in the world. Some of the figures are fairly accurate while others may be wide of the mark’ (1937: vii). The accuracy of the census clearly depended on the resources allocated to the task, and in many cases this was

⁷ An example given by Ady (1963: 53n) from West Africa is of the Akan, where a man lives with his mother and sisters, while his wife lives with her own siblings. The wife has the obligation of sending part of any meal cooked to her husband, who has to share it with his blood relations.

extremely limited. Kuczynski cites the example of the 1931 census for Northern Rhodesia (a country with more than a million inhabitants), where, according to the official report, 'The Census Office Staff consisted of the Director, one Lady Clerk and one (native) office boy. ... Neither of the two European members of the staff have had previous experience of census duties' (1937: x). But even with greater resources the task would have been a daunting one. The reach of the colonial administration was geographically limited; the purpose of the census was not evident or was distrusted; the population was highly mobile. In this context, it is not surprising that the scope of the population census was often restricted to the non-African population. Writing in the late 1940s, Kuczynski opened his chapter on the demography of Kenya by saying that 'no census of the whole population has yet been taken. All censuses effected prior to 1931 comprized only the non-native population, while the census of 1931 included also a small fraction of the native population' (1949: 127).

In the light of this, the approach adopted has been to work backwards from more recent population estimates. To anchor the total population series, I have used for all countries the series starting in 1950 given by US Census Bureau International Database (the source is that employed by Maddison 2003), referred to as USCB.⁸ This series was then linked backwards to the available useable figures from censuses and from other official population estimates. For example, in the Gambia, figures for earlier years are obtained using the 1947–48 enumeration of the Colony and Protectorate, extrapolated backwards linearly on the basis of the increase since the census of 1931.

Backward linkage for the pre-1950 period is not straightforward. For example, in the case of Nyasaland we can have recourse to the 1945 and 1931 census figures, but these cannot be used without adjustment. The 1945 population census figures (Kuczynski 1949: 534) indicate that there was a de facto population of 2,044,707 Africans and 5,207 non-Africans. The total of 2,049,914 may be compared with the figure of 2,816,600 for 1950 from the USCB. However, the implied increase in the five year period seems unrealistic. An increase of 37 per cent is the same magnitude as the increase shown between the 1931 and 1945 censuses. The 1950 USCB figure is also 14 per cent higher than the estimate for 1950 in the long series from 1901 to 1950 given by the Central African Statistical Office (CASO) in the *Statistical Handbook of Nyasaland 1952*, Table III. Part of the difference may be due to that between de facto and de jure counts, but this can only explain some part. Much more probable is that the earlier figures were understated. Indeed, regarding the earlier period, Kuczynski had concluded that the 36 per cent increase between 1931 and 1945 was itself 'most unlikely' (1949: 637), and that the earlier figure was understated. In view of this, the USCB figures have been used, and the higher figure for 1950 linked proportionately to the CASO series for years before 1950.

Under-enumeration is a recurring theme. In Gold Coast, the results of the 1948 census were called into question by the subsequent 1960 census for Ghana, since the implied growth rate of the population (4.2 per cent per year) appeared implausible (see Birmingham et al. 1967: 22). As is explained in the 1960 report, there are good reasons to believe that the findings in that year were more reliable: it was 'the first real application of modern census techniques' (*1960 Population Census of Ghana*, Volume I: v). It noted that 'previous censuses suffered partly from lack of support from the public and this resulted in considerable under-enumeration in certain areas of the country' (p. v).

The total population figures are clearly surrounded by a large margin of error. The uncertainty surrounding the population numbers was indeed well illustrated by the broad statement in the

⁸ With the exception of Zanzibar, since it is not covered by the US Census Bureau series.

Colonial Annual Report Gold Coast 1946 that ‘the population is between 4 and 4½ millions’ (Colonial Office 1947: 13). A margin of 12½ per cent appears in fact rather modest. Moreover, there are some grounds, as indicated above, to expect the error to be in the direction of understatement.

3.1 From total population to total tax units

The next two steps place even more strain on the available sources, requiring information on the age distribution of the population and on the marital status of women. The 1931 Census for the Gold Coast noted that ‘the grouping of the population by ages is difficult since the estimates of Age are almost impossible to ascertain with any degree of accuracy’ (1931, Volume I: 166). Moreover, the distinction between children (under 15) and adults in this and other earlier censuses ‘was not carried through in the same manner for both sexes since, as in many other African countries, females who should have been counted as children were considered to be adults’ (Kuczynski 1948: 435).

Here I have again anchored the series in a source common across countries: the estimates of population aged 15 and over given by the United Nations (UN) in *The Size and Age Distribution of the World Populations 1994*. The UN proportions are given at five year intervals from 1950 and have been interpolated linearly. The 1950 proportions have been in most cases been extrapolated back to earlier years: for example, in the Gold Coast the 1950 figure was extrapolated back to 1943 linearly on the basis of the change between 1950 and 1955. In the case of Southern Rhodesia, the adjustment varied according to the African/non-African composition of the population as indicated in the population censuses.

If information on age was difficult to obtain in earlier censuses, that on marital status was non-existent. In Ghana, according to the 1931 Census, ‘statistics concerning the marital condition of the inhabitants of the Gold Coast are not obtainable’ (Cardinall 1932, Volume I: 168). The collection of data on marital status in Ghana was taken up in the Post Enumeration Survey carried out following the 1960 Population Census. Marriage is, according to the report, a ‘very complex’ factor in African society, governed by tribal rules and local customs. It warns that ‘one cannot pretend that a statistically adequate picture of marriage and cohabitation has been given by the material presented’, but goes on to say that ‘it may nevertheless be considered as a major statistical contribution, rarely encountered in census-type enquiries’ (*1960 Population Census of Ghana*, Volume VI: xiv). The results (Tables C1 and A3) show that in 1960, there were 1,374,180 married women out of a total population of 6,632,990, or a ratio of 20.7 per cent. This may be compared with the ratio of all women aged 15 and over to the total population, which in 1960 was 27.6 per cent. On this basis, married women have been taken as constituting 20 per cent of the total population in all years for Ghana. In some cases, a sizeable proportion of married African women had husbands who were employed outside the country. In Nyasaland, the 1945 Census recorded 495,000 married women but only 367,000 married men (Kuczynski 1949: 591). In this case, it may be better to subtract the number of married men, since those married women with absent husbands do constitute tax units. The 1945 figures for the African population imply that subtraction of married men would reduce the total number of tax units by 18 per cent, and this proportion is applied for the total population (African and non-African) and for all years.

3.2 Conclusion

The population figures for colonial Africa are at best approximate, and the estimated totals for potential tax units should be interpreted with great care. But it should be remembered that they

are only being used here for a limited object. They are designed to provide a sense of scale, and for this purpose they seem adequate.

4 Putting the data in context: total income

If the population totals pose problems, then control totals for household income take us into still more treacherous territory. Such income totals, based largely on national accounts, have been the cornerstone of many of the recent studies of top incomes for OECD countries (Atkinson and Piketty 2007, 2010). The adoption of such an approach is usually attributed to Kuznets (1953) in his celebrated study of top incomes in the US, but the method had already been employed some ten years earlier in the study of the European income distribution in South Africa by Frankel and Herzfeld (1943). As they say, ‘by combining the national income and income tax statistics ... it is possible to obtain a more general picture’ (1943: 121–22).⁹

We have however to ask whether an approach based on national accounts makes any sense in the context of African colonies. Do national accounts exist for the countries and periods with which we are concerned? Surely this is a hopeless quest? In fact, the situation is not that desperate. Work on national accounts in a number of African colonies developed at much the same time as official national accounts were coming into use in OECD countries. This owed much to two pioneers: Herbert Frankel (and his colleague, Herzfeld) and Phyllis Deane. Already in 1945, Frankel (1945) published estimates of national income for Southern Rhodesia covering the years 1924 to 1943 (cited in Shaul 1960). Deane (1948, 1953) produced income totals for two of the colonies studied here: Northern Rhodesia and Nyasaland (the other colony covered by her was Jamaica). This meant that, by the time of the Second Conference of Colonial Government Statisticians in 1953, they could report (Colonial Office 1954: 41) estimates of national income for Gold Coast, Kenya, Nigeria, Northern Rhodesia, and Uganda.

These early studies of colonial national income met strong criticism. In his review of Deane (1953), Jones noted that ‘the book itself speaks with two voices: the straight face with which the estimates are presented is disturbingly inconsistent with the bewilderment expressed in later chapters over the problem of evaluating native activities in units commensurable with those used for the European part of the economy’ (1955: 665). He goes on to say that Chapter IX of Deane (1953) ‘contains enough arguments *against* the use of national income accounting in primitive communities to stop all but the most enthusiastic devotees’ (1955: 674). His main concern is with the treatment of the subsistence economy, and this is discussed in the next paragraph. A related but different criticism is that of Seers (1952–53, 1959), who argues strongly that statisticians should focus on sector accounts rather than national aggregates. However, as observed by Ady, ‘the abandonment of aggregates is not in my view a solution. No matter how detailed and how accurate the figures for the few key industries of the economy, it is difficult to interpret their significance without the context supplied by a set of national accounts’ (1963: 57). She goes on to show how the sector information supplied by Seers (1959, Table VI) can be re-arranged to yield national income on a production basis.

The many problems of measuring and valuing subsistence output should evidently give us pause. Subsistence agricultural output is a major element in the national income calculation. In Kenya, for example, in 1951 it accounted for 22 per cent of the total. In Uganda it was 24 per cent. In

⁹ For early estimates of national income in South Africa, see Frankel and Neumark (1940), covering years from 1927–28.

Nyasaland in 1945, it accounted for 40 per cent (Deane 1953: 98). These are, to quote Ady, ‘very “soft” figures’ (1963: 55). After rehearsing the many steps involved in the estimation, Jones concludes that ‘it is difficult to appraise the possible error in the estimate of native agricultural output ... That the true value is twice as great [as in Deane 1953] is not at all unlikely’ (1955: 670). He goes on to commend the position taken by the Central African Statistical Office of concentrating solely on the monetary economy, quoting their statement that ‘it was felt advisable to omit any statement of the value of subsistence output as it could only be a notional figure that could not be checked or corrected in any way’ (Jones 1955: 667).

The problems outlined above are ones that change in significance over time for two different reasons. First, the structure of the economy evolves in a direction that reduces the weight of subsistence agriculture and renders national accounting methods more appropriate. The subsistence sector is ‘a component of steadily diminishing importance’ (Ady 1963: 62). Secondly, the capacity of statistical offices may increase. Here however a major caveat must be entered. One of the important points made by Jerven (2013) is that statistical capacity is not always moving in the right direction. As he notes,

The statistical capacity of African states was greatly expanded in the late colonial and early postcolonial period, but it was greatly impaired during the economic crisis of the 1970s. The importance [of] the statistical offices was neglected in the decades of policy reform that followed—the period of ‘structural adjustment’ in the 1980s and 1990s (2013: 5).

It is this neglect that has led to the criticisms levelled against contemporary national accounts estimates for Africa. According to Devarajan, for example, Africa today ‘is facing a statistical tragedy, in that the statistical foundations of the recent growth in per-capita GDP ... are quite weak’ (2013: S9). He notes the fact that in 2012, no fewer than 20 out of 48 countries were still using the 1968 UN System of National Accounts (SNA), the most recent being the SNA 2008.

This means that, if progress in developing statistical capacity was first positive and then reversed, then the period considered here—ending in the early 1980s—may represent a relative high water mark in the quality of national accounts. It is certainly true that the early studies described above by academic researchers were taken over and developed by official statisticians. In the case of Kenya, the Second Conference of Colonial Statisticians in 1953 reported that official estimates of national income for Kenya were in regular production (Colonial Office 1954: 41). In 1959, a major revision of national accounts in Kenya was carried out, leading to an upward revision of the series 1954–58 (East African Statistical Department 1959). A new set of calculations, incorporating more up-to-date basic data, were made from 1967, with a revised series from 1963. A further major revision was undertaken in 1976. Here it is important to note that the effect of national accounts revisions is typically to raise national income by a significant amount. In the case of Kenya, the link at 1973 to an earlier series involves up-rating the earlier estimates by a factor of 1.089. There is a further link at 1963 which involves an up-rating by a factor of 1.175; and at 1954 there is a link to the first official series (involving an up-rating by a factor of 1.248). The combined effect of the up-rating factors is to raise the earlier estimates by some 60 per cent. In Tanganyika, the systematic construction of national income series was begun by Peacock and Dosser (1958), who made estimates for 1952–54. Their work was continued by the East African Statistical Department, published as *The Gross Domestic Product of Tanganyika 1954–57*. The next set of estimates, *National Accounts of Tanganyika, 1960–62* was published in 1964 based on the 1953 SNA. In 1968, the Bureau of Statistics embarked on a comprehensive revision of the national accounts, published successively in the *National Accounts of Tanzania*. These have been used to arrive at the linked series employed here.

The substantial work on national income conducted in the Rhodesias and Nyasaland is described by Shaul (1960). During the period of the Federation of Rhodesia and Nyasaland, estimates were produced for the three constituent countries: Southern and Northern Rhodesia and Nyasaland for the period 1954 to 1963. Following independence of Nyasaland in 1964, the newly established National Statistical Office of Malawi began the preparation of estimates, and these are available on a comparable basis up to 1972. Again revisions involved significant up-rating. The base data are linked at 1970 to earlier estimates for 1964 to 1973; these were on the former SNA basis, and the linking involves a large upward adjustment by some 35 per cent.

For the period prior to 1954, it is possible in the case of Southern Rhodesia to use the estimates of the Central Statistical Office (from 1939 to 1953) and Frankel (1924 to 1938) from *National accounts and balance of payments of Rhodesia 1973*, Table 1. It remains to arrive at income totals for the years 1917 to 1923. As was observed by Frankel, there was in the inter-war period a close relationship between the value of exports and the value of national income: ‘the correspondence is so close that one would normally be justified in attempting to forecast the size of the Rhodesian National Income on the basis of the future movements of exports’ (1945: para. 8). A major part of the exports was constituted by gold. As described in Atkinson (2014), taking gold output valued at the ruling gold price provides a reasonable explanation of national income over the period 1924–39, and this has been used to make estimates of national income for the years 1917–23. A similar approach is adopted in the case of Northern Rhodesia, based on the output of the copper industry, which grew from negligible size in the 1920s to represent a major part of the economy: from 1920 to 1960 ‘the copper industry transformed Northern Rhodesia from a comparatively stationary economy into a rapidly growing one’ (Baldwin 1966: 40). Following Baldwin’s description of a ‘dual economy’, with the industry existing in the midst of a subsistence economy, total income is modelled as the sum of subsistence income and an element based on the value of copper output. An equation fitted to data for 1945–64 is used to predict total income for the years 1929–37. It need hardly be pointed out that these estimates are surrounded by a considerable margin of possible error.

For some colonies, it has not been possible to arrive at—even approximate—income totals. In the case of the Gambia, the Central Statistics Department wrote in 1985 that ‘the history of preparation of national accounts in the Gambia is of very recent origin. The first series of gross domestic product for the country was prepared in late sixties by the staff members of World Bank who worked out GDP estimates for the years 1963–64 to 1966–67. Comparable figures for the subsequent years were prepared annually by the Statistics Department. However, on account of the very scanty statistical information available at the time, these figures continued to be extremely weak. ‘These figures were regarded to have limited utility and as such have not been published by the Statistics Department so far’ (Central Statistics Department 1985: paragraph 1.4). For this reason, no estimates of income shares are given below for the Gambia. The same applies to Sierra Leone, where it was 1966 before the Central Statistics Office published the first detailed estimates of national income (whereas the income tax data stop in 1960). For Zanzibar, the East African Statistical Department published estimates of the national income for 1957–61, with this caution:

The set of accounts put forward here are not the first which have been drawn up by the East African Statistical Department for Zanzibar. They are, however, the first to be published and are considered to be an improvement on previous estimates. Even so, largely because of the limited nature of the statistics available, it is improbable that they are completely accurate and it is likely that when more statistics become available the estimates shown will need revision. Thus these figures are presented merely to provide

some indication of the orders of magnitude involved in the economic structure of Zanzibar (East African Statistical Department 1963: 1).

These estimates have been used here, but the caution stated above should be borne in mind. No income totals have been estimated for years prior to 1957, so that no income share estimates have been made for Zanzibar for that period.

4.1 Way forward

In seeking to employ national accounts totals, we are therefore faced with two major issues—the treatment of subsistence agriculture and the variation across countries in data availability—offset by one mitigating feature—that the period studied may have represented a temporary high point in statistical capacity. Two responses seem possible. The first is to abandon the use of income control totals. This means that income shares cannot be estimated, but, using the population totals, frequencies can be calculated and the shape of the distribution can be summarized. In Sections 6 and 7 this is the approach followed.

The findings with regard to income shares will however attract a lot of attention, and for this reason we make use of income control totals in Sections 8 and 9, where we cover all countries apart from the Gambia and Sierra Leone. In so doing, we again focus on the limited purpose for which the total is being employed, which is to provide a measure of scale. At the same time, the possible margins of error are larger for income totals than for the population totals. For example, the effect of the revisions to national accounts in Malawi, carried back to the earlier estimates, leads to a total for 1945 which is some 46 per cent higher than the figure originally estimated by Deane (1953). This means that the estimated share of the top 0.1 per cent in Nyasaland in 1945 was 7.6 per cent, whereas the estimate of Deane would have led to a figure of 11.1 per cent. In considering the results using control totals, the effect of such error margins needs to be borne firmly in mind.

4.2 From national income to household income

Starting from the estimates of national income, a total for household income is reached by making adjustments to subtract net factor paid abroad, depreciation, retained corporate profits, and the income of non-profit institutions, and to add the receipts by households of government interest payments and transfers. It should be noted that the resulting total is likely to exceed the hypothetical amount that would have been reached if every citizen had been assessed for income tax, in view of the differences in definition between taxable income and income as recorded in the national accounts. Taxable income is almost certainly smaller, and, to this extent, the shares of the top income groups are understated.

The adjustment to a household basis is not necessarily straightforward, particularly where the national accounts are constructed from an output (or expenditure) basis, rather than from an income basis. In the case of Ghana, for example, according to Birmingham et al. ‘national accounting in Ghana has traditionally been based on expenditure’ (1966: 39). As such, the national income figures for the period covered here are not easily related to the income side of the accounts. Where there are income-based accounts, a breakdown can be made. In the case of Tanzania, for example, the UN *Yearbook of National Accounts Statistics* for 1969 included a table for Tanzania showing the ‘distribution of the national income’ (Volume I: 694). Over the period 1960–67, the sum of compensation of employees, income from unincorporated enterprises, property income, and corporate transfer payments varied between 79 and 84 per cent of national

income. In view of the omission of certain items, such as debt interest paid by the government, I have taken total gross household income as being 85 per cent of GDP at factor prices throughout the period considered. In Zambia, the early national accounts included tables for personal incomes. From *The National Income and Social Accounts of Northern Rhodesia, 1945–1953*, it can be calculated that personal income, including transfer incomes, averaged some 64 per cent of net national income over the period 1945 to 1953. A less complete calculation, not including transfers, for the period 1954 to 1964 gives an average of 67 per cent (Republic of Zambia, *National Accounts and Balance of Payments of Zambia 1954–1964*, Table 2). The latter figure is too low, since transfers are omitted, and the former figure may understate the value of subsistence production. In view of this, a figure of 70 per cent of gross national income is employed here as the income control total.

4.3 Conclusion

The income control totals for the colonial period provide a broad measure of scale, but need to be treated with considerable caution. The early estimates of national income in Northern Rhodesia were accompanied by an evaluation of their ‘assessed accuracy’ (Irvine 1955: 366). The gradings were attached to individual items, and not to the total, and ranged from ‘believed to be accurate within five per cent’, for wages and salaries, to ‘accuracy \pm 25 per cent’, for African income from unincorporated enterprise, and, a ‘nominal estimate with unknown error’, in the case of African subsistence income. The potentially large errors in the control totals for income are important. For example, with the totals constructed here, the 2,189 income taxpayers in Kenya in 1936 (broadly the top 0.1 per cent of tax units) were estimated to receive 6.1 per cent of total income, a figure not far short of the 6.6 per cent found for the top 0.1 per cent in the UK in 1937–38 (Atkinson 2007: 93). But if the income control total for Kenya were understated by 40 per cent, for example because subsistence activities were under-valued, then the share in Kenya would be 4.4 per cent, or only two-thirds, suggesting that the colonial inequality was distinctly less than at the home of the Empire.

5 The colonial income taxpayers

The empirical evidence presented here is based on the recorded incomes of those assessed for income tax. We begin by asking: who were the income taxpayers? From the level at which the tax threshold was set, it is evident that they were an extremely well-off minority. In Northern Rhodesia, for example, the threshold in 1937 was GBP300 a year, which was 15 times the estimated average income. In East Africa, the threshold in 1951 was GBP200, which was more than three times average income in Uganda and more than six times that in Tanganyika. But what else do we know about the people who paid the colonial income tax? The statistical information about the operation of the income tax is limited, but provides some clues.

