

Evidence on Top Incomes in Tanzania 1948-1970

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preliminary

This paper examines one aspect of the historical income distribution in Tanzania - the shares of top incomes - using information published as a result of the administration of the individual income tax. Although tax data were employed in earlier studies of developing countries (see for example, Okigbo, 1968, who uses data for Nigeria), they have tended in recent years to be rejected as a source. In one sense, this is not surprising. Income taxes only cover a part, sometimes a very small part, of the population. The resulting data cannot provide a picture of the overall distribution. The income tax data reflect the specific features of the tax system, and are very much subject to avoidance and evasion. However, despite their limitations, the income tax data have certain advantages. The tax data help us triangulate the (limited) information available from household surveys and other sources. For example, the study by Huang for Tanzania using the 1969 Household Budget Survey found that the top 0.4 per cent of households received 9.2 per cent of total household income (1976, Table 1), or more than 20 times their proportionate share. This suggests a high degree of concentration, and the study pointed to the importance of the highly progressive tax system, with the group estimated to pay more than a quarter of their income in individual income tax. It is interesting to examine whether this is corroborated by the income tax data.

Most importantly, the income tax data are typically available annually and for a long run of years. The data used in this paper begin in 1948 and cover the period up to 1970. The series therefore starts in the colonial period. At that time, the income tax data were heavily influenced by the non-African population, but this makes the data of particular interest given the recent research that has emphasised the role of European colonial settlement in determining subsequent economic performance (Acemoglu, Johnson and Robinson, 2001 and 2002). Angeles has argued that “Colonial History is a major explanatory factor behind today’s large differences in inequality” (2005, page 21), finding that the percentage of European settlers is associated with significantly higher values of today’s Gini coefficient. As Tanganyika, Tanzania was part of German East Africa, becoming a British mandate after the First World War in 1920, achieving independence from Britain in December 1961, and uniting with Zanzibar in 1964, becoming the United Republic of Tanzania.

The results presented here cover the early years of independence, which are of particular interest. Green (1974), for example, argued that “the 1961-67 period had seen the first steps toward the emergence of elites in a form likely to ‘nationalize’ the colonial structure rather than lead to egalitarian socialism” (1974, page 269). The results presented here cast light on these formative years, leading up to the Arusha Declaration of 1967. The publication of the necessary income tax data appears to have ceased (the only subsequent data that I have located are those for the income year

1974), but it is hoped that this analysis of the earlier historical data will encourage a return to publication of the distributional information and, possibly, the making available of unpublished statistics for past years.

The income tax data cannot be employed on their own. The published distributions of taxpayers by income ranges have to be accompanied by external control totals for the total adult population and for total household income. The production of these control totals is described, along with the basic tax data, in Section 1. The results for top income shares 1948 to 1970 are set out in Section 2. The main conclusions are summarised in Section 3.

1. The underlying data and methods

The extent of the statistical material published by colonial governments tends to be underestimated, as was noted years ago by Mosher (1961).¹ This is particularly true of income taxation, which was introduced in many British colonial territories, and where the colonial administrators often published detailed annual reports. In the case of Tanzania, the income tax dates from the Income Tax Ordinance, 1940, when the tax was extended from Kenya (where it had been introduced in May 1937). The income tax was administered by the East African Income Tax Department for all of the East African territories. The basis was explained as follows in the first Annual Report (AR) of the Department for 1950: 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” (AR 1950, page 1).

Of the total income tax collections in East Africa for the year 1950, approximately one-third came from Tanganyika (AR 1951, Appendix 1). Of the assessments raised in that year, only a small proportion, around 3 per cent, referred to non-resident individuals or employees (the income of companies, clubs, trusts, etc. is not discussed here). Of the taxpayers, the majority, around 80 per cent, were European, who predominated among employees. However, “Asian and other” accounted for more of those who were non-employed individuals, and average actual incomes were higher for the latter group than for Europeans. Indeed, Europeans paid only 67 per cent of total income tax. Income tax was certainly not a purely a European affair. (Source: AR 1951, Appendix VIII(b).)

