DISCUSSION PAPER SERIES

No. 8155

COLONIAL RULE, APARTHEID AND NATURAL RESOURCES: TOP INCOMES IN SOUTH AFRICA, 1903-2007

Facundo Alvaredo and Anthony B Atkinson

PUBLIC POLICY

Centre for Economic Policy Research

www.cepr.org

Available online at: **www.cepr.org/pubs/dps/DP8155.asp**

ISSN 0265-8003

COLONIAL RULE, APARTHEID AND NATURAL RESOURCES: TOP INCOMES IN SOUTH AFRICA, 1903-2007

Facundo Alvaredo, Paris School of Economics, Conicet and CEPR
Anthony B Atkinson, Nuffield College, University of Oxford and London School of Economics

Discussion Paper No. 8155
December 2010

Centre for Economic Policy Research
77 Bastwick Street, London EC1V 3PZ, UK
Tel: (44 20) 7183 8801, Fax: (44 20) 7183 8820
Email: cepr@cepr.org, Website: www.cepr.org

CEPR Discussion Paper No. 8155

December 2010

ABSTRACT

Colonial Rule, Apartheid and Natural Resources: Top Incomes in South Africa, 1903-2007*

There have been important studies of overall income inequality and of poverty in South Africa. In this paper, we approach the subject from a different direction: the extent and evolution of top incomes. We present estimates of the shares in total income of groups such as the top 1 per cent and the top 0.1 per cent, covering, with gaps, more than a hundred years. In order to explain the observed dynamics, here we consider three factors: the transfer of political authority, racial discrimination, and the rich mineral resources. The estimates of top income shares for recent years bear out the picture of South Africa as a highly unequal country.

JEL Classification: D3, H0 and N3
Keywords: distribution, income taxation, South Africa and top income shares

Facundo Alvaredo
Paris School of Economics
48 Boulevard Jourdan
75014 Paris
FRANCE

Email:
alvaredo@pse.ens.fr

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=165310

Anthony B Atkinson
Nuffield College
Oxford University
New Road
Oxford OX1 1NF UK

Email:
tony.atkinson@nuffield.ox.ac.uk

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=160951

* We are most grateful to the following for their help in obtaining the data used in this paper: Cristina Da Silva and Cecil Morden (Treasury of South Africa), Deon Breytenbach (South African Revenue Service), Niek Schoeman (Bureau for Economic Policy and Analysis, University of Pretoria), Louis van Tonder, Mathando Lukoto and Jean-Marie Hakizimana (Statistics South Africa), Laureen Rushby and Fiona Jones (Chancellor Oppenheimer Library, University of Cape Town), Natalia Pierce (Bodleian Library), and Miquel Pellicer. They are not to be held responsible in any way for the use made of the information supplied. We are also indebted to Thomas Piketty and Alberto Behar for comments and discussions.

Submitted 30 November 2010

Introduction

Income inequality in South Africa has received much attention. There have been important studies of overall inequality and of poverty (see, for example, McGrath, 1983, McGrath and Whiteford, 1994, Klasen, 1997 and 2005, Nattrass and Seekings, 1997, Terreblanche, 2002, Dollery, 2003, van der Berg and Louw, 2004, Leibbrandt, Woolard and Woolard, 2009, Leibbrandt et al., 2010). In this paper, we approach the subject from a different direction: the extent and evolution of top incomes. We present estimates of the shares in total income of groups such as the top 1 per cent and the top 0.1 per cent, covering, with gaps, more than a hundred years. As in other countries, top incomes are difficult to measure with precision. They are often not well covered by the household surveys that are today the primary source of evidence about the distribution of income. A partial picture can, however, be obtained from the information contained in the income tax returns, and these are the source employed in this paper.

In this field, and in the related area of national income totals, South African researchers were among the pioneers. Leslie (1935, 1936 and 1937) used income tax data to examine the effect on the South African distribution of income of the abandonment of the Gold Standard by Britain in 1931. Frankel and Herzfeld (1943) published estimates of the European income distribution in South Africa based on the income tax returns, but making use of control totals from the census of population and from the national accounts. Their use of external information to complement income tax data pre-dated by ten years the study of upper income groups in the US by Kuznets (1953). Graaff (1946) assembled a series based on South African Super Tax data covering the years 1915 to 1942 to examine the stability of the distribution and the causes of fluctuations in income concentration. In seeking to exploit the century of income tax data now available for South Africa, we are therefore following in a long-established research tradition.

The picture obtained from tax data is only a partial one because not everyone has to provide income information to the tax authorities, and in earlier years the tax-paying population was a small minority of the total population; they were the better-off and, in the case of South Africa, very largely White. The picture is partial in that the income recorded, gross income assessed for tax purposes, does not necessarily capture the full extent of the economic advantage accruing to those at the top of the distribution. Conclusions drawn from the income tax data are therefore surrounded by qualifications.

The tax data do however provide some insight into the degree of inequality at the top. Combined with external information about the total population and the total income, as in the work of Frankel and Herzfeld (1943) but covering all races, the tax returns allow estimates to be made of the share of the top 1 per cent. To the extent that the tax definition of income falls short of that ideally applied, these estimates are likely to be an under-statement. Within the top

groups, the tax data provide evidence about the shape of the upper tail of the income distribution. A number of early researchers examined the fit to the data of the Pareto distribution. Leslie (1935) found a value for the Pareto coefficient "greater than Pareto found in European countries" (1935, p. 279), suggesting less inequality at the top in South Africa. The conclusion of Graaff (1946) was that the degree of income concentration (derived from the Pareto coefficient) was "fairly stable" over the long period. Did this stability, however, remain in the apartheid years? Or was there a long-run trend in top income shares? In this paper, our estimates of top income shares go back right to the early days of the Union of South Africa: the Union was formed in 1910 and our first estimates relate to 1913. Indeed, we present some evidence for the period before the Union: for the Cape Colony going back to 1903.

Taken together, the historical series covers, with some gaps, more than a hundred years. This was an eventful period. It goes from the colonial days, through the Dominion phase, effective independence in 1931, the systematisation of segregation in the form of apartheid following the National Party government elected in 1948, the declaration of a republic in 1961, international sanctions and trade boycotts, to the establishment of multi-racial democracy and the election of the ANC government in 1994. How far do the top income shares reflect these major political events? Or was inequality at the top dominated by underlying economic forces, such as the movements in gold sales? How far were changes in the South African top income shares different from those in other countries? In the paper, we make comparisons with the findings for Australia, Canada, New Zealand, the UK and the US (from Atkinson and Piketty, 2007 and 2010).

An appreciation of the methods used to arrive at the estimated top income shares is necessary to give due weight to the surrounding qualifications. We therefore begin in Section 1 with a description of the income tax data and the use made of them (with the details being given in the Appendix). As already explained, the 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 results for top income shares in South Africa from 1903 to 2007 are set out in Section 2. The interpretation of the findings in the light of political events and of the development of the South African society and economy is the subject of Section 3. Our discussion focuses on the three aspects identified in the title of the paper: the transfer of political authority, racial discrimination, and the rich mineral resources. The main conclusions are summarised at the end.

1. Data sources and their limitations

The basic sources used in this paper are the tabulated data published by the income tax authorities for the Cape Colony (data for 1903-1907) and the Union of South Africa (data from 1913). The Union was formed as a British Dominion in May 1910 from the former colonies of Cape of Good Hope, Natal, Orange River Colony (or Free State) and Transvaal. Income tax was introduced into the colony with effect for incomes for the year starting on 1 July 1903 (see the Appendix, section A.1, for a fuller account of the development of income taxation in South Africa). Information on the tax was published in the *Report of the Commissioner of Taxes for the year 1904-1905,* and in subsequent reports. The tax was levied in the new Dominion with effect for incomes for the year starting on 1 July 1913. Information on the distribution of taxpayers by ranges of income was published on a regular basis in the *Annual Report of the Commissioner for Inland Revenue* (with less detailed data published initially also in the *Official Year Book of the Union*).

The timing of income and taxation, and the labelling of years, is potentially confusing. Timing is important when one seeks to relate movements in top shares to economic events such as rises in gold production. At the outset, income tax was assessed for the tax (fiscal) year beginning on 1st July and ending on 30th June of the next calendar year. The tax was based on the reported income accruing to the taxpayer in the previous 12 months. Thus, the *Official Year Book of the Union*, No 4, 1921, explains that the income assessed in the tax year 1916-17, starting on 1st July 1916 and ending 30th June 1917, applied to "all incomes returned as having exceeded £300 during the twelve months ended 30th June, 1916" (p. 810). In what follows, we denote the "income year" (IY) by the calendar year in which the income period began, which is 1915 in the above case. In 1963, when pay-as-you-earn (PAYE) was introduced, the fiscal year was changed to begin on 1st March. The first year covered related to incomes from 1st March 1963 to the end of February 1964; this is referred to as IY1963.[1] The estimates since that date therefore relate to years that more closely correspond to the calendar years.

The taxation of individual income under the Union from 1913 involved a *Normal tax,* covering (in IY1915) persons with income in excess of £300 a year, and a *Super Tax*, in force until IY1958, levied on higher income persons, covering (in IY1915) persons with incomes in excess of £2,500 a year. The main features of the two taxes are summarised in Table A.1 in the Appendix. The statistics for the former cover a larger proportion of the population (some 58,000 in IY1916, compared with fewer than 2,000 Super Tax payers), but the Normal tax statistics exclude dividend income, a point discussed further below. In later years, information was published in *South African Statistics*, which appeared biennially from 1968. In 2009, in a welcome development, the National Treasury and the

[1] There are no data for IY1962, since, as part of the transition to PAYE, incomes from 1st July 1962 to 28th February 1963 were tax-free.

South African Revenue Service began a new publication entitled *2008 Tax Statistics,* containing information for IY2002 to IY2005, which was continued in 2010 and is expected to appear regularly.

The data employed here are not in the form of individual tax records, which no longer exist for most of the period studied; rather we make use of published tabulations. The information necessary for the estimation of top income shares is the distribution of taxpayers assessed by ranges of income and, ideally (present in many, but not all, years) the amount of income in each range. The amounts are expressed in pounds (first sterling and later South African pounds) until 1961: the *South African pound* was detached from sterling in 1935 and replaced by the *rand* in February 1961 at the rate of 2 rand = 1 South African pound. From the sources listed above, we have been able to locate income tax data for most income years. The data sources are listed by income year in Appendix Table A.2.[2] There is however an important gap for the years 1994 to 2001.[3] This limits our capacity to record distributional changes during this crucial period. It also means that we find it hard to judge the comparability of the earlier estimates with those from 2002 onwards, the latter being additionally affected by some changes in the tax code, mainly the partial inclusion of capital gains in taxable income. In view of this, we have shown the estimates from IY2002 as a separate series (labelled Series C, Table A.5C).

Estimates of the distribution of top incomes are obtained by interpolation from the published tabulations. Where 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. Interpolation necessarily introduces an additional source of error; however, the tabulations used are in many cases extremely detailed: for example, in the data for IY1917 there are 29 ranges, 10 of which one contain fewer than 100 observations (one containing only 5 taxpayers). In general, no extrapolation is made into the open upper interval, except in a few cases where the upper interval is close to one of the key percentages: where the proportion of taxpayers in the open upper interval is less than 110 per cent of the chosen cut-off, a simple Pareto extrapolation is used to

[2] The publications were obtained from the (incomplete) collections in the British Library of Political and Economic Science (London School of Economics), the University of Cambridge Royal Commonwealth Society Library, the South Africa Parliament Library, the University of Cape Town Library, the Oxford University Libraries, the University of Harvard Libraries and the New York Public Library.

[3] The unavailability of statistics for this period has been confirmed to us by the Treasury of South Africa and the South Africa Revenue Service.

calculate that share. For the years (1953 and 1963 to 1993) when there is only information on numbers, we have fitted a Pareto distribution to the cumulative frequencies for each interval (i.e. separate coefficients for each interval) and used this to estimate the income shares. In view of the increased error introduced, we have shown (in Figure 3) a (gross) confidence interval constructed by assuming that the mean for the interval was equal to either the lower or upper end points.[4]

The data are the product of an administrative process, and this can affect the resulting estimates. Two important features should be discussed here. The first is the definition of taxable income. As in any income tax system, certain types and amounts of income were exempted. In 1951 these exemptions included (in addition to the emoluments of the Governor-General) interest up to £25 from the Post Office Savings Bank, war pensions and miners' phthisis awards, and —of particular significance for top incomes— dividend income. Under the Normal Tax/Super Tax regime, dividend income was not assessed under the Normal Tax but under the Super Tax. A separate Dividend tax was levied (with higher rates for companies engaged in gold mining and in diamond mining). The Super Tax data are therefore more complete and for this reason have been used in earlier studies such as Graaff (1946). However, they cover a smaller fraction of the upper incomes. The estimates prior to the 1940s are limited to the share of the top 0.05 per cent, whereas using the Normal Tax data we are able to estimate the share of the top 1 per cent. In view of this, we give two series: series A (Table A.5A) based on Normal Tax data excluding dividends, up to IY1953, and series B (Table A.5B) based on Super Tax data and later data, including dividend income.[5]

The second feature concerns the timing of assessments. The data for the early part of the period refer to incomes whose assessment has been completed within the fiscal year following the income year (see Table A.2, where "compiled + 1 year" means that the data refer to incomes assessed within the 12 months following the end of the income year). In some, typically the higher-income and more complicated cases, assessment may take longer to be completed, and for quite a number of later years there are data based on a 24-month period of assessment. Earlier studies have drawn attention to this issue, but have tended to regard the 12-month assessment period as adequate: "it is unlikely that the (fairly complete) sample given is biased in favour of the exclusion of incomes of any particular size" (Graaff, 1946, p. 28).

[4] The upper limit for the open top bracket assumes an inverted Pareto-Lorenz coefficient ß=2.5 (α=1.67) for 1963-1989, with a lower figure (ß=1.5 (α=3)) for 1990-1993, on the grounds that the estimated coefficient in those years tended to fall in the upper income ranges.

[5] The two sources cannot be combined in any straightforward way, since the definition of taxable income differs in the two cases, and taxpayers may be ranked differently in the two sets of tables. After the abolition of the Super Tax, 2/3 of dividends accruing to top taxpayers were taxed through the Normal Tax. More details are given in Appendix A.1.

The impact on the estimated shares of different assessment periods depends on (1) the proportion covered within the 12 months and (2) the nature of those incomes requiring longer assessment. In Table A.6, we have shown the proportion of assessments (and of tax assessed) within 12 months, compared with the final totals reported as of 1955. The evidence for the income years prior to 1940 is re-assuring, since typically around 90 per cent of assessments had been completed, and the average tax per assessment did not differ greatly. However, from 1940, for reasons that are understandable, the proportion assessed fell and the proportion of tax assessed fell to a greater extent. The latter suggests that the taxpayers assessed later were not a random drawing, and evidence for this is provided by the results for IY1944-IY1949 for which we have both +12 months and +24 month figures (in 2 cases +36 month). As is shown in Table A.7, the estimated top income shares are typically higher with the 24 month assessment: for the top 1 per cent, the difference is around 5 percentage points.

In view of these findings, we have decided not to use the tax data for the years after 1939 for which we have only +12 month figures. The results for these years (IY1940-IY1943, and IY1950) are shown for reference in Table A.8. For the other years, estimates are based on the longest assessment period available. For the period from IY1955 to IY1961, the information is mostly available only for a 12-month assessment period, and we have assumed that, in these post-war conditions, these estimates are more complete. Finally, it should be noted that the estimates for the most recent year (2007) are preliminary and based on a smaller fraction of completed assessments, and may therefore give a smaller estimated share.

Control total for population

The South African income tax, as in most countries, was originally levied on the tax unit, treating a married couple as one unit, but since IY1990 has been based on the individual. We need therefore control totals for tax units from 1913 to 1989 and for total individuals from 1990. The derivation of these totals involves the following steps: (1) estimate of total population, (2) exclusion of those aged under 15, to arrive at an assumed total of "individuals" for tax purposes, and (3) before 1990, subtraction of the number of married women to arrive at a total for "tax units". The selection of the age of 15 is arbitrary but does not seem unreasonable.

We focus here on the estimation of the total population of South Africa, which is surrounded by a number of difficulties. (The steps (2) and (3) are described in the Appendix). The chapter on population in the 1949 *Handbook on race relations in South Africa* (Hellmann, 1949) opens with the statement that "the statistical facts concerning the bulk of our population are … utterly

inadequate. …Our Office of Census and Statistics has done excellent work, but it lacks the essential statistical raw material" (Sonnabend, 1949, p. 4). The first simultaneous count in the four territories later incorporated into the Union was carried out in 1904, but only four censuses of population in the next 45 years covered non-Europeans (1911, 1921, 1936 and 1946), and there was only incomplete registration of births and deaths. There were over that period also censuses in 1918, 1926 and 1931, but these covered only the European population. Moreover, there were grounds for supposing that the censuses in the early years significantly under-stated the size of the non-European population. "Each successive census enumeration of Africans, and to a lesser degree, of Coloured, has become more accurate and complete. The fact that the census of 1936 revealed the presence of 6,596,689 Natives against 4,697,813 in 1921 must be partly due to the inclusion in 1936 of a considerable number left out in the previous census. This likewise holds good, though to a lesser degree, of the census for 1946" (Sonnabend, 1949, p. 10). Working in the opposite direction was the fact that the 1946 census was based on the *de facto* population: i. e. those actually present. As a result, "a large number of immigrants and temporary labourers from neighbouring territories are included in the Union totals" (Sonnabend, 1949, p. 5).

The weaknesses of the South African population census may well have intensified during the apartheid period. Orkin, Lehohla and Kahimbaara say of the 1991 census "it was a pastiche of small-area detail, of variable quality, from the four 'states' and 'White' South Africa. … The counts from [the 'White'] areas were generally accepted as reasonably accurate. But in many urban 'townships', informal settlements and peasant-farmed rural areas, where the residents were overwhelmingly African, mapping was not uniformly available or else various areas were deemed inaccessible due to political unrest. In some cases household interviews were conducted but without prior demarcation. … In others, dwellings were counted on aerial photographs, and populations then imputed using household densities obtained from sample surveys" (1998, p. 268). It is therefore scarcely surprising that the *adjusted* data from the 1991 census give a total of 31.0 million compared with an *enumerated* total of 26.3 million (*South African Statistics 2009*, Table 2.3), a difference of 18 per cent.