5.1 A non-African tax?

First of all, were the taxpayers all Europeans? In principle, the tax was levied on all, Africans as well as non-Africans. According to the Colonial Office, ‘with the following exceptions the Income Tax applies in theory to African and non-Africans alike, within of course the prescribed limits of taxable income’ (African Studies Branch 1950: 10). The exceptions cited are Northern Rhodesia and Nyasaland. Interestingly, no reference is made to Uganda, which was also an exception. In Uganda, but not the other three East African territories, Africans liable to pay poll

tax were exempted from income tax (East African Income Tax Department, *Annual Report for the Year 1950*: 3, Colonial Office 1961: 26, 45). The Ugandan exception continued until 1961 (Duc 1963: 34). In Nigeria, the Federal income tax (the source of the data employed here) covered only Africans receiving incomes within the Municipal Area of Lagos, and excluded other Africans.

With these exceptions, the income tax applied generally. It was however the non-African population that constituted the bulk of taxpayers. This population was in all cases small, but varied considerably across the 11 countries. It was most significant in the settler colonies, and in Zanzibar, where 17 per cent of the population in 1948 was Arab. In Southern Rhodesia, the 1946 Census recorded the non-African population as 89,856, which was some five per cent of the estimated total population of 1.8 million (Southern Rhodesia 1949: 3). Next at that time come Kenya and Northern Rhodesia, with figures between two and three per cent—see Table 2, which shows the position around 1950. The Kenyan figure may be contrasted with that in Tanganyika, where there were 70,160 non-Africans out of 7.5 million and in Uganda where there were 40,965 out of 5.0 million (*Digest of Colonial Statistics*, September-October 1953: 87). Both these figures were less than one per cent. It should be noted that in East Africa, Europeans were a minority among the non-African population: in Tanganyika there were 10,648 Europeans and in Uganda 3,448. In Sierra Leone in the 1947–48 enumeration of population, Europeans and Americans accounted for 964 out of 1,858,275 people recorded as living in Sierra Leone (0.05 per cent); there were a further 2,074 Asians (0.11 per cent) (Colonial Office *Report on Sierra Leone for the year 1949*: 11).

A similar picture emerges if we look at total tax units. There are again marked differences. In Northern Rhodesia in 1931, there were 13,846 Europeans, of whom 10,644 were aged 17 and over (Kuczynski 1949: 480). Subtracting 2,653 married women gives a total of 7,991 tax units, out of an estimated total of 776,000: i.e. some one per cent. This may be contrasted with Nyasaland in 1945, where there were 1,948 Europeans, of whom 1,614 were aged 15 and over (Kuczynski 1949: 599). Subtracting 493 married women gives a total of 1,121 tax units, out of a total of 902,000, or not much more than 0.1 per cent. In the Gold Coast, the 1948 Census showed that there were 6,770 non-Africans, of whom 665 were aged under 15 and 1,105 were married women, so that the total of non-African tax units was 5,000. They accounted for 0.3 of total tax units. Again there is a sharp contrast with Southern Rhodesia, where the 1946 census reported 41,998 Europeans in receipt of incomes (Southern Rhodesia 1949: 104). They constituted 4.8 per cent of the estimated number of tax units. By 1961, the number of non-Africans had reached 107,440 and the percentage of tax units was 7.5 per cent (Federation of Rhodesia and Nyasaland 1962, Table 15).

It is not therefore surprising that the percentage of income taxpayers is both small and varies across the 11 countries. There are three main groups. The proportion of taxpayers was highest in Southern Rhodesia, where in 1950 they constituted more than two per cent of all tax units—see the final column of Table 2. By 1960, this figure had risen to more than four per cent. From a comparison with the figure for the size of the European population, it is clear that at most a half of the European population were subject to the income tax. In Northern Rhodesia in 1950, total taxpayers were some two-thirds of the European population. The tax was not just a tax on Europeans, some of whom were certainly not receiving sufficient income to be liable.¹⁰ The second group consists of East Africa and Nyasaland, where the proportion of taxpayers exceeded the proportion of Europeans but fell short of the total non-African population, so are

¹⁰ The 1931 Census in the Gold Coast, for example, showed that there were 167 missionaries (Cardinal 1932: 258), making them the fifth largest of some 30+ occupational groups.

consistent with the tax being paid essentially by non-Africans. This was legally the case in Nyasaland and Uganda, and in Kenya it was noted that in 1948 ‘very few Africans paid income tax because the number of those who could afford to pay was too small to justify the employment of staff to carry out the exercise’ (Tarus 2004: 29). In contrast, in West Africa—the third group—there were broadly the same number as (Sierra Leone) or more (Gold Coast) taxpayers than non-Africans. For Sierra Leone, there are figures on the composition of taxpayers for IY1948, which show that Africans accounted for 480 out of 2,093 individual taxpayers (Colonial Office 1952, Volume III: 88). The annual report of the Nigerian Federal Inland Revenue Department for the year 1957–58 showed the distribution of taxpayers with incomes of GBP500 and over by nationality in IY1956: African (only those receiving income from the Lagos Township) 1,890 (14.5 per cent), European 10,284 (78.9 per cent), and Levantine and Asiatic 863 (6.6 per cent). These figures provide some evidence in support of the statement in Lord Hailey’s *African Survey* concerning the number of Africans who pay income tax ‘that the total number is much higher in West than in East Africa’ (Hailey 1957: 646).¹¹

In the early years of the East African Income Tax, information was provided about the breakdown between European and ‘Asians and others’, where the latter included Africans in the case of all except Uganda. The first column of Table 3 shows the breakdown by numbers of East African resident taxpayers assessed in IY1949. There are large differences. Europeans predominate in Kenya and Tanganyika, but there are more or less equal numbers of Europeans and Asians in Uganda, and in—the much smaller—Zanzibar, Europeans are a minority.

5.2 Sources of income

The East African tabulations in Table 3 distinguish between employees and ‘individuals’, where the latter refer to self employed professionals and businessmen. Employees account for the majority of taxpayers, although in Zanzibar the figures are nearer parity. Among employees, Europeans predominate, particularly in Kenya and Tanganyika, so that in Kenya nearly two-thirds of all assessments are accounted for by European employees. The proportions of Europeans are smaller in Uganda (less than half) and Zanzibar (around one third). Among the self-employed, Asians (and others) predominate, with the proportions varying from 55 per cent in Kenya to over 90 per cent in Uganda and Zanzibar. At the same time, it should be noted that, with the exception of Zanzibar, the average incomes of the self-employed Europeans are higher: in Kenya, they accounted for 27 per cent of the taxpayers but received 41 per cent of the assessed income.

In taxing salaries, public employees were a natural target group, as were the employees of large companies such as mining corporations, but it would be wrong to see the income tax as simply a payroll tax on employees. In Nyasaland in the 1930s, there were more or less equal numbers of civil servants, of company employees, and of planters and self-employed (Nyasaland Protectorate, *Financial Report 1932*, Appendix XII). In Sierra Leone in IY1950, for example, 513 government employees were assessed and 356 non-government employees, but there were 651 assessments on trades and professions (non-company) and 23 pensioners (*Annual Report of the Income Tax Department for the year ended 31st March 1952*: 11). Trades and professions accounted for 48 per cent of the total assessable income (excluding companies). Table 4 shows the composition of gross income assessed for income tax in Northern Rhodesia from IY1925 to IY1932. Until

¹¹ If one goes back to the original source for this statement, one finds the less definite ‘the proportion is almost certainly higher in West than in East Africa’ (African Studies Branch 1950: 10). This appears to be an example of magnification in transmission.

the Depression, around a quarter to a third of taxable income came from trades and professions, and some five per cent came from investment income. In Nigeria in 1957–58, 42.6 per cent of taxpayers with incomes of GBP500 and over were government officials, of whom 839 out of 5,553 were Africans. Of the remainder, 11.4 per cent were self-employed, nearly half of whom were African (Annual report of the Nigerian Federal Inland Revenue Department for the year 1957–58, Table 5).

5.3 The growth of the income tax

Up to 1945, the proportion paying income tax, in the countries for which there were data, was typically less than 0.5 per cent, but it may be seen from Figure 2 that the proportion of taxpayers was increasing over the rest of the colonial period. Between 1945 and 1960 the proportion increased in all colonies and doubled in four of them. In Zanzibar, the proportion rose from 0.26 per cent to over one per cent. In Kenya, the proportion rose from 0.28 to 1.58 per cent. In this context, it is worth remembering that in the early days of the US personal income tax (1913–15), the corresponding proportion of taxpayers was 0.9 per cent (Piketty and Saez 2007: 171).

There was greater tax effort. At a time when there is much discussion of the erosion of income taxation, it is important to stress that this was a period when income taxation was acquiring greater significance. What is more, during this period the number of Africans paying income tax is likely to have increased. By IY1957, nationals of Ghana accounted for 42 per cent of taxpayers (1961 *Statistical Yearbook*, Table 149).

5.4 Conclusions

The colonial income taxes in British Africa differed in their history, in their institutions, and in the way they interacted with the societies on which they were imposed. At this distance in time, their effects can only be dimly glimpsed. At the same time, their statistical residue provides one way of learning about the distribution of elite incomes in countries and at a time about which we have little evidence. In the rest of the paper, we examine what can be said about the distribution.

Table 2: Non-African population and taxpayers in British colonies around 1950

	1. Non-African population as % total	2. European population as % total	3. Taxpayers as % total tax units 1950
Gambia			0.30
Gold Coast 1948	0.16	0.10	0.41
Nigeria 1952	0.14		0.90 (in 1952)
Sierra Leone 1947-8	0.16	0.05	0.18
Kenya 1948	2.86	0.55	0.87
Tanganyika 1948	0.94	0.14	0.37
Uganda 1948	0.83	0.07	0.24
Zanzibar 1948	24.30	0.11	0.61
Southern Rhodesia 1946	5.00	4.59	2.33
Northern Rhodesia 1951	2.12	1.93	1.20
Nyasaland 1945	0.25	0.10	0.16 (in 1953)

Sources: Columns 1 and 2 from *Digest of Colonial Statistics* (September-October 1953: 85); for Nigeria, from *Annual Abstract of Statistics* (1961, Table 14); for Sierra Leone, from Colonial Office *Report on Sierra Leone for the year 1949* (1949: 11) and for Southern Rhodesia, *Report on the Census of Population of Southern Rhodesia held on 7 May* (1946). No figures are available covering the whole of the Gambia. Column 3 from income tax data.

Table 3: Ethnic composition of East African resident taxpayers assessed in income year 1949

	Total	Individuals			Employees		
	Number	Number	% total	Income as % total	Number	% total	Income as % total
KENYA							
Europeans	12,056	1,793	44.8	52.6	10,263	82.4	86.7
Asians and others	4,410	2,213	55.2	47.4	2,197	17.6	13.3
TANGANYIKA							
Europeans	5,037	365	26.8	41.2	4,672	85.6	87.6
Asians and others	1,787	998	73.2	58.8	789	14.4	12.4
UGANDA							
Europeans	1,677	67	8.2	12.2	1,610	62.8	62.0
Asians and others	1,705	752	91.8	87.8	953	37.2	38.0
ZANZIBAR							
Europeans	147	6	3.2	2.9	141	61.6	63.7
Asians and others	268	180	96.8	97.1	88	38.4	36.3

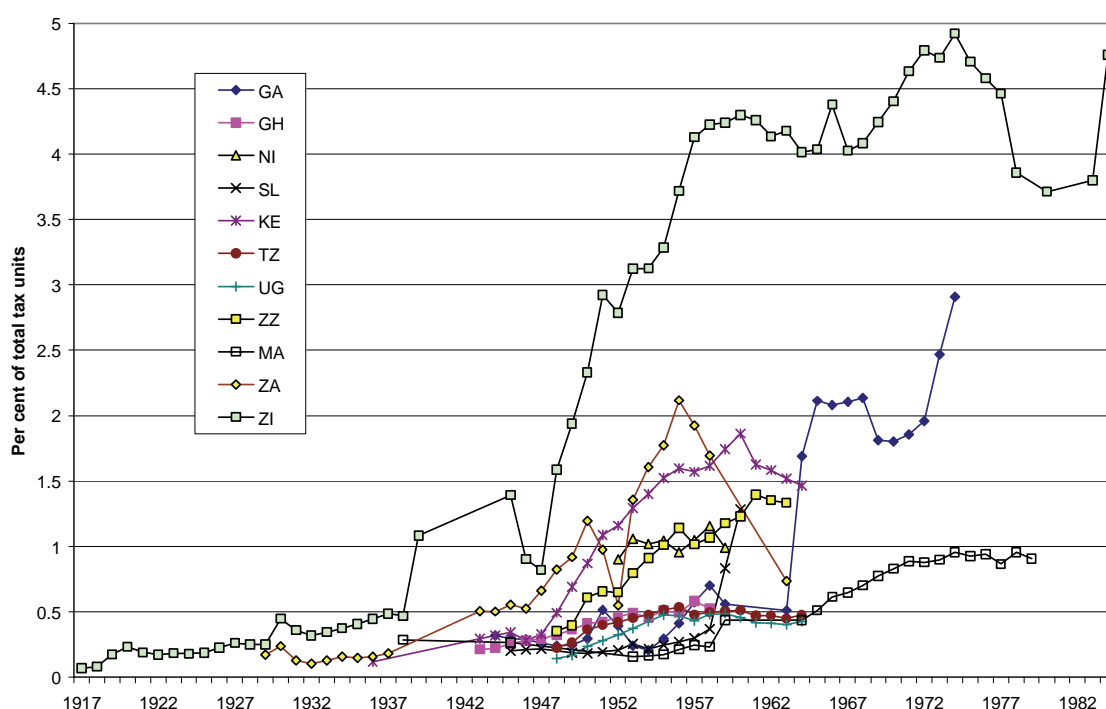
Source: East African Income Tax Department Annual Report (1953, Appendix A).

Table: 4 Percentage of total income assessed by source Northern Rhodesia 1925–32

	1925	1926	1927	1928	1929	1930	1931	1932
Public employees	17.5	13.6	14.0	12.7	10.0	8.5	13.6	23.7
Other employees	34.8	37.6	43.7	49.2	55.5	58.1	54.6	59.4
Trade and professions	34.9	29.9	30.9	30.5	28.2	28.0	25.0	10.9
Farming	8.2	13.1	6.5	2.6	1.9	0.9	1.0	1.1
Property income	4.7	5.0	5.0	5.0	4.3	4.3	5.8	4.6

Source: Report of the Income Tax Department for the nine months ended 31 December 1933, Schedule A.

Figure 2 Taxpayers as % total tax units



Source: Author.

Notes: GA The Gambia; GH Ghana (Gold Coast); NI Nigeria; SL Sierra Leone; KE Kenya; TZ Tanganyika; UG Uganda; ZZ Zanzibar; MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

6 Shape of the upper tail: Central Africa up to 1945

British imperialism influenced Africa for centuries. Trading companies were established in the 17th century: the Royal African Company in 1660. The colony of Gambia dates back to 1783; Freetown in Sierra Leone became a colony in 1808. (South Africa—evidently an important part of the story—is being left out of this account.) By this time scale, the period for which we have distributional evidence is but a fraction of the colonial experience. At the same time, the full occupation of territory and the emergence of governmental structures were much more recent. The Gold Coast may have been formed as a colony in 1867, but the Ashanti and Northern Territories only became protectorates in 1902. From incorporation to independence was only 55 years. While Lagos was annexed as a colony in 1861, the protectorate of Nigeria was only established in 1901. The East African Protectorate was formed in 1895, and that in Zanzibar in

1890. Northern territories administered by the British South Africa Company became a protectorate in 1891, and formed Northern Rhodesia in 1911. Southern Rhodesia became a self-governing colony in 1923. Tanganyika became a British mandated territory in 1922. In the colonies studied here, the period of colonial governance was effectively less than a century.

Focusing on the period of colonial governance, we can still see from Figure 1 that the evidence falls well short of complete coverage. For this reason, the present section on the pre-1945 period concentrates on Central Africa, income taxes only being introduced in the 1940s in East Africa (apart from Kenya) and West Africa.

6.1 Shares within shares

As we have seen, income taxpayers were a small minority. We now ask how incomes were distributed among this small group. If the top 0.1 per cent receive x per cent of total income, can we say how much of this x per cent goes to the top half of this group? To make this calculation, we do not have to make use of the income control totals. It is also the case that, if the distribution were to be strictly Pareto in form, then the answer would be given by the Pareto coefficient. Let y denote income and F denote the proportion of the population with incomes of y or lower, so that $(1-F)$ approaches zero as we approach the top of the distribution. The Pareto distribution is such that $(1-F) = A y^{-\alpha}$, where A is a constant and α is the (constant) Pareto coefficient. As noted earlier, it is a convenient property of this functional form that the mean income of people above y is given by $\alpha/(\alpha-1)$. This is true no matter where the distribution is sliced. It means that, to take an example from Pareto's work, in Prussia in 1881, the Pareto coefficient was 1.73, so that a person looking up the distribution would have seen that the average income of those above was 2.37 times his or her own income. In the more unequal 19th century England, with $\alpha = 1.35$, the ratio would have been 3.9 times. The expression $\alpha/(\alpha-1)$ is referred to as the inverted Pareto coefficient, or—as here—the Beta coefficient (see Atkinson et al. 2011: 13).

Since the Pareto form may only hold approximately, Table 5 and Figure 3 show for three Central African countries the Beta coefficients based on three different groups: the share of the top 0.05 in the total income of the top 0.1 per cent, the share of the top 0.01 per cent in the share of the top 0.05 per cent, and the share of the top 0.005 in the share of the top 0.01 per cent. It needs hardly be pointed out that the last of these groups relates to small numbers of taxpayers: for example, some 50 taxpayers in Malawi (Nyasaland) in 1945.

From Figure 3, it may be seen that for much of the period the Beta coefficient was less than 2, indicating that people looking up the distribution would have seen that, on average, those above had incomes less than 100 per cent higher than their own. Beta coefficients less than 2 correspond to Pareto coefficients in excess of 2. In 1951, Clark summarized 'all available' Pareto coefficients (1951: 533–37). He listed 152 estimates from 23 countries, and only 20 of these exceeded 2. The highest value recorded by Clark was 2.46 in New Zealand, which corresponds to $\beta = 1.68$; Australia in 1943/44 had 2.12, corresponding to $\beta = 1.89$. At the end of the 1930s, the Beta coefficients for the top 0.05 and top 0.01 in Central Africa were all below 1.8. Over the period up to 1939 as a whole, the Beta coefficients for Zimbabwe average 1.90, 1.89 and 1.61.¹² These indicate that, looking up the distribution, the people above you have on average less than

¹² The estimates do of course depend on the control total for total tax units. The results are not however particularly sensitive to variations in the total. For Southern Rhodesia in 1939, for example, a 20 per cent increase in the total raised the estimate of Beta, based on the share of the top 0.05 in the top 0.1 per cent, from 1.86 to 1.89.

double your income. Indeed for the smallest group, based on the share of the top 0.005 in the share of the top 0.01 per cent, the advantage is less than two-thirds. For Zambia, where there is only evidence for the smallest group, the coefficients average 1.74. By international standards, concentration was relatively low.

What is more, the Beta coefficients were falling over time in a number of periods. They fell steadily over the inter-war period in Zimbabwe and, to a lesser extent, in Zambia. The Beta coefficient in Zimbabwe based on the share of the top 0.01 in the top 0.05 per cent averaged 1.67 in 1937 to 1939,¹³ compared with 2.16 in 1919 to 1921. This is a major fall. Such a situation cannot be described as 'static'. The data for the war years, on the other hand, suggest that concentration increased after 1939 (the average for Zimbabwe for 1945 and 1947 was 1.86).

6.2 Comparison with the UK and other countries

A natural standard of comparison is with the UK, and this comparison is itself of historical interest. Did the administrative and economic structures set in place in the colonies reproduce the income hierarchy of the old world? Or did the colonies attract those who wished to live in a less class-driven society? Or, in the opposite direction, did African natural resources offer opportunities for enrichment that were no longer possible in the UK?

Figure 3 shows in the dashed line the Beta coefficients for the UK (Atkinson 2007, Table 4.1) over the period 1917–39 obtained from the share of the top 0.01 per cent in the share of the top 0.05 per cent. Whereas we have seen the colonial values to lie generally below 2, it may be seen immediately that the UK coefficients exceed 2 for all years up to the outbreak of the Second World War. From 1925 onwards, up to 1939 there is clear water between the UK series and the coefficients for Central Africa. The UK numbers are closer to those found by Pareto for the 'old world' than those we have found for central African colonies. Nor was the UK exceptional. In France, the Beta coefficient in 1919 was 2.67 and in 1939 it was 2.35 (World Top Incomes Database, based on the share of the top 0.1 in the top one per cent). What about the Western offshoots that are often contrasted with the African and other colonies? In 1920, the Beta coefficient in the US was 2.32, virtually identical to that in Canada (2.33). By 1939, these values had become 2.22 and 2.06, respectively. In Australia, the average coefficient in 1937–39 was 2.06. It was only in New Zealand that the coefficients could be found less than 2: 1.79 in 1921 and an average of 1.57 in 1937–39.

The first conclusion is that—in Central Africa at least—the top of the colonial income distribution was less concentrated than in the imperial powers or in the Western offshoots apart from New Zealand. But we have to bear in mind the qualification that the value of the Beta coefficient as a summary measure depends on how closely the Pareto assumption holds. Looking across the columns of Table 5, we can see that the values depend on the points chosen on the distribution. This is taken up below with specific reference to Zimbabwe.