The 1951 Annual Report referred to the fact that “the absence of reliable statistics of income tax payers has added greatly to the difficulty of

¹ This paper is an outgrowth of a larger project on top income shares in British colonies before and after independence. The income tax for (Dutch) colonial Indonesia have been exploited by Leigh and van der Eng (2010) to provide estimates for 1920-1939; the data for French colonies are the subject of a research project by Facundo Alvaredo.

preparing Budget Estimates and of assessing the cost or yield of new tax proposals” (AR 1951, page 4). The statistical system instituted when the tax was introduced had been discontinued during the war, but by the 1950s it had become possible to carry out analyses. In particular, from the AR 1951 onwards information was published on the distribution of taxpayers by income range and total “actual” incomes.² Incomes refer to the fiscal year, which was the calendar year until 1955, when the fiscal year became the years ending 30th June. Incomes for the “income year”, denoted IY, were assessed in the following fiscal year or subsequently, so that the AR 1952 contains information about the IY 1948 assessed at any point from 1 January 1949 up to November 1952. It is important to allow for delayed assessments, since these tend to be disproportionately self-employed individuals, whereas employees are assessed more promptly (see AR 1951, paragraph 31). Publication of the distributional information continued up to 1970: the full data sources are listed in Table 1.

Phillips, in his review of statistical materials, describes the East African income data as an “important source”, but he goes on to list their limitations: “incomplete coverage in terms of total income earners and of total incomes. The data are least reliable for self-employed incomes. And to the extent that married couples are jointly assessed, the number of ‘persons’ involved is understated” (1975, page 18). To these may be added the changes in administration that have taken place, notably the introduction of Pay as You Earn (PAYE) in 1966-67. According to the tax authority, it did not prove possible to analyse the incomes on which PAYE was charged in the same way as incomes were assessed by the Department. There is therefore a hiatus in the series from 1965 onwards, although it appears to have had less impact on the very top, since Sur-Tax continued to be administered separately until 1971 (Hammond, 1975, page 79). There were further discontinuities in 1966 when the figures for Zanzibar were amalgamated with those for Tanganyika, and in 1968 when the classification was switched to “chargeable”, as opposed to “actual”, income. These discontinuities are discussed further below.

Table 1 Sources of income tax data for Tanganyika/Tanzania

Income Year(s)	Source	Notes
1948	AR 1952, Schedule 5.	Shown separately for Europeans and “Asians and others”.
1949	AR 1953, Schedule 5.	Shown separately for Europeans and “Asians and others”.
1950, 1951 and 1952	AR 1954, Schedule 5.	Fiscal year changed in 1954 from calendar year to year to 30 th June (1955).
1953	AR 1955-1956, Schedule 5.	
1954	AR 1956-1957, Schedule 5.	
1955 and 1956	AR 1957-1958, Schedule 5.	

² “Actual” income is equal to total income from all sources after deducting interest paid, losses occurred, and allowances due under the Passage rules. It is before deduction of the personal allowances. “Chargeable income” is actual income after deduction of the personal allowances.

1957	AR 1958-1959, Schedule 5.	
1958	AR 1959-1960, Schedule 5.	
1959	AR 1960-1961, Schedule 5.	
1960	AR 1961-1962, Schedule 5.	
1961	AR 1962-1963, Schedule 5.	Reference to “more taxpayers than ever before leaving the Territories for good” (para 4).
1962	AR 1963-1964, Schedule 5.	
1963	AR 1964-1965, Schedule 5.	
1964	AR 1965-1966, Schedule 5.	
1965	AR 1966-1967, Schedule 5.	Introduction of PAYE means that statistics for incomes from employment not comparable to previous years.
1966	AR 1967-1968, Schedule 5.	Figures for Zanzibar have been amalgamated with those for Tanganyika, under “Tanzania”.
1967	AR 1968-1969, Schedule 5.	
1968	AR 1969-1970, Schedule 5.	Classification given in terms of “chargeable income”, rather than “actual income”, as previously.
1969	AR 1970-1971, Schedule 5.	Tax at higher rates (previously Sur-Tax) included in PAYE for first time.
1970	AR 1971-1972, Schedule 5.	
	1973 Break-up of the East African Income Tax Department	
1974	Income Tax Statistics Year of Income 1974, Table 6.	

The 1974 data were published by the Bureau of Statistics of Tanzania, rather than by the East African Income Tax Department, and the Bureau notes that “there are no comparable data for the previous years” (page 1). I have therefore not used these data in Section 2.