In intermediate years, a further difficulty has been the fact that the published figures for years before 1991 are affected by the exclusion of the population of Transkei, Bophuthatswana, Venda and Ciskei (referred to as "the TBVC states"). This has the consequence that the table for total population in *South African Statistics 2009* (Table 2.3) has figures for 1904, 1911, 1921, 1936, 1946, 1951, 1960 and 1970 covering the whole of South Africa (except for Walvis Bay), but the data for 1980 and 1985 exclude the TBVC states. Figures are given for 1991 on the same basis and with the 1994 boundaries. The differences are large: it is estimated that the population of the former TBVC states at the 1991 census was 6.751 million.

In view of the difficulties caused by these two types of "missing" population (the under-enumerated and the TBVC states), we have worked back from the current mid-year population estimates (published by Statistics South Africa in the annual publication P0302), but have used the UN Population Division estimates to cover the period before 1991 when the TBVC states were excluded (the sources are given in Table A.3). This takes the series back to 1950. At that date, the series is some 7 per cent higher than the mid-year estimates published in the *Official Yearbook of the Union* (OYB) for 1954-55, p. 680. There is the further hiatus in the 1930s noted above. The OYB number 18 for 1938 reported (page 1035) that the population estimates had been revised in the light of the 1936 census, and the upward revision was substantial: the estimate for the total population in 1935, for example, was 9.4 million, compared with 8.6 million in the previous edition of the OYB (page 1047), an increase of 10 per cent. For 1949 and earlier years, we have therefore used the estimates given in Feinstein (2005, p. 258), which adjust for under-enumeration progressively from 1922.

The resulting series for total tax units and total adults are given in Table A.4A; the series for the Cape Colony are given in Table A.4B.

Control total for total income

The tax records only cover a part of total household income. One of the major contributions of Kuznets' study *Shares of upper income groups in incomes and savings* (1953) was to combine income tax data with national accounts estimates of total income. However, as noted earlier, he was preceded by ten years in this by Frankel and Herzfeld (1943), who made estimates of the European income distribution in South Africa. Drawing attention to the limited coverage of the tax return data on their own, these authors argued that "by combining the national income and income tax statistics … it is possible to obtain a more general picture" (1943, pp. 121-2).

The national income estimates provide our starting point here. Our aim is to compare the incomes recorded in the tax returns with the total of household income after transfers but before tax as recorded in the national accounts. This means that the comparison total is larger than the total of income that would be subject to tax if the personal tax allowances were removed; the control total includes for example Post Office Savings Bank interest that is not taxable if below a specified amount. To this extent, we are understating the top income shares since this non-taxable income is omitted from the numerator. The household income totals are however less than total national income. As is explained by Frankel and Herzfeld (1943, p. 128), household income is obtained by subtracting "income which is not distributed to individuals", that is undistributed company profits and the profits of official bodies, and by adding back the interest paid by

government and official bodies and transfer payments such as unemployment relief. Their total (not including transfer payments) for 1939/40 came to 94 per cent of national income. For 1953, the first overlapping year between the household income series of the Bureau of Census and Statistics and the net national income series of Frankel, the ratio is also 94 per cent.

In the South African context, it should be noted that the control total does not include incomes paid to foreign factors of production. There is an important distinction between national income and domestic income (see Franzsen, 1954, and Samuels, 1963). Geographical income "is reduced to a national basis by *adding* the income accruing to factors owned by its own citizens, but employed outside its frontiers, and *deducting* the income accruing to factors owned by foreigners, but employed within its frontiers" (Bureau of Census and Statistics, 1954, page 356). The most important deductions by the Bureau of Census and Statistics are for the wages of foreign workers employed in South African mines, profit income accruing to the owners of foreign capital invested in the Union, and interest paid abroad. This leads estimated total national income in 1951-52 to be some 90 per cent of total geographical income (although Franzsen, 1954, Table 1, suggests that the deduction for foreign capital is overstated). Multiplying 90 per cent by the earlier 94 per cent suggests that the household income series is some 85 per cent of geographical (domestic) product.

The control totals used here (see Appendix, Section A.4) are derived by working backwards from the recent published national accounts series to the older period. For 1953-2007, the National Accounts of South Africa give total Households' Disposable Income plus the Taxes on Income and Wealth paid by households: i.e. total household gross income. For the years before 1953, a series for household disposable income does not exist. Consequently we have linked the previous series backwards following net national income, assuming that household income moved in line. The need to make this assumption introduces a further element of uncertainty surrounding the control totals, although, given the long history of research on national income in South Africa, there are good reasons for believing that the South African totals are more reliable than those used in many other countries.

The resulting series for total reference income is given in Table A.4A.

Summary

We have devoted some space to the processes by which we arrived at the three sets of estimates examined in the next sections of the paper: Series A from 1913 (1903 for the Cape Colony) excluding dividend income, Series B from 1914-1915 including dividend income, and Series C from 2002. It is not straightforward

to go from the published income tax tabulations to estimates of top income shares. In order to see how the data can be employed, it is necessary to examine the structure of the tax system and how it has been administered. The income tax data can only the interpreted in the light of external information and the assembly of this information for a period of some hundred years requires a considerable investment. An understanding of these processes is necessary to appreciate the limitations of the estimates, but may also provide confidence in their use.

2. Top income shares in South Africa

Our estimates for top income shares span a period that saw substantial growth in average real income per head, but at far from a uniform rate. As may be seen from Figure 1, average real income per adult rose from 1913 to 1928, fell in the Great Depression, and then grew rapidly up to the beginning of the 1970s. Growth was un-interrupted by the Second World War. In 1913, South Africa had a much lower per capita GDP than Australia, Canada and New Zealand (Feinstein, 2005, p. 6), but it grew faster from 1913 to 1950 than these other Dominions. By 1971, real income per head was some 4 times its 1913 value. Real income per adult then, however, began to decline, while at the same time inflation accelerated, so that by 1994, real income per adult was some fifth lower than a quarter of a century before. According to Feinstein (2005, p. 7) GDP per head fell by 0.6 per cent per year between 1973 and 1994. Only in this century has growth in real income per adult been resumed.

What was happening to top incomes over this period? For the top 1 per cent, the first results are limited to series A, which excludes dividends, shown in Table A.5A. The results relate to tax units (up to IY1990) and to assessed (gross) income before tax. In 1914 the share was around 20 per cent, meaning that this group had on average some 20 times their proportionate share. For the top 0.5 per cent, the share was around 15 per cent, and for the top 0.05 per cent around 5 per cent, implying that these groups had, respectively, 30 and 100 times their proportionate shares. For the last of these groups, we may, from 1917 onwards, compare the shares with and without dividends: the difference is typically between 15 and 25 percent, so that a share of 4 per cent in 1920 excluding dividends corresponds to one of 5 per cent where dividends are included. The two series may be compared in Figure 2.

Figure 2 shows the full run of years for the top income shares, combining all three series, A, B and C. The first conclusion is that this is not a case of long-run stability. The instability is in part short-run. Both the First and Second World Wars saw an upward spike in the top shares. But, leaving these episodes aside, the overall impression is that of a continuing downward trend from 1913 to the 1980s. The share of the top 1 per cent, which was around 20 per cent in 1914, was around

10 per cent in the early 1990s. The share had been halved. Our conclusions about the long-run development differ from those of Graaff, who found that: "the concentration (and so the distribution) of incomes … is stable in the long period and subject to considerable variations in the short" (1946, p. 46). He was, of course, only able to use data for the first part of the century. In part our conclusions may be different because we are using the Normal Tax data, which exclude dividends but allow us to cover more of the distribution. This does not seem, from our earlier comparison, to be of great significance for the trend. Of more importance are (1) that we are using control totals to estimate the shares in total income and (2) that the shape of the upper part of the distribution may have changed over time, an aspect we discuss further below.

The long-run fall over much of the twentieth century is similar to the pattern in other countries (see Atkinson and Piketty, 2010). In the majority (but not all) of those countries, there was a reversal of this trend in the final part of the century. Simply joining the points in Figure 2 for 1993 and 2002 would indicate that the top income shares have also increased in South Africa.

Taking the recent figures in isolation, the top incomes estimates bear out the picture of South Africa as a highly unequal country. The share of the top 10 per cent in gross income, which in 2005 began at about 80,000 Rand, is close to 45 per cent; the share of the top 5 per cent, which began at about 150,000 Rand, is over 33 per cent, and that of the top 1 per cent, which began at about 400,000 Rand, is above 15 per cent. The top 0.1 per cent, which began at around 1 million Rand, has fifty times their proportionate share of gross income; the top 0.05 per cent has some seventy times their proportionate share. Moreover, the years 2002-2006 show no downward trend (at the moment of writing this paper, the 2007 figure is affected by incomplete assessment).

Investigating the fall in top income shares over the twentieth century

In considering the fall in top income shares in South Africa over much of the twentieth century, we have to bear in mind the limitations of the estimates. As noted in the previous section, the estimates from 1963 onwards are subject to greater interpolation error. In Figure 3 are displayed the bounds described earlier in the text. These show that the estimate of 10 per cent for the share of the top 1 per cent in the early 1990s could be 12 per cent, but this would not greatly change the picture. Moreover, working in the opposite direction is the fact that the estimates for the more recent decades include dividend income. Inspection of the estimates for the very top shares for years where we have data both excluding and including dividends (see the years up to 1953 in Figure 2) does not suggest that the time trends are very different.

The speed of fall in top income shares has varied over time: it was faster in the 1930s and in the 1950s. The fall also differs across the different income groups. Figure 4 shows the share of the top 0.5 per cent (as in Figure 2) and the share of the next 0.5 per cent (shown as the top 1-0.5%). Whereas the share of the top 0.5 per cent went from around 15 per cent to around 6 per cent (a fall of some 60 per cent), the share of the next 0.5 per cent fell from 6 per cent to around 3½ per cent, which is a proportionately smaller decline. This suggests that the *shape* of the upper part of the distribution has been changing; it is not simply a question of all incomes being scaled back proportionately.

The changing shape may be examined by looking at the "shares within shares": the share, for example, of the top 0.5 per cent in the total income of the top 1 per cent. From Figure 4, we can see that the top 0.5 per cent within that of the top 1 per cent was around three-quarters in 1914 (15 per cent out of 20 per cent). By 1939 the proportion had fallen a little to around 70 per cent, and by the end of the 1980s it was down to around 60 per cent. The within-group distribution became less concentrated. The same is true for the share of the top 0.1 per cent within the top 1 per cent, which fell from around a quarter in 1954 to around a fifth at the end of the 1980s.

The shares-within-shares calculation has the advantage of not relying on the control totals for income, and thus avoiding the uncertainties surrounding these totals noted in Section 1. In Figure 5, we show the information about the share of the top 0.1 per cent (denoted by S0.1) in the share of the top 1 per cent (denoted by S1) in the form of inverted Pareto-Lorenz coefficients. If the upper tail of the distribution follows a Pareto distribution, then at any income level, y, the mean income above y is a constant multiple, ß, of that income. The multiple ß is referred to as the inverted Pareto coefficient, and it is a convenient summary of the degree of concentration at the top of the distribution. ß is related to the more usual Pareto coefficient, α, by the formula, $ß = α/(α-1)$. The addition of "Lorenz" to the name refers to the fact that the coefficient is estimated from the income shares, using the formula that $1- 1/α = \log_{10}\{S1/S0.1\}$. From 1913 to the end of the 1940s, the inverted Pareto coefficient was around 2.0; when the series resumed in 1954, the value was around 1.67 and fell up to the end of the 1980s, when it was around 1.5. For the years 2002-2007, the coefficient was around 1.75.

The inverted Pareto coefficient is employed here as a convenient summary statistic; our use of it should not be taken as endorsing the view that the upper tail of the distribution in South Africa is close to Pareto in form. As was noted by Leslie (1935), the fitted coefficients vary with the income level chosen. As may be seen from Table A.5A, the inverted coefficient estimated from the share of the top 0.01 per cent within the top 0.1 per cent starts from a similar value in 1914 (around 2) but exhibits a downward trend after the First World War. This suggests the need for a richer parametric description of the upper tail.

To this point, we have not discussed the very earliest estimates: those for the Cape Colony for 1903 to 1907. The Colony contained, in 1907, some 1.2 million tax units, compared with 3.2 million tax units in the Union in 1913. We have not been able to make any reasonable estimates of total income for the Colony, so that the results are presented in Table A.12 in terms of shares-within-shares. The findings may be compared to those for the Union in 1914. The top 0.5 per cent in 1907 had 70 per cent of the total income of the top 1 per cent, which is quite close to the 72 per cent for the Union seven years later, but higher up the scale the incomes appear less concentrated, with inverted Pareto coefficients around 1.75, rather than 2.

Summary

The evidence presented about top incomes above bears out the widespread view that incomes in South Africa are highly unequally distributed. The share of the top 5 per cent in gross income in 2005 is over a third, that of the top 1 per cent is above 15 per cent. There has been a fall in top income shares in South Africa over much of the twentieth century and incomes within the top groups have become less concentrated. The limited evidence for the present century suggests however that there may be now an upward trend in top income shares.

3. Seeking to explain the evolution of top income shares in South Africa

There are many factors that could explain the picture we have described. Here we consider only three, as indicated by the title of our paper. They do in fact correspond to those highlighted in the subtitle of Feinstein's (2005) economic history of South Africa: conquest, discrimination and development.

Differing colonial legacy?

Our data on top incomes have the advantage of covering virtually the entire period since South Africa became, when the Union was formed, a self-governing dominion, and increasingly acquired further political powers, culminating in full independence. In this regard, its initial political history was similar to that of Australia, Canada and New Zealand, and it is therefore useful to draw a parallel. How far is their current distribution a reflection of the colonial past? Did South Africa have a different colonial legacy? In considering this question, a potentially important role is played by the differing sizes of the indigenous population, and this is the subject of the next section.

In Figure 6, we compare the findings for South Africa with those for the three other dominions and with those for the United Kingdom (the former colonial

power) and the United States. Figure 6 shows the income shares of the top 1 per cent, and Figure 7 the inverted Pareto coefficient calculated from the share of the top 0.1 per cent and the share of the top 1 per cent. As noted earlier, the latter calculation is not affected by differences in the estimation of total incomes, where the different country estimates have followed similar but not identical procedures (see Atkinson, 2007). The data start from 1921 (although the 1919 figure has been taken for the UK); the estimates for New Zealand for 1998-2000 have been omitted since they were affected by tax changes (see Atkinson and Leigh, 2008, p. 159).

Immediately after the First World War, the share of the top 1 per cent in South Africa —around 20 per cent— was higher than, or close to, the shares in the UK and North America. It was well above the top shares in Australia and New Zealand, these being close to 10 per cent. As we have seen, the top shares fell in South Africa over the twentieth century, but the fall was less sharp than in the UK and North America. By the middle of the century, the share of the top 1 per cent in South Africa was about half as high again as the equivalent shares in the US and the UK.

The share of the top 1 per cent continued to be higher in South Africa in the post-war period. By the end of the 1970s, the shares had fallen to between 5 and 8 per cent in the other countries, but in South Africa the share remained stubbornly above 10 per cent. Subsequently, the gap began to narrow, as the top shares increased in all of the Anglo-Saxon countries after 1981 (shown by the vertical line in Figure 6), but those in South Africa tended, if anything, in a downward direction. As we have noted, the recent South African figures are not necessarily comparable, but it may be seen from Figure 6 that the share of the top 1 per cent in South Africa is not dissimilar from those in Canada, the UK and the US. At around 15 per cent, the top share is distinctly higher than in Australia and New Zealand. In that sense, the situation today may be close to that after the First World War. In terms of top shares, South Africa ranks with the more unequal Anglo-Saxon countries.

In contrast, the distribution *within* the top 1 per cent appears rather less concentrated in South Africa. This difference in the shape of the upper part of the distribution is reflected in the inverted Pareto-Lorenz coefficients calculated from the shares of the top 0.1 and 1 per cent shown in Figure 7. In this respect, the legacy of colonialism in South Africa was not one of high concentration. Our findings are similar to those of Leslie (1935) who concluded that the South African Pareto coefficient showed less inequality. From Figure 7, we can see that in the period up to 1950 the inverse coefficient (where a higher value indicates more concentration) was lower in South Africa than in the UK and the US (and Canada), with the exception of the Second World War spike (when South Africa moved in the opposite direction from the UK and the US). The South African coefficients were typically close to those for Australia and, from the 1950s, not far above those for

New Zealand. Indeed, the values recorded for South Africa in the first half of the 2000s were less than 2, whereas for the other countries the values were typically above 2.0. A person at the entry point to the top 1 per cent would find that incomes, on average, rose less steeply in South Africa than in the other comparison countries.

Apartheid

One major difference between South Africa and the other countries considered above lies in the racial composition of the population. From IY1956 to IY1987, the South African income tax statistics are published with a classification by race: White, Coloured, Asian and Bantu. In some years, however, the Bantu are not included. For these years, we can see the make-up of the top income groups.

From Table A.9 it may be seen that the top income groups in 1957 were overwhelmingly White. In 1956, the top 5 per cent consisted of 325,400 tax units, of whom 320,000 were White, 3,700 were Asian, 1,400 were coloured and 160 were Bantu. The composition did shift over the following thirty years, in that in 1987 the top 5 per cent consisted of 782,000 tax units, of whom 708,000 were White, 24,300 were Asian, 30,300 were coloured and 19,200 were Bantu. But the top incomes remained highly concentrated: in 1987, Whites were 90.6 per cent of the top 5 per cent, 96.7 per cent of the top 1 per cent, and 97.5 per cent of the top 0.1 per cent. The last of these figures means that of the 15,600 tax units in this group, which began at about 100,000 rand per year, only some 400 were non-White. As may be seen from the graphical representation in Figure 8, there was little change in the degree of dominance of the White population in the upper income groups over this period.

The impact of racial differences can be seen by considering the distribution among the White population on its own. Table A.10 shows the estimated distribution among the White population for the period 1956 to 1987. The orders of magnitude are clear from the following calculation. In 1956, the overall share of the top 1 per cent was 13.9 per cent. Since at the time the White population represented 20 per cent of all tax units, and constituted the vast majority of the top income recipients, this corresponded to approximately the share of the top 5 per cent of the White population. Such an income share (13.9 per cent for the top 5 per cent, as Table A.10 shows) would have placed them at that time well below the share recorded in 1956 in New Zealand (23.5 per cent). However, in contrast to what happened to top shares in most countries, there was only a modest decline over time in the degree of concentration within the White population. The share of the top 1 per cent was initially around 5 per cent, but by the end of the period had fallen to 4 per cent. The modest size of the fall means that, by the 1980s, there was much less difference from the Australian and New Zealand figures (for the

whole population). The share of the top 5 per cent among the White South African population, at 11.3 per cent in 1985, may be compared with 15.6 per cent in Australia and 16.7 per cent in New Zealand.