¹³ In one of the few studies using the colonial income tax data, Shaul (1941) fitted a Pareto distribution to the data for Southern Rhodesia for 1936. His ordinary least squares estimate of the Pareto coefficient was 2.127, implying a value for Beta of 1.89. The difference from the value cited here reflects the fact that the distribution departs from the Pareto form, as discussed further below.

6.3 The shape of the upper tail in Zimbabwe

The beauty of the Pareto distribution is that, wherever one stands, the gradient (in logarithmic terms) is the same. It is always the case that the average income of people above you is a constant multiple of your own income. This in turn suggests a straightforward test of the Pareto assumption: to look at the average income above y as a ratio to y and how this changes, if at all, as one moves up the distribution. In what follows, the ratio is denoted by M . The average income is equal to the total income above y , denoted by R , divided by the number of taxpayers, N times $(1-F)$, where N is the total number of tax units (and F is the cumulative distribution). The ratio M can then be seen to equal the income share of those above y , divided by $(1-F)$ times y/μ , where μ is the mean income.¹⁴ The income share is, from the Lorenz curve, a function of F , and this is one way of looking at the ratio M , treating y as a function of F . The income share divided by $(1-F)$ is equal to the slope from any given point P to the terminal point, O (see Figure 4). The slope of the Lorenz curve at P is given by $y(F)/\mu$. Typically, the former slope is steeper, so that M is greater than 1. In the limit, the ratio may tend to 1, as with the lognormal distribution, but with the Pareto distribution the ratio is constant.

It is not easy to check from the Lorenz curve whether or not the ratio M is constant, as implied by the Pareto distribution. For this reason, it is best to look directly at the M curves as in Figure 5, which shows for odd-numbered years from 1925 to 1939 those parts of the top 0.25 per cent of the distribution in Zimbabwe covered by the data (with a minimum of 75 observations). Two conclusions emerge. The first is that for a few years in the 1920s the Pareto distribution provides a reasonable fit: 1925 and 1929 (also 1926, not shown). But in general the curves are far from horizontal. Fitting a linear regression leads to significant coefficients for $(1-F)$, with t -statistics in excess of 5 for the years 1934–39. This makes a difference. The values of M for 1935, 1937, and 1939 appears to lie in the range from 1.98 to 2.05 if we evaluate M at the 0.15 percentile, but in the lower range 1.66 to 1.77 if we evaluate M at the 0.025 percentile. The later curves depart much more from the Pareto distribution. So that in 1939, the average income of those above the top 0.225 per cent was some 2.1 times that percentile (GBP1,000 per year); the ratio falls to 1.86 for the top 0.07 per cent (above GBP2,000); to 1.71 for the top 0.033 per cent, and has a limiting value of 1.62. The climb left to the top is becoming easier. It would be interesting to explore how far this change in the shape of the upper tail can be related to structural changes in the Rhodesian economy, such as the large increase in the proportion of exports accounted for by gold production, and the corresponding decline in tobacco and other agricultural exports (Frankel 1945: 21 and 22).

The second conclusion is that, in line with what we found earlier, the curves have moved down over time. Income concentration decreased between the 1920s (shown by dashed lines in Figure 5) and the 1930s (shown by solid lines). This may be summarized in terms of the limiting values of M as F tends to 1 in the linear regressions fitted to each curve:

1925: 1.80	1926: 1.88	1927: 1.87	1928: 1.84		
1934: 1.74	1935: 1.73	1936: 1.65	1937: 1.66	1938: 1.58	1939: 1.62

A fall from around 1.85 in the late 1920s to 1.60 in the late 1930s is a major reduction. To put it in perspective, it corresponds to broadly the difference between France and Finland in 1949 (Atkinson et al. 2011: 45).

¹⁴ The ratio M equals total income over $N \cdot (1-F)y$. Dividing top and bottom by μN gives the result. As this shows, M does not depend on the income control total, since μ cancels.

6.4 Conclusions

The data for the pre-1945 period are limited but suggest that—in Central Africa at least—the top of the colonial income distribution was less concentrated than in the imperial powers or in most of the Western offshoots. There was a less steep mountain to climb. In Zimbabwe there is clear evidence that the degree of concentration fell between the 1920s and the 1930s. The colonial distribution of income was not static in the inter-war period. Indeed, the M curves show that the shape of the distribution changed over this period, becoming less well approximated by the Pareto distribution in the 1930s. There is an interesting challenge—not tackled here—to explain this can be related to the economic and social history of the period.

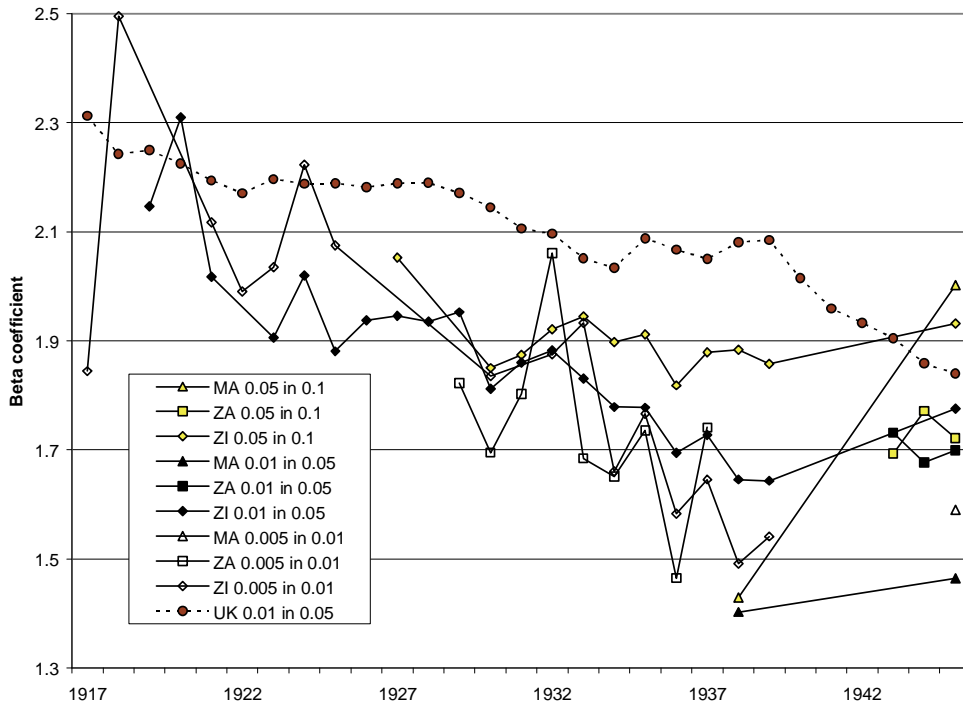
Table 5: Pre-1945 income distributions in Central Africa: Beta coefficients based on shares within shares

Beta coefficient based on	Share of top 0.05 in top 0.1			Share of top 0.01 in top 0.05			Share of top 0.005 in top 0.01		
	MA	ZA	ZI	MA	ZA	ZI	MA	ZA	ZI
1917									1.84
1918									2.49
1919						2.15			
1920						2.31			
1921						2.02			2.12
1922									1.99
1923						1.91			2.03
1924						2.02			2.22
1925						1.88			2.08
1926						1.94			
1927			2.05			1.95			
1928						1.94			
1929						1.95		1.82	
1930			1.85			1.81		1.70	1.84
1931			1.87			1.86		1.80	
1932			1.92			1.88		2.06	1.88
1933			1.94			1.83		1.68	1.93
1934			1.90			1.78		1.65	1.66
1935			1.91			1.78		1.74	1.77
1936			1.82			1.69		1.46	1.58
1937			1.88			1.73		1.74	1.65
1938	1.43		1.88	1.40		1.65			1.49
1939			1.86			1.64			1.54
1940									
1941									
1942									
1943		1.69			1.73				
1944		1.77			1.68				
1945	2.00	1.72	1.93	1.46	1.70	1.78	1.59		

Source: Author.

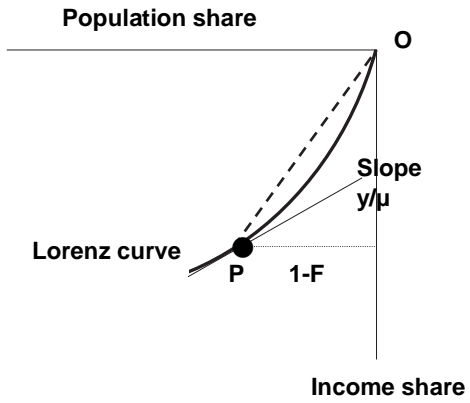
Notes: MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

Figure 3 Beta coefficients in Central Africa (and UK) 1917 to 1945



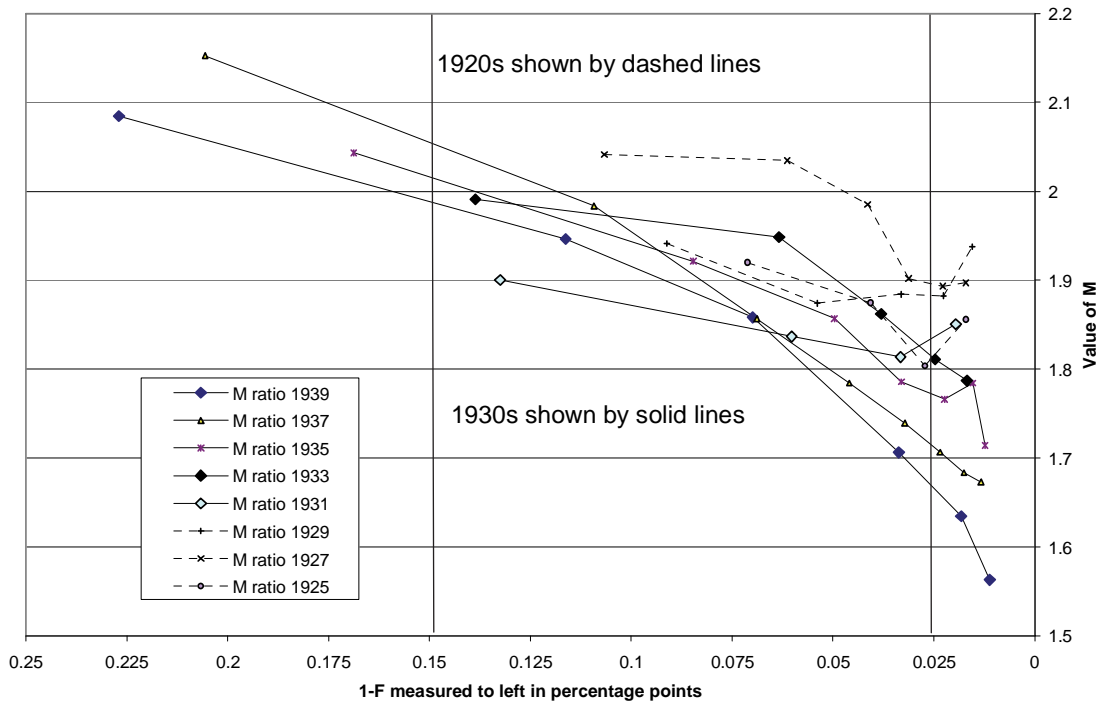
Source: Author.

Figure 4: Definition of M ratio



Source: Author.

Figure 5 M curves for Zimbabwe from 1925 to 1939 odd-numbered years



Source: Author.

7 Was post-war colonialism different?

The post-war period saw a shift in British policy towards the colonies. There had for a number of years been concern on the left of British politics, engaging such bodies as the Fabian Colonial Bureau, about the need for a development policy. These concerns had been given urgency by the experience of unrest and the findings of commissions of inquiry revealing the extent of poverty, disease and neglect. Already embodied in the 1940 *Statement of Policy on Colonial Development* (Command Paper 6175), this was taken further by the 1945 Labour Government. As described by Darwin, the Labour Government was ‘at pains to promote a new social democratic ideology of empire. Pre-war anxiety about social crisis in the colonies (where depression had bitten deep), and growing belief in the urgency of “colonial development” [had given rise] to a new ideology of “partnership”, in which empire was the instrument of social, economic and political uplift, the imperial counterpart to the welfare state at home’ (2009: 545, 546). It did feed through to the local level. According to the *Colonial Report on the Gambia for 1952 and 1953*, for example, ‘never in a similar period has so much been attempted, and brought towards completion, in the way of improving public services The stream of development, which started as a modest trickle in the immediate post-war years, reached its full flood’ (Colonial Office 1954a: 1–2).

As Darwin observed, this new high-minded policy could ‘cover a multitude of colonial sins’. Faced with the losses elsewhere in the Empire, the post-war UK government saw the African colonies as a replacement source of resources within the sterling area. Gallagher argued that ‘not until the nineteen-forties was there a serious version of imperialism in tropical Africa. ... there had been slight economic development, little capital investment. ... it was the Second World War which shook Africa out of its economic stagnation. ... What was new was the weight of

intervention by the colonial regimes working at the behest of the embattled government in London' (1982: 145–46).

Whatever the reason, the period is of considerable interest, leading as it does to independence of all the colonies studied. Here we consider the impact of the post-war agenda solely from the perspective of distributional change, examining in this section the experience of the 11 countries over the years from the Second World War to independence. Table 6 shows the Beta coefficients based on the share of the top 0.05 per cent in the income of the top 0.1 per cent for the period from 1945 to the most recent years for which data have been located. Figure 6 depicts the evolution up to the year before independence for the period from 1950 (1953 in Malawi and 1954 in Nigeria). The year of independence varies from 1957 (Ghana) to 1965 (Gambia and Unilateral Declaration of Independence in Rhodesia).

The first over-riding impression from Figure 6 is that the Beta coefficients in the 11 African countries fell after 1950, implying reduced concentration. At the outset, the majority were above 1.8; from 1957 onwards all were below. This was true in all three of West Africa (shown by diamonds), East Africa (triangles) and Central Africa (squares). Typical are the Gambia, Tanzania (then Tanganyika) and Zambia, where the coefficients began around 2 or higher and ended around 1.5. The falls were steep. In Nigeria, the Beta coefficient went from 2.1 to 1.7 in five years. The colonial 1950s saw the shape of the distribution change significantly, with the major part of the decrease appearing to have taken place in the 1950s.

As a result, at independence income concentration was less than in 1950, as is highlighted in the left hand part of Figure 7, which shows in the darker bars the Beta coefficient in the year immediately prior to independence (1958 in the case of Malawi), compared with that in 1950 (1953 in Malawi 1954 in Nigeria). (Ghana, independent already in 1957, is not shown.) There is a major decrease in all cases. It is interesting to note that how little difference there is on average between different regions:

	Average 1950	Average pre-independence
West Africa	1.87	1.49
East Africa	1.91	1.46
Central Africa	1.87	1.44

How did the colonial countries compare with the UK, Western Offshoots, and France? On the right hand side of Figure 7 are shown the Beta coefficients for the latter (based on the share of the top 0.1 per cent in the income of the top 1 per cent from the World Top Incomes Database). In 1950 these lay, apart from New Zealand, in the range from 1.8 to 2.0. In this sense, they were similar to the colonies, of which six out of ten lay in that range. The average was 1.86, which was very close to those reported above. This reflects the reduction in concentration that took place in these OECD countries during the Second World War.

But when we compare the values in these countries in 1960 with the pre-independence colonies, we find that the average for the OECD countries was 1.66, which is distinctly above the averages for the three regions of Africa. From Figure 7, it may be seen that there is little overlap. The lowest OECD values are for Australia and New Zealand, the latter being 1.54. Of the ten African countries, only Nigeria and Tanganyika had values for Beta higher than this. Put another way, the lowest value of Beta recorded in the UK from 1949 to 1965 was 1.71. At independence only Ghana and Nigeria had coefficients as high as this; all other colonies had lower values. The situation described in the previous section, where there was less concentration in the colonies,

had been re-established. At the time of independence, the British African colonies had less income concentration at the top than the UK or France or the North-American Western Offshoot countries.

The comparison with OECD countries just made is open to question on the grounds that the evidence for the African colonies relates to a much smaller group of the population: the share of the top 0.05 in the top 0.1 per cent, whereas the figures for the OECD countries relate to the share of the top 0.1 per cent in the top 1 per cent. Do they simply reflect the fact that the upper tail is not Pareto in form? Does the Beta coefficient fall away as we reach the very top? We can investigate the shape of the upper tail employing the M curves introduced in the previous section. This does not suggest that the previous conclusion was misleading. Figure 8 shows that the M curves in the UK in 1959 and 1964 were indeed declining, but at a modest rate and the value shown in Figure 7 (here marked by the dashed line) was not unrepresentative of those found at the very top. Indeed, the linear regression fitted over the range of the top 1 per cent in the UK in 1959 has a significant negative coefficient (t-statistic 10.6), but the asymptotic value is 1.67, which is exactly that in the earlier Figure 7. (The same value applied in 1964.) In the case of France, the value in Figure 7 is 1.68 in 1960. In that year, the value of M started at 1.79 for the top 0.84 per cent, fell to 1.74 for the top 0.18 per cent, reaching 1.70 for the top 0.005 per cent (Piketty 2001: 596). Only Nigeria had a value in the pre-independence year above the limiting values for the UK and France.

7.1 Shape of the upper tail in African colonies

Let us turn now to the M curves in the African countries. Were the M curves similar? Did they have a shape similar to that found for pre-war Zimbabwe? How did they evolve over the period from 1950 to independence? (We show in each case the situation in the year before the country became independent.) The first group of curves in Figures 9A, 9B, and 9C relate to Central Africa. In each case the curves cover the top 0.25 per cent, and show values of M based on a minimum of 75 observations. The curves for the three countries are drawn on the same scales, both horizontal and vertical. From the Figures 9 it is evident that the shapes can differ considerably. In Zimbabwe, the 1950 curve (marked by hollow squares) is similar to that shown for 1939 in Figure 5, with a definite downward slope, but the curve for 1953 in Malawi in Figure 9C, also marked by hollow squares, falls much more sharply. If we take the range from 0.15 down to 0.05, then the fall in Zimbabwe is broadly from 2 to 1.75, whereas that for Malawi is from 2.7 to 1.7. The shape of the distribution is changing much more dramatically. What is more, there are distinct signs that the M curve turns up in Malawi in the top 0.05 per cent. In sharp contrast, however, is the curve for Zambia in 1953 in Figure 9B, which *increases* from around 1.75 to over 2. The M curves for Zambia are generally upward sloping, indicating that the higher one climbs in the distribution, the greater the advantage of those above you. At the 0.25 percentile, the people above had, in 1950, an advantage of 75 per cent; by the time they reached the 0.05 percentile, the advantage had increased to 100 per cent. There is considerable diversity of shapes to the upper tail.

What about the other regions? The M curves for East Africa are shown in Figures 10A to 10D, and those for West Africa in Figures 11A to 11D. In each case, the same scales are employed to facilitate comparison. Each of the patterns found in Central Africa has a counterpart in East Africa. In Tanzania (Figure 10B), there was in the early 1950s an upward-sloping M curve, as in Zambia. In Zanzibar (Figure 10D), there was a modestly declining M curve: the coefficient in a linear regression was 1.91 in 1950, which is close to that in Zimbabwe (1.76). In Uganda (Figure 10C), in 1950 there was a sharper decline, closer to that found in Malawi. In the fourth country,

Kenya (Figure 10A), the M curves were much flatter and close to a Pareto distribution. In West Africa, Ghana (Figure 11B) resembles Kenya in having relatively flat M curves. The Gambia (Figure 11A) and Sierra Leone (Figure 11D) have declining M curves. The curves fall sharply in Nigeria (Figure 11C), where M exceeds 3 at the 0.1 percentile but falls to 1.8 by the 0.05 percentile.

The M curves show clearly the decline in concentration over the post-war colonial period. This may be seen by comparing the observations for 1950 (in some cases early 1950s) marked by larger hollow squares with those for the year before independence marked with solid larger squares. In all cases, the M curves for the latter year were lower. In general, the shape remained similar over time, although in the case of Zimbabwe there was a noticeable tendency for the M curve to become less steep; by 1964 the distribution was much closer to the Pareto form.¹⁵ There was also a tendency for the decline in East Africa to have taken place in the earlier part of the 1950s—see, for example, the picture for Uganda (Figure 10C).

Following the developments over the late colonial period, the 11 African countries became independent with shapes of the upper tail that differed considerably. In around half the climb to the top became less steep as one moved up the distribution. This was the case in Malawi, Zanzibar, the Gambia, Sierra Leone and, particularly, Nigeria. In Zambia, the reverse was the case. In Zimbabwe, Ghana, and Kenya there were flatter M curves, showing less departure from the steady climb associated with the Pareto curve. In Tanganyika and Uganda there appeared to be a U-shape, with the M curves first falling and then rising. It would clearly be interesting to relate these marked differences to the underlying social and economic structure of the different countries.

7.2 Conclusions

The post-war colonial period as a whole saw after 1950 a distinct fall in the degree of income concentration in the British colonies. The downward shift in the M curve was in most cases a sizeable one. As a result, at the time of independence, the British African colonies had less income concentration at the top than the UK, France, and the North American Western Offshoots. The lowest OECD values are for Australia and New Zealand, the latter being 1.54. Of the ten African countries, only Nigeria and Tanganyika had values for Beta higher than this.

The shape of the upper tail differed across colonies. The M curves were generally falling in the case of Zimbabwe, the Gambia, Kenya, and Zanzibar, indicating that the relative advantage of those higher-up was becoming less as one approached the top of the distribution. In contrast, in Zambia the M curve sloped upwards, indicating that the climb became steeper. In between, were Malawi, Ghana, Sierra Leone, Tanzania, and Uganda, where the M curves fell but then turned upwards at the end.