Control totals for population

The control totals for the total number of tax units from 1948 to 1974 are obtained in three stages: (a) a total population figure is estimated, (b) this is multiplied by the estimated proportion aged 15 and over, to arrive at a figure for the total adult population, and (c) it is assumed that on average taxpaying units comprise 1.6 adults. The last of these adjustments is based on calculations of the proportion claiming a married personal allowance: for example from AR 1951, pages 8 and 11, and from AR 1962 to 1963, Schedule 1, for IY 1961, when an estimated 58 per cent were claiming the married personal allowance.

The total population figure until 1966 refers to Tanganyika/mainland Tanzania. For the most recent years in the table, it is taken from the East African Statistical Department, *Economics and Statistics Review*, June 1976, Table B.1 (series revised in the light of census results), and the same table in the same publication for December 1970. The series was linked backwards in 1961 to the series in Table B.1 in the *Monthly Statistical Bulletin* for

December 1963, and in 1955 to the series in Table A.2 in the *Quarterly Economic and Statistical Bulletin* for September 1958, which takes the series back to midyear 1948. It may be noted that in that year Africans were estimated to make up 99 per cent of the population of Tanganyika, “Asian and others” were 0.8 per cent and Europeans some 0.15 per cent. The population figures for the whole of Tanzania, including Zanzibar, from 1966 to 1970 are obtained by adding the total recorded in the 1967 Census of population (354,000) (Zanzibar Revolutionary Government, *Statistical Abstract* 1991, page 9).

The age composition of the population was taken from the 5-year interval data in the United Nations *The size and age distribution of the world populations* (1994), interpolated linearly. (The same percentage is applied to the figures including Zanzibar.)

The resulting series for total (mainland) population and for the percentage aged 15 and over are shown in Table A.1.

Control total for household income

The starting point for the control total for total household income is national income. The difficulties in calculating national income are widely recognised: “the quality of macroeconomic data in Tanzania has for a long time been a problem for researchers ... A particular concern was the poor coverage of the informal sector or the “second economy” (Bigsten and Danielson, 2001, page 29). They go on to say however that the Bureau of Statistics “during the 1990s has managed to revise national accounts for recent years (1985 onwards) on the basis of among other things quite extensive household surveys”.

The first figures for GDP in Tanganyika were prepared in 1955 for the Royal Commission on East Africa, and published in their report. These were however described by Kennedy, Ord and Walker as “very inadequate ‘back of the envelope’ type of estimates (1963, page 358), and the systematic construction of national income series was begun by Peacock and Dosser (1958), who made estimates for 1952-1954. 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 1966-1968, 1964-1972, 1966-1972, 1966-1974, 1966-1976, 1966-1980 and 1970-1982*.

In order to anchor the GDP series, I start from the GDP at current factor cost prices given as the “Old series”, covering the years from 1960 to 1970, by Bigsten and Danielson (2001, Table A1) for Tanzania mainland. This series draws on the Bureau of Statistics estimates: for example, the figures for 1964 to 1970 are identical to those in the *National Accounts of*

Tanzania 1964-1972 (Summary Table I) and those for 1970 to 1974 are identical with those *National Accounts of Tanzania 1966-1976* (Summary Table I). The series is then linked backwards from 1960 to 1952 using the official estimates given in the East African *Economic and Statistical Review* (September 1962, page 113, and December 1964, page 105), the *Quarterly Economic and Statistical Bulletin* (June 1958, page 83), and the 1952-1954 estimates of Peacock and Dosser. Finally, the figures for 1948-1951 were taken equal to that for 1952, but this is clearly no more than a guess.

The resulting series for Tanzania mainland is shown in Table A.1. In order to allow for the inclusion of Zanzibar for the years from 1966 to 1970, the figures are adjusted upwards by 6 per cent. This percentage was based on a comparison of the estimated GDP for the Zanzibar Protectorate for the years 1957 to 1961 with the mainland totals (East African Common Services Organization, 1963, Table 20).³

Total household income is typically less than measured national income, but it is not straightforward to separate out the retained profits of corporations, corporate taxes and factor income received by the government. The United Nations *Yearbook of National Accounts Statistics* for 1969 included a table for Tanzania showing the “distribution of the national income” (volume 1, page 694). Over the period from 1960 to 1967, the sum of compensation of employees, income from unincorporated enterprises, property income and corporate transfer payments varied between 79 and 84 per cent of net national product at factor cost. 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.