Apartheid affected not only the internal distribution but also the external economic circumstances of South Africa. The mid-1980s saw the adoption of economic sanctions by the Commonwealth, by the European Communities and by the US Congress. The impact has been much debated, but we have noted that during this decade the top income shares in South Africa failed to rise, unlike those in other countries shown in Figure 6 (this is the period after the vertical bar).

The gap in the data between 1994 and 2001 prevents us from analysing the dynamics of top incomes in the crucial years immediately following the end of apartheid. Evidence from households' surveys conducted in 1993, 2000 and 2008 (see Leibbrandt et al., 2010) indicate that inequality increased steadily, both within the whole population and within each racial group, especially among Africans. Van der Berg and Louw, 2004, note that "rising black per capita incomes over the past three decades have narrowed the interracial income gap, although increasing inequality within the black population seems to have prevented a significant decline in aggregate inequality" (p. 568-569). At the same time, poverty has remained virtually constant (or fallen slightly) over the same period. Both facts (increasing inequality and stable poverty) are consistent with the rising trend in top income shares recorded between 2002 and 2007 (Table A.5C).

Development and natural resources

Alongside the colonial and political story, there was the development of the South African economy: "following the development of the diamond fields of Kimberley in the early 1870s, the South African economy achieved a hundred years of successful economic growth. … a relatively backward country, almost wholly dependent on a largely self-sufficient agricultural sector, was transformed into a dynamic, modern, capital-intensive economy" (Feinstein, 2005, p. 200). How far can the time path of top shares in South Africa be due to its distinctive pattern of economic and social development? One tends to think of the role of gold production and minerals, but South Africa was not alone in its natural resource wealth. In fact, as noted by Feinstein, Australia, Canada, New Zealand and South Africa are "natural benchmarks": "all four had achieved their initial growth in the nineteenth century by exporting primary products from their farms, forests, and mines, and were seeking in the twentieth century to develop their secondary industries with the aid of protective duties. All four were relatively small, and struggling to compete with larger, well-established industrial nations such as Britain and the United States" (2005, p. 132).

Figure 9 shows the changes over time in the share of the top 1 per cent in each of these four countries indexed at 100 in 1921 for the four former dominions. As may be seen, the trajectories are remarkably similar for some 50 years. The top shares may have started at a higher level in South Africa, but they fell at a very similar rate. There are undoubtedly differences between the countries, but they should be seen against the background of a common downward trend.

The country differences reflect the differences in natural resource endowments. Each country had spikes corresponding to booms in particular commodities, such as that reflecting wool prices boom in Australia in 1950. In the case of South Africa a key role is played by gold production and the gold price. South Africa dominated world gold production for much of the century: in 1913 it produced 40 per cent of world production, rising to 50 per cent by 1930, falling as a percentage as world production grew in the 1930s, but then rising to 60 per cent in the 1960s (Figure 10). Production of gold in South Africa peaked in terms of tons in 1970 and after that fell both absolutely and relatively. Other minerals, notably coal and platinum, have increasingly taken the place of gold – see Figure 11, which shows the value of sales at 2007 prices. The estimates of Katzen (1964, Table 9) show gold mining as accounting for 20 per cent, and mining as a whole for 28 per cent, of total geographical income of South Africa in 1911/12. By 1929/30 these percentages had fallen to 13 and 17 per cent, but gold production recovered in the 1930s. The significance of gold production became less as manufacturing grew in the period after the Second World War, but it remained between 8 and 10 per cent of total geographical income in the 1950s and early 1960s.

The distributional impact of gold, and other mineral production depends on the organisation of the industry. As observed by Feinstein, in the case of diamonds, "the day of the small independent digger … did not last long" (2005, p. 99). The process of amalgamation and consolidation "had effectively been accomplished by the late 1890s, with De Beers Consolidated Mines, under the control of Cecil Rhodes, in complete command of the industry" (Feinstein, 2005, p. 99). In the case of gold, the nature of the deposits, which were in the form of particles embedded in quartz, mined at deep levels, meant that considerable investment and technical expertise were required. "Within a short time the industry was highly concentrated under the control of six giant mining and finance houses" (Feinstein, 2005, p. 103). A substantial part of the investment came from overseas: "only through the continuous supply of capital from international capital markets was the development of the South African gold mining industry made possible" (Frankel, 1967, p. 3). It was also the case that the industry depended on the employment of African workers from outside the Union, particularly in the earliest years. According to Read, workers from Portuguese East Africa were "the first to come in any large numbers when the Witwatersrand goldfields opened up" (1933, p. 398). However, the balance shifted and Katzen reports that "the percentage of Union to non-Union Africans rose from 43.8% in 1929 to 55.7% in 1932" (1964, p. 80).

The payments to foreign investors and to non-Union workers mean that a significant part of the industry value added did not enter the South African distribution of income. The low level of wages meant that the payments to non-Union labour were a small percentage: for the year 1952-53, the official estimate is that they accounted for £16 million, or 1.1 per cent of total geographical income (Bureau of Census and Statistics, 1954, p. 364). The payments to overseas investors were larger. According to Katzen, "approximately three-quarters of the dividends of the gold mines in 1930 went to overseas shareholders" (1964, p. 80). For the year 1952-53, the official estimate is that they accounted for £54.7 million, or 4 per cent of total geographical income (Bureau of Census and Statistics, 1954, p. 364).

These foreign factors clearly have to be taken into account when assessing the overall influence of the gold and mining industry. But the domestic distribution of income was not unaffected. Figure 12 shows the growth of minerals and gold sales, expressed in 2007 prices, and the growth of the income of the top 1 per cent, again expressed at 2007 prices. The series move closely together, up to the 1970s. Despite the drop in gold sales in recent years, this communal movement seems to have resumed, but with non-gold mineral resources.

We may note for example the rise in the value of gold production following the abandonment of the gold standard in 1932. The average price of gold per oz rose from R 8.5 over the period 1925-1932 to 12.5 in 1933 and 14.2 in 1935 (Houghton, 1964, p. 102). It is not surprising that contemporary commentators (Leslie, 1935 and 1936) suggested that the rise in gold price had increased inequality. Figure 5 shows that the inverse Pareto-Lorenz coefficient tended to rise over the 1930s. However, this also illustrates the importance of using control totals, since it was not just top incomes that were increased. As may be seen from Figure 13, both the average income of the top 1 per cent and the overall average income rose after 1931. Top income shares were falling over this period —see Figure 2—, a fall that cannot be accounted for solely by the omission of dividends. Mineral resources are a part of the story that needs to be further investigated using the long time series that we have constructed.

Summary of main findings

The income tax publications offer a rich store of historical data about the evolution of top incomes in South Africa. The data do not allow a single series to be assembled, but we have constructed three series for the period from 1913 to 2007. Together with estimates for the earlier Cape Colony, the series span more than a hundred years.

The construction of the estimates has been described at some length in order to underline their limitations, which mean that there are several potential

sources of error. The hiatus in the latter part of the 1990s means that we cannot compare the apartheid and post-apartheid periods. However, the estimates of top income shares for recent years bear out the picture of South Africa as a highly unequal country. The share of the top 10 per cent in gross income is almost a half; the top 0.1 per cent have fifty times their proportionate share.

Our estimates track the evolution of top incomes over a long run of years, including the first half of the century when real incomes grew and the later decades that led to the collapse of apartheid. Top income shares were not stable. There were short-run movements and long-term trends. The share of the top 1 per cent was halved between 1914 and 1993. The degree of concentration within the top 1 per cent declined: people at the entry point in 1914 saw those above as having on average twice their income, whereas in the early 1990s the advantage was only some 1½ times.

How far was the colonial legacy different in South Africa? We have compared top income shares in South Africa with three other former dominions: Australia, Canada, and New Zealand, as well as with the UK and the US. Immediately after the First World War, the share of the top 1 per cent in South Africa —at close to 20 per cent— was higher than, or close to, the shares in the UK and North America. It was well above the top shares in Australia and New Zealand, these being around 10 per cent. Although top shares fell in South Africa, this fall does not appear to have been, at least up to 1980, at a faster rate than in the other dominions. The initial differences, with South Africa having high top shares, appear to have been a persistent feature. Today, in terms of top income shares, South Africa ranks with the most unequal Anglo-Saxon countries. At the same time, as has been observed by earlier researchers, there is less concentration *within* the upper income groups. People at the entry point to the top 1 per cent would find that incomes, on average, rose less steeply in South Africa than in the other comparison countries.

The income tax data for 1956 to 1987 allow us to examine the racial composition of the top income groups. These were, unsurprisingly, overwhelmingly White. But it is interesting to see how little change took place in the degree of dominance of the White population in the upper income groups over this period.

In considering the distributional impact of gold and other mining, account has to be taken of the role of foreign capital and workers, but the domestic distribution is also affected, and the variation with the natural resource market conditions merits further investigation.

The rising trend in top shares in recent years could be associated to the favourable conditions in the world market for agricultural commodities, the increase in the value of minerals other than gold, and the developments in financial sector, as these are the main activities of the richest South Africans in

the Sunday Times rich list, but better data are needed to establish a more formal link.

APPENDIX

A.1 The Income Tax in South Africa

Prior to the formation of the Union of South Africa, the taxation of incomes and profits (apart from mining profits) was enforced in the Cape Colony and in Natal. The Additional Taxation Act, 1904, introduced income taxation in the Cape of Good Hope, both on companies and persons, subjecting to tax for the first time "all taxable incomes arising or accruing during the twelve months ended 30th June 1904, exceeding £1,000 per annum at the rate of six pence in the pound upon all incomes exceeding one thousand pounds and not exceeding two thousand pounds, and in addition thereto nine pence in the pound on so much as exceeds two thousand pounds up to five thousand pounds, an in addition thereto, on shilling in the pound on so much of all incomes as exceed five thousand pounds" (Additional Taxation Act, 1904, section 50). The incomes of married women without community of property were assessed individually. Taxable income referred to employment income, including employment in the public service, rents of all property in the Cape Colony, dividends and interest, and "any other source of income whatever arising or accruing in Cape Colony" (*Report of the Commissioner of Taxes for the Year 1904-1905, p. 42*). In IY1903 there were 2,193 taxpayers.

The Income Tax Act, 1908, regulated income taxation in Natal, but was short lived. On the establishment of the Union in 1910, the Natal income tax was abolished, while that in the Cape was allowed to lapse, as it was not re-enacted after 1909. By 1914 the need for additional revenue had rendered it necessary for the Union government to incorporate an income tax into its fiscal system. The Income Tax Act, 1914, established the income tax (later called the Normal Tax) in all the territory of the Union. "It was estimated that there would be 5,000 taxpayers. The number of assessments made was 5,742" (5,140 individuals and 602 companies), *Report on the Working of the Income Tax Act, 1914, for the Year ended 30th June 1915*, p. 2. "The Act has worked satisfactorily on the whole; the public as a rule have recognized the necessity for fresh taxation, and have accepted their liability to contribute towards the country's requirement," p. 5.[6]

The Union income tax was based on personal reporting. "The system of collection at the source is more effective against leakage […]. The objection to this system is that it results in the collection of tax on incomes which are not liable to tax, thereby involving refunds. In the United Kingdom during the year 1912-1913, repayments numbering 635,046 and amounting to £3,399,000 were made. With a high limit of exemption the number of repayments would be increased. The system adopted here, and in Australia and New Zealand, of assessments on personal declarations is better suited to the conditions of this country, and is the only practicable one where the tax is graduated. There is bound to be leakage, but this will be gradually reduced as the Department's organisation is extended, and information is accumulated" *Report 1914*, pp. 6-7. The tax had a limited scope, as

[6] Hut and poll taxes were imposed on the native population. In 1915, native taxes represented 9% of the Union tax collections, while the income tax (on persons and companies together) was 11%. In 1919 those figures were 5% and 30% respectively.

provision was made for the exemption of all incomes under £1,000, as well as for a fixed abatement of £1,000 in respect of all taxable incomes. Individuals were exempted from taxation on dividends and debenture interest received from companies which had paid the income tax or the mining profits tax. The maximum tax rate was, in 1913-1914, 1 shilling and 6 pence per pound of taxable income for those individuals with taxable incomes above £24,000. As a result of fiscal necessity due to the First World War economic conditions, the exemption and the abatement were reduced to £300 for income year 1914-1915, no abatement was allowed for taxable incomes above £24,300, family-based allowances were introduced, and the maximum tax rate was increased to 2s (Act No. 23 of 1915). For tax year 1916, a super tax was also levied on the annual incomes of individuals which exceeded £2,500 averaged over the two IY1914 and IY1915 (and Act No. 35 of 1916), with a maximum rate of 3s in the pound.[7]

A reform through the Income Tax Consolidation Act, 1917, re-structured income taxation around a main tax, the Normal Tax, supplemented by the Super Tax (in force until income year 1958-1959) and by other levies on incomes arising in the Union.[8] Taxable income was all income, other than exempt income, less all allowable deductions. Dividends were not taxed under Normal Tax but subject to Super Tax. Interest on Union Loan Certificates and Savings Levy Certificates were exempted as well as interest on small savings accounts and on some treasury bonds up to a threshold. A distinction was introduced between married and single persons by granting different abatements (for married individuals it was initially £300 a year, subject to the taxable income not exceeding £24,300, while for single persons it was reduced by £1 for every £ of taxable income in excess of £300). The portion of income derived from mining from gold was subject to a tax rate supplement.[9]

The *Super Tax* was an additional tax on incomes exceeding £2,500 (limit lowered to £2,000 since income year 1940, and to £1,775 since income year 1943), applying only to individuals who were resident or carrying business in the Union. The abatement of £2,500 was subject to a reduction of 10s. for every pound by which the supertaxable income exceeded £2,500, i.e., no abatement was applicable to incomes above £7,500. Its main purpose was to tax the top income resident at a higher rate than the non-resident and thus reduce the liability of double taxation. The sources of income from which the Super Tax was derived were the same as for the Normal Tax, plus dividends.[10] Since income year 1931 the

[7] The feature of averaging taxable incomes over two years only applied to tax year 1916, when the Super Tax was levied on the mean income subject to Normal Tax and dividends that accrued over the period 1st July 1914 – 30th June 1916.

[8] The *Dividend Tax* fell mainly on the profits of foreign capital invested in the Union through limited liability companies and served "to secure a higher rate of tax in respect of unearned income as distinct from income arising from personal exertion. It also enables tax to be recovered in bulk at the source." (Report 1918-1919, p. 11). The *Excess Profits Duty* (starting income year 1916 and ending 30th June 1920) was a temporary tax levied on increased trading profits during the First World War.

[9] "The whites who are occupied –i.e., have some definite income-earning occupation- numbered, according to the census of 1918 (omitting children under fifteen), 478,000, so that not one in eight of them, even, pays income tax" (Lehfeldt (1922), pp. 57-58).

[10] For an account of the evolution of income taxation in the first years of the Union, see Kock (1927).

Super Tax was extended to private companies and, where a number of private companies were controlled by a single person, all their income was aggregated for the purpose of determining the amount of Super Tax payable. The Super Tax survived until income year 1958 (with some changes under the provisions of the Income Tax Act of 1941), when it was provided that only a fraction of dividends received (ranging from 0% for taxable incomes below R2,600, to 66.6% for taxable incomes above R4,600) would be included in the Normal Tax base.

Table A.1 summarizes the main features of the Normal and Super Taxes schedules between 1913 and 1959.[11] From 1959, block rates took the place of the progressive-rate formula that had been applied before. Until income year 1961-1962, the year of assessment covered the twelve months between 1st July of year t and 30th June of year t+1. Since income year 1963-1964, the assessment year covers the twelve months between 1st March of year t and the end of February of year t+1. Due to the change in timing, there was a shorter transitional income year of eight months between 1st July 1962 and 28th February 1963, for which no income tabulations were produced.[12] This coincided with the transition to the pay-as-you-earn system of tax collection.

The provinces were allowed to raise additional taxes. In 1921 the provincial council of the Orange Free State introduced an income tax (known as the education tax), superseded in 1925 by a combined poll and income tax on persons, and an income tax on companies. In Natal, in 1926, a combined poll and income tax was also enforced; it was replaced the following year by three taxes: a graduated poll tax, an income tax levied on individuals liable to the Union Normal Tax, and a tax on companies. The same taxation structure had been developed in the Transvaal in 1921. The fiscal powers of the provinces were later regulated by the Union Financial Relations Consolidation and Amendment Act, 1945, the Financial Amendment Act 1957 and the Finance Act 1960, which established the taxes that may be levied by the provincial authorities: a Personal Tax on individuals residents in the province; an Income Tax on personas, calculated as a percentage of Normal and Super Taxes; and a Company Tax.[13]

Today, the Personal Income tax is the government's main source of income and is still levied in terms of the Income Tax Act of 1962. Tax is applied on taxable income that, in essence, consists of gross income less exemptions and allowable deductions. Opposed to the description cited above from the report on the Income Tax Act of 1914, today more than 95% of the tax comes from a pay-as-you-earn schedule. The Standard Income Tax on Employees (SITE) is not a separate kind of tax but a payment towards the employee's income tax liability: as it is the case in

[11] There was also a *Non-Resident Shareholders' Tax* (Income Tax Act 1941, charged on dividend income derived by non-residents from Union sources and additional to the normal tax or super tax), and an *Undistributed Profit Tax* (Income Tax Act 1941, until income year 1950).

[12] Report 1963-1965, p. 1: "The year of assessment ended 28th February 1963, covered a period of eight months and was known as the tax-free period which was introduced in order that the transition from the old system of tax collection after the end of the tax year to the present pay-as you earn system could be effected without hardship. The statistical data which could have been extracted from returns for that period would thus have been unrealistic and have served no purpose. For that reason statistics in respect of the 1963 tax year have not been extracted."

[13] For details on provincial taxes, see Income Taxes in the Commonwealth, 1951, 1956.

many countries, employees receiving only labour income below a given threshold are not required to file a tax return, as SITE is their full and final liability.