¹⁵ The findings in Figure 9A are based on the income tax data. In addition, there are data from the supertax, where the definition of income includes dividend income received. (Supertax was introduced in 1948–49 and applied from IY1947 onwards (Southern Rhodesia, Report of the Commissioner of Taxes for the year ended 31st March 1954).) The supertax data show a similar decline and flattening of the M curves. In Zambia, there was no supertax until the Federation of Rhodesia and Nyasaland Income Tax Act of 1954, affecting IY1953 onwards. The supertax data, which cover the very top of the distribution, also show a fall in the level of the M curves over the 1950s and a tendency for the curves to become flatter. The number of supertax taxpayers in Malawi was small (for example, 122 in 1958) and use of the supertax data for the upper ranges would lead to small differences in the results: for example, in 1955 a value of 1.71 for the end point of the M curve becomes 1.73.

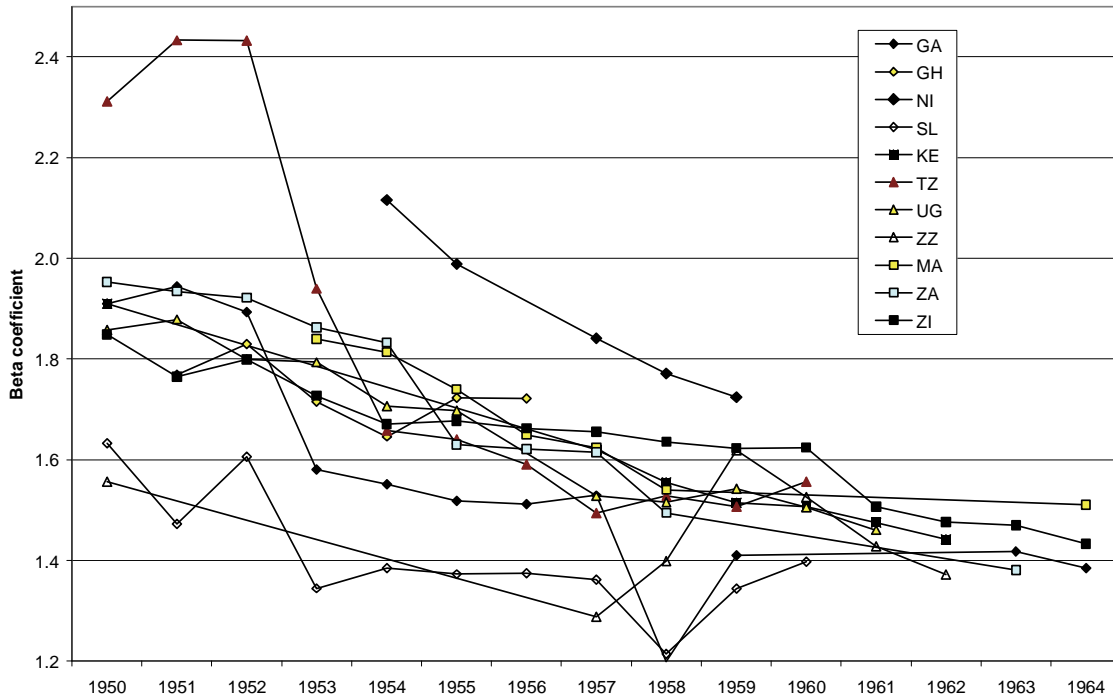
Table 6: Post-1945 income distributions: Beta coefficients based on share of top 0.05 per cent within share of top 0.1 per cent

	GA	GH	NI	SL	KE	TZ	UG	ZZ	MA	ZA	ZI
1945	2.36								2.00	1.72	1.93
1946	2.21									1.82	2.02
1947	1.87									1.87	2.15
1948	2.06				1.92	2.12	1.99	1.55		1.88	1.95
1949	1.89			1.65	1.80	2.26	1.84	1.96		1.94	1.86
1950	1.89			1.60	1.91	2.31	1.86	1.56		1.98	1.82
1951	1.95	1.77		1.45		2.43	1.88			1.96	1.74
1952	2.02	1.83		1.60		2.43	1.80			1.97	1.77
1953	1.58	1.72		1.35		1.94	1.79		1.80	1.89	1.70
1954	1.52	1.65	2.12	1.35		1.66	1.71		1.78	1.85	1.65
1955	1.49	1.72	1.99	1.36		1.64	1.70		1.71	1.65	1.66
1956	1.48	1.72		1.36		1.59			1.64	1.63	1.65
1957	1.51	1.62	1.84	1.35	1.62	1.49	1.53	1.29	1.62	1.63	1.64
1958	1.47	1.53	1.77	1.26	1.55	1.53	1.52	1.40	1.54	1.51	1.62
1959	1.36	1.72	1.72	1.33	1.51	1.51	1.54	1.62			1.61
1960				1.38	1.51	1.56	1.51	1.53			1.60
1961					1.48	1.51	1.46	1.43			1.49
1962					1.44	1.52	1.47	1.37			1.47
1963	1.39				1.47	1.56	1.45	1.31		1.38	1.47
1964	1.35				1.44	1.56	1.43		1.50		1.43
1965	1.30				1.47		1.47		1.52		1.41
1966	1.36				1.41		1.43		1.54		1.42
1967	1.38				1.43		1.47		1.57		1.46
1968	1.49				1.43		1.47		1.59		1.68
1969	1.55				1.43		1.48		1.52		1.59
1970	1.81				1.45		1.53		1.70		1.57
1971	1.73								1.71		1.58
1972	1.78								1.74		1.49
1973									1.83		1.51
1974									1.83		1.54
1975									1.88		1.50
1976									1.82		1.51
1977									1.96		1.50
1978									1.81		1.51
1979									1.91		
1980									2.08		1.56
1981											
1982											
1983											1.52
1984											1.41

Source: Author.

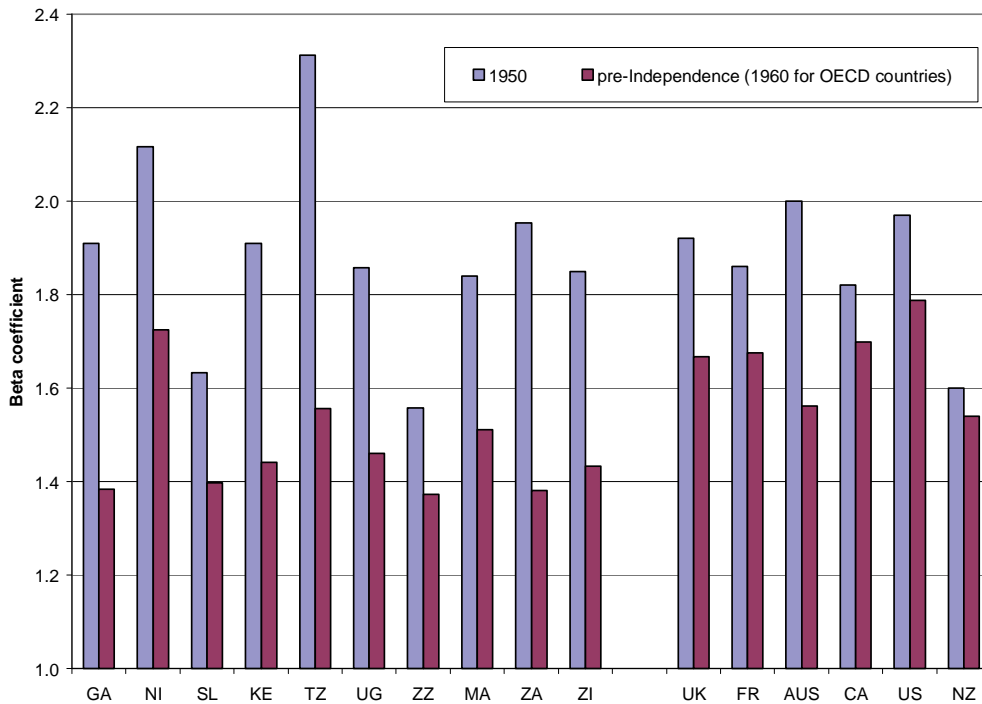
Notes: GA The Gambia; GH Ghana; NI Nigeria; SL Sierra Leone; KE Kenya; TZ Tanzania; UG Uganda; ZZ Zanzibar; MA Malawi; ZA Zambia; ZI Zimbabwe.

Figure 6 Beta coefficients: Colonial period 1950 to independence



Source: Author.

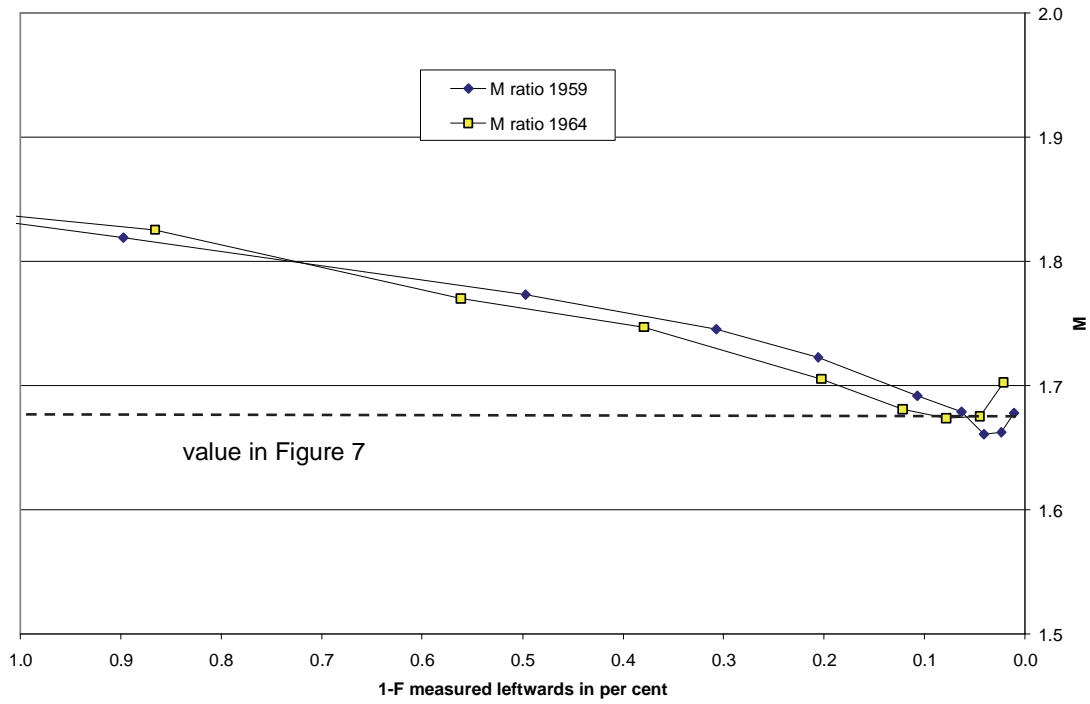
Figure 7 Comparison 1950 with year pre-independence, and with UK, France and Western Offshoots



Source: Author.

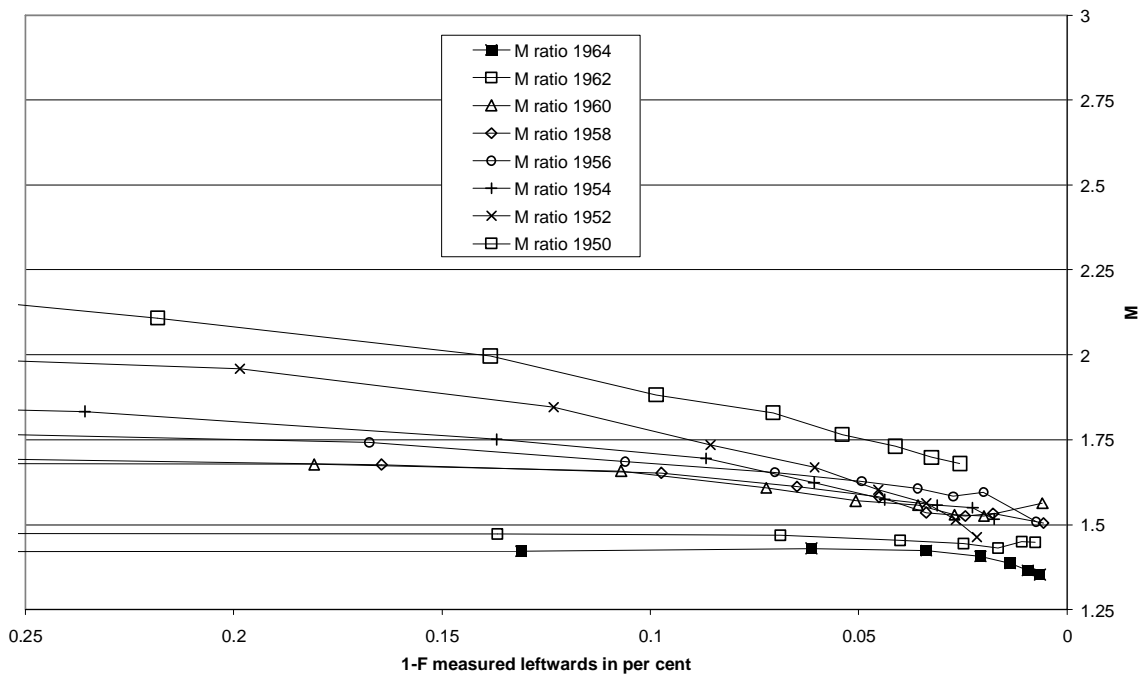
Notes: GA The Gambia; NI Nigeria; SL Sierra Leone; KE Kenya; TZ Tanganyika; UG Uganda; ZZ Zanzibar; MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

Figure 8 M curves for the UK in 1959 and 1964



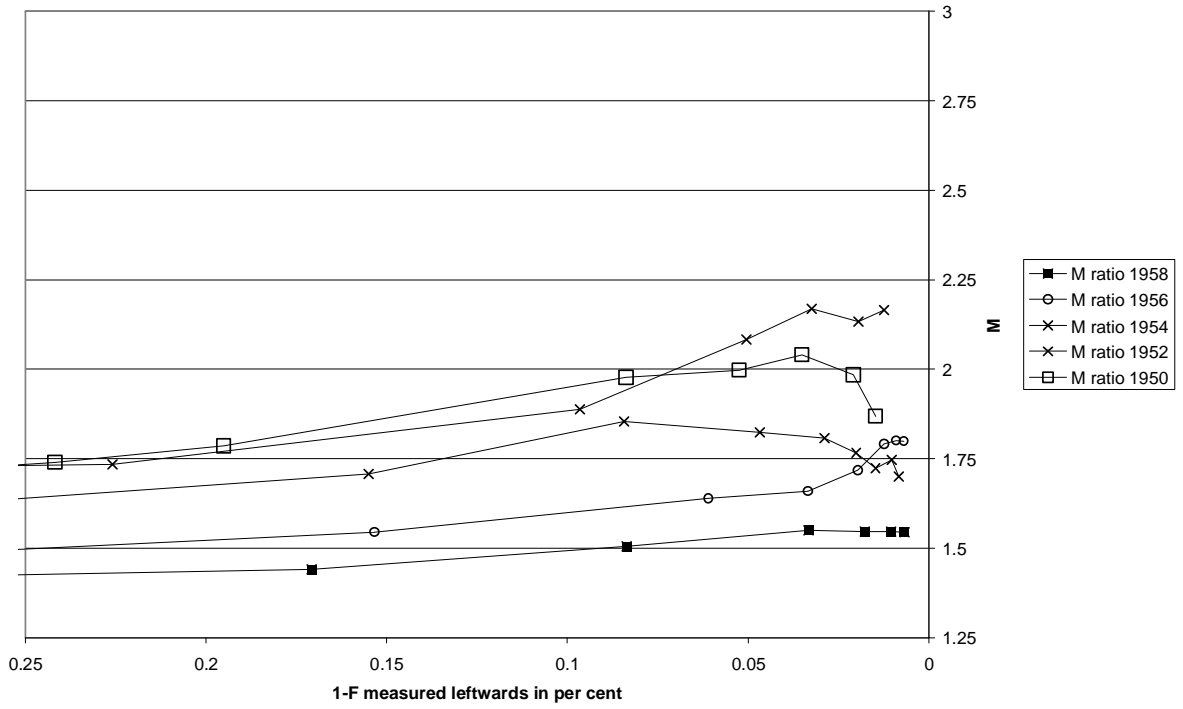
Source: Author.

Figure 9A M curves for Zimbabwe from 1950 to 1964, even numbered years



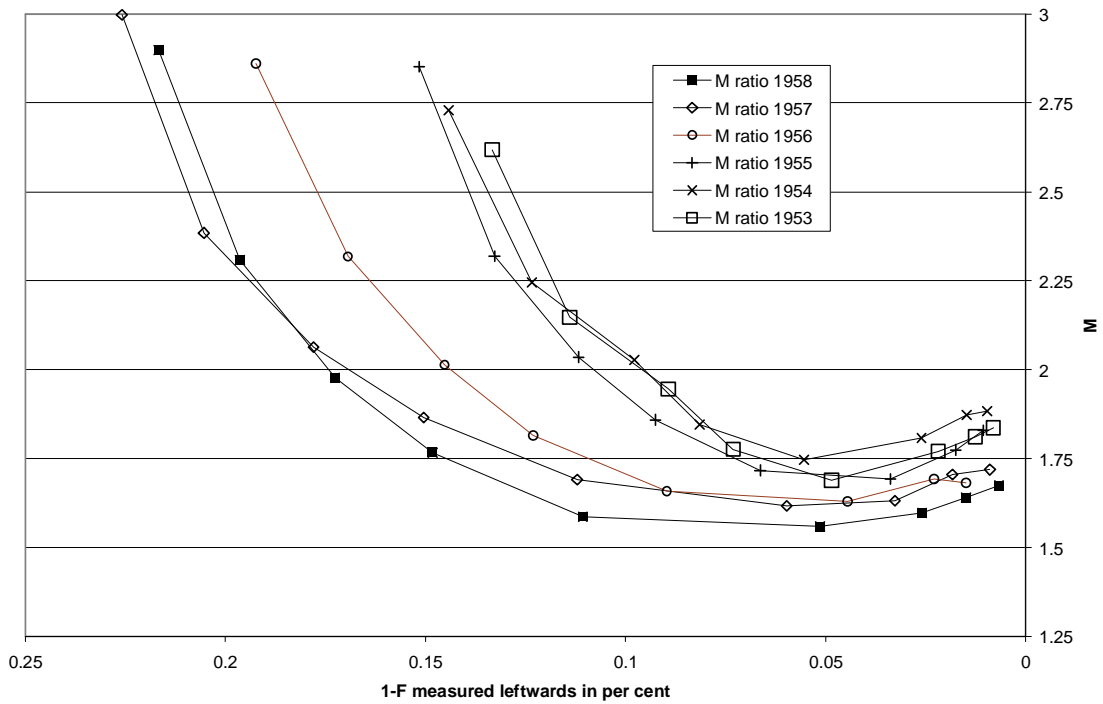
Source: Author.

Figure 9B M curves for Zambia from 1950 to 1958, even numbered years



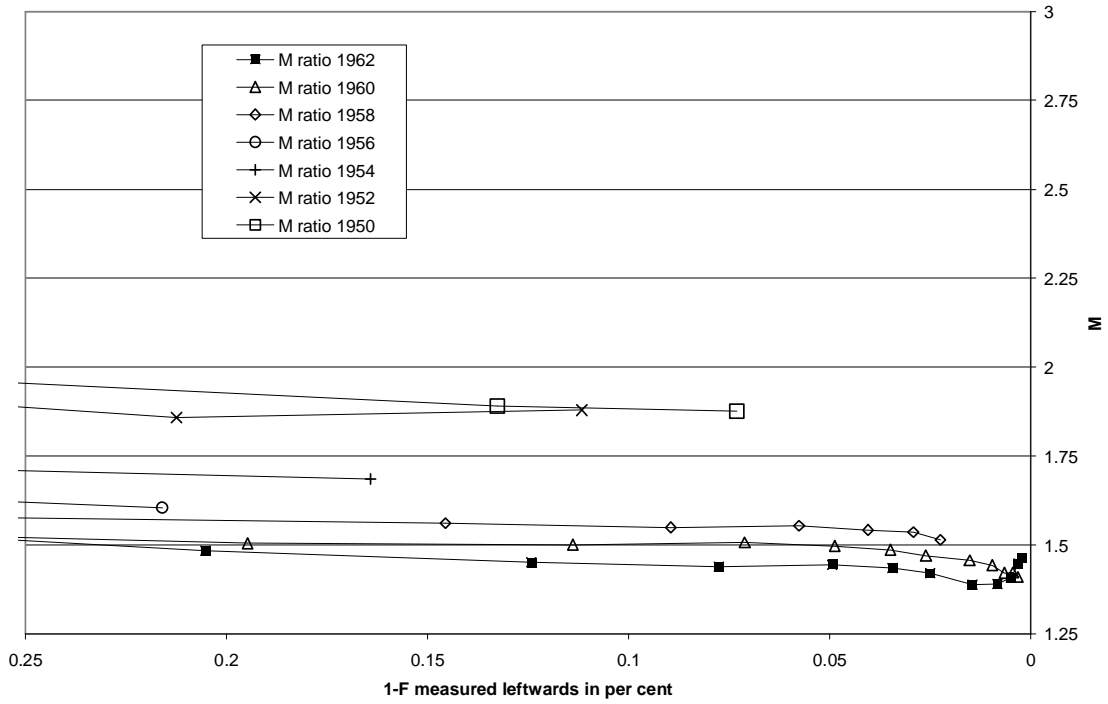
Source: Author.