The assumptions made here about total income can be described as “conservative”. Using the “old” series of Bigsten and Danielson may well mean that GDP is under-stated. The potential error certainly seems in that direction. As is noted by Bigsten and Danielson, the “new” series introduced by the Bureau of Statistics from 1985 involved a very large upward shift. The 1985 estimate is a “staggering” (their words) 65 per cent higher. Even though the official estimates for the 1950s did incorporate, as explained in the *Quarterly Economic and Statistical Bulletin* (June 1959, page 67, an increased allowance for the output of the subsistence economy, this may still have been under-stated. It may be noted that the linking of the series leads to an estimate for 1952 that is some 12 per cent below the estimate of Peacock and Dosser. The key role of the valuation of non-marketed income was stressed in the review of their work by Deane (1959). As she notes, “widely differing estimates of the total could be reached by valuing subsistence output at less than local market prices or by including further processing imputations” (1959, page 576).⁴ The implications of different

³ I have not been able to locate GDP figures for Zanzibar for the period 1966-1970.

⁴ The arbitrariness is illustrated by Martin in his discussion of the official estimates by reference to the valuation of hut construction: “it is assumed that the number of huts in

degrees of possible under-statement are discussed when considering the results.

Interpolation

Since the basic 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. Given that there is information on both the number of persons and the total income in the range, we use 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). Guaranteed to lie between these is the histogram split at the interval mean with sections of positive density on either side.

The ranges are in some cases quite broad, and the possible errors of interpolation need to be taken into account. For example, in IY1952, taxpaying units above £1,000 constituted 0.154 per cent of the total and received 6.88 per cent of total income, and those above £1,500 were 0.069 per cent and received 4.85 per cent of total income. Suppose that we wish to estimate the share of the top 0.1 per cent. If we make no assumption about the distribution, then the “gross” bounds for the share are from 5.60 to 5.78 per cent (these are calculated by assuming 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 are from 5.68 to 5.71, which are quite close. The mean-split histogram method gives a value for the share of the top 0.1 per cent of 5.70 per cent. In some years, however, the bounds are much wider apart. In general, no extrapolation is made into the open upper interval, except in one year (1956) when the cut-off is very close to the top 0.05 per cent.

existence is equal to the number of adults in the population, that a hut lasts ten years and that it costs £10 to build” (1963, page 340).

2. Top income shares in Tanzania

The estimated shares of top income groups in Tanzania from 1948 to 1970 are given in Table 2. The percentile shares cover the following seven groups: top 0.25 per cent, 0.15 per cent, 0.1 per cent, 0.05 per cent and 0.01 per cent. The results relate to tax units and to actual gross income before tax. The line in the table marks the introduction of PAYE, which affected the comparability of the figures. The shares of the five groups are graphed in Figure 1. The income tax was paid by non-resident as well as resident individuals. In what follows, attention is focused on residents of Tanzania. The inclusion of non-residents would lead to a small increase in the estimated top shares: for example, in 1955, the share of the top 0.25 per cent including non-residents is 11.3 per cent, compared with 11.2 per cent when they are excluded.

The income totals are more securely based from the mid-1950s, so that I begin with the estimated shares for 1955, half-way through the final colonial decade, and in fact representative of the period up to independence in 1961. As may be seen from Figure 1, the top income shares were virtually unchanged between 1955 and 1961. In 1955, a very small percentage of the population, a quarter of 1 per cent, received some 11 per cent of total gross income. In other words, they received some 44 times their proportionate share. An even smaller group, the top 0.1 per cent received a share around 6½ per cent, or some 65 times their proportionate share.

Estimates of top income shares have been produced from income tax data for a variety of countries. The fact that we are using the same source does not necessarily mean that the figures can be compared. The form of the tax system varies and the interpretation of the statistics may be quite different in countries at different levels of development. Bearing this qualification in mind, it is nonetheless interesting to see that the top shares in colonial Tanzania were a lot higher than in developed countries such as the United Kingdom (UK), where the share of the top 0.1 per cent in the United Kingdom in 1955 was 2.65 per cent, and the United States, where it was 2.5 per cent - see Table 3. The Tanzanian top shares were not however far out of line with some of the other countries shown in Table 3. In particular, the share of the top 0.01 per cent was lower than in Argentina, India and Singapore.