Taxed income includes labour income (cash remuneration, cash allowances and non-cash fringe benefits), pensions, capital income (interest from bank accounts above a given threshold, dividends from foreign companies; dividends from South African to varying degrees), business income and rents. One fourth of net capital gains are today included in the definition of income. In fact, although capital gains taxation has been broadly discussed over the last forty years (see South African Revenue Service (2009), Franzsen Commission (1968), Margo Commission (1987), Katz Commission, 1995), it was not introduced until 2001 through the Taxation Laws Amendment Bill (B17-2001) and the Taxation Law Amendment Act.

The tax unit: Both the Normal Tax and the Super Tax were originally levied on the tax unit, treating the married couple as one unit. In the late 1980s, a process of eliminating gender discrimination started. In 1988, the salaries of married women only subject to the Standard Income Tax on Employees (SITE) began to be taxed separately; this affected mainly low earning women who would not need to file for the tax after the reform either. In 1990 the incomes of married women became subject to tax separately from her husband's income. Although taxed individually, until 1994 women faced a higher rate than their husbands': three different tax schedules affected married "persons", unmarried persons and married women.

The Income Tax Act defines a spouse in relation to any person as a partner in marriage, customary relationship or union recognised as a marriage; the definition also includes a same-sex relationship. For spouses married in community of property, income received by spouses is treated as being received in equal shares by each spouse; however, a salary from a third party is treated as being the income of the spouse who receives that salary, as well as benefits from pension, provident and retirement annuity funds; income earned from carrying on a trade jointly accrues to each partner according to the agreed profit-sharing ratio. Since 1995 a single tax rate structure is applicable to all individuals irrespective of gender or marital status.

A.2 Sources of Income Tax Tabulations

The sources of income tax tabulations are listed in detail in Table A.2. There are the following gaps in coverage:

1. IY1951 and IY1952, as a result of arrears of wartime work, no publication between Report 1951-52 (published in 1953) and Report 1953-56 (published in 1957);
2. IY1960 and IY1962 as a result of the introduction of PAYE;
3. IY1966, IY1968, IY1970, IY1973, IY1976 and IY1977;
4. IY1994-IY2001.

A.3 Control totals for tax units and individuals

The sources for the three steps identified in the text are set out in Table A.3, covering (1) total population (described in Section 1), (2) the age structure of the population, and (3) marital status for women.

Data on the population by age has been interpolated from yearly figures obtained from publication P0302 (Table 6) for 2006, the censuses for 2001 (Table 4.3) and 1996 (Table 2.16), and data from the United Nations (1994), which give the age composition at 5-year intervals from 1990 back to 1950.

For the period prior to 1990, the number of tax units is obtained from the number of people aged 15 and over minus the estimated proportion who are married women. The ratio of married women to those aged 15 and over is taken from the census of population for those years where all races are covered: 1911, 1921, 1936, 1946, 1951, 1960, 1970, 1980 and 1991 —see Table A.3 for the sources. It is simply assumed that the same proportion applies for the two "missing" groups: the under-enumerated and the TBVC states. The ratio is linearly interpolated.

Concerning the white population, the problems derived from under-enumeration and from the exclusion of the TBVC states are unsurprisingly much more limited. In the revision of estimates following the 1936 census mentioned in Section 1, the numbers for the white population remained virtually untouched when OYB 1938 (p. 1035) and OYB 1937 (p. 1047) are compared. At the moment of the 1991 census it was estimated that only 6,000 white individuals lived in the TBVC states. However, the count of white individuals was not immune to the problems of the 1991 census: Statistics South Africa, 2009, Table 2.3 reports a 10% difference between enumerated individuals (4.522 million) and adjusted figures (5.068 million). There is also a large an evident discrepancy between this adjusted total and the mid-year estimate published in P0302 1998, Table 1.2, which reports a white population of 4,328 million. Louis van Tonder, demographer at Statistics South Africa, has acknowledged that the mid-year estimates for 1991 published in 1998 were too low, the number having been revised now to 4,754 million. For our series we have used the largest figure, but this does not affect the top share estimates among the White, as they stop in 1987. The out-migration of white South Africans has been considerable since 1991, and the white population is still declining as a result of this.

For the period prior to 1990 and along the lines of the previous paragraphs, the number of tax units of white origin is obtained from the number of people aged 15 and over minus the proportion of married women. The total population, the fraction of married women and the percentage of those aged 15 and over is taken from the census of population for those years where Europeans were covered: 1911, 1918, 1921, 1926, 1936, 1946, 1951, 1960, 1970, 1980, and 1991. We also provide the number of white adults for 1991-2007, although our estimates of top income shares among the white population stop in 1987. In this case, the information comes form the censuses 1996 and 2001, and from the mid-year estimates for 2002-2007. Intermediate years have been linearly interpolated.

For the Cape of Good Hope, the population, the percentage aged 15 and over and the percentage of married women are based on the Census figures for 1904 (only total and white population available) and 1911. The estimates for individual years are interpolated linearly, and extrapolated backwards to 1903. The percentage aged 15 and over and the percentage of married women for 1903 are set at the level of 1911.

A.4 Control totals for income

The control totals used here are derived by working backwards from the national accounts series for Households' Disposable Income plus the Taxes on Income and Wealth paid by households. The series for 1953-2007 are taken from the National Accounts of South Africa. The South African Reserve Bank webpage, Online Statistical Queries, provides the last updated figures. The national accounting methodology is described in South African Reserve Bank (2005).

For the years before 1953, a series for household disposable income does not exist. Consequently we have linked the previous series backwards following the net national income from (i) Bureau of Census and Statistics (1956, page 157) for 1953-1954, and (ii) Bureau of Census and Statistics (1954, page 359). These are mainly based on the research of Frankel (1941, 1943 and 1944, Frankel and Neumark, 1940, and Frankel and Herzfeld, 1943).[14]

The previous series have been extrapolated backwards to cover the years 1911 and 1917-1938 following the rate of change in the domestic income given in Franzsen (1954, Table 1), also based on the work of Frankel. The years 1912-1916 have been interpolated following the Net Domestic Product series in Stadler (1963), Table 5.

As the published series used for 1953-2007 refer to calendar years, the control totals have been adjusted to reflect the year of income tax assessment (i.e. for income years "*t/t+1*" from 1953/1954 to 1961/1962, the control total is the average of household income in calendar years t and t+1; we also take into account the change in the tax year from 1962). For years before 1953, the published figures refer to the same period of tax assessment, so no adjustments were required.

A.5 The price index

The price index (2007=100) has been constructed from the following sources:

(i) From 1946 to 2007, the GDP deflator. The GDP in current prices and constant prices are taken from the South African Reserve Bank webpage, Online Statistical Queries.

[14] Bureau of Census and Statistics (1954, 1956) use the fiscal year as time unit; therefore the value of national income for fiscal year 1953/1954 is identified in the publications as 1954, whereas it is here referred to as 1953.

(ii) From 1913 to 1946, the previous series has been linked backwards following the evolution of the retail price index, from South African Statistics 1995.

A.6 Tables of control totals

Table A.4A displays the number of adults aged 15 and over, the number of tax units, the number of white tax units, the control total for income, the average income per adult in Rands 2007, and the price index between 1913 and 2007. Table A.4B gives the reference totals for population in the Cape of Good Hope for years 1903-1907.

References

Atkinson, A. B. and Leigh, A., 2007, "The distribution of top incomes in Australia", in A. B. Atkinson and T. Piketty (editors), Chapter 7.

Atkinson, A. B. and Leigh, A., 2008, "Top incomes in New Zealand 1921-2005: Understanding the Effects of Marginal Tax Rates, Migration Threat, and the Macroeconomy"*, Review of Income and Wealth*, 54(2): 149-165.

Atkinson, A. B. and Piketty, T., 2007, *Top incomes over the twentieth century,* Oxford University Press, Oxford.

Atkinson, A. B. and Piketty, T., 2010, *Top incomes: a global perspective,* Oxford University Press, Oxford.

Atkinson, A. B., 2005, "Top incomes in the UK over the twentieth century", *Journal of the Royal Statistical Society*, vol 168: 325-343.

Atkinson, A. B., 2007, "Measuring top incomes: methodological issues", in A. B. Atkinson and T. Piketty (editors), Chapter 2.

Atkinson, A. B., 2007, "The distribution of top incomes in the UK 1908-2000", in A. B. Atkinson and T. Piketty (editors), Chapter 4.

Atkinson, A. B., Piketty, T. and Saez, E., 2011, "Top incomes in the long run of history", *Journal of Economic Literature*, forthcoming.

Bureau of Census and Statistics, 1954, "The net national income of the Union of South Africa, 1952-53", *South African Journal of Economics*, 22(3): 353-364.

Bureau of Census and Statistics, 1956, "National income of the Union of South Africa, 1954-55", *South African Journal of Economics*, 24(2): 152-157.

Dollery, B., 2003, "A history of inequality in South Africa, 1652-2002", *South African Journal of Economics*, 71(3): 595-610.

Feinstein, C. H., 2005, *An Economic History of South Africa, Conquest, Discrimination and Development*, Cambridge University Press, Cambridge.

Frankel, S. H. and Herzfeld, H., 1943, "European income distribution in the Union of South Africa and the effect thereon of income taxation", *South African Journal of Economics*, 11(2): 121-136.

Frankel, S. H. and Neumark, S. D., 1940, "Note on the national income of the Union of South Africa, 1927/28, 1932/33, 1934/35", *South African Journal of Economics*, 8(1): 78-81.

Frankel, S. H., 1941, "Consumption, investment and war expenditure in relation to the South African national income", *South African Journal of Economics*, 9(4): 445-448.

Frankel, S. H., 1943, "Consumption, investment and war expenditure in relation to the South African national income", *South African Journal of Economics*, 11(1): 75-77.

Frankel, S. H., 1944, "An analysis of the growth of the national income of the Union in the period of prosperity before the War", *South African Journal of Economics*, vol : 112-138.

Frankel, S. H., 1967, *Investment and the return to equity capital in the South African gold mining industry 1887-1965,* Basil Blackwell, Oxford.

Franzsen Commission, 1968, *Taxation in South Africa: First Report of the Commission of Enquiry into Fiscal and Monetary Policy in South Africa*, Government Printer, Pretoria.

Franzsen, D. G., 1948, "Some methodological problems raised by the calculation of the Union's national income, by income type", *South African Journal of Economics*, 16(2): 157-167.

Franzsen, D. G., 1954, "National accounts and national income in the Union of South Africa since 1933", *South African Journal of Economics*, 22(1): 115-126.

Gastwirth, J. L., 1972, "The estimation of the Lorenz curve and the Gini index", *Review of Economics and Statistics*, 54(3): 306-316.

Graaff, J. de V., 1946, "Fluctuations in Income Concentration, with Special Reference to Changes in the Concentration of Supertaxable Incomes in South Africa: July, 1915-June, 1943", *South African Journal of Economics*, 14(1): 22-39.

Hellmann, E., editor, 1949, *Handbook on race relations in South Africa*, Oxford University Press, Cape Town.

Houghton, D. H., 1964, *The South African Economy*, Oxford University Press, Cape Town.

Income taxes in the Commonwealth, 1956, A digest, HMSO, London.

Income taxes in the Commonwealth, 1951, volume 1, A digest of the laws imposing taxes on income in the Commonwealth of Australia, Canada, Ceylon, India, New Zealand, Pakistan, and the Union of South Africa, HMSO, London.

Katz Commission, 1995, *Third Interim Report of the Commission of Inquiry into Certain Aspects of the Tax Structure of South Africa*, The Government Printer, Pretoria.

Katzen, L., 1964, *Gold and the South African Economy,* A. A. Balkema, Cape Town.

Klasen, S., 1997, "Poverty, inequality and deprivation in South Africa: An analysis of the 1993 SALDRU survey", *Social Indicators Research,* 41(1-3): 51-94.

Klasen, S., 2005, "Measuring poverty and deprivation in South Africa", *Review of Income and Wealth*, 46(1): 33-58.

Kock, M. H. de, 1924, *An Analysis of the Finances of the Union of South Africa*, Juta & Co. LTD., Cape Town and Johannesburg.

Kuznets, S., 1953, *Shares of Upper Income Groups in Income and Savings*, National Bureau of Economic Research, New York.

Lehfeldt, R. A., 1922, *The National Resources of South Africa*, University of the Witwatersrand Press, Johannesburg, and Longmans, Green & Co., London.

Leibbrandt, M., Woolard, I., Finn, A. and Argent, J., 2009, "Trends in South African Income Distribution and Poverty since the Fall of Apartheid," OECD Social, Employment and Migration Working Papers n. 101.

Leibbrandt, M., Woolard, I. and Woolard, C., 2009, "A long-run perspective on contemporary poverty and inequality dynamics", in J. Aron, B. Kahn and G. Kingdon (editors) *South Africa economic policy under democracy*, Oxford University Press, Oxford, Chapter 10.

Leslie, R., 1935, "The effect of the abandonment of the gold standard on the distribution of incomes in South Africa", *South African Journal of Economics*, 3(2): 279-280.

Leslie, R., 1936, "The Change in the Distribution of Incomes in South Africa after the Abandonment of the Gold Standard", *South African Journal of Economics*, 4(1): 122.

Leslie, R., 1937, "Distribution of incomes in South Africa", *South African Journal of Economics*, 5(1): 95.

Margo Commission, 1987, *Report of the Commission of Inquiry into the Tax Structure of the Republic of South Africa, 20 November 1986*, The Government Printer, RP34.

McGrath, M. D., 1983, "The distribution of personal income in South Africa in selected years over the period from 1945 to 1980, Ph D thesis, University of Natal, Durban.

McGrath, M. D. and Whiteford, A., 1994, *The distribution of income in South Africa*, Human Science Research Council, Pretoria.

National Treasury and South African Revenue Service, 2009, *2008 Tax Statistics*, Department of National Treasury, Pretoria.

Nattrass, N. and Seekings, J., 1997, "Citizenship and Welfare in South Africa: Deracialisation and Inequality in a Labour-Surplus Economy", *Canadian Journal of African Studies*, 31(3): 452-481.

Orkin, F. M., Lehohla, P. J. and Kahimbaara, J. A., 1998, "Social transformation and the relationship between users and producers of official statistics: the case of the 1996 population census in South Africa", *Statistical Journal of the United Nations*, 15(3-4): 265-279.

Piketty, T. and Saez, E., 2003, "Income Inequality in the United States, 1913-1998", *Quarterly Journal of Economics*, 118(1): 1-39.

Piketty, T. and Saez, E., 2007, "Income and wage inequality in the United States, 1913-2002", in A. Atkinson and T. Piketty (eds.), Chapter 5.

Read, C. L., 1933, "Presidential Address: The Union Native and the Witwatersrand gold mines", *South African Journal of Economics*, 1(4): 397-404.

Report of the Commissioner of Taxes for the Year 1904-5, G.32, Cape Times Limited, Government Printer, Cape Town.

Saez, E. and Veall, M., 2005, "The evolution of high incomes in Nothern America: Lessons from Canadian Evidence", *American Economic Review*, 95(3): 831-849.

Saez, E. and Veall, M., 2007, "The evolution of high incomes in Canada, 1920-2000", in A. Atkinson and T. Piketty (eds.), Chapter 6.

Samuels, L. H., 1963, "The uses and limitations of national economic accounting, with special reference to South Africa," in L. H. Samuels (editor), pp. 162-181.

Samuels, L. H., editor, 1963, *African Studies in Income and Wealth*, Bowes and Bowes, Cambridge.

Sonnabend, H., 1949, "Population", in E. Hellmann (editor), Chapter 2.

South African Reserve Bank, 2005, *South Africa's National Accounts 1946-2004. An Overview of Sources and Methods*, Supplement to the South African Reserve Bank Quarterly Bulletin, June.

South African Revenue Service (2009), *Comprehensive guide to capital gains tax (issue 2)*.

Stadler, J. J., 1963, "The gross domestic product of South Africa 1911-1959", *South African Journal of Economics*, 31(3): 185-208.

Terreblanche, S., 2002, *A history of inequality in South Africa, 1652-2002,* University of Natal Press, Pietermaritzburg.

United Nations, 1994, *The Sex and Age Distribution of the World Populations,* United Nations Population Division, New York.

van der Berg, S., and Louw, M., 2004, "Changing Patterns of South African Income Distribution: Towards Time Series Estimates of Distribution and Poverty," *South African Journal of Economics*, 72(3): 546-572.

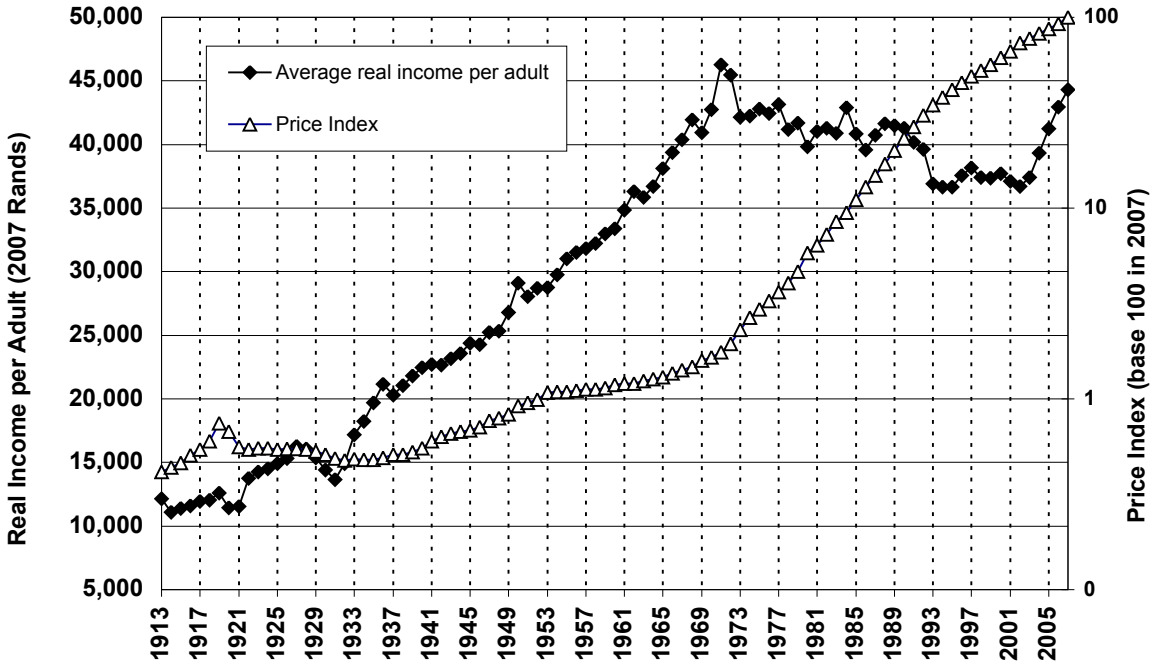

FIGURE 1.
Average real income and price index in South Africa, 1913-2007

Source: Table A.4A.
Notes: Figure reports the average real income per adult (aged 15 and above), expressed in 2007 Rands. The Price Index is equal to 100 in 2007.