Figure 9C M curves for Malawi from 1953 to 1958



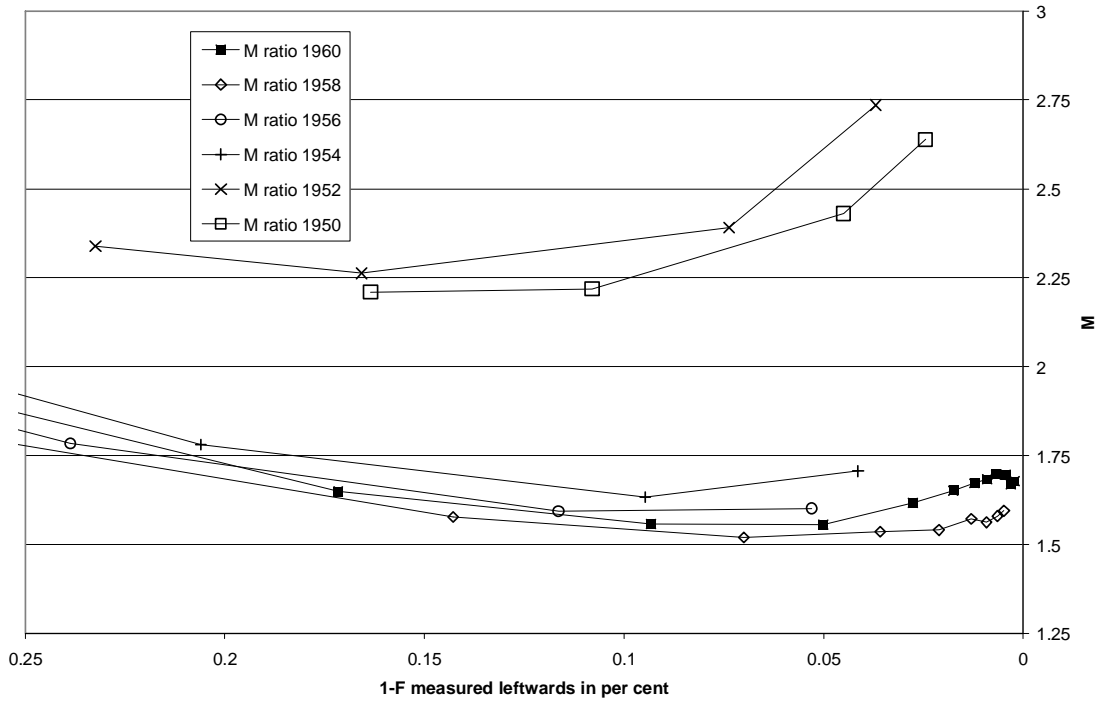
Source: Author.

Figure 10A M curves for Kenya 1950 to independence even numbered years



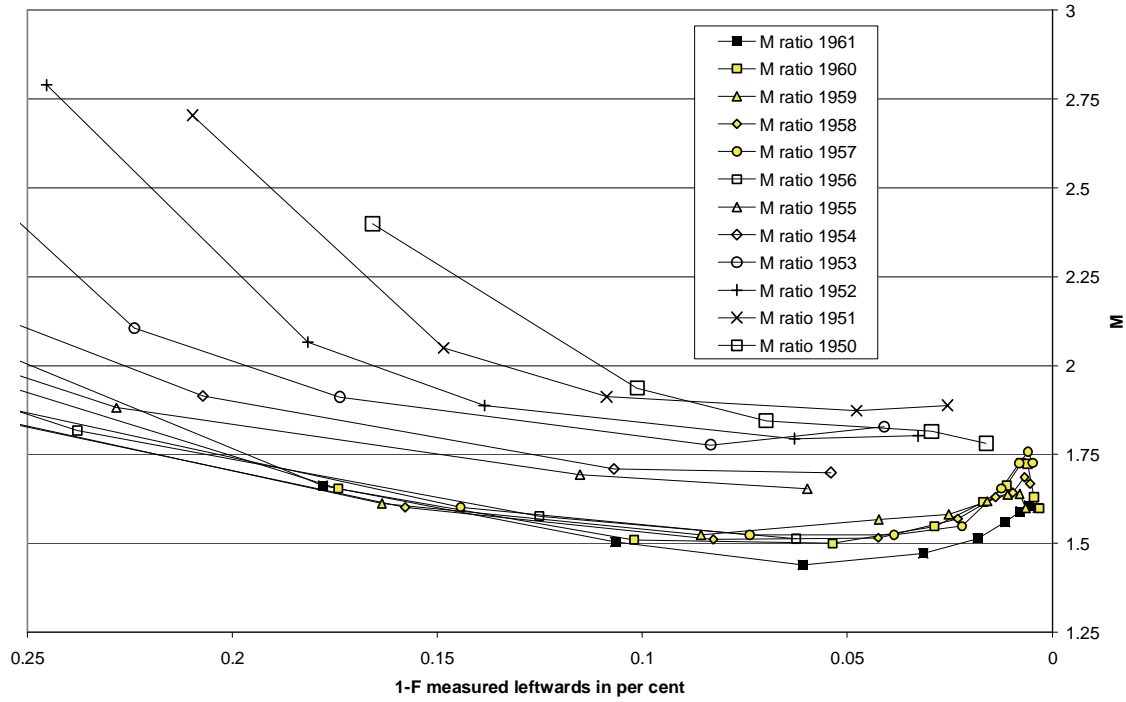
Source: Author.

Figure 10B M curves for Tanzania from 1950 to independence even numbered years



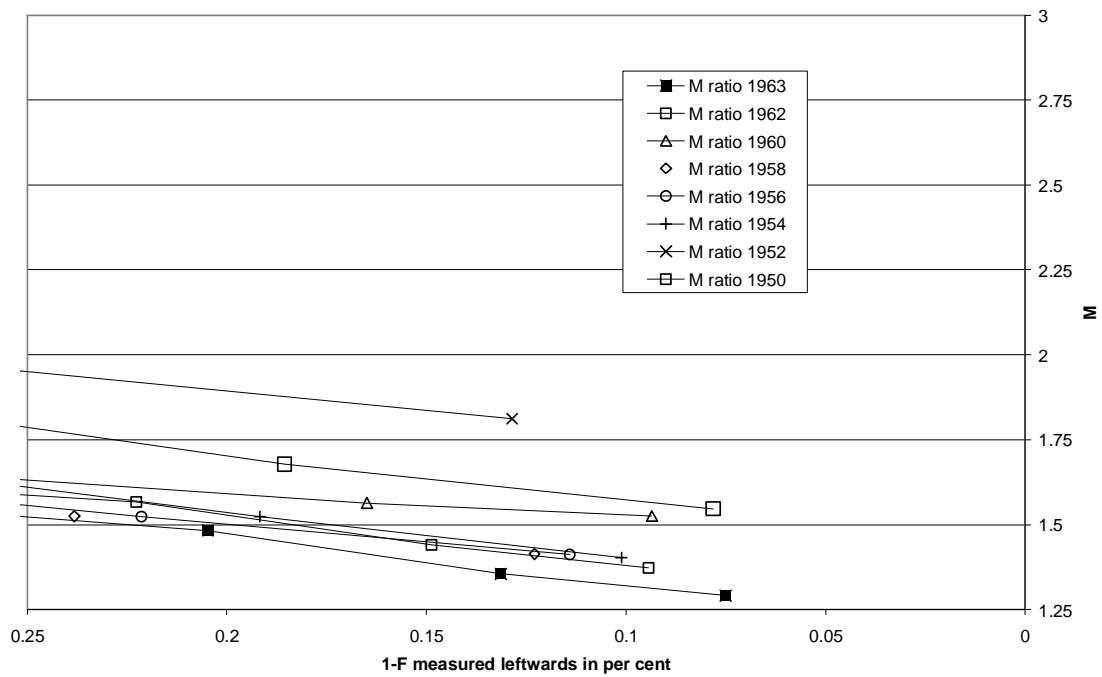
Source: Author.

Figure 10C M curves for Uganda 1950 to independence



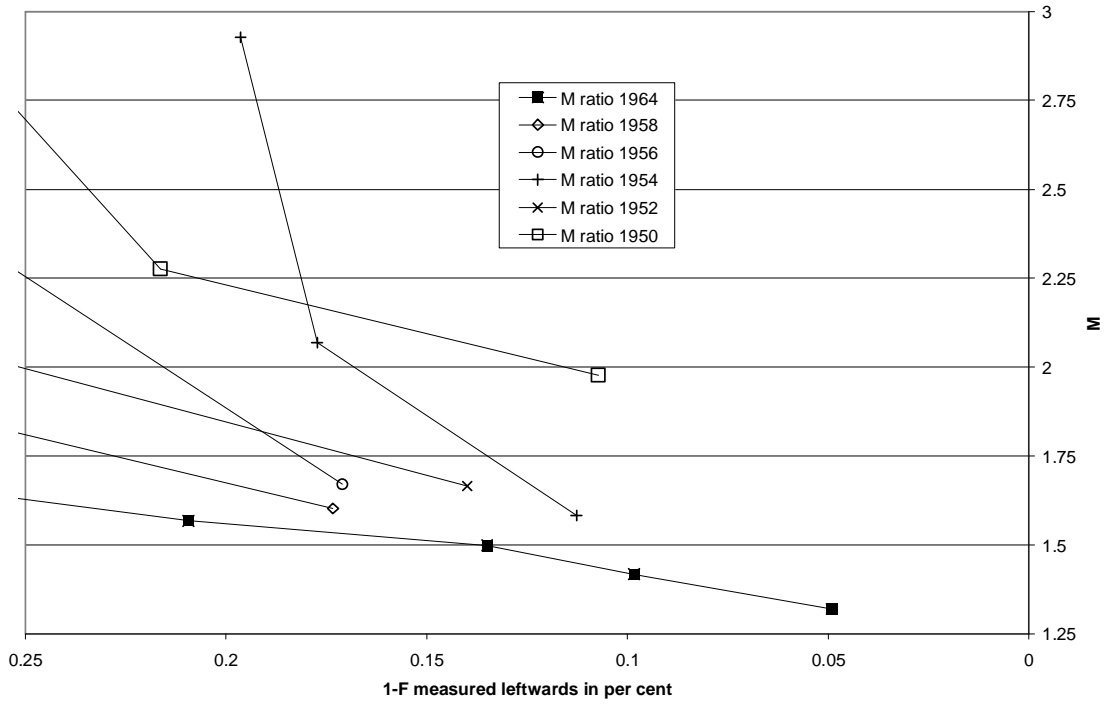
Source: Author.

Figure 10D M curves for Zanzibar from 1950 to independence, even numbered years (and 1963)



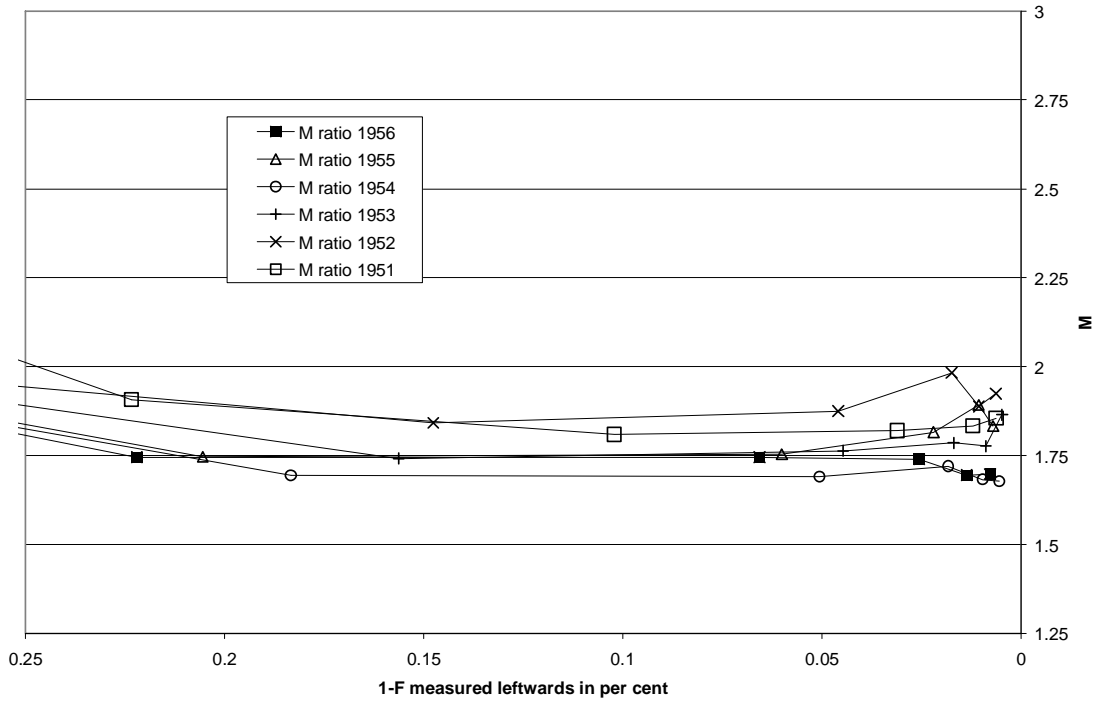
Source: Author.

Figure 11A M curves for the Gambia from 1950 to independence even numbered years



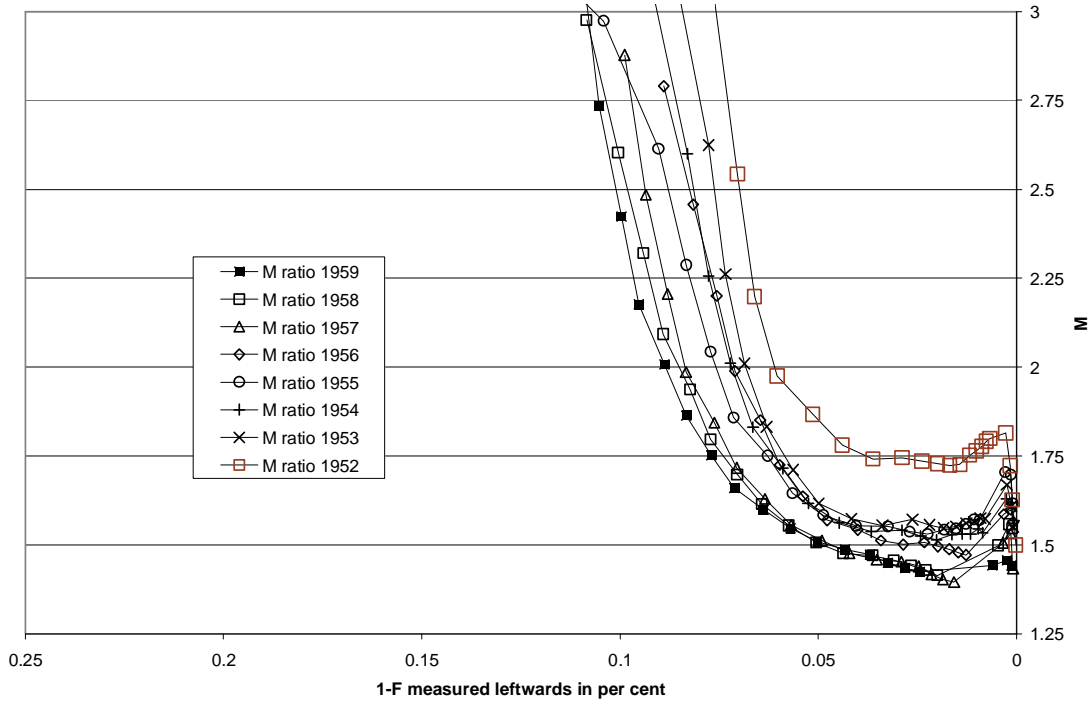
Source: Author.

Figure 11B M curves for Ghana from 1951 to independence



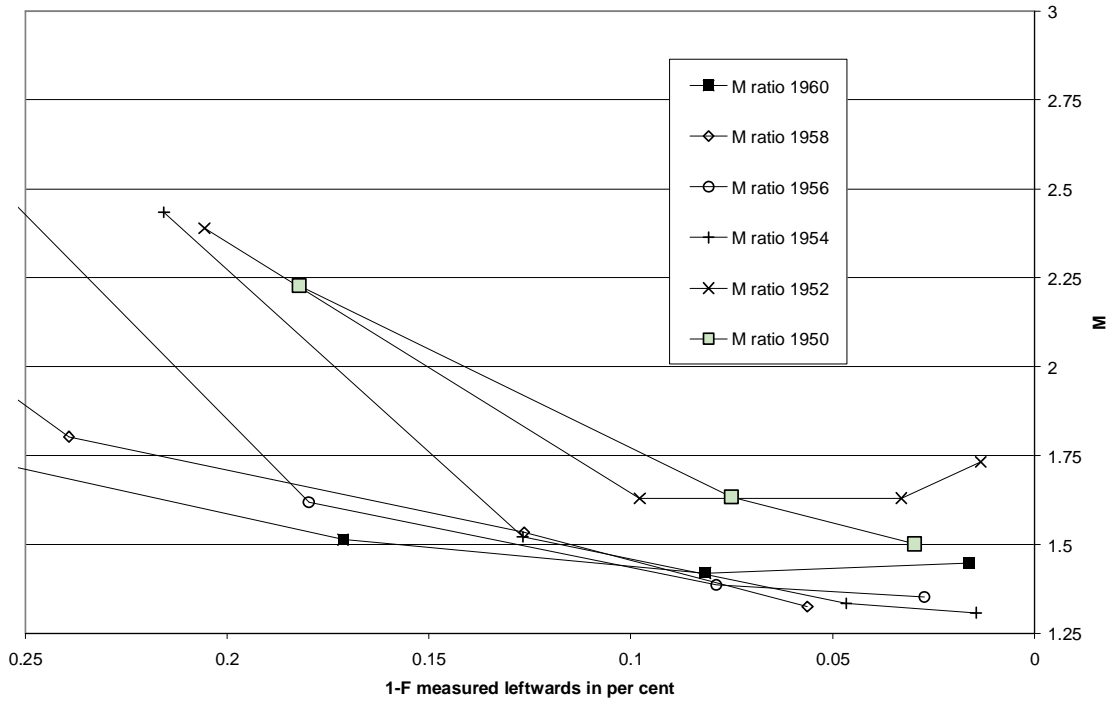
Source: Author.

Figure 11C M curves for Nigeria from 1952 to independence



Source: Author.

Figure 11D M curves for Sierra Leone from 1950 to independence even numbered years



Source: Author.

8 Top income shares in British African colonies

To this point the analysis has been concerned with the shape of the distribution among the upper tail. It is however quite possible that a relatively even distribution among the elite (a low value of M) may be associated with a high degree of overall inequality where this group have a large share of total income. The affluence among top income receivers may be more generally shared, but as a group they may be much more privileged. Indeed there is a widely held belief in the ‘vast inequalities’ of colonial regimes.¹⁶

To investigate how far this was true, we have to introduce the control totals for total income, represented here by the mean income of the total population, denoted by μ . The share, S , of the top $(1-F)$ per cent of the population, commencing at an income y , is then given by

$$S/(1-F) = M \cdot (y/\mu) \quad (1)$$

To give a concrete example, in Southern Rhodesia in 1934 the value of M was approximately 2, but the income required to enter the top 0.1 per cent was around GBP1,300 a year, which was about 50 times the estimated mean income of all tax units. Multiplied together, 50 and 2 give 100, so that this group had 100 times their proportionate share, or ten per cent of total income. In contrast, in the UK in 1937–38, the top 0.1 per cent begins at some 30 times average income, so that, even though M is larger (at 2.2), the share of the top 0.1 per cent at 6.6 per cent was smaller than in Southern Rhodesia.

From this arithmetic, it appears that the second term in Equation 1 is likely to dominate, but it is also clear from Section 4 that it is equally surrounded by a great deal of uncertainty. This should be borne firmly in mind when considering the results presented in Tables 7 to 10, which give the estimated top income shares for the top 0.25 per cent, top 0.1 per cent, top 0.05 per cent and top 0.01 per cent. The results cover all countries apart from the Gambia and Sierra Leone, where national accounts data were not available for the period in question. It should also be remembered that the smallest groups are based on a small number of taxpayers. In a population of a million tax units, the last of the groups contains 100 taxpayers.

8.1 The pre-1945 situation

As we have seen, the evidence for the period before 1945 is limited to a subset of colonies, and largely refers to Central Africa. The first point to be noted from Table 8 is that these shares are large. As we have just seen, the top 0.1 per cent in Zimbabwe in the 1930s received around one-tenth of total income—or a hundred times their proportionate share. From Table 8, it may be seen that the figures for Zambia in the early 1940s were not very different, and that the same applies to Malawi. The isolated figures for Kenya (1936) and for Ghana (1943) are rather lower, but not too much reliance should be placed on single figures, and these may have been lower on account of the fact that these were early years in the operation of the income tax. As above, these findings may be compared with those for the UK, where the corresponding multiple was 66 in 1937–38. In the Western offshoots, the corresponding figures in 1939 were some 55 in the US and Canada, 35 in Australia, and 19 in New Zealand. In South Africa, the series including

¹⁶ Just to give one example, in his book on *The Economy of Kenya*, Hazlewood wrote that ‘there are no data of the racial distribution of money income, but it is clear that, despite the overwhelming numerical preponderance of Africans, non-Africans received a high proportion of the total’ (1979, opening the chapter on ‘The colonial inheritance’).

dividend income gives figures for the 1940s around 70 (Alvaredo and Atkinson 2012, Table A.4B). So that Central Africa appears to stand out: the top income groups had a very large share.