As noted above, the control totals for income may be too conservative, causing the Tanzanian top income shares to be over-stated. It seems unlikely however that an upward revision would be sufficient to reduce the shares to UK levels. The estimates of the subsistence economy for 1955 were, after the upward revision by the official statisticians, £65 million out of a total of £146.7 million (*Quarterly Economic and Statistical Bulletin*, June 1959, page 67). If the subsistence estimate were doubled, the share of the top 0.1 per cent would fall from 6.62 to 4.59 per cent. Even a 65 per cent increase in the control total - the difference between the "old" and

“new” series of Bigsten and Danielson () for 1985 - would leave the share of the top 0.1 per cent at 4 per cent, and leave the share of the top 0.25 per cent in Tanzania above that of the top 0.5 per cent in the UK. Moreover, operating in the opposite direction is the effect of tax avoidance and tax evasion. To the extent that incomes are not declared, the estimates made here of the income *shares* understate the true top income shares

The top income shares for 1955 were below those for earlier in the decade and above those for the late 1940s. The peak in 1953, and the subsequent fall, was attributed by the East African Income Tax Department to the “slump in sisal” (AR 1955 to 1956, para 6). It should also be noted that there is no basis for the income control totals before 1952, and the shares may well be under-stated. The figures for these earlier years are however of interest, since in 1948 and 1949 the distribution is given by race. In 1949, those with incomes of £800 a year or higher (some 23 times mean income) constituted some 0.11 per cent of the population, or 3,042 tax units. Of these, 2,281 (75 per cent) were Europeans and 761 (25 per cent) “Asians and others”. Europeans predominated among the top incomes but there were a sizeable minority from other races.

Looking at the 1960s, we can see that, following independence, the previous stability of top income shares was replaced by a downward trend. By 1964, the share of the top 0.1 per cent had fallen from 6.6 per cent in 1960 to 5.3 per cent. The introduction of PAYE in 1965 meant that there was a break in the series,⁵ but the post-PAYE figures give little indication that the downward trend continued: the share of the top 0.1 per cent in 1970 was virtually the same as in 1966. It is hard to see from these figures any immediate impact of the 1967 Arusha Declaration on top incomes, but this may not have been evident until the 1970s. The results shown here do suggest that it would be very interesting to know whether there are tax data available for later years (apart from the isolated set for 1974). I referred at the outset to the estimate by Huang (1976), based on 1969 household survey data, that the top 0.4 per cent of households received 9.2 per cent of total household income. The estimates here suggest that this was certainly not too high: Table 2 shows the top 0.25 per cent receiving 8.1 per cent of total income.

Inspection of the different series in Figure 1 also suggests that the downward movement was less at the very top. This becomes clearer when we examine the *shape* of the top of the income distribution.

Shares within shares

The absolute values of the top shares depend on the control totals for income, which are surrounded by considerable uncertainty. This uncertainty can be avoided if we look at the *shape* of the upper part of the

⁵ There is also a break in the series on account of the inclusion of Zanzibar from 1966 but this is not large in quantitative terms.

distribution, as represented by the shares within shares. In other words, we ask how incomes were distributed *within* the top income groups, a calculation that does not require overall control totals for income (although the control totals for population are used to identify the groups).

In 1955, the top 0.25 per cent had an income share of 11.21 per cent and the top 0.05 per cent had an income share of 4.34 per cent. In other words, the top fifth of this group received $4.34/11.21$ of the total income, or 38.7 per cent. This “share within share” is plotted in Figure 2 for this group, and, for the latter part of the period, for the share of the top 0.01 per cent within the total income of the top 0.05 per cent. As may be seen, the shares fell from around 50 per cent in 1950 to the figure closer to 40 per cent found in 1955. These figures, which do not depend on the guesses made with regard to income totals for the period before 1952, indicate a clear reduction in concentration within top incomes over this period. But what is also interesting is that there is no further reduction in concentration up to 1965. The shape of the upper part of the distribution does not seem to have changed as a result of independence.