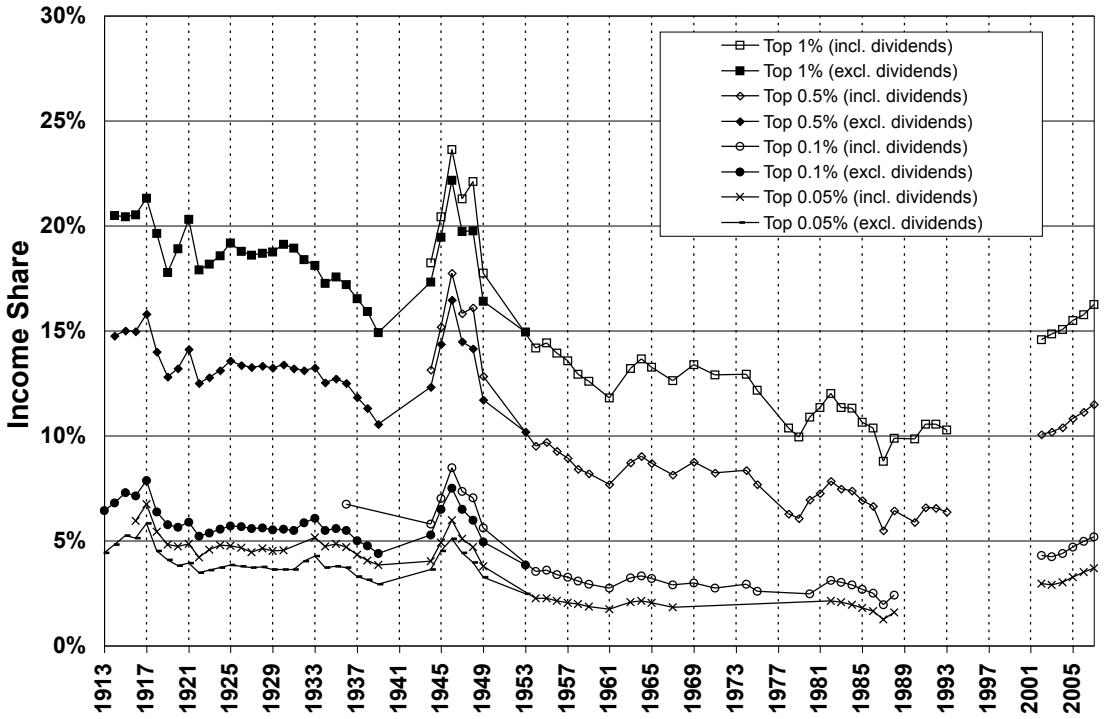

FIGURE 2
Top income shares in South Africa, 1913-2007

Sources: Table A.5A, Table A.5B and Table A.5C.

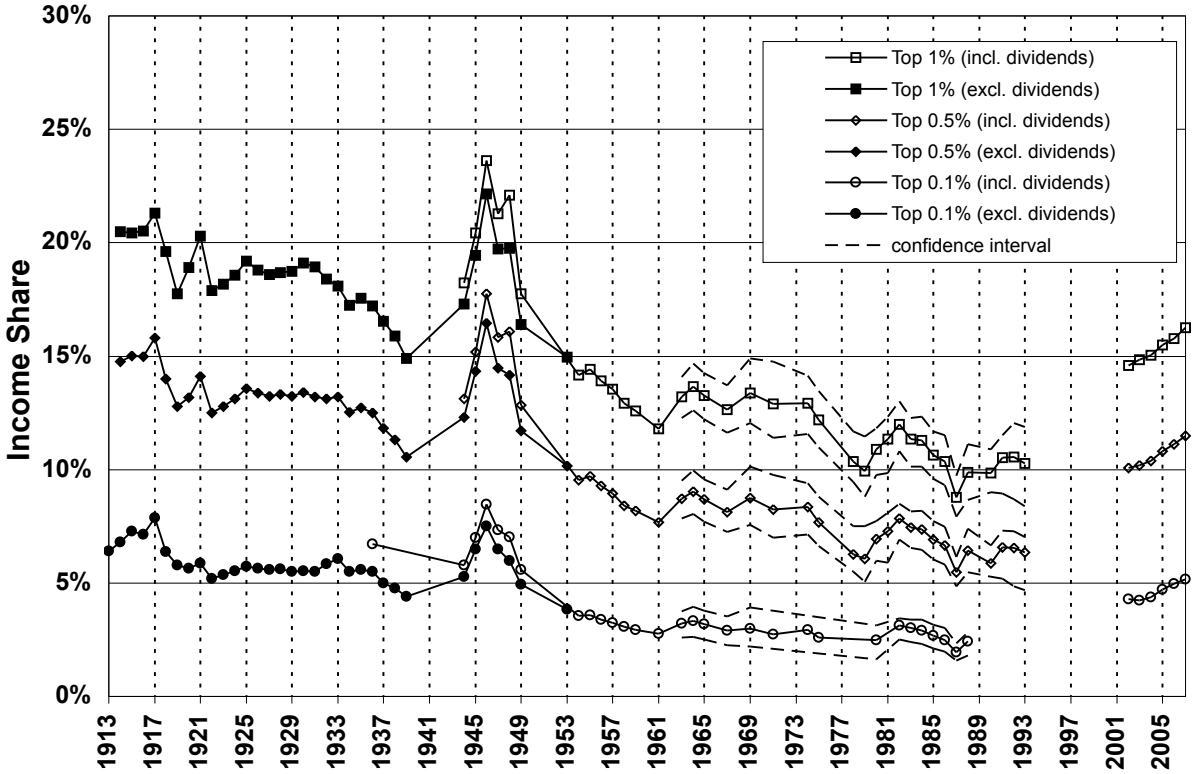

FIGURE 3
Top income shares in South Africa, 1913-2007

Notes: The confidence interval is depicted for those years for which only frequencies (number of tax assessments, while no incomes per ranges of income available) have been used. The lower limit of the interval assumes that the average income in each range of the published tabulations is equal to the range lower limit. The upper limit of the interval assumes that the average income in each range is equal to the range upper limit; the average income in the top bracket assumes an inverted Pareto-Lorenz coefficient equal to 2.5 for 1963-1989 and equal to 1.5 for 1990-1993.

Sources: Table A.5A, Table A.5B and Table A.5C.

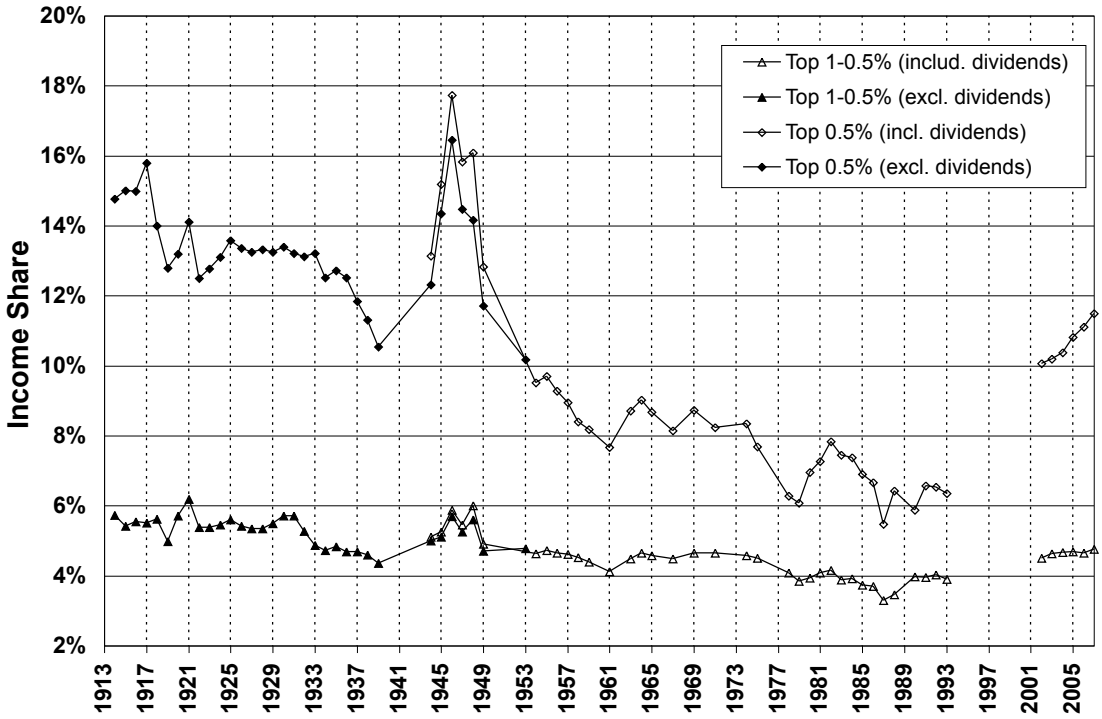

FIGURE 4
Top 1-0.5% and top 0.5% income shares in South Africa, 1913-2007

Sources: Table A.5A, Table A.5B and Table A.5C.

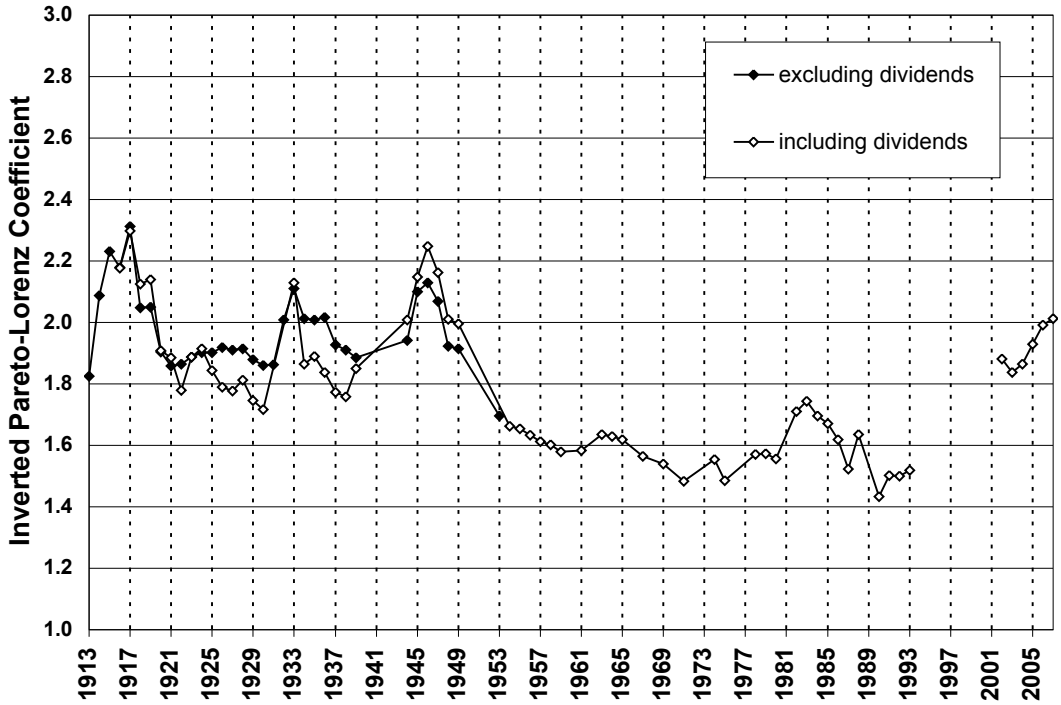

FIGURE 5
Inverted Pareto-Lorenz coefficients in South Africa 1913-2007

Notes: As a rule we estimate the Pareto-Lorenz coefficients from the top 0.1% share (S0.1%) within top 1% share (S1%): $\alpha = 1/[1-\log(S1\%/S0.1\%)/\log(10)]$. When the top 0.1% and top 1% shares were not available we use the closest substitutes. The inverted Pareto-Lorenz coefficient is $ß=\alpha/(\alpha-1)$.
Sources: Table A.5A, Table A.5B and Table A.5C.

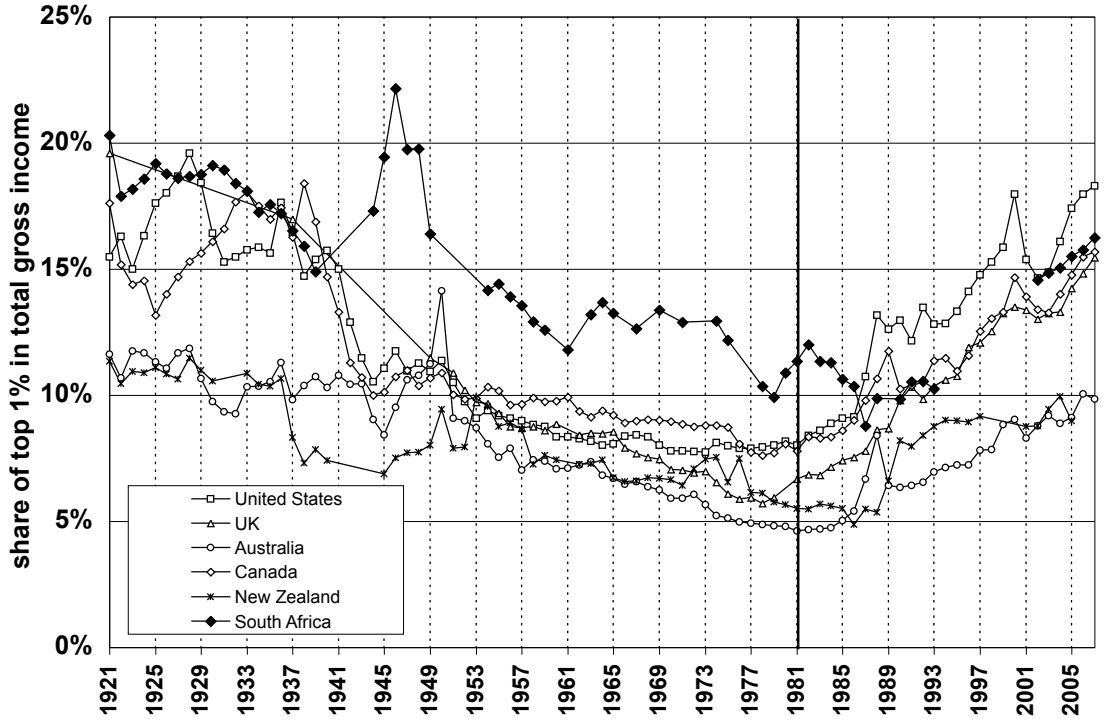

FIGURE 6
Top 1% Income Shares in UK, US, Canada, Australia, New Zealand and South Africa

Sources: UK: Atkinson (2007); Australia: Atkinson and Leigh (2007); US: Piketty and Saez (2003, 2007); Canada: Saez and Veall (2005, 2007); New Zealand: Atkinson and Leigh, (2008); South Africa: Table A.5A, Table A.5B and Table A.5C. Series updated to recent years with estimates provided by authors.

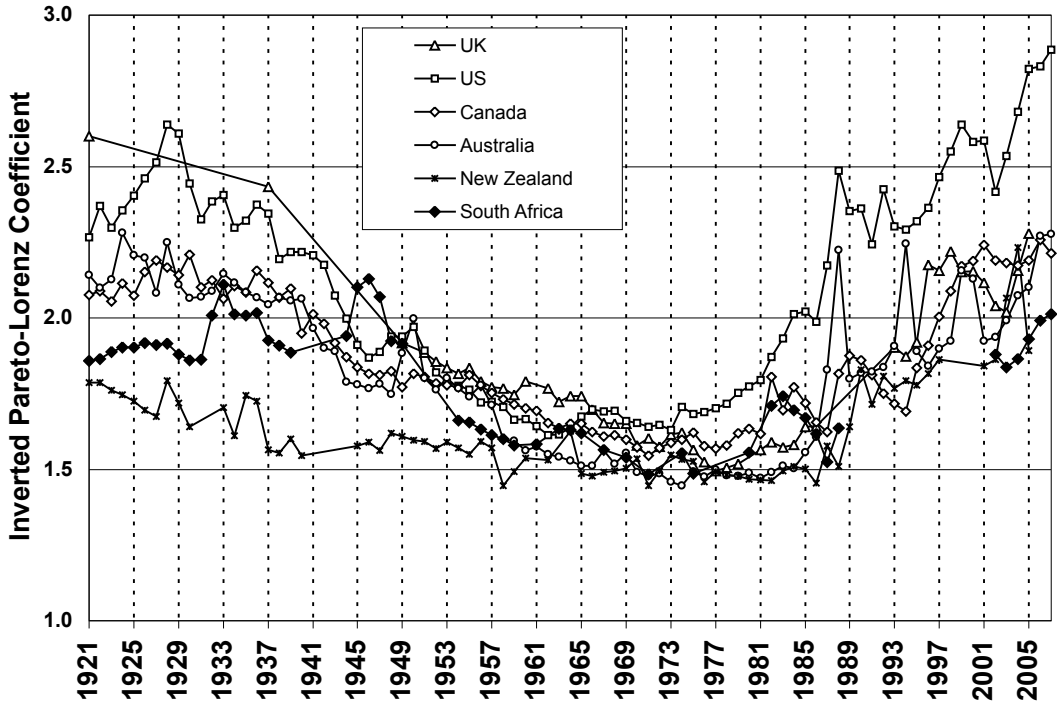

FIGURE 7
Inverted Pareto-Lorenz coefficients
in UK, US, Canada, Australia, New Zealand and South Africa

Notes: As a rule we estimate the Pareto-Lorenz coefficients from the top 0.1% share within top 1% share: α = 1/[1-log(S1%/S0.1%)/log(10)]. When the top 0.1% and top 1% shares were not available we use the closest substitutes. The inverted Pareto-Lorenz coefficient is ß=α/(α-1).
Sources: UK: Atkinson (2007); Australia: Atkinson and Leigh (2007); US: Piketty and Saez (2003, 2007); Canada: Saez and Veall (2005, 2007); New Zealand: Atkinson and Leigh, 2008; South Africa: Table A.5A, Table A.5B and Table A.5C. Series updated to recent years with estimates provided by authors.