The first impression bears out therefore the view that colonial Africa was highly unequal. As noted above, however, it is possible that the colonial income control totals are under-estimated. If there is an under-estimate of 40 per cent, then the figure for the top 0.1 per cent in Southern Rhodesia would be 70 times their proportionate share, which would place them just ahead of the UK. It should also be borne in mind that the distribution within the top group is less unequal in the colonies, which means that the difference in the shares narrows as we move up the scale. From Table 10, it may be seen that the share of the top 0.01 per cent was around three per cent in Zambia and Zimbabwe in the pre-war period. The multiple of their share averaged 267 in Zimbabwe over the period 1917–39, and 322 in Zambia over the period 1929–37. These figures were certainly higher than in the Western offshoots, where the 1920 figures were 124 in Australia, 167 in the US, and 210 in Canada. They were however similar to the UK figure of 332 in 1918–19 and the French figure of 286 in 1920. Again too, the figures for the Rhodesias were much higher than those in the Ghana, Kenya, and Malawi. The diversity of experience becomes even clearer when we turn to the post-war period.

8.2 Post-war colonialism

Figure 12 shows the share of the top 0.1 per cent for nine colonies from 1950 to independence (the missing colonies are the Gambia and Sierra Leone). This allows us to examine three aspects: the differences between African countries, the evolution over the post-war colonial period, and the difference from the imperial powers/Western offshoots.

As indicated in Figure 12, and in the 1950 figures shown in the first bars in Figure 13, there does seem to be a broad geographical pattern at the outset in 1950, with the shares highest in Zambia and Zimbabwe and lowest in West Africa as represented in the early 1950s by Ghana and Nigeria. Malawi and East Africa are in the middle, although with substantial differences within East Africa. In 1950, the share of the top 0.1 per cent was above ten per cent in Zambia and Zimbabwe; in Kenya and Tanganyika the shares were some 7 to 8.5 per cent; and they were under four per cent in Uganda. If we look at other income groups, we find a similar pattern. The share of the top 0.25 per cent in 1950 (Table 7) was around 17½ per cent in Zambia and Zimbabwe; it was around 12½ per cent in Tanganyika and Kenya; it was some five per cent in Uganda and less than five per cent in Ghana.

When examining the shape of the upper tail, we found that over the period as a whole there was a general move in the direction of less concentration: the Beta coefficients tended to fall. The income shares, however, do not show such a general tendency; rather there was a convergence. There were falls in top shares in Central Africa. In Zimbabwe, the fall was marked: the share of the top 0.25 per cent more than halved between 1950 and 1964; the share of the top 0.05 per cent fell from 5.0 per cent in 1953 to 2.3 per cent in 1964. The latter figure is based on the income tax data, but the supertax data show almost as large a fall from 5.2 per cent to 2.9 per cent. In Zambia, the top shares more than halved. The share of the top 0.25 per cent was 16.9 per cent in 1950 but had fallen to 6.5 per cent by 1963; the share of the top 0.05 per cent was 7.2 per cent in 1950 but had fallen to two per cent by 1963. (Again the supertax figures show a slightly smaller fall, but the results are similar: the supertax figures for 1961 give a share of 2.7

per cent.) In Malawi,¹⁷ in contrast, there is no evidence of a continuing downward trend. In Tanganyika, and to a lesser extent Kenya, there was a fall in the share of the top 0.1 per cent in the early 1950s but this trend ceased. In other countries, there was no fall. Top income shares rose in Uganda, Zanzibar, and in Nigeria over the 1950s.

The differing time paths of top income shares in different colonies meant that there was convergence. From Figure 12, it may be seen that, whereas in 1950 the range of the share of the top 0.1 per cent in Central and East Africa had been from 3.4 to 11.3 per cent, by 1959 the range was from 4.4 to 5.8 per cent. As is brought out by Figure 13, the extent of top income inequality at the point of independence was relatively similar across the different colonies; they were in this respect more similar than they had been in 1950.

In making the comparison between the colonies and the imperial powers/Western offshoots, we have to take account of the major fall in top income shares that had taken place between 1939 and 1950 in the imperial powers and in North America. The share of the top 0.1 per cent in 1939 had been 6.4 per cent in the UK and 5.0 per cent in France; these figures had fallen to 3.6 per cent and 2.6 per cent by 1950. In the US and Canada, the shares had been around 5.5 per cent but had fallen to 3.5 and 3.1 per cent, respectively by 1950. From Figure 13, we can see that, in the early 1950s, the majority (five) of the eight African countries for which we have data showed a larger share of the top 0.1 per cent. The exceptions are West Africa and Uganda. If the share in the UK was 3.6 per cent, that in Tanganyika was double and that in Zimbabwe was treble. If we look at other income groups, we find a similar pattern. The share of the top 0.25 per cent in 1950 was ten per cent or more in Kenya, Tanzania, Zambia, and Zimbabwe. At this time, 10 per cent was the share of a much larger group—the top one per cent—in the UK, France, the US, and Canada. For Zimbabwe, we can estimate the share of the top one per cent, and in 1950 this was 32.7 per cent (and the share of the top 0.5 per cent was 24.2 per cent). While a number of countries recorded values for the top one per cent share of around 20 per cent in the early years of the previous century, a figure of 32.7 per cent stands out. In South Africa, the estimated share, based on the series including dividend income, in the late 1940s reached some 24 per cent. Only if the income total in Zimbabwe were understated by 36 per cent would the top share be reduced to this level.¹⁸

We have seen that over the 1950s there was convergence among top shares in the African countries, which brought up those with previously lower shares. Taken together with the continuing decline in top shares in the imperial powers/Western offshoots, this meant that at the time of independence, all of the colonies had larger shares of the top 0.1 per cent than in UK, France and the Western offshoots. (The income shares for the latter are the averages for the years 1960–65.) Even if the income totals for the colonies are substantially understated, a clear difference would remain. In the case of Uganda, for instance, a 40 per cent increase in the income total would reduce the share of the top 0.1 per cent in 1960 to 3.3 per cent, compared with 2.3 per cent in the UK. The shares of the top 0.01 per cent were also higher. In the UK, France, US and Canada, the shares were between 0.55 and 0.6, but were around one per cent in East Africa, Malawi, and Zimbabwe (supertax data).

¹⁷ The number of supertax taxpayers in Malawi being small, the difference in the results is small. The share of the top 0.01 per cent in 1955 would be 1.14 per cent in place of 1.02 per cent, in 1956 1.08 per cent in place of 1.07 per cent and in 1957 1.17 per cent in place of 1.15 per cent.

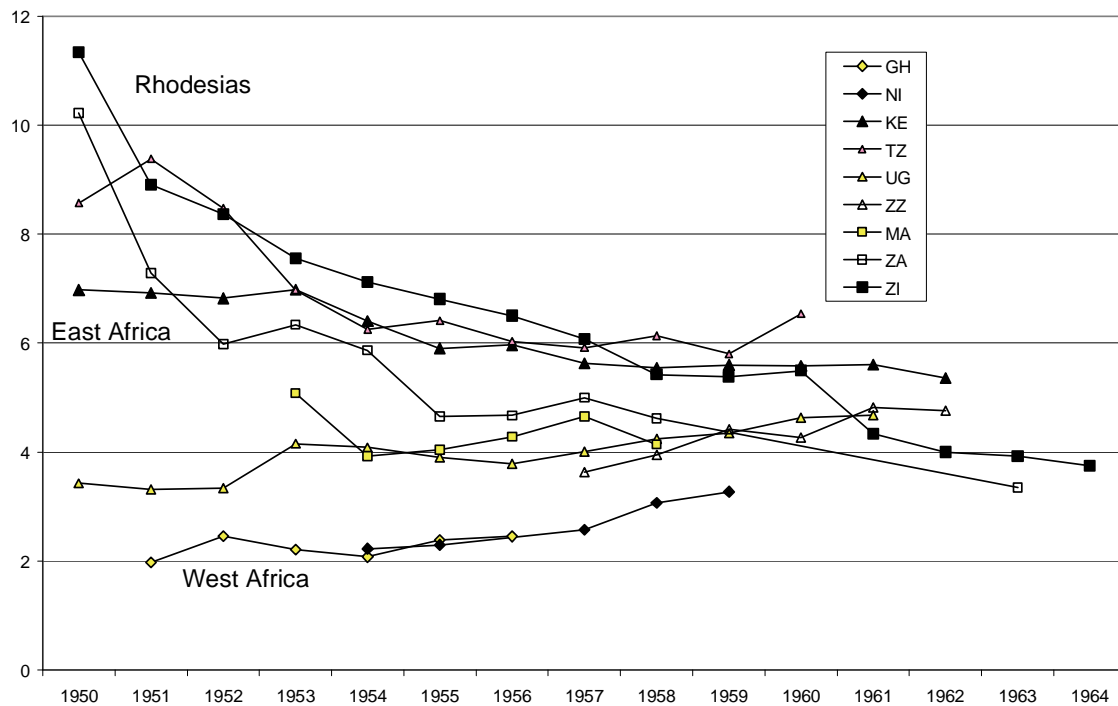
¹⁸ The estimates are potentially affected by errors in the control total for tax units, but the impact is relatively modest. If the total were to be increased by 20 per cent, the estimated share of the top one per cent in 1950 would rise from 32.7 to 35.3 per cent.

Pre-independence colonies had higher top income shares than those found at the time in the comparator countries. Viewed from today, however, the shares appear less high. We have to remember that the top shares have increased markedly in the comparator countries since 1960. The top 0.1 share in Canada today exceeds that in pre-independence Zambia; and the share in the UK equals that in pre-independence Uganda. The latest 2012 estimate for the share of the top 0.1 per cent in the US, at 8.8 per cent, would make it more unequal than any of the African colonies at independence.

8.3 Conclusions

At the beginning of the post-war colonial period, there were considerable differences in top income shares among the African colonies. Over the years leading up to independence, there was marked convergence. At the point of independence, all of the colonies had higher top shares than found at the time in the UK, France, and the Western offshoots.

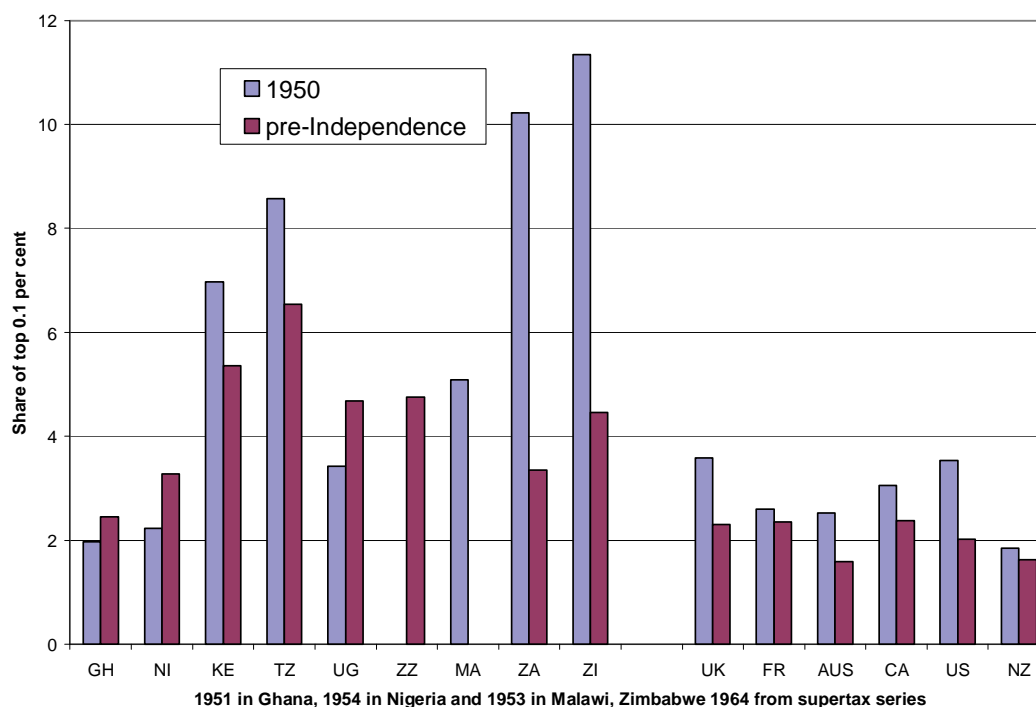
Figure 12 Share of top 0.1 per cent from 1950 to independence



Source: Author.

Notes: GH Ghana (Gold Coast); NI Nigeria; KE Kenya; TZ Tanganyika; UG Uganda; ZZ Zanzibar; MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

Figure 13 Share of the top 0.1 per cent at 1950 and year prior to independence



Source: Author.

Notes: GH Ghana (Gold Coast); NI Nigeria; KE Kenya; TZ Tanganyika; UG Uganda; ZZ Zanzibar; MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

Table 7: Share in total income of top 0.25 per cent

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1943	4.39							15.19	
1944								17.90	
1945								20.02	17.67
1946								20.83	19.52
1947								20.22	17.35
1948			10.18					18.76	20.66
1949			10.58					16.41	17.86
1950			11.26	12.93				16.92	17.85
1951	3.26		11.00	13.92				12.19	14.52
1952	4.05		11.17	12.61	5.22			10.03	13.36
1953	3.75		11.63	11.21	6.70			10.80	12.45
1954	3.59		10.77	10.61	6.75			10.06	11.94
1955	4.06		9.87	10.92	6.54			8.42	11.45
1956	4.17		9.78	10.42	6.55			8.46	11.04
1957	4.06		9.96	10.46	6.97	6.94		9.10	10.40
1958	3.67		9.94	10.80	7.45	7.40		8.71	9.37
1959			10.10	10.46	7.61	7.76			9.34
1960			10.26	11.33	8.07	7.68			9.49
1961			10.42	11.44	8.16	8.95			7.90

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1962			10.00	11.16	8.51	8.81			7.44
1963			10.03	10.63	7.75	7.59		6.51	7.33
1964			9.87	9.11	7.50		7.74		7.14
1965			10.58				7.62		7.17
1966			9.28				7.77		7.06
1967			9.43				8.10		7.24
1968			9.48				8.59	5.05	7.34
1969			8.88				8.22		7.50
1970			8.98				7.77	4.66	8.48
1971							6.61		8.93
1972							6.40		8.75
1973							7.23		8.89
1974							6.57		8.64
1975							6.38		8.24
1976							5.94		8.25
1977							5.61		7.81
1978							5.45		7.92
1979							5.97		
1980							4.40		7.48
1981									
1982									
1983									5.75
1984									6.49

Source: Author.

Notes: GH Ghana; NI Nigeria; KE Kenya; TZ Tanzania; UG Uganda; ZZ Zanzibar; MA Malawi; ZA Zambia; ZI Zimbabwe.

Table 8: Share in total income of top 0.1 per cent

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1930									8.32
1931									11.57
1932									10.98
1933									10.52
1934									10.04
1935									9.74
1936									9.05
1937									9.07
1938							7.92		8.53
1939									8.57
1940									
1941									
1942									
1943	3.00		5.44					8.54	
1944								10.24	
1945							7.30	11.45	11.37
1946								12.31	12.86

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1947								12.00	11.84
1948			6.39	7.40	3.63			11.07	13.47
1949			6.43	7.89	3.34			9.81	11.29
1950			6.98	8.57	3.43			10.22	11.34
1951	1.98		6.92	9.38	3.32			7.28	8.90
1952	2.46		6.83	8.47	3.34			5.98	8.36
1953	2.21		6.98	6.97	4.15		5.08	6.34	7.55
1954	2.08	2.23	6.40	6.25	4.08		3.93	5.87	7.12
1955	2.39	2.30	5.91	6.42	3.91		4.04	4.65	6.81
1956	2.45		5.96	6.03	3.78		4.28	4.67	6.50
1957	2.33	2.58	5.63	5.92	4.01	3.63	4.65	5.00	6.08
1958	2.13	3.07	5.54	6.13	4.25	3.95	4.14	4.61	5.43
1959	1.73	3.27	5.60	5.80	4.34	4.42			5.39
1960			5.58	6.54	4.64	4.27			5.49
1961			5.61	6.56	4.68	4.82			4.34
1962			5.36	6.43	4.89	4.76			4.00
1963			5.44	6.25	4.47	3.97		3.35	3.93
1964			5.32	5.41	4.34		4.61		3.75
1965			5.80	5.90	4.24		4.55		3.74
1966			4.97	5.19	4.15		4.60		3.71
1967			5.09	5.27	4.10		4.76		3.84
1968			5.12	5.13	4.07		5.05	3.39	3.73
1969			4.82	5.13	3.97		4.74		4.08
1970			4.93	5.13	3.79		4.68	2.52	4.73
1971							4.00		5.02
1972							3.94		4.82
1973							4.57		4.88
1974							4.20		4.75
1975							4.18		4.46
1976							3.92		4.46
1977							3.83		4.20
1978							3.63		4.28
1979							4.12		
1980							3.15		4.12
1981									
1982									
1983									3.08
1984									3.43

Source: Author.

Notes: GH Ghana; NI Nigeria; KE Kenya; TZ Tanzania; UG Uganda; ZZ Zanzibar; MA Malawi; ZA Zambia; ZI Zimbabwe.

Table 9: Share in total income of top 0.05 per cent

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1917									
1918									5.93
1919									6.06
1920									7.18
1921									5.23
1922									4.51
1923									4.86
1924									6.29
1925									6.65
1926									6.64
1927									6.78
1928									6.34
1929									6.13
1930									5.72
1931									8.00
1932									7.66
1933									7.36
1934									6.97
1935									6.78
1936			3.83						6.18
1937									6.27
1938							4.88		5.90
1939									5.90
1940									
1941									
1942									
1943	2.14		3.72					5.67	
1944								6.92	
1945							5.17	7.65	7.94
1946								8.41	9.13
1947								8.28	8.58
1948			4.46	5.34	2.57			7.66	9.43
1949			4.38	5.80	2.29			6.86	7.79
1950			4.85	6.35	2.36			7.21	7.74
1951	1.34		4.88	7.05	2.29			5.11	5.98
1952	1.68	1.76	4.65	6.37	2.27			4.21	5.65
1953	1.48	1.78	4.73	4.88	2.82		3.46	4.39	5.03
1954	1.36	1.61	4.37	4.11	2.72		2.66	4.03	4.68
1955	1.60	1.62	4.07	4.20	2.60		2.69	3.05	4.49
1956	1.64	1.70	4.15	3.90	2.45		2.80	3.05	4.27
1957	1.52	1.77	3.67	3.72	2.55	2.12	3.03	3.27	3.99
1958	1.36	2.08	3.55	3.90	2.69	2.41	2.64	2.92	3.54
1959	1.16	2.19	3.54	3.66	2.77	2.88			3.50

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1960			3.52	4.19	2.92	2.71			3.56
1961			3.50	4.15	2.91	2.97			2.73
1962			3.31	4.08	3.05	2.87			2.50
1963			3.40	4.01	2.77	2.33		2.03	2.45
1964			3.29	3.47	2.67		2.90		2.31
1965			3.62	3.84	2.65		2.88		2.29
1966			3.04	3.27	2.55		2.93		2.28
1967			3.14	3.34	2.56		3.06		2.39
1968			3.15	3.27	2.54		3.27	2.34	2.47
1969			2.97	3.28	2.49		3.00		2.64
1970			3.06	3.35	2.41		3.12	1.60	3.04
1971							2.67		3.24
1972							2.64		3.03
1973							3.13		3.08
1974							2.88		3.02
1975							2.89		2.81
1976							2.68		2.81
1977							2.69		2.64
1978							2.48		2.70
1979							2.86		
1980							2.26		2.64
1981									
1982									
1983									1.95
1984									2.10

Source: Author.

Notes: GH Ghana; NI Nigeria; KE Kenya; TZ Tanzania; UG Uganda; ZZ Zanzibar; MA Malawi; ZA Zambia; ZI Zimbabwe.