The fact that the share of the top x per cent within that of the top $5x$ per cent is similar for the two different values of x in Figure 2 indicates that the distribution is close to Pareto in form. The Pareto coefficients implied by the share of the top 0.05 per cent within the shares of the top 0.1 per cent and top 0.15 per cent are shown in Figure 3. At the start of the period, the coefficients were around 1.8. This value indicates that incomes were more concentrated at that time than in the UK, where the coefficient at the end of the 1940s was in excess of 2 (Atkinson, 2007, Figure 4.5), indicating less concentration (the higher the Pareto coefficient the less concentrated the distribution). But the coefficient then increased markedly in Tanzania, reaching a value of 3 by 1957. This meant that top incomes were distinctly less concentrated than in the UK (where the coefficient briefly reached 3 in the 1970s but has now fallen back to below 2). Indeed, there were few countries with a Pareto coefficient for income as high as 3, so that - while the total shares were high - the upper tail was flatter in Tanzania. However, after independence, the coefficient tended to fall, leading to more concentration (a coefficient closer to 2.5).

Table 2 Estimated shares in total income Tanzania 1948-1970

	top 0.25%	top 0.15%	top 0.1%	top 0.05%	top 0.01%
1948		5.28	4.39	3.17	
1949		6.34	5.27	3.87	
1950	9.67	7.73	6.44	4.76	
1951	11.88	9.56	8.01	6.01	
1952	12.99	10.43	8.74	6.55	
1953	11.57	8.92	7.22	5.04	
1954	10.94	8.24	6.48	4.26	
1955	11.21	8.43	6.62	4.34	
1956	10.57	7.88	6.13	<u>4.00</u>	
1957	10.66	7.86	6.05	3.81	1.31
1958	10.95	8.08	6.23	3.96	1.41
1959	10.56	7.70	5.87	3.70	1.40
1960	11.36	8.44	6.56	4.20	1.57
1961	11.42	8.47	6.55	4.14	1.49
1962	11.08	8.24	6.38	4.05	1.39
1963	10.54	7.93	6.18	3.96	1.43
1964	9.01	6.83	5.34	3.42	1.21
1965	9.29	7.35	5.81	3.77	1.38
1966	8.23	6.40	4.99	3.14	1.03
1967	8.28	6.48	5.08	3.21	1.03
1968	8.14	6.31	4.94	3.14	1.00
1969	8.11	6.28	4.94	3.15	1.00
1970	7.95	6.21	4.93	3.20	1.08

Table 3 Comparative top income shares 1955

	top 0.1%	top 0.01%
Tanzania (top 0.01% from 1957)	6.62	1.31
India	5.92	2.01
Argentina (1954)	5.84	1.71
Singapore (1954)	4.28	1.63
South Africa	3.59	
Canada	2.86	0.75
UK	2.65	0.68
US	2.49	0.72
Australia	2.01	0.48
New Zealand	1.98	
Japan	1.78	0.46

Sources: Atkinson and Piketty (2010, Chapter 13)
and, for South Africa, Alvaredo and Atkinson (2010).