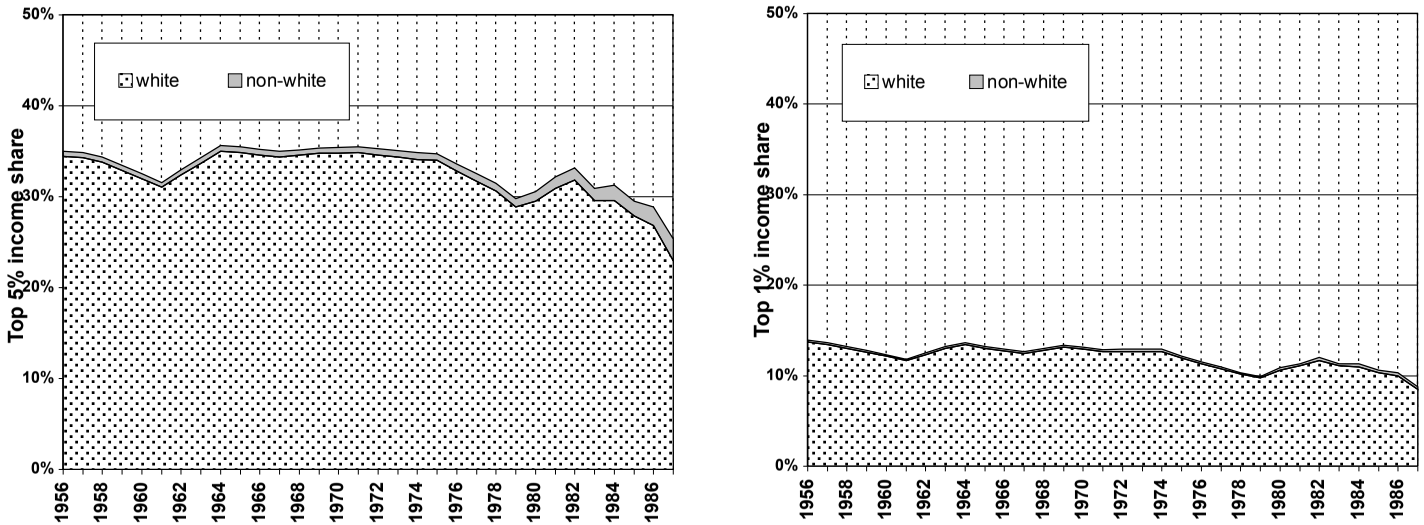

FIGURE 8
Top 5% and Top 1% income shares by ethnic origin, South Africa 1956-1987

Source: Table A.9.

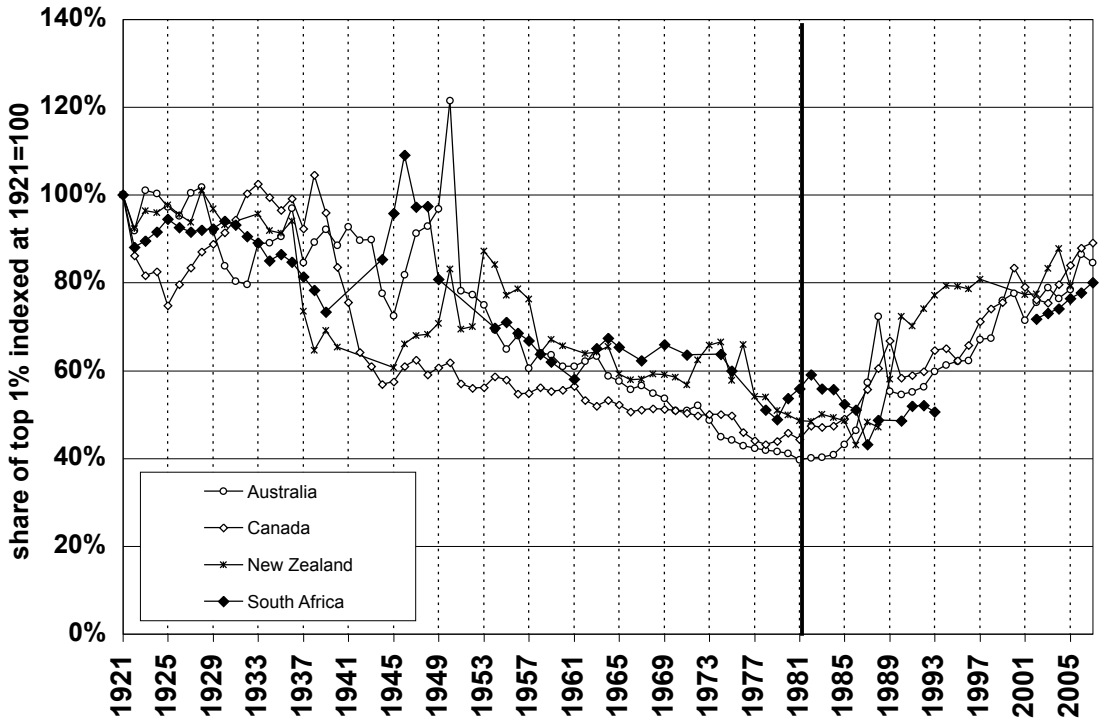

FIGURE 9
Timepath of share of top 1% in Australia, Canada, New Zealand and South Africa indexed at 1921

Sources: UK: Atkinson (2007); Australia: Atkinson and Leigh (2007);
Canada: Saez and Veall (2005, 2007); New Zealand: Atkinson and Leigh, (2008); South Africa: Table A.5A, Table A.5B and Table A.5C. Series updated to recent years with estimates provided by authors.

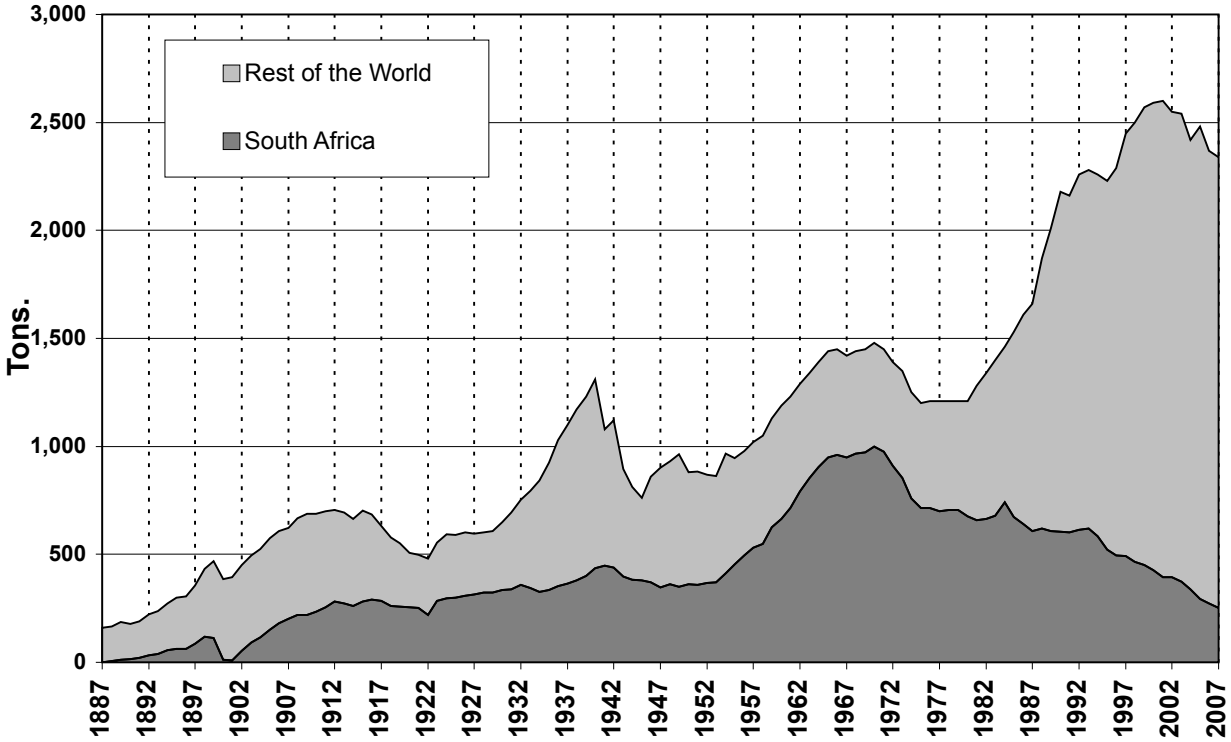

FIGURE 10
Production of Gold in South Africa and the rest of the World 1887-2007

Sources: World: US Geological Survey website, http://minerals.usgs.gov/ds/2005/140/gold.pdf,
South Africa: Chamber of Mines of South Africa online statistics, http://www.bullion.org.za/.

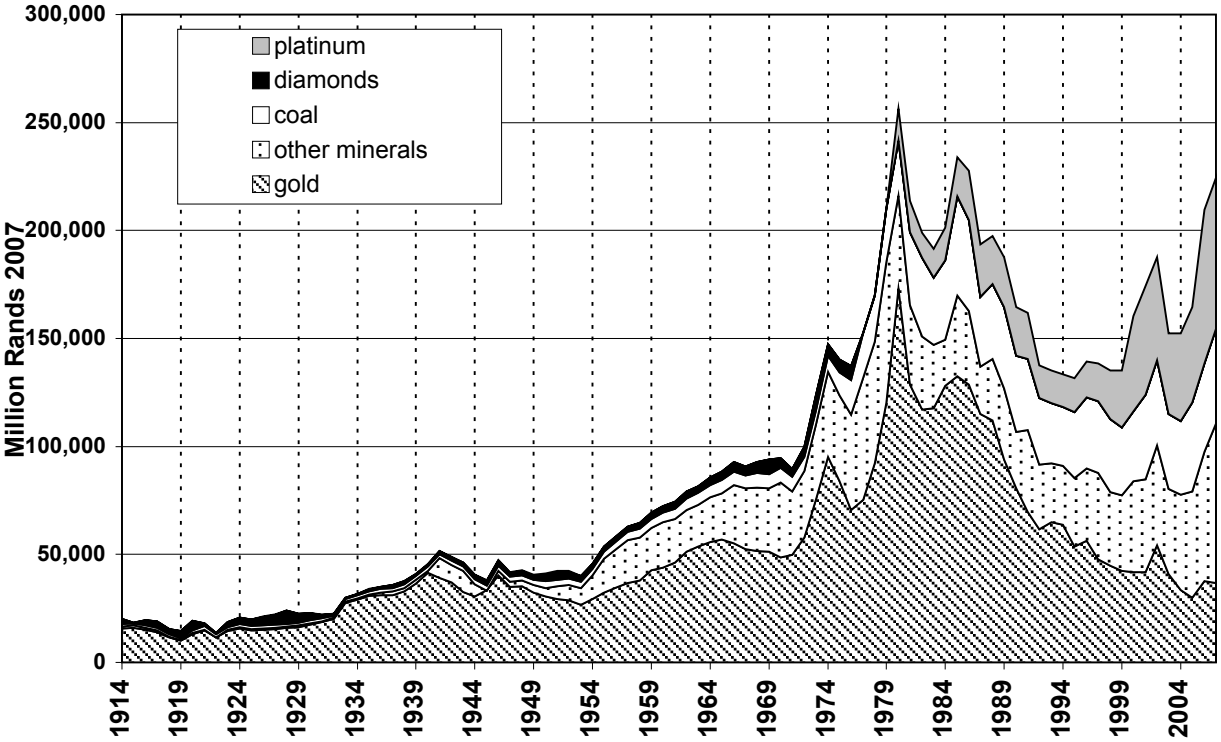

FIGURE 11
Sales of gold and other minerals, South Africa 1914-2007

Sources: OYB, issues 1918 to 1952-1953; SYB 1964 and 1966; SAS issues 1978 to 2010 and Chamber of Mines of South Africa online statistics, http://www.bullion.org.za/.

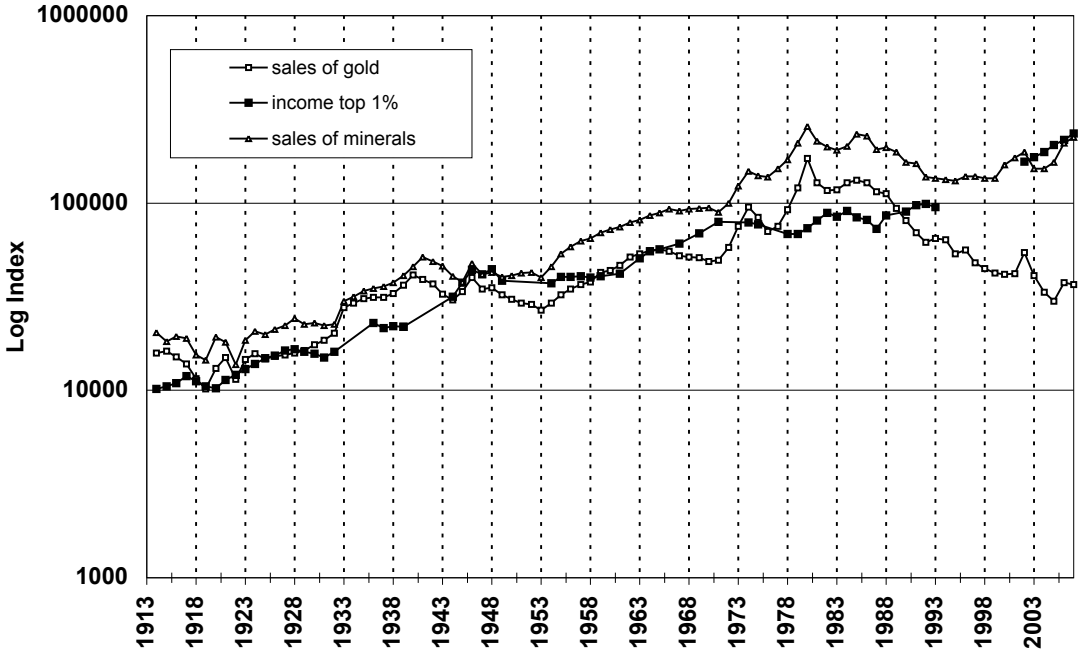

FIGURE 12
Sales of minerals and income at the top, South Africa 1913-2007

Notes: The vertical axis measures resources sales and the real amount of income reported by the top 1% incomer earners (in million rands at 2007 prices) in logarithmic scale.
Sources: Table A.4A, Table A.5A, Table A.5B, Table A.5C, and Chamber of Mines of South Africa online statistics, http://www.bullion.org.za/.

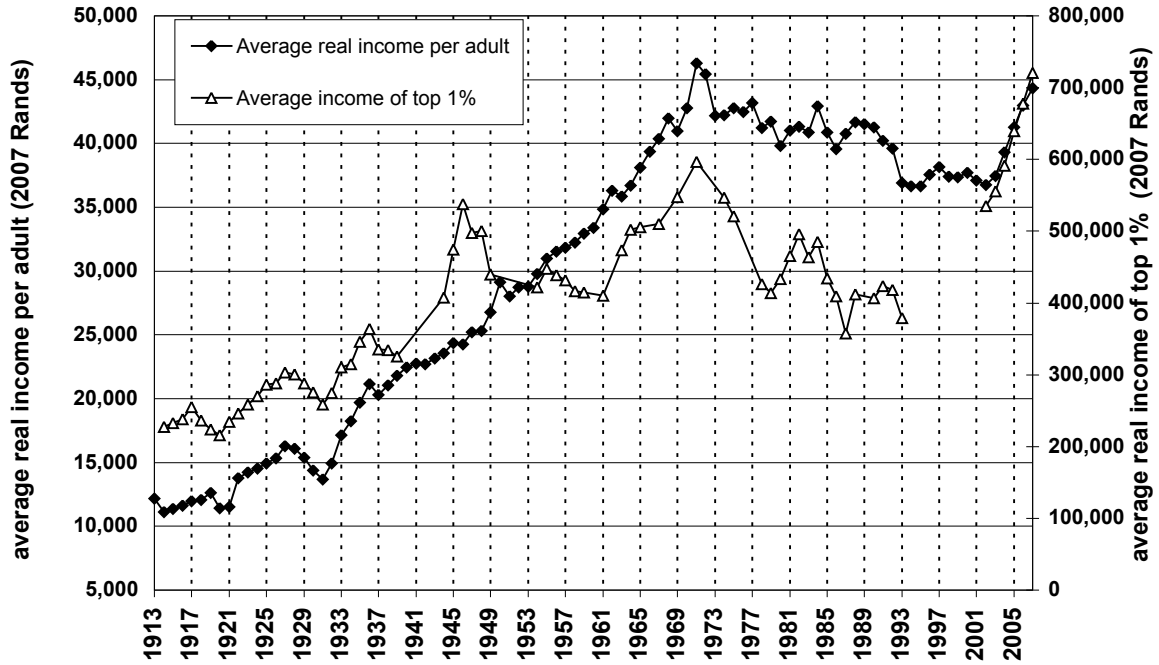

FIGURE 13
Average real income and average income of top 1% in South Africa, 1913-2007

Sources: Table A.4A, Table A.5A, Table A.5B and Table A.5C.