Table 10: Share in total income of top 0.01 per cent

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1917									1.61
1918									3.04
1919									2.86
1920									3.58
1921									2.36
1922									1.91
1923									2.09
1924									2.84
1925									2.83
1926									2.89
1927									2.96
1928									2.76

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1929								4.67	2.69
1930								5.69	2.35
1931								4.98	3.37
1932								3.31	3.26
1933								2.42	3.06
1934								2.24	2.82
1935								2.13	2.74
1936			1.36					2.05	2.39
1937								1.52	2.47
1938							1.55		2.22
1939									2.22
1940									
1941									
1942									
1943	0.99							2.24	
1944								2.65	
1945							1.72	2.97	3.21
1946									
1947									3.72
1948					1.10				
1949					0.89				
1950									2.96
1951	0.54								2.17
1952	0.72	0.70							2.07
1953	0.59	0.64					1.39	1.79	1.83
1954	0.53	0.57					1.06	1.62	1.63
1955	0.66	0.58					1.02	1.19	1.62
1956	0.64	0.59					1.07	1.19	1.55
1957	0.58	0.58		1.28	0.92	0.57	1.15	1.20	1.44
1958	0.46	0.69		1.38	0.97	0.73	0.96	1.03	1.24
1959	0.48	0.72		1.39	1.02	1.21			1.24
1960			1.18	1.56	1.06	0.99			1.26
1961			1.17	1.49	1.00	1.01			0.88
1962			1.06	1.41	1.02	0.86			0.82
1963			1.12	1.44	0.88	0.71		0.62	0.81
1964			1.09	1.23	0.83		0.95		0.73
1965			1.19	1.41	0.86		1.01		0.72
1966			0.94	1.08	0.81		1.02		0.73
1967			0.99	1.08	0.82		1.12		0.77
1968			0.97	1.05	0.81		1.17	0.88	0.81
1969			0.94	1.05	0.80		1.04		0.91
1970			0.98	1.13	0.79		1.28		1.10
1971							1.05		1.24
1972							1.07		1.03
1973							1.34		1.05
1974							1.18		1.01
1975							1.21		0.94
1976							1.09		0.95

	GH	NI	KE	TZ	UG	ZZ	MA	ZA	ZI
1977							1.19		0.90
1978							0.98		0.93
1979							1.09		
1980									
1981									
1982									
1983									
1984									

Source: Author.

Notes: GH Ghana; NI Nigeria; KE Kenya; TZ Tanzania; UG Uganda; ZZ Zanzibar; MA Malawi; ZA Zambia; ZI Zimbabwe.

9 Top income shares at and after independence

The distribution of top incomes in the ten colonies at the time of independence is summarized in Table 11. This shows the position in the year before the country became independent (year of independence in the case of Malawi).

There were considerable differences between colonies. The share of the top 0.1 per cent differed by a factor of more than two, ranging from 2.5 per cent (Ghana) to 6.6 per cent (Tanganyika). In contemporary terms, this is larger than the difference between Sweden (2.3 per cent in 2007) and the UK (6.1 per cent in 2007). The share of the top 0.25 per cent ranged from 4.2 per cent to 11.4 per cent, and the share of the top 0.01 per cent from 0.62 to 1.49 per cent. The value of the Beta coefficient, measuring the relative advantage of those higher up the scale, evaluated by comparing the top 0.05 and top 0.1 per cent, ranged from 1.35 in the Gambia to 1.72 in Ghana and Nigeria.

Was there a clear ranking of the colonies? Was East Africa more unequal than Central Africa? In terms of income shares, this does seem to be the case, with the share of the top 0.1 per cent in mainland East Africa ranging from 4.9 per cent in Uganda to 6.6 per cent in Tanganyika, whereas the range in Central Africa is from 3.4 per cent in Zambia to 4.5 per cent in Zimbabwe (using the supertax data). And the income shares in West Africa were lower still. But the picture is more complicated. The fact that Ghana scores top in terms of income shares and bottom in terms of the Beta coefficient demonstrates that in fact there is not a simple hierarchy. Both the level of incomes and the shape of the distribution come into play, and these may point in different directions.

The M curves at the point of independence are compared in Figure 14, which covers the top 0.25 per cent of the distribution. It may be noted that the countries in the top left hand corner are drawn from all three regions; and, although there is some crossing, the end ranking also involves a mix of regions. The M curves are lower in Zambia, Kenya, the Gambia, and Zanzibar. In general the M curves slope downwards, indicating that the climb becomes less steep, but in the case of Tanganyika, Uganda, and Kenya there is a distinct up-turn within the top 0.05 per cent, which is why the estimated income shares are higher for these countries.

If, therefore, we are seeking to summarize the pre-independence distribution, then both income shares and the shape of the distribution must be taken into account:

	Top income share small (less than four per cent)	Top income share large (four per cent or more)
Beta coefficient low (1.5 or less)	Zambia	Kenya, Malawi, Uganda Zanzibar, Zimbabwe
Beta coefficient high (above 1.5)	Ghana, Nigeria,	Tanganyika

For the Gambia and Sierra Leone we lack share data.

9.1 After independence

For eight of the 11 colonies, we can examine the evolution of the income distribution after independence. The missing three are Sierra Leone, for which I have been unable to locate any data post independence, Nigeria, where the income tax became a regional responsibility, and Zanzibar, which merged with Tanzania within months of its independence. It should also be noted that ‘independence’ in the case of Zimbabwe differs from the other seven colonies. Following the dissolution of the Federation of Rhodesia and Nyasaland in 1963, the white minority in Southern Rhodesia unilaterally declared independence in 1965 and ruled the country until the end of the 1970s. In 1980, the country became fully independent under majority rule. There are therefore three distinct periods in the case of Zimbabwe.

In considering the impact of independence on the income tax data, it should be emphasized that this is a rather particular form of natural experiment, which both involved extensive changes in the societies and also had effects that took time to have their full impact (as, for example, functions in the administration were progressively handed over by colonial officers).

9.2 East Africa

Uganda became independent in 1962, following a colonial period which had seen a reduction in income concentration in the early 1950s but where this had been reversed in the years leading up to independence. If we look first at the top income shares, then we see that these show a distinct decline in the period from 1962 to 1969. The end year corresponds to the last year for which data for the three East African countries were published by the East African Income Tax Department, which was abolished 31 December 1973. (There are also data for 1970, not used for reasons explained below.) I have located no subsequent data published by the Uganda government. The share of the top 0.1 per cent went from 4.9 per cent in 1962 to four per cent in 1969; the share of the top 0.05 per cent fell from 3.1 per cent to 2.5 per cent; and the share of the top 0.01 per cent fell from 1.0 to 0.8 per cent. In these terms, there was definite equalisation, although it should be borne in mind that the figure for the top 0.01 per cent implies that they receive 80 times their proportionate share. If we turn to the estimates of the shape of the upper tail, which do not depend on the control totals, then we find that the Beta coefficients (for the share of the top 0.05 in the top 0.1 per cent) show little change over the period—see Figure 15. The relatively low level of concentration at the top in Uganda was maintained during the early years of independence.

In considering these findings, and those for Tanzania and Kenya below, it should be borne in mind that a PAYE system of deduction of tax from employment income was introduced with effect from 1 July 1966. ‘As a result it has not been possible to analyse incomes on which P.A.Y.E was applied. ... Those intending to use this Report for temporal studies must bear in

mind that the figures ... where they relate to or include incomes from employment are not ideal for comparison with earlier years' (East African Income Tax Department, *Report for the period 1st July 1966 to 30th June 1967*, paragraph 1). However, the additional surtax, chargeable at a graduated scale on chargeable income in excess of GBP1,000, continued to be assessed and payable after the end of the year. The tabulations used here continued therefore to provide information about the distribution of incomes at higher levels. By comparing the distributions before and after the change, it appears that ranges above GBP2,000 a year were little affected. The estimates given here for 1965–69 therefore only make use of data from GBP2,000 upwards. In later years, the higher rates of tax were applied through PAYE, so that, although there are data for 1970, these are not used here: 'the figures are not strictly comparable' (East African Income Tax Department, *Report for the period 1st July 1971 to 30th June 1972*, paragraph 1).

Tanganyika became independent in 1961, following a colonial period which had seen a reduction in income concentration in the early 1950s but where this had come to an end in the years leading up to independence. The post-independence data are again limited to a period ending in 1970 with the dissolution of the East African Income Tax Department. A distribution was published by the Tanzanian government for 1974 but I was not confident that it was fully comparable, and no further information has so far been located. In 1964, Tanganyika and Zanzibar combined to form the United Republic of Tanzania. At that time, Zanzibar represented some three per cent of the total tax units in Tanganyika, so that the addition in terms of total population was small.

The top income shares in Tanganyika/Tanzania (referred to simply as Tanzania in what follows) show a modest decline in the period from 1961. The share of the top 0.25 per cent went from 11.4 per cent in 1961 to 9.1 per cent in 1964; the share of the top 0.1 per cent fell from 6.6 per cent to 5.4 per cent in 1964. Over the longer run, the share of the top 0.05 per cent fell from 4.2 per cent in 1961 to 3.3 per cent in 1969, and the share of the top 0.01 per cent fell from 1.49 to 1.05 per cent. The decline is described as 'modest', since the last of these figures meant that the top 0.01 per cent had 105 times their proportionate share rather than 149 times. To put that in perspective, between 1962 and 1970 the comparable figure in the UK fell from 58 times to 42 times. The Beta coefficients based on the share of the top 0.05 in the top 0.1 per cent, shown in Figure 15, altered relatively little over the period: 1.51 in 1961, 1.56 in 1964 and 1.55 in 1969. However, the Beta coefficient calculated higher up the distribution, from the share of the top 0.01 in the top 0.05 per cent, showed a decline, from 1.57 in 1961 to 1.41 in 1969. The M curve changed shape, 'tilting' in the way shown in Figure 16. From a situation where the M curves became steeper at the very top, Tanzania moved to one where the ascent became less daunting as one approached the top. At the 0.01 percentile, the relative advantage of those higher up became 35 per cent, compared with 65 per cent at the time of independence.

Kenya became independent in 1963, following a colonial period which had seen a reduction in income concentration, which in contrast to the other East African countries had continued throughout the colonial period leading up to independence. The Kenyan government continued to publish income tax data after the break-up of the East African Income Tax Department. However, as noted above with respect to the data for 1970 in Uganda and Tanzania, with effect from 1 January 1971, the PAYE system was extended to cover the higher rates of tax, so that higher incomes were not included in the tabulations where tax was collected entirely by PAYE. As a result, the *Income tax statistics report for the year of income 1974* in Kenya notes that 'the statistics presented in this report refer exclusively to Income Tax secured from Assessments. This is obviously a serious limitation in the income tax data since the majority of the taxpayers in Kenya fall under the PAYE system' (p. 1). For all that the report draws a Lorenz curve, it is not very meaningful. In the later *Income tax statistics report for years of income 1977 and 1978*, there is reference

to information on PAYE being collected for the first time in IY1980, allowing ‘a more subtle and complete analysis of Kenya’s income tax structure’ (1987: 2). The figures for IY1980 published in the 1989 *Statistical Abstract* (p. 207) do not however suggest that there have been substantial additions. The estimates here therefore stop in 1969.

The top income shares in Kenya show a modest decline in the period from 1963–69. The share of the top 0.25 per cent went from 10.0 per cent in 1963 to 8.9 per cent in 1969; the share of the top 0.1 per cent fell from 5.4 per cent to 4.8 per cent in 1969; the share of the top 0.05 per cent fell from 3.4 per cent to 3.0 per cent; and the share of the top 0.01 per cent fell from 1.12 to 0.94 per cent. The top 0.01 per cent still had 94 times their proportionate share. As far as the shape of the top of the distribution in Kenya is concerned, over the period 1963–69, the Beta coefficient shown in Figure 15 was essentially unchanged. There was however a change in the M curves at the very top. Figure 14 showed that, at the point of independence, there was a sharp upturn in the final part of the curve for Kenya, affecting those above the top 0.01 percentile. Over the 1960s, this final rise in the M curve for the top 0.01 per cent is replaced by a downturn, suggesting that incomes at the very top had been curtailed. In 1963, the top 184 taxpayers, above GBP8,000 a year, had an average income 1.5 times GBP8,000; in 1969 the top 182 taxpayers, above GBP10,000 a year, had an average income of 1.35 times. The composition of the group had also changed. In 1963, employees accounted for a little under half (89), whereas by 1969 they accounted for 131 out of 182.

9.3 Central Africa

Malawi became independent in 1964, following the break-up of the Federation of Rhodesia and Nyasaland. Although the data are not fully comparable with the earlier colonial data on account of the introduction of PAYE, we have statistics covering a longer period after independence, going from 1964 to 1980. The top income shares in Malawi show a distinct decline in the period from 1964 to 1980. The share of the top 0.25 per cent went from 7.7 per cent in 1964 to 5.3 per cent in 1978–80 (a three year average has been taken in view of year to year volatility); the share of the top 0.1 per cent fell from 4.6 per cent to 3.6 per cent in 1978–80. The fact that the fall was a third in the case of the share of the top 0.25 per cent, but less than a quarter for the top 0.10 per cent, suggests that the shape of the distribution has changed at the top. The change in the shape of the upper tail is indicated by the rise in the Beta coefficient, which rose sharply from 1.5 to 2, as shown in Figure 15. The degree of concentration has increased. At the same time, inspection of the M curves for individual years shows that they have tilted: the rise has been less at the very top.

The evidence for post-independence Zambia is limited. A distributional analysis was published for 1968 and for 1970, but the latter contained only frequencies. The 1968 data did not cover those under PAYE and involve adding ‘actual’ and ‘estimated’ assessments. In view of these limitations, no attempt is made to draw any conclusions.

The distributional changes in Zimbabwe have to be considered in two stages: the period from the Unilateral Declaration of Independence (UDI) as Rhodesia by the white regime in 1965, and the period after Zimbabwe became genuinely independent in 1980. Taxpayers constituted a larger proportion of the population than in the other countries examined here, so that we can look first at the share of the top one per cent. Over the 1950s and early 1960s the share of the top one per cent had been falling: from 32.7 per cent in 1950 to 19.1 per cent in 1965. After UDI, the fall ended and the top one per cent share rose slightly over the next decade and a half, reaching 20.4 per cent in 1978. The same applied to the share of the top 0.5 per cent, which rose

from 11.7 per cent in 1965 to 12.7 per cent in 1978. When considering the very top of the distribution, we have to take account of the supertax data, since the differences became marked after 1960. In what follows we use the supertax data for years up to 1968, the income tax data from then on appearing to be broadly comparable. The supertax data show an increase between 1965 and 1968. The share of the top 0.1 per cent rose from 4.5 per cent in 1965 to 4.8 per cent in 1968; the share of the top 0.05 per cent rose from 2.8 per cent to 3.2 per cent; and the share of the top 0.01 per cent rose from 0.96 to 1.16 per cent. In contrast in the 1970s, these shares were then reduced by similar amounts. The share of the top 0.1 per cent fell from 4.7 per cent in 1970 to 4.3 per cent in 1978; the share of the top 0.05 per cent fell from 3.0 per cent to 2.7 per cent; and the share of the top 0.01 per cent from 1.10 to 0.93. Over the period of UDI Rhodesia as a whole, therefore, there was no great change in the top income shares. At the beginning and the end, the top 0.01 per cent were receiving some 95 times their proportionate share.

What happened after 1980? We have only three years of data, but these show that the share of the top one per cent fell from 19.0 per cent in 1980 to 16.4 per cent in 1984, the share of the 0.5 per cent from 11.9 per cent to 10.5 per cent, and the share of the 0.1 per cent from 4.1 per cent to 3.4 per cent. This is clear evidence of equalisation. Moreover, the Beta coefficient, as shown in Figure 15, fell from 1.56 to 1.41. There was however a change in the shape of the upper tail of the distribution following independence, as may be seen from Figure 17, which shows the M curves over the top 3.5 per cent. At the very top, the degree of concentration decreased, but over the interval from the 2nd percentile to the 0.5 percentile, the ranking is reversed. The hill had become initially steeper, before becoming less steep at the very top.

9.4 West Africa

The evidence available here regarding the post-independence period in West Africa is very limited. There are no data for Nigeria or Sierra Leone; the data for Ghana cover only the period up to 1959 and there are no income share estimates for the Gambia.

In the Gambia, the Beta coefficient (measured by the share of the top 0.05 per cent in the share of the top 0.1 per cent) was 1.30 in 1965, the year of independence. As we saw in Section 8, there had been a substantial fall in the 1950s: in 1952 the figure was 2.02. However, as shown in Figure 15, in the years immediately following independence the coefficient began to rise: 1.36 in 1966, 1.38 in 1967, 1.49 in 1968, and 1.55 in 1969, reversing quite a lot of the original fall.

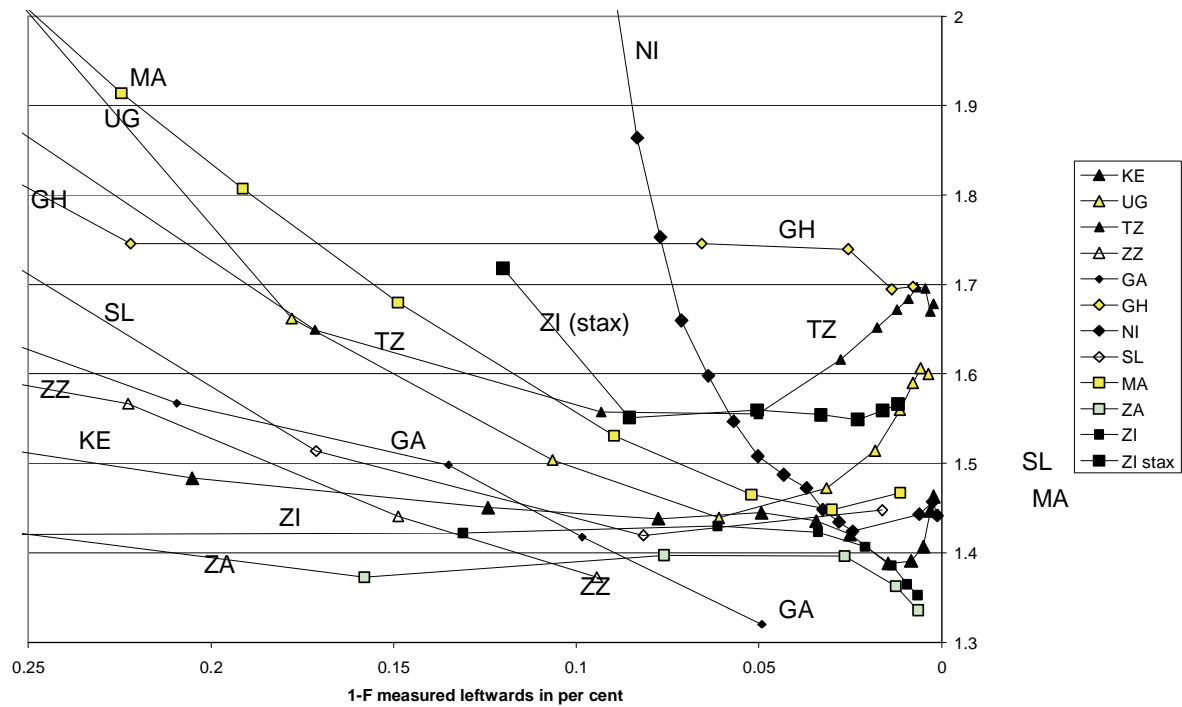
The evidence for Ghana covers only the period from 1957 (independence) to 1959, and not much can be deduced from these limited observations. It may simply be noted that the share of the top 0.1 per cent was reduced from 2.5 per cent in 1956 to 1.7 per cent in 1959; the share of the top 0.05 per cent fell from 1.6 per cent to 1.2 per cent; and the share of the top 0.01 per cent fell from 0.64 to 0.48 per cent. In these terms, there was a substantial equalization.

9.5 Conclusions

In terms of top income shares, there was a distinct fall following independence in Uganda and Malawi, and, although the evidence is more limited in time, in Ghana. There was a modest fall in top shares in Kenya and Tanzania. In Zimbabwe, the declaration of Unilateral Independence was followed by a rise in top shares that was later reversed in the 1970s; in the early years following independence in 1980 top income shares fell. These falls in inequality in terms of top income shares were in some countries accompanied by changes in the shape of the distribution. These were not all in the same direction. In Malawi and the Gambia, there was increased concentration.

In Tanzania, Kenya and Zimbabwe post-1980, there was less concentration at the very top, but also signs that the distribution had ‘tilted’, making the earlier climb steeper.

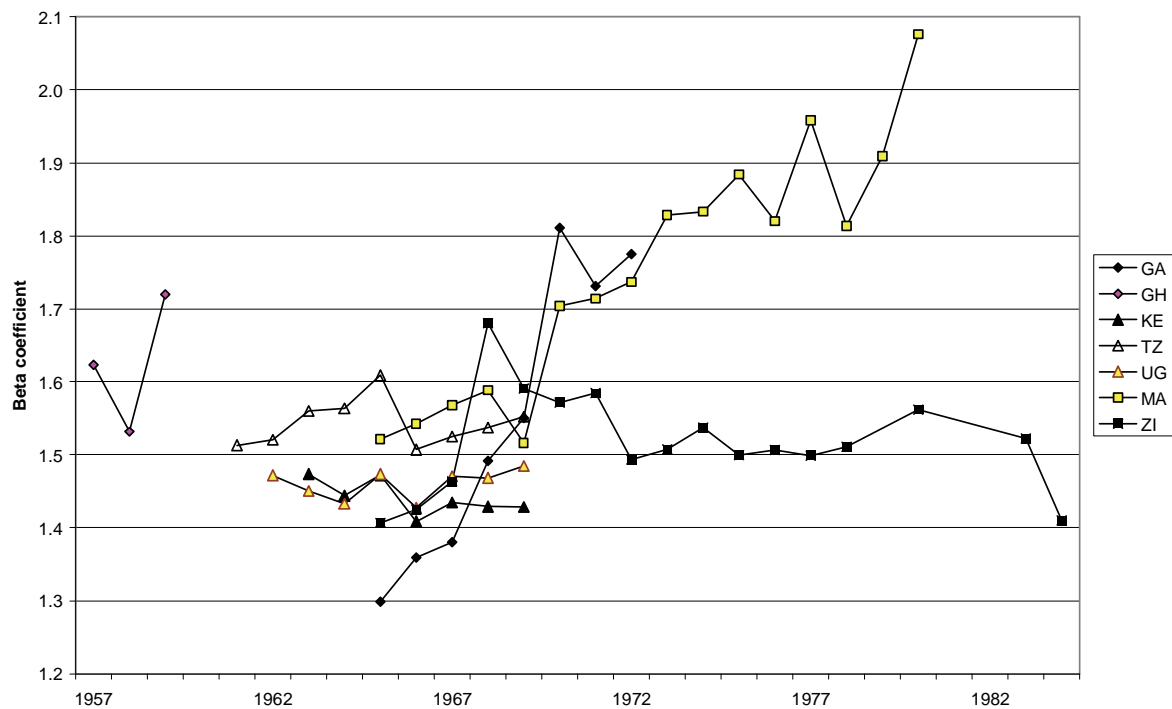
Figure 14 Comparison of M curves at independence



Source: Author.