Figure 1 Estimated top income shares in Tanzania 1948-1970

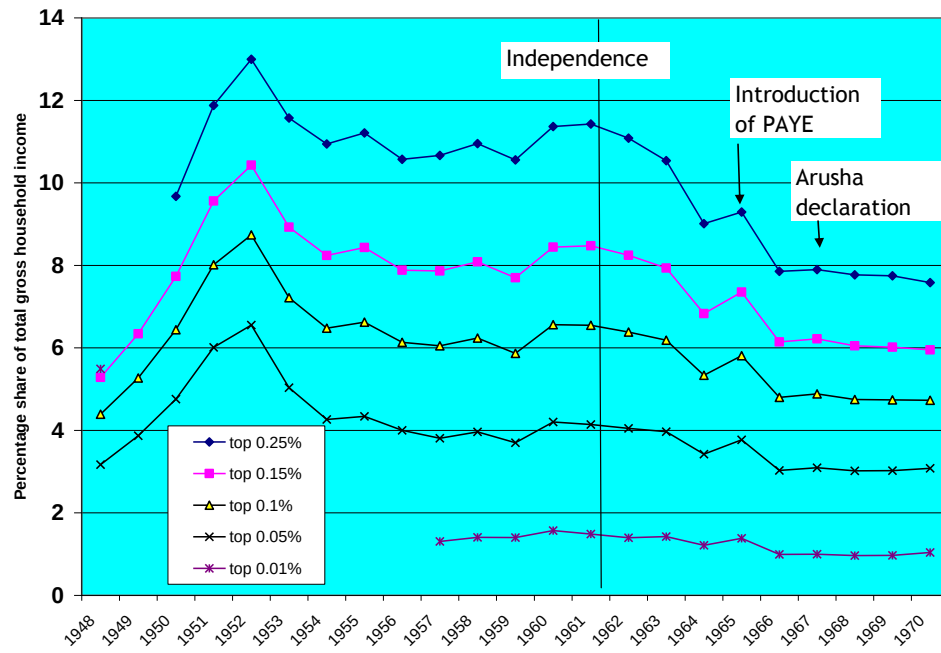


Figure 2 Shares within shares Tanzania 1948-1970

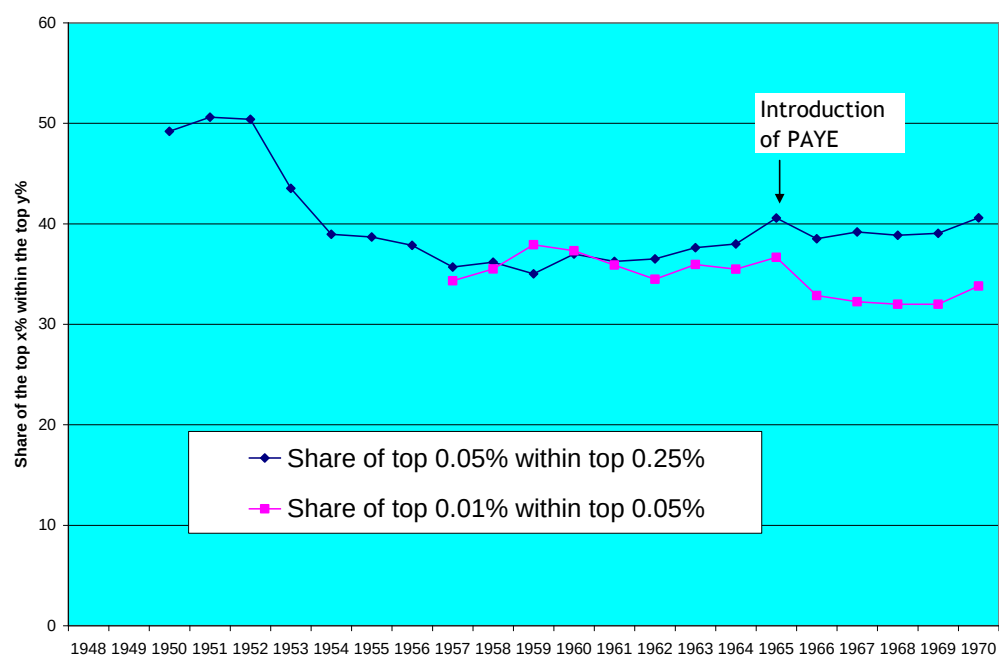
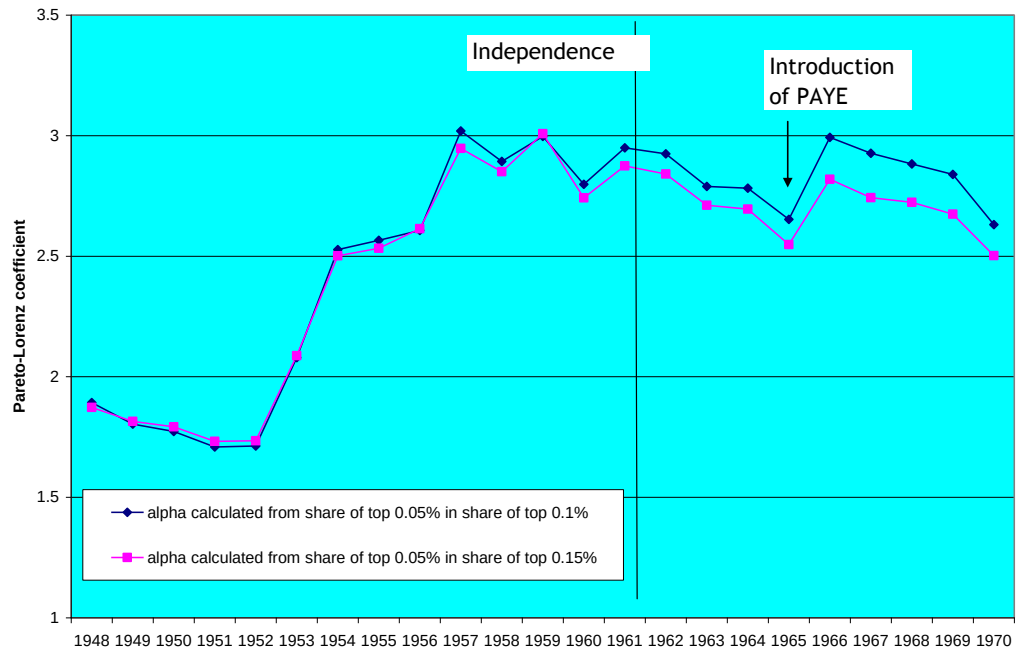