Table A1. Normal tax and super tax schedules' main features. South Africa 1913-1959

Income Year	Normal Tax								Super Tax				
	Exemption		Maximum tax rate (per £ of taxable income TI)		Tax rebate		Transitory surcharge/rebate on tax after deducting rebates	Additional rate on income from gold mining	Exemption	Maximum tax rate (per £ of supertaxable income TI)	Tax rebate	Transitory surcharge/rebate on tax after deducting rebates	Comments
	married	single	married	single	married	single							
	£	£			£	£			£		£		
1913	1000	1000	1s. 6d.										
1914	"	"	"										
1915	300	300	2s.		yes	yes			2,500	3s.			incomes averaged over the two income years 1914 and 1915
1916	"	"	"		"	"			"	"			
1917	"	"	"		"	"			"	"			
1918	"	"	"		"	"			"	"			
1919	"	"	"		"	"			"	"			
1920	"	"	"		"	"			"	"			
1921	"	"	"		"	"			"	"			
1922	"	"	1s.+(TI/2000)d.		"	"			"	1s.+ (TI/500)d.			
1923	"	"	up to a max. of 2s.		"	"			"	up to a max. of 5s.			
1924	"	"	"		"	"			"	"			
1925	"	"	"		"	"			"	"			
1926	"	"	"		"	"			"	"			
1927	"	"	"		"	"	-20%		"	"			
1928	"	"	"		"	"	-20%		"	"			
1929	"	"	"		"	"			"	"			
1930	"	"	"		"	"			"	"			
1931	"	"	"		"	"			"	"			
1932	"	"	"		"	"			"	"			
1933	400	400	"		"	"			"	"			
1934	"	"	"		"	"	-30% (not applied to gold mining)		"	"			
1935	"	"	"		"	"	-30% (not applied to gold mining)	(40-500/x)%, where x is the fraction in % of income from gold mining over total income	"	"			
1936	"	"	"		"	"	-30% (not applied to gold mining)		"	"			
1937	"	"	"		"	"	-20% (not applied to gold mining)		"	"			
1938	"	"	"		"	"	-30% (not applied to gold mining)		"	"			
1939	"	"	"		"	"	+20%	"	"	"		+20%	
1940	262	300	(15+TI/1000)d. up to 3s.	(18+TI/1000)d. up to 3s. 3d.	22£ Children 5£; Dependant 1£ 10s.; Insurance, Friendly and Social Benefit 2£ 10s.	20£		"	2,000 "	2s.+ (TI/400)d. up to 7s. 6d.	240 "		
1941	"	"	"	"	"	"		"	"	"	"		
1942	"	"	"	"	"	"	+15%	"	"	"	"	+15%	
1943	262	"	"	"	"	"	+15%	"	1,775	"	210	+15%	
1944	"	"	"	"	"	"	+15%	"	"	"	"	+15%	
1945	"	"	"	"	"	"	+20%	From 1/1/1946: (70-420/x)%	"	"	"	+25%	
1946	"	"	"	"	Children 7£ 10s.; Dependant 2£; rest as before		+20%	From 1/1/1947: (63-378/x)%	"	"	"	+25%	
1947	288	480	TI < 16,000: (15+TI/1000)d.; TI≥16,000: 47d.	TI < 16,000: (18+TI/1000)d.; TI≥16,000: 50d.	31£ Children 10£; Dependant 2£ 10s.; Insurance, Friendly and Social Benefit 7£ 10s.	22£	+20%	From 1/1/1948: (60-360/x)%	"	TI < 16,000: (24+TI/400)d.; TI≥16,000: 104d.	"		
1948	"	"	"	"	"	"	+20%	"	"	"	"	+20%	
1949	"	"	"	"	"	"	+20%	"	"	"	"	+20%	
1950	"	"	"	"	"	"	+20%	From 1/7/1950: (70-420/x)%; from 1/1/1951: (63-378/x)%	"	"	"	+20%	
1951	275	"	"	"	26£ Children 10£; Dependant 2£ 10s.; Insurance, Friendly and Social Benefit 7£ 10s.	21£	+20%	(63-378/x)%	"	"	"	+20%	
1952	"	"	"	"	"	"	+30%	"	"	"	"	+30%	
1953	301	"	TI < 9,300: (15+TI/1000)d.; TI≥9,300: 34d.	TI < 9,300: (18+TI/1000)d.; TI≥9,300: 37d.	31£; rest as before	23£; rest as before	+15%	"	"	TI < 9,300: (24+TI/400)d.; TI≥9,300: 70d.	"	+15%	
1954	"	"	"	"	Children 12£; rest as before		+15%	"	"	"	"	+15%	
1955	"	"	"	"	Children 14£; rest as before		+15%	"	2,300	"	285	+15%	
1956	"	"	"	"	"	"	25%	(60-360/x)%	"	"	"	+25%	
1957	"	"	"	"	"	"	25%	(60-360/x)%	"	"	"	+25%	
1958	"	"	"	"	Children 15£; rest as before			(60-360/x)%	"	"	"		
1959			50%	50%	Children 17£; Dependant 3£; Insurance, Friendly and Social Benefit 8£ 10s.				Abolished				

TABLE A.2 Sources on Income Taxes Data in Cape Colony, Union of South Africa and South Africa 1903-2007

Year	Income year ending	Sources		Comments
Cape Colony				
1903	30th June 1904	Report of the Commissioner of Taxes for the year 1905-1906	p. 13. First year of operation of income tax (non-definitive information in Report of the Commissioner of Taxes for the year 1904-1905, p. 18).	
1904	30th June 1905	Report of the Commissioner of Taxes for the year 1906-1907	p. 8 (non-definitive data in Report of the Commissioner of Taxes for the year 1905-1906, p. 14).	
1905	30th June 1906	Report of the Commissioner of Taxes for the year 1907-1908	p. 5 (non-definitive data in Report of the Commissioner of Taxes for the year 1906-1907, p. 9).	
1906	30th June 1907	Report of the Commissioner of Taxes for the year 1907-1908	p. 6	
1907	30th June 1908	Report of the Commissioner of Taxes for the year 1908-1909	p. 10	
Union of South Africa				
1913	30th June 1914	Report on the Working of the Income Tax Act, 1914, for the Year ended 30th June 1915, Union of South Africa	p. 9	compiled +1 year
1914	30th June 1915	Report of the Commissioner for Inland Revenue and Commissioner of Taxes for the year 1915-1916	Normal Tax, Statement G	compiled +1 year
		Also in Official Yearbook of the Union No 4, 1921	Normal Tax, p. 608	compiled +1 year
1915	30th June 1916	Report of the Commissioner for Inland Revenue for the year 1916-1917	Normal Tax, Statement H; Super Tax, Statement O	compiled +1 year
		Also in Official Yearbook of the Union No 2, 1918	Normal Tax, p. 684	compiled +1 year
1916	30th June 1917	Report 1917-1918	Normal Tax, Statement J; Super Tax, Statement P	compiled +1 year
		Also in Official Yearbook of the Union No 3, 1919	Normal Tax, p. 794	compiled +1 year
1917	30th June 1918	Annual Report of the Commissioner for Inland Revenue for the year 1918-19	Normal Tax, p. 25; Super Tax, p. 29	compiled +1 year
1918	30th June 1919	Report 1919-20	Normal Tax, p. 20; same tabulation in in OY No 4, 1921, p. 814; Super Tax, p. 24	compiled +1 year
1919	30th June 1920	Report 1920-21	Normal Tax, p. 23; Super Tax, p. 27	compiled +1 year
1920	30th June 1921	Report 1921-22	Normal Tax, p. 24; Super Tax, p. 28	compiled +1 year
1921	30th June 1922	Report 1922-23	Normal Tax, p. 22; Super Tax, Statement N	compiled +1 year
1922	30th June 1923	Report 1923-24	Normal Tax, p. 17; Super Tax, p. 21	compiled +1 year
1923	30th June 1924	Report 1924-25	Normal Tax, p. 17; Super Tax, p. 22	compiled +1 year
1924	30th June 1925	Report 1925-26	Normal Tax, p. 25; Super Tax, p. 30	compiled +1 year
1925	30th June 1926	Report 1926-27	Normal Tax, p. 30; Super Tax, p. 35	compiled +1 year
1926	30th June 1927	Report 1927-28	Normal Tax, p. 30; Super Tax, p. 36	compiled +1 year
1927	30th June 1928	Report 1928-29	Normal Tax, p. 30; Super Tax, p. 36	compiled +1 year
1928	30th June 1929	Report 1929-30	Normal Tax, p. 30;Super Tax, p. 36	compiled +1 year
1929	30th June 1930	Report 1930-31	Normal Tax, Statement XXIX; Super Tax, Statement XXXV	compiled +1 year
1930	30th June 1931	Report 1931-32	Normal Tax, Statement XXIX; Super Tax, Statement XXXV	compiled +1 year
1931	30th June 1932	Report 1932-33	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1932	30th June 1933	Report 1933-34	Normal Tax, Statement XXXI; Super Tax, Statement XXXVII	compiled +1 year
1933	30th June 1934	Report 1934-35	Normal Tax, Statement XXXI; Super Tax, Statement XXXVII	compiled +1 year
1934	30th June 1935	Report 1935-36	Normal Tax, Statement XXXI; Super Tax, Statement XXXVII	compiled +1 year
1935	30th June 1936	Report 1936-37	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1936	30th June 1937	Report 1937-38	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1937	30th June 1938	Report 1938-39	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1938	30th June 1939	Report 1939-40	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1939	30th June 1940	Report 1940-41	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1940	30th June 1941	Report 1941-42	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1941	30th June 1942	Report 1942-43	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1942	30th June 1943	Report 1943-44	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1943	30th June 1944	Report 1944-45	Normal Tax, Statement XXX; Super Tax, Statement XXXVI	compiled +1 year
1944	30th June 1945	Report 1945-46	Normal Tax, Statement XXVIII; Super Tax, Statement XXXV	compiled +1 year
		Report 1946-47	Normal Tax, Statement XXXVIII; Super Tax, Statement XXXIX	compiled +2 years
1945	30th June 1946	Report 1946-47	Normal Tax, Statement XXVIII; Super Tax, Statement XXXIV	compiled +1 year
		Report 1947-48	Normal Tax, Statement XXXVIII; Super Tax, Statement XXXIX	compiled +2 years
1946	30th June 1947	Report 1947-48	Normal Tax, Statement XVIII; Super Tax, Statement XXXIV	compiled +1 year
		Report 1949-50	Normal Tax, Statement XLI; Super Tax, Statement XLII	compiled +3 years
1947	30th June 1948	Report 1948-49	Normal Tax, Statement XXXII; Super Tax, Statement XXXIV	compiled +1 year
		Report 1949-50	Normal Tax, Statement XXXVII; Super Tax, Statement XXXVIII	compiled +2 years
1948	30th June 1949	Report 1949-50	Normal Tax, Statement XXVIII; Super Tax, Statement XXXIV	compiled +1 year
		Report 1950-1951	Normal Tax, Statement XXXIX; Super Tax, Statement XXX	compiled +2 years
		Report 1951-1952	Normal Tax, Statement XXXI; Super Tax, Statement XXXII	compiled +3 years
1949	30th June 1950	Report 1950-1951	Normal Tax, Statement 27; Super Tax, Statement 28	compiled +1 year
		Report 1951-1952	Normal Tax, Statement XXIX; Super Tax, Statement XXX	compiled +2 years
1950	30th June 1951	Report 1951-1952	Normal Tax, Statement XXVII; Super Tax, Statement XXVIII	compiled +1 year
1951	30th June 1952			No report published (see Report 1953-1956, p. 1)
1952	30th June 1953			No report published (see Report 1953-1956, p. 1)
1953	30th June 1954	Report 1953-1956	Statement 11, number of taxpayers and tax amounts only	compiled +2 years
		Report 1956-1957	Statement 12, number of taxpayers and tax amounts only	compiled +3 years
1954	30th June 1955	Report 1953-1956	Statement 12, number of Normal taxpayers and tax amounts only (not used); Statement 13 Classification of Rebates, total number of taxpayers; Statement 15, incomes classified according to source in groups of income, including dividends and other capital income	compiled +1 year
		Report 1956-1957	Statement 13, number of Normal taxpayers and tax amounts only (not used); Statement 15 Family Circumstance, total number of taxpayers; Statement 17, incomes classified according to source in groups of income, including dividends and other capital income	compiled +2 years
1955	30th June 1956	Report 1956-1957	Statement 14, number of Normal taxpayers and tax amounts only (not used); Statement 16 Family Circumstance, total number of taxpayers; Statement 18, incomes classified according to source in groups of income, including dividends and other capital income	compiled +1 year
		Report 1957-1958	Statement 12, number of Normal taxpayers and tax amounts only (not used); Statement 14 Family Circumstance, total number of taxpayers; Statement 16, incomes classified according to source in groups of income, including dividends and other capital income	compiled +2 years
1956	30th June 1957	Report 1957-1958	Statement 13, number of Normal taxpayers and tax amounts only (not used); Statement 15 Family Circumstance, total number of taxpayers; Statement 17, incomes classified according to source in groups of income, including dividends and other capital income	compiled +1 year
1957	30th June 1958	Report 1957-1958	Statement 12, number of Normal taxpayers and tax amounts only (not used); Statement 13 Family Circumstance, total number of taxpayers; Statement 14, incomes classified according to source in groups of income, including dividends and other capital income	compiled +1 year
1958	30th June 1959	Report 1959-1961	Statement 12A, number of Normal taxpayers and tax amounts only (not used); Statement 13A Family Circumstance, total number of taxpayers; Statement 14A, incomes classified according to source in groups of income, including dividends and other capital income	compiled +2 years
1959	30th June 1960	Report 1959-61	Statement 12B, number of Normal taxpayers and tax amounts only (not used); Statement 13B Family Circumstance, total number of taxpayers; Statement 14B, incomes classified according to source in groups of income, including dividends and other capital income	compiled +1 year
1960				
Republic of South Africa				

TABLE A.2 Sources on Income Taxes Data in Cape Colony, Union of South Africa and South Africa 1903-2007

Year	Income year ending	Sources		Comments
1961	30th June 1962	Report 1961-1962	Statement 12, number of taxpayers and tax amounts only (not used); Statement 13 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Statement 14, incomes classified according to source in groups of income, including dividends and other capital income, in 24 income ranges	compiled +1 year
1962				
1963	29th February 1964	Report 1963-1965	Statement 12, number of taxpayers and tax amounts only (not used); Statement 13 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Statement 14, incomes classified according to source in groups of income, including dividends and other capital income, in 21 income ranges	compiled +1 year
		Report 1965-1966	Statement 12, p.S1, number of taxpayers and tax amounts only (not used); Statement 13, p.S11 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Statement 14, p.S36, incomes classified according to source in groups of income, including dividends and other capital income, in 21 income ranges	compiled +2 years
		SAS 1970	p. T-10 has data for the number of white taxpayers only	
1964	28th February 1965	Report 1965-1966	Statement 12, p.S111, number of taxpayers and tax amounts only (not used); Statement 13. p.S121 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Statement 14, p.S146, incomes classified according to source in groups of income, including dividends and other capital income, in 21 income ranges	compiled +1 year
		Report 1966-1967	Table 12, p.T46, number of taxpayers and tax amounts only (not used); Table 13, p. T56 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Table 14, p. T82, incomes classified according to source in groups of income, including dividends and other capital income, in 21 income ranges	compiled +2 years
		SAS 1968	SAS 1968 has data on number of taxpayers by ethnic origin only (not used)	
		SAS 1970	p. T-10, number of white taxpayers only	
1965	28th February 1966	Report 1966-1967	Table 12, p.T114, number of Normal taxpayers and tax amounts only (not used); Table 13, p. T124 Family Circumstance, total number of taxpayers by ethnic origin in 47 income ranges; Table 14, p. T150, incomes classified according to source in groups of income, including dividends and other capital income, in 21 income ranges (not used)	compiled +2 years
		SAS 1970	p. T-11, number of taxpayers only, by ethnic origin	
1966	28th February 1967	SAS 1972	p. S-10, number of white taxpayers only	
1967	29th February 1968	SAS 1972	p. S-11, number of taxpayers only, by ethnic origin	
1968	28th February 1969	SAS 1974	p. 19.11, number of white taxpayers only	
1969	28th February 1970	SAS 1974	p. 19.12, number of taxpayers only, by ethnic origin	
1970	28th February 1971	SAS 1976	p. 19.11, number of white taxpayers only	
1971	29th February 1972	SAS 1976	p. 19.12, number of taxpayers only, by ethnic origin excluding Bantu	
1972	28th February 1973	SAS 1978	p. 19.11, number of white taxpayers only	
1973	28th February 1974	SAS 1978	p. 19.11, number of white taxpayers only	
1974	28th February 1975	SAS 1978	p. 19.12, number of taxpayers only, by ethnic origin excluding Bantu	
1975	29th February 1976	SAS 1980	p. 19.12, number of taxpayers only, by ethnic origin excluding Bantu	
1976	28th February 1977	SAS 1982	p. 19.11, number of white taxpayers only	
1977	28th February 1978	SAS 1982	p. 19.11, number of white taxpayers only	
1978	28th February 1979	SAS 1986	p. 19.26, number of taxpayers only, by ethnic origin excluding Bantu. Older figures in SAS 1982, p. 19.12, number of taxpayers only, by ethnic origin, excluding Bantu	
1979	29th February 1980	SAS 1986	p. 19.25, number of taxpayers only, by ethnic origin, excluding blacks. SAS was not published for 1984 (see Preface to SAS 1986)	
1980	28th February 1981	SAS 1986	p. 19.24, number of taxpayers only, by ethnic origin, excluding Bantu	
1981	28th February 1982	SAS 1986	p. 19.23, number of taxpayers only, by ethnic origin, excluding Bantu	
1982	28th February 1983	SAS 1986	p. 19.23, number of taxpayers only, by ethnic origin, excluding Bantu	
1983	29th February 1984	IRSB No. 4, 1986	p. 10, number of taxpayers and tax assessed only	
		SAS 1988	p. 19.21, number of taxpayers only. The numbers are lower than those reported in IRSB, but they include the break up by ethnic origin, excluding Bantu	
1984	28th February 1985	SAS 1988	p. 19.21, number of taxpayers only, by ethnic origin	
1985	28th February 1986	IRSB No. 6, 1988	p. 14, number of taxpayers and tax assessed only	
		SAS 1988	p. 19.20, number of taxpayers only. The numbers are lower than those reported in IRSB, but they include the break up by ethnic origin.	
1986	28th February 1987	SAS 1990	p. 19.27, number of taxpayers only, by ethnic origin	
1987	29th February 1988	SAS 1990	p. 19.27, number of taxpayers only, by ethnic origin	
1988	28th February 1989	SAS 1994	p. 19.21, number of taxpayers and tax collection only; also in SAS 1992	
1989	28th February 1990	SAS 1994	p. 19.21, number of taxpayers and tax collection only; also in SAS 1992	
1990	28th February 1991	SAS 1994	p. 19.20 number of taxpayers and tax collection only; also in SAS 1992	
1991	29th February 1992	SAS 1994	p. 19.20, number of taxpayers and tax collection only; also in SAS 1992	
1992	28th February 1993	SAS 1995	p. 19.18 number of taxpayers and tax collection only	
1993	28th February 1994	SAS 1995	p. 19.18 number of taxpayers and tax collection only	
1994				
1995				
1996				
1997				
1998				
1999				
2000				
2001				
2002	28th February 2003	2008 Tax Statistics, National Treasury and South African Revenue Service	Taxable income and number of taxpayes from Table 2.1.1	
2003	29th February 2004	2008 Tax Statistics, National Treasury and South African Revenue Service		
2004	28th February 2005	2009 Tax Statistics, National Treasury and South African Revenue Service	Taxable income and number of taxpayes from Table A2.1.1	
2005	28th February 2006	2009 Tax Statistics, National Treasury and South African Revenue Service		
2006	28th February 2007	2009 Tax Statistics, National Treasury and South African Revenue Service		
2007	29th February 2008	2009 Tax Statistics, National Treasury and South African Revenue Service		

Notes:
"Compiled +1 year" means assessments included in the data are those compiled up to 12 month after the end of the tax year.
"Compiled +2 year" means assessments included in the data are those compiled up to 24 month after the end of the tax year.
"Compiled +3 year" means assessments included in the data are those compiled up to 36 month after the end of the tax year.
SAS denotes South African Statistics; IRSB denotes Inland Revenue Statistical Bulletin.