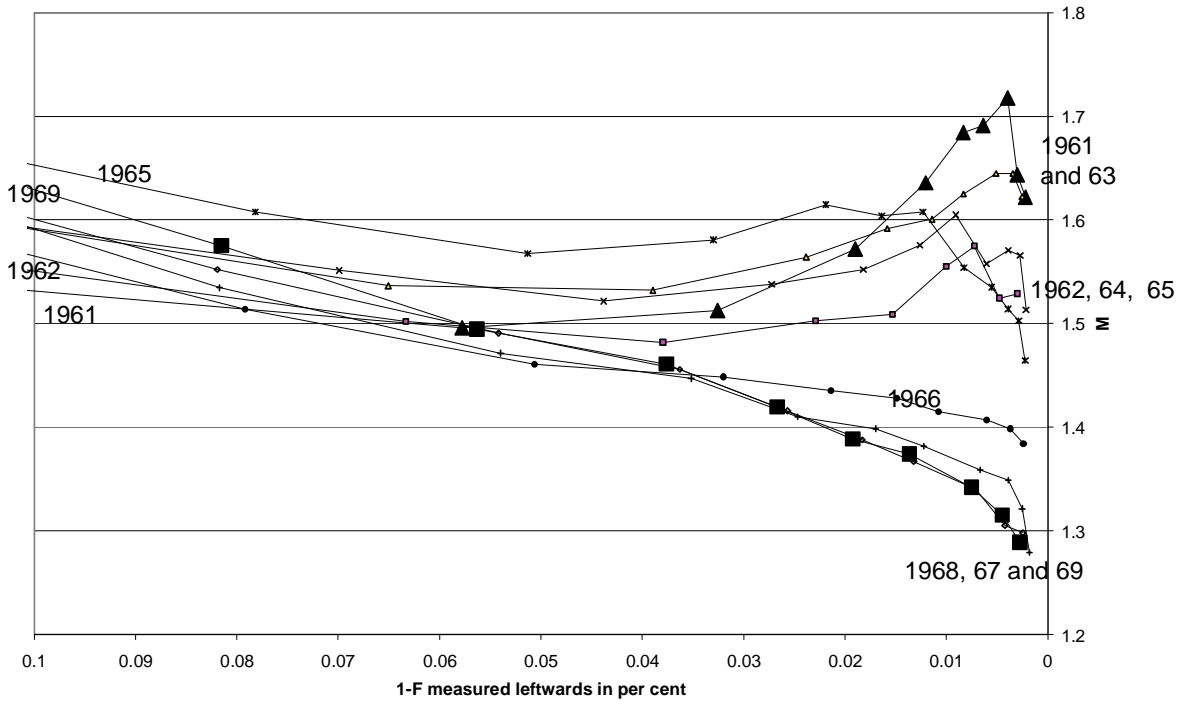
Notes: GA The Gambia; GH Ghana (Gold Coast); NI Nigeria; SL Sierra Leone; KE Kenya; TZ Tanganyika; UG Uganda; ZZ Zanzibar; MA Malawi (Nyasaland); ZA Zambia (Northern Rhodesia); ZI Zimbabwe (Southern Rhodesia).

Figure 15 Beta coefficients after independence



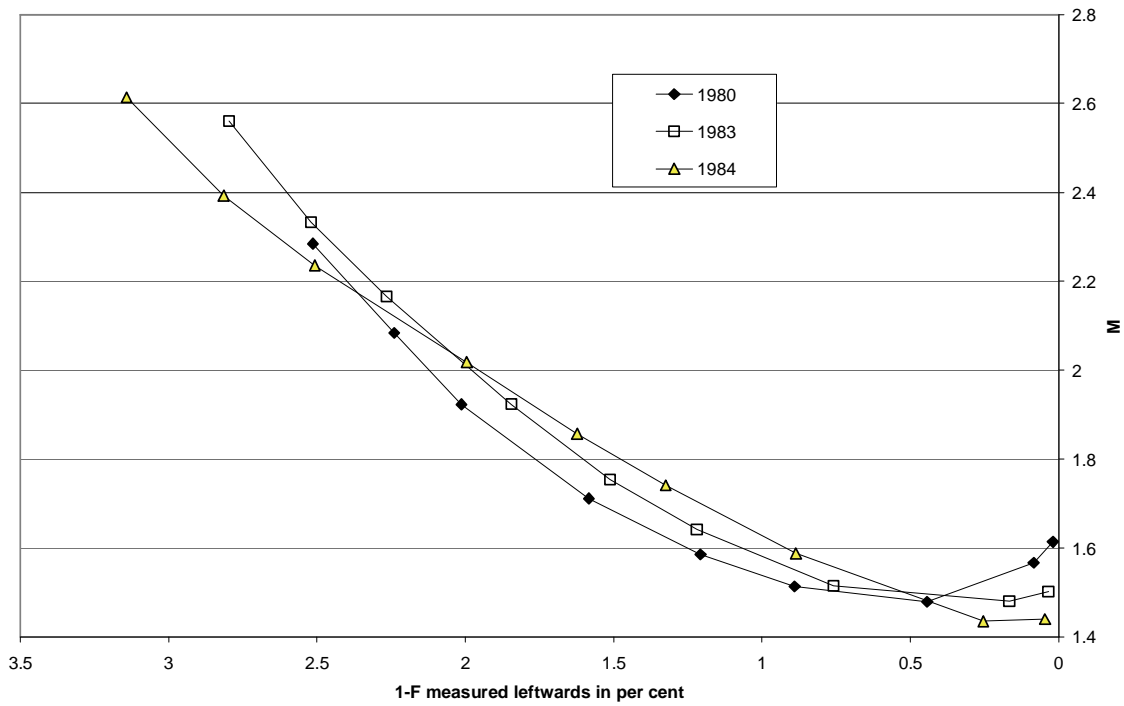
Source: Author.

Figure 16 M curves for Tanzania post Independence



Source: Author.

Figure 17 M curves for Zimbabwe post independence



Source: Author.

Table 11: Top income inequality year before independence

Country and date of independence	Share of top 0.1 per cent	Beta coefficient (0.05 in 0.1)	Shape of distribution over top 0.25 per cent
<i>West Africa</i>			
The Gambia 1965	n/a	1.35	M curve slopes down
Ghana (Gold Coast) 1957	2.5	1.72	M curve broadly flat
Nigeria 1960	3.3	1.72	M curve slopes steeply down
Sierra Leone 1961	n/a	1.38	M curve slopes down
<i>East Africa</i>			
Kenya 1963	5.4	1.44	M curve broadly flat
Tanzania (Tanganyika) 1961	6.6	1.56	M curve slopes down but then turns up in top 0.05 per cent
Uganda 1962	4.7	1.46	M curve slopes down but then turns up in top 0.05 per cent
Zanzibar 1963	4.8	1.37	M curve slopes down
<i>Central Africa</i>			
Malawi (Nyasaland) 1964	4.6	1.50	M curve slopes down
Zambia (Northern Rhodesia) 1964	3.4	1.38	M curve broadly flat
Zimbabwe (Southern Rhodesia) 1980	4.5	1.43	M curve broadly flat

Source: Author.

10 Conclusions

The main purposes of this paper have been to draw attention to a neglected source of evidence about inequality in African ex-British colonies and to marshal the principal findings about top incomes in a form that can be used by scholars interested in the colonial legacy. The statistical series presented here are surrounded by qualifications and they should be employed with these health warnings firmly in mind. Nonetheless, they provide one of the few sources about a period where quantitative information is extremely scarce.

The substantive findings may be summarized in terms of three questions:

- Were colonial societies highly unequal?

- Were there significant differences between colonies?
- Was independence followed by a fall in inequality?

The simple answer to the first question is that there was a high level of inequality at the top of colonial societies. At the time the colonies studied became independent, the levels of inequality at the top that were (apart from Ghana) around double those ruling at the time in the UK, France, and the Western offshoots. At independence, the share of the top 0.1 per cent was in excess of four per cent in the four East African countries, and in Malawi and Zimbabwe. Historically, the African colonies recorded high figures for the top income shares, reaching 35 per cent for the share of the top one per cent in Zimbabwe in 1950. While a number of OECD countries recorded values for the top one per cent share of around 20 per cent in the early years of the previous century, this figure stands out.

At the same time, the answer should be nuanced in several respects. First, the colonial income distributions were not static. In the post-war colonial period, top income shares fell in Kenya, Tanganyika and Zambia. In Zimbabwe, the shares fell markedly. By 1964, the share of the top one per cent in Zimbabwe had decreased to 22 per cent—still high but less dramatically so. Secondly, when viewed from the perspective of today, the pre-independence levels of top shares do not appear so out of line. In 2007, the share of the top 0.1 per cent exceeded five per cent in Canada, South Africa, the UK, US, and Colombia. Thirdly, we have to look not just at income shares but also at the shape of the distribution. As we have seen, the colonies typically exhibited less concentration than the imperial powers and Western Offshoots. If Pareto had examined the 1917 data for Southern Rhodesia, he would have found a higher Pareto coefficient (a lower inverse Beta coefficient) than in most countries. What is more, when we allow for the departures from the steady slope of the Pareto curve, the advantage of those higher up the distribution became less marked. The climb to the top became less demanding.

Were there differences between colonies? The shape of the distribution is the first area where we have found differences between the colonies. The M curves were generally declining as we move up the distribution in the case of Zimbabwe, the Gambia, Kenya, and Zanzibar, indicating that the relative advantage of those higher-up was becoming less as one approached the top of the distribution. In contrast, in Zambia the M curve sloped upwards, indicating that the climb became steeper. In between, were Malawi, Ghana, Sierra Leone, Tanzania, and Uganda, where the M curves fell but then turned upwards at the end. From this evidence, it appears that the elites were differently structured in different colonies.

There were equally differences across colonies in the behaviour of top income shares. In the post-war colonial period, there were falls in top shares in Central Africa. In Zimbabwe, the fall was marked and continuing; in Malawi, in contrast, there is evidence of a fall in the early post-war years, but not of a continuing downward trend. In Kenya, the top shares fell in the first half of the 1950s but then fell no further. The other colonies differed even more strongly. In Ghana, the top shares were broadly stable over the 1950s, and the top income shares rose in Nigeria, Uganda, and Zanzibar.

What were the consequences of independence? In terms of top income shares, there was a distinct fall following independence in Uganda and Malawi, and, although the evidence is more limited in time, in Ghana. There was a modest fall in top shares in Kenya and Tanzania. In Zimbabwe, the UDI was followed by a rise in top shares that was later reversed in the 1970s; in the early years following independence in 1980 top income shares fell. These falls in inequality in terms of top income shares were in some countries accompanied by changes in the shape of the

distribution. These were not all in the same direction. In Malawi and the Gambia, there was increased concentration. In Tanzania, Kenya, and Zimbabwe post-1980, there was less concentration at the very top, but also signs that the distribution had tilted, making the earlier climb steeper.

These findings raise two immediate challenges. The first is to explain the observed patterns. Here I have made no attempt to relate the colonial distribution of income to the economic and social history of the countries in question, nor to the policies of the imperial power. I hope that the picture provided here of the upper tail of the income distribution, and its evolution over time, will provide the raw materials for the study of the colonial past. The second challenge is to discover ‘what happened next?’ One of the aims of the research has been to stimulate the assembly and publication of data on top incomes in the present day.

References

- Acemoglu, D. and J.A. Robinson (2012). *Why Nations Fail*. London: Profile Books.
- Acemoglu, D., S. Johnson, and J.A. Robinson (2001). ‘The Colonial Origins of Comparative Development: An Empirical Investigation’. *American Economic Review*, 91: 1369–401.
- Ady, P. (1963). ‘Uses of National Accounts in Africa’. In L.H. Samuels (ed.), *African Studies in Income and Wealth*. Cambridge: Bowes and Bowes.
- African Studies Branch (1950). ‘Methods of Direct Taxation in British Tropical Africa’. *Journal of African Administration*, 2: 3–12.
- Alvaredo, F. and A.B. Atkinson (2012). ‘Top Incomes in South Africa over a Century’. Unpublished.
- Atkinson, A.B. (2005). ‘Top Incomes in the UK over the Twentieth Century’. *Journal of the Royal Statistical Society*, 168: 325–43.
- Atkinson, A.B. (2007). ‘The Distribution of Top Incomes in the United Kingdom, 1908–2000’. In A.B. Atkinson and T. Piketty (eds), *Top Incomes over the Twentieth Century*. Oxford: Oxford University Press.
- Atkinson, A.B. (2011). ‘Income Distribution and Taxation in Mauritius: A Seventy-five Year History of Top Incomes’. Unpublished.
- Atkinson, A.B. (2014). ‘Top Incomes in Central Africa: Historical Evidence’. Available at the World Top Incomes Database.
- Atkinson, A.B. (2014a). ‘Top Incomes in East Africa Before and After Independence’. Available at the World Top Incomes Database.
- Atkinson, A.B. (2014b) ‘Top Distribution of Top Incomes in Colonial West Africa’. Available at the World Top Incomes Database.
- Atkinson, A.B. and T. Piketty (eds) (2007). *Top Incomes over the Twentieth Century*. Oxford: Oxford University Press.
- Atkinson, A.B. and T. Piketty (eds) (2010). *Top Incomes: A Global Perspective*. Oxford: Oxford University Press.
- Atkinson, A.B., T. Piketty, and E. Saez (2011). ‘Top Incomes in the Long Run of History’. *Journal of Economic Literature*, 49: 3–71.

- Baldwin, R.E. (1966). *Economic Development and Export Growth: A Study of Northern Rhodesia, 1920–1960*. Berkeley: University of California Press.
- Birmingham, W., I. Neustadt, and E.N. Omaboe (eds) (1966). *A Study of Contemporary Ghana*, Volume I. London: Allen and Unwin.
- Birmingham, W., I. Neustadt, and E.N. Omaboe (eds) (1967). *A Study of Contemporary Ghana*, Volume II. London: Allen and Unwin.
- Cardinall, A.W. (1932). *The Gold Coast, 1931*. Accra: Government Printer.
- Central Statistics Department (1985). *Sources and Methods of Estimation of National Income at Current Prices in the Gambia*. Banjul: Ministry of Economic Planning and Industrial Development.
- Clark, C. (1951). *The Conditions of Economic Progress* (second edition). London: Macmillan.
- Colonial Office (1936). *Report of the Commission Appointed to Enquire into and Report on the Financial Position and System of Taxation of Kenya*. London: HMSO.
- Colonial Office (1947). *Annual Report on the Gold Coast for the Year 1946*. London: HMSO.
- Colonial Office (1952). *An Economic Survey of the Colonial Territories*. London: HMSO.
- Colonial Office (1954). *Report of the Second Conference of Colonial Government Statisticians, 1953*. Colonial 301. London: HMSO.
- Colonial Office (1954a). *Colonial Report on the Gambia 1952 and 1953*. London: HMSO.
- Colonial Office (1961). *East Africa: Report of the Economic and Fiscal Commission*. Command Paper 1279. London: HMSO.
- Colony of Kenya (1947). 'Report of the Taxation Enquiry Committee'. Nairobi: Colony of Kenya.
- Darwin, J. (2009). *The Empire Project: The Rise and Fall of the British World-system, 1830–1970*. Cambridge: Cambridge University Press.
- Deane, P. (1948). *The Measurement of Colonial National Incomes: An Experiment*. Cambridge: Cambridge University Press.
- Deane, P. (1953). *Colonial Social Accounting*. Cambridge: Cambridge University Press.
- Devarajan, S. (2013). 'Africa's Statistical Tragedy'. *Review of Income and Wealth*, Series 59: S9–S15.
- Due, J.F. (1963). *Taxation and Economic Development in Tropical Africa*. Cambridge, MA: MIT Press.
- East African Statistical Department (1959). *Domestic Income and Product in Kenya: A Description of Sources and Methods with Revised Calculations from 1954–1958*. Nairobi: East African Common Services Organisation.
- East African Statistical Department (1963). *The Gross Domestic Product of the Protectorate of Zanzibar 1957–1961*. Nairobi: East African Common Services Organisation.
- Engerman, S.L. and K. Sokoloff (1997). 'Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies: A View from Economic Historians of the United States'. In S. Huber (ed.), *How Latin America Fell Behind*. Stanford: Stanford University Press.
- Federation of Rhodesia and Nyasaland (1962). *Preliminary Results of September, 1961 Federal Censuses of Population and of Employees*. Salisbury: Central Statistical Office.
- Frankel, S.H. (chair) (1945). *Report of the Commission of Inquiry into the Mining Industry of Southern Rhodesia*. Salisbury: Controller of Printing and Stationery.

- Frankel, S.H. and H. Herzfeld (1943). 'European Income Distribution in the Union of South Africa and the Effect thereon of Income Taxation'. *South African Journal of Economics*, 11: 121–36.
- Frankel, S.H. and S.D. Neumark (1940). 'Note on the National Income of the Union of South Africa, 1927/28, 1932/33, 1934/35 and the Effect thereon of Income Taxation'. *South African Journal of Economics*, 8: 78–81.
- Gallagher, J. (1982). *The Decline, Revival and Fall of the British Empire*. Cambridge: Cambridge University Press.
- Gastwirth, J.L. (1972). 'The Estimation of the Lorenz Curve and Gini Index'. *Review of Economics and Statistics*, 54: 306–16.
- Hailey, L. (1957). *An African Survey Revised 1956*. London: Oxford University Press.
- Hazlewood, A. (1979). *The Economy of Kenya: The Kenyatta Era*. New York: Oxford University Press.
- Irvine, A.G. (1955). 'A Note on the National Income and Social Accounts of Northern Rhodesia, 1945–1953'. *South African Journal of Economics*, 23: 364–69.
- Jerven, M. (2013). *Poor numbers*. Ithaca: Cornell University Press.
- Jones, W.O. (1955). 'Colonial Social Accounting'. *Journal of the American Statistical Association*, 50: 665–76.
- Kuczynski, R.R. (1937). *Colonial Population*. London: Oxford University Press.
- Kuczynski, R.R. (1948). *Demographic Survey of the British Colonial Empire, Volume I: West Africa*. London: Cambridge University Press.
- Kuczynski, R.R. (1949). *Demographic Survey of the British Colonial Empire, Volume II: East Africa*. London: Cambridge University Press.
- Kuznets, S. (1953). *Shares of Upper Income Groups in Income and Savings*. Cambridge, MA: NBER.
- League of Nations (1938). *Statistical Yearbook*. Geneva: League of Nations.
- Maddison, A. (2003). *The World Economy: Historical Statistics*. Paris: OECD.
- Pareto, V. (1896) (2001). 'On the Distribution of Wealth and Income'. Translation in M. Baldassari and P. Ciocca (eds), *Roots of the Italian School of Economics and Finance: From Ferrara (1857) to Einaudi (1944)*, Volume II. Houndmills: Palgrave.
- Peacock, A.T. and D.G.M. Dosser (1958). *The National Income of Tanganyika, 1952–54*. London: HMSO.
- Piketty, T. (2001). *Les hauts revenus en France au 20^{ème} Siècle*. Paris: Grasset.
- Piketty, T. and E. Saez (2007). 'Income and Wage Inequality in the United States, 1913–2002'. In A.B. Atkinson and T. Piketty (eds), *Top Incomes over the Twentieth Century*. New York: Oxford University Press.
- Rodrik, D. (2011). *The Globalization Paradox*. Oxford: Oxford University Press.
- Seers, D. (1952–53). 'The Role of National Income Estimates in the Statistical Policy of an Underdeveloped Area'. *Review of Economic Studies*, 20: 159–68.
- Seers, D. (1959). 'An Approach to the Short-period Analysis of Primary-producing Economies'. *Oxford Economic Papers*, 11: 1–36.

- Shaul, J.R.H. (1941). 'The Pareto Law and the Distribution of Incomes in Southern Rhodesia'. *South African Journal of Science*, 37: 373–83.
- Shaul, J.R.H. (1960). 'National Accounts of the Federation of Rhodesia and Nyasaland'. *South African Journal of Economics*, 28: 247–62.
- Southern Rhodesia (1949). *Report on the Census of Population of Southern Rhodesia held on 7th May 1946*. Salisbury: Government Printer.
- Tarus, I.K. (2004). 'A History of the Direct Taxation of the African People of Kenya, 1895–1973'. Doctoral Thesis. Grahamstown: Rhodes University.
- Vallibhoy, F.H. (1965). *Tax Enquiry Report 1964/65*. Entebbe: Uganda Government Ministry of Finance.