Figure 3 Pareto-Lorenz coefficients



3. Summary

The income tax data allow us to track the very top income shares in Tanzania from 1948 to 1970, covering first the colonial period and then the first decade of independence. The estimates of the income shares depend on the accuracy of the control totals, and are subject to understatement on account of tax avoidance and evasion, so must be qualified in these respects. However, they provide a unique source of evidence about the period.

The estimates show that colonial Tanzania was indeed highly unequal. In 1955, a very small percentage of the population, a quarter of 1 per cent, received some 11 per cent of total gross income. In other words, they received some 44 times their proportionate share. An even smaller group, the top 0.1 per cent received a share around 6½ per cent, or some 65 times their proportionate share. The top income group, from the earlier evidence in the late 1940s, was predominantly but not exclusively European. The top income shares in colonial Tanzania were high by the standards of the UK and the US, but not out of line with those in Argentina, India and Singapore in the mid-1950s.

Looking at the 1960s, we can see that, following independence, the previous stability of top income shares was replaced by a downward trend. By 1964, the share of the top 0.1 per cent had fallen from 6.6 per cent in 1960 to 5.3 per cent. The introduction of PAYE in 1965 meant that there was a break in the series, but the post-PAYE figures give little indication that the downward trend continued: the share of the top 0.1 per cent in 1970 was virtually the same as in 1966.

Examining the shape of the upper part of the distribution, in the same way as Pareto, we find a clear reduction in concentration within top incomes over the 1950s, but no further apparent reduction in concentration up to 1965. The shape of the upper part of the distribution does not seem to have changed as a result of independence.

The estimates presented here end in 1970; the findings suggest that it would be of considerable interest if distributional information from the tax records could be unearthed for more recent decades. In this sense, the present paper is simply an appetiser.

Table A.1 Population and income control totals
for Tanganyika/Tanzania mainland

	Total population 000s	Percentage aged 15 and over	GDP at factor cost million shillings
1948	8,119	53.9	2,295
1949	8,266	54.0	2,295
1950	8,414	54.0	2,295
1951	8,566	54.1	2,295
1952	8,722	54.1	2,295
1953	8,877	54.2	2,392
1954	9,036	54.3	2,609
1955	9,199	54.3	2,713
1956	9,364	54.3	3,002
1957	9,531	54.3	3,197
1958	9,702	54.2	3,305
1959	9,876	54.2	3,513
1960	10,051	54.2	3,701
1961	10,252	54.1	3,870
1962	10,454	54.1	4,189
1963	10,715	54.0	4,547
1964	10,983	53.9	5,594
1965	11,257	53.9	5,671
1966	11,539	53.8	6,514
1967	11,909	53.6	6,735
1968	12,231	53.5	7,182
1969	12,561	53.4	7,460
1970	12,900	53.2	8,215
1971	13,249	53.0	8,857
1972	13,606	52.8	10,032
1973	13,974	52.6	11,490
1974	14,351	52.4	14,010

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