TABLE A.3 Sources of population data, South Africa

	Source of total population	Source of percentage aged 15 and over	Source of percentage of married women
	(1)	(2)	(3)
A. Total population			
1904 to 1950	Feinstein (2005), p. 259		
1911		OYB 1921, pages 137, 153 and 157	OYB 1918, pages 170 and 172
1921			OYB 1937, pages 1058-9
1936		Mitchell, 2003, page 17	OYB 1940, page 1012
1946		Mitchell, 2003, page 17	SYB 1964, page A-19
1951			SYB 1964, page A-19
1960			SYB 1964, page A-19
1970			SAS 1976, page 1.28
1980			SAS 1982, page 1.21
1991			SAS 1992, page 1.11
1950 to 1991	UN Population Division website, *World Population Prospects: the 2008 Revision*, linked backwards from 1991.	Interpolated from *The Sex and Age Distribution of the World Populations* (UN, 1994), page 726, which gives age composition at 5-year intervals from 1950.	
1991 to 1998	P0302, 1998, Table 1	Interpolated between *Population Census 1996* Table 2.16 and *2001* Table 4.3	
1999	P0302, 1999, Table 1	See above	
2000	P0302, 2000, Table 2.1	See above	
2001	P0302, 2001, Table 2.1	*Population Census 2001*, Table 4.3	
2002	P0302, 2002, Table 2.1 Linked backwards from 2003 using UN population total described above	Interpolated	
2003	P0302, 2003, Table 2	Interpolated	
2004	P0302, 2004, Table 12	Interpolated	
2005	P0302, 2005, Table 8	Interpolated	
2006	P0302, 2006, Table 6	P0302, 2006, Table 6	
2007	P0302, 2007, Table 4	Interpolated	
2008	P0302, 2008, Table 7	Interpolated	
2009	P0302, 2009, Table 12	P0302, 2009, Table 12	
B. White population			
1911	SAS 2009, Table 2.3	OYB 1918, page 166	OYB 1918, page 170
1918	OYB 1921, page 137	OYB 1921, page 156	OYB 1921, page 156
1921	SAS 2009, Table 2.3	OYB 1927-1928, page 882	OYB 1937, page 1058
1926	SAS 2009, Table 2.3	OYB 1927-1928, page 882	OYB 1937, page 1059
1931	OYB 1938, page 1034	OYB 1937, page 1058	OYB 1937, page 1059
1936	SAS 2009, Table 2.3	OYB 1938, page 1045	OYB 1938, page 1046
1946	SAS 2009, Table 2.3	SYB 1964, page A-17	SYB 1964, page A-19
1951	SAS 2009, Table 2.3	SYB 1964, page A-17	SYB 1964, page A-19
1960	SAS 2009, Table 2.3	SYB 1964, page A-17	SYB 1964, page A-19
1970	SAS 2009, Table 2.3	SAS 1976, page 1.25	SAS 1976, page 1-28
1980	SAS 2009, Table 2.3	SAS 1982, page 1.18	SAS 1982, page 1-21
1991	SAS 2009, Table 2.3	SAS 1993, page 1.10	
1996	Census 1996 Statistics South Africa webpage	Census 1996 Statistics South Africa webpage	
2001	Census 2001 Statistics South Africa webpage	Census 2001 Statistics South Africa webpage	
2002	P0302 2002 Table 1.2		
2003	P0302 2003 Table 2	P0302 2003 Table 2	
2004	P0302 2004 Table 12	P0302 2004 Table 12	
2005	P0302 2005 Table 8	P0302 2005 Table 8	
C. Total population Cape of Good Hope			
1904	OYB 1918, page 152		
1911	OYB 1918, page 152	OYB 1918, pages 167 and 169	OYB 1918, pages 170 and 172
D. White population Cape of Good Hope			
1904	OYB 1918, page 150	SYB 1913, page 31	
1911	OYB 1918, page 150	OYB 1918, page 169	OYB 1918, page 170

Notes:
OYB denotes *Official Yearbook;* SYB denotes *Statistical Yearbook;* SAS denotes *South African Statistics.*

TABLE A.4A Reference Totals for Population, Income, and Inflation, South Africa 1913-2007

	(1) # Adults aged 15 and over	(2) # Tax Units	(3) # White Tax Units	(4) Total Reference Income	(5) Average Income per Adult	(6) Price Index	(7) Highest Marginal Tax Rate at the Top
	000	000	000	(million 2007 Rands)	(2007 Rands) (4)/(1)	(2007=100)	(%)
1913	4,393	2,652	601	53,441	12,166	0.415	7.50
1914	4,464	2,694	604	49,573	11,106	0.436	7.50
1915	4,534	2,735	606	51,596	11,379	0.463	25.00
1916	4,605	2,777	608	53,461	11,611	0.508	25.00
1917	4,675	2,818	610	55,945	11,968	0.543	25.00
1918	4,744	2,859	612	57,233	12,063	0.600	25.00
1919	4,707	2,835	636	59,318	12,603	0.744	25.00
1920	4,776	2,876	659	54,542	11,421	0.673	25.00
1921	4,843	2,920	683	55,869	11,535	0.562	25.00
1922	4,937	3,006	704	67,933	13,761	0.545	35.00
1923	5,023	3,098	725	71,527	14,239	0.552	35.00
1924	5,116	3,189	746	74,375	14,538	0.550	35.00
1925	5,206	3,279	767	77,690	14,923	0.542	35.00
1926	5,309	3,371	788	81,326	15,318	0.545	35.00
1927	5,403	3,462	809	88,071	16,299	0.545	33.00
1928	5,498	3,555	831	88,449	16,088	0.544	33.00
1929	5,591	3,648	852	85,923	15,367	0.531	35.00
1930	5,686	3,742	874	81,898	14,404	0.511	35.00
1931	5,782	3,838	895	78,969	13,657	0.489	35.00
1932	5,877	3,937	912	87,712	14,924	0.475	35.00
1933	5,974	4,034	930	102,502	17,159	0.482	35.00
1934	6,066	4,133	947	110,681	18,246	0.480	32.00
1935	6,161	4,234	964	121,483	19,717	0.481	32.00
1936	6,293	4,337	981	133,151	21,159	0.492	32.00
1937	6,428	4,445	997	130,546	20,309	0.510	33.00
1938	6,564	4,554	1,012	138,076	21,036	0.510	32.00
1939	6,700	4,664	1,027	146,233	21,825	0.527	42.00
1940	6,836	4,775	1,043	153,478	22,450	0.552	52.50
1941	6,973	4,887	1,058	158,569	22,740	0.598	52.50
1942	7,109	4,998	1,073	161,311	22,692	0.635	60.38
1943	7,247	5,112	1,089	167,778	23,153	0.657	60.38
1944	7,384	5,226	1,104	173,957	23,558	0.674	60.38
1945	7,524	5,343	1,119	183,506	24,389	0.684	64.88
1946	7,666	5,462	1,135	186,054	24,271	0.713	64.88
1947	7,735	5,552	1,151	195,041	25,216	0.771	66.83
1948	7,940	5,649	1,167	201,226	25,342	0.793	75.50
1949	8,078	5,742	1,183	216,318	26,777	0.833	75.50
1950	8,192	5,930	1,199	238,592	29,126	0.918	75.50
1951	8,343	5,906	1,216	234,006	28,048	0.953	75.50
1952	8,503	6,018	1,236	244,146	28,714	0.992	81.79
1953	8,670	6,134	1,255	249,379	28,764	1.078	51.27
1954	8,842	6,254	1,275	263,274	29,775	1.090	51.27
1955	9,018	6,377	1,295	279,643	31,008	1.087	51.27
1956	9,205	6,508	1,315	290,181	31,524	1.109	55.73
1957	9,397	6,642	1,335	299,149	31,835	1.122	55.73
1958	9,594	6,779	1,355	309,098	32,217	1.125	44.58
1959	9,800	6,922	1,375	323,037	32,964	1.139	50.00
1960	10,014	7,072	1,395	334,269	33,381	1.184	50.00
1961	10,246	7,270	1,513	356,874	34,830	1.200	50.00
1962	10,487	7,476	1,632	380,926	36,322	1.204	50.00
1963	10,736	7,689	1,751	384,923	35,853	1.243	50.00
1964	10,989	7,906	1,870	403,326	36,702	1.268	50.00
1965	11,245	8,127	1,988	428,617	38,115	1.305	50.00
1966	11,565	8,397	2,107	455,448	39,381	1.362	50.00
1967	11,891	8,673	2,226	480,314	40,392	1.417	50.00
1968	12,226	8,958	2,344	513,062	41,965	1.472	50.00
1969	12,573	9,254	2,463	514,895	40,951	1.584	50.00

TABLE A.4A Reference Totals for Population, Income, and Inflation, South Africa 1913-2007

	(1) # Adults aged 15 and over 000	(2) # Tax Units 000	(3) # White Tax Units 000	(4) Total Reference Income (million 2007 Rands)	(5) Average Income per Adult (2007 Rands) (4)/(1)	(6) Price Index (2007=100)	(7) Highest Marginal Tax Rate at the Top (%)
1970	12,937	9,564	2,582	553,309	42,770	1.652	50.00
1971	13,288	9,862	2,654	614,834	46,269	1.751	50.00
1972	13,654	10,173	2,725	620,639	45,454	1.944	50.00
1973	14,031	10,494	2,797	591,479	42,155	2.300	50.00
1974	14,413	10,822	2,869	608,917	42,248	2.666	50.00
1975	14,796	11,152	2,941	633,271	42,800	2.951	50.00
1976	15,207	11,505	3,013	645,538	42,451	3.258	50.00
1977	15,619	11,863	3,084	674,101	43,159	3.622	50.00
1978	16,038	12,227	3,156	660,883	41,206	4.045	50.00
1979	16,471	12,605	3,228	686,941	41,705	4.657	50.00
1980	16,923	13,000	3,300	673,892	39,821	5.817	50.00
1981	17,367	13,342	3,358	712,641	41,034	6.395	50.00
1982	17,829	13,698	3,417	736,617	41,316	7.286	50.00
1983	18,300	14,061	3,475	748,156	40,883	8.493	50.00
1984	18,769	14,423	3,533	805,221	42,902	9.472	50.00
1985	19,229	14,777	3,592	785,605	40,856	11.063	50.00
1986	19,787	15,208	3,650	783,002	39,571	12.950	50.00
1987	20,339	15,633	3,708	828,703	40,744	14.828	45.00
1988	20,898	16,065	3,767	870,755	41,667	17.079	45.00
1989	21,485	16,517	3,825	891,847	41,510	20.027	45.00
1990	22,113	22,113	4,042	912,602	41,270	23.135	44.00
1991	22,917	22,917	3,942	921,152	40,195	26.774	43.00
1992	23,690	23,690	3,842	938,802	39,628	30.675	43.00
1993	25,023	25,023	3,741	923,257	36,896	34.690	43.00
1994	25,861	25,861	3,641	948,302	36,670	38.018	46.33
1995	26,723	26,723	3,541	979,905	36,669	41.915	46.66
1996	27,181	27,181	3,441	1,021,101	37,567	45.306	45.00
1997	27,768	27,768	3,448	1,059,818	38,167	48.978	45.00
1998	28,536	28,536	3,456	1,068,164	37,433	52.755	45.00
1999	29,325	29,325	3,463	1,095,666	37,363	56.486	45.00
2000	29,650	29,650	3,470	1,118,358	37,719	61.462	42.00
2001	30,528	30,528	3,477	1,133,545	37,131	66.175	42.00
2002	31,095	31,095	3,479	1,142,279	36,736	73.288	40.00
2003	31,518	31,518	3,241	1,179,891	37,436	77.356	40.00
2004	31,609	31,609	3,320	1,242,588	39,311	82.285	40.00
2005	31,798	31,798	3,330	1,312,041	41,261	86.765	40.00
2006	32,124	32,124	3,337	1,380,208	42,965	92.429	40.00
2007	32,561	32,561	3,345	1,443,403	44,329	100.000	40.00

Notes:
Tax units for 1913-1989 estimated as the number of married couples and single adults aged 15 and over.
Tax units for 1990-2005 estimated as the number of adults aged 15 and over.

TABLE A.4B Reference Totals for Population, Cape of Good Hope 1903-1907

	(1) # Adults aged 15 and over 000	(2) # Tax Units 000	(3) # White Tax Units 000
1903	1,622	1,153	267
1904	1,637	1,164	265
1905	1,652	1,174	263
1906	1,667	1,185	261
1907	1,683	1,196	260

Notes:
Tax units estimated as number of married couples and single adults aged 15 and over.

Table A.5A Top income shares (excluding dividend income), South Africa 1913-1953

		Top 5%	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	Pareto-Lorenz Coefficient		Inverted Pareto-Lorenz Coefficient		Top 5-1%	Top 1-0.5%	Top 0.5-0.25%	Top 0.25-0.1%	Top 0.1-0.05%	Top 0.05-0.01%	Top 0.01%
									1%-0.1%	0.1%-0.01%	1%-0.1%	0.1%-0.01%							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1913	(a)					6.42	4.41	1.82		2.21		1.83					2.01	2.59	1.82
1914	(a)		20.50	14.76	10.59	6.80	4.82	2.13	1.92	2.01	2.09	1.99		5.74	4.17	3.79	1.98	2.69	2.13
1915	(a)		20.42	15.00	11.03	7.28	5.26	2.42	1.81	1.91	2.23	2.09		5.42	3.97	3.75	2.02	2.83	2.42
1916	(a)		20.53	14.98	10.92	7.14	5.13	2.39	1.85	1.90	2.18	2.11		5.54	4.06	3.78	2.01	2.73	2.39
1917	(a)		21.30	15.79	11.72	7.87	5.81	2.86	1.76	1.79	2.31	2.27		5.51	4.07	3.85	2.06	2.95	2.86
1918	(a)		19.63	14.00	10.04	6.38	4.50	2.01	1.95	2.00	2.05	2.00		5.63	3.96	3.66	1.87	2.49	2.01
1919	(a)		17.77	12.79	9.13	5.78	4.10	1.89	1.95	1.94	2.05	2.06		4.98	3.66	3.35	1.68	2.21	1.89
1920	(a)		18.90	13.19	9.22	5.64	3.82	1.51	2.11	2.34	1.90	1.74		5.71	3.97	3.58	1.82	2.31	1.51
1921	(a)		20.30	14.11	9.78	5.88	3.92	1.52	2.17	2.43	1.86	1.70		6.19	4.33	3.90	1.96	2.41	1.52
1922	(a)		17.88	12.50	8.67	5.20	3.47	1.34	2.16	2.44	1.86	1.69		5.38	3.83	3.47	1.73	2.13	1.34
1923	(a)		18.17	12.78	8.90	5.37	3.60	1.38	2.13	2.44	1.89	1.70		5.38	3.88	3.54	1.77	2.22	1.38
1924	(a)		18.58	13.11	9.15	5.53	3.73	1.46	2.11	2.37	1.90	1.73		5.46	3.96	3.62	1.80	2.27	1.46
1925	(a)		19.18	13.58	9.49	5.72	3.83	1.51	2.11	2.37	1.90	1.73		5.60	4.09	3.77	1.88	2.32	1.51
1926	(a)		18.79	13.36	9.38	5.66	3.79	1.47	2.09	2.41	1.92	1.71		5.43	3.98	3.73	1.87	2.32	1.47
1927	(a)		18.60	13.25	9.27	5.58	3.72	1.44	2.10	2.43	1.91	1.70		5.35	3.98	3.69	1.85	2.28	1.44
1928	(a)		18.68	13.33	9.33	5.61	3.74	1.44	2.09	2.45	1.91	1.69		5.36	3.99	3.72	1.87	2.30	1.44
1929	(a)		18.74	13.25	9.22	5.50	3.63	1.34	2.14	2.60	1.88	1.63		5.50	4.03	3.72	1.87	2.30	1.34
1930	(a)		19.10	13.39	9.30	5.54	3.64	1.31	2.16	2.67	1.86	1.60		5.71	4.10	3.75	1.90	2.33	1.31
1931	(a)		18.93	13.21	9.16	5.50	3.64	1.33	2.16	2.60	1.86	1.63		5.71	4.05	3.67	1.86	2.30	1.33
1932	(a)		18.39	13.12	9.34	5.85	4.03	1.73	1.99	2.12	2.01	1.89		5.27	3.79	3.49	1.81	2.30	1.73
1933	(a)		18.10	13.22	9.55	6.08	4.28	1.96	1.90	1.97	2.11	2.03		4.88	3.67	3.47	1.80	2.33	1.96
1934	(a)		17.25	12.53	8.91	5.49	3.71	1.44	1.99	2.39	2.01	1.72		4.72	3.62	3.42	1.78	2.27	1.44
1935	(a)		17.55	12.72	9.07	5.58	3.78	1.48	1.99	2.37	2.01	1.73		4.83	3.66	3.49	1.80	2.30	1.48
1936	(a)		17.20	12.51	8.94	5.49	3.72	1.45	1.98	2.38	2.02	1.72		4.69	3.57	3.45	1.78	2.27	1.45
1937	(a)		16.52	11.84	8.34	5.00	3.30	1.18	2.08	2.67	1.93	1.60		4.69	3.50	3.34	1.70	2.11	1.18
1938	(a)		15.90	11.31	7.93	4.76	3.15	1.16	2.10	2.59	1.91	1.63		4.59	3.38	3.16	1.61	1.99	1.16
1939	(a)		14.90	10.54	7.34	4.40	2.92	1.09	2.13	2.55	1.89	1.65		4.36	3.20	2.95	1.48	1.83	1.09
1940	(b)																		
1941	(b)																		
1942	(b)																		
1943	(b)																		
1944	(c)		17.31	12.31	8.58	5.28	3.63	1.46	2.06	2.26	1.94	1.79		4.99	3.73	3.30	1.66	2.17	1.46
1945	(c)		19.45	14.35	10.33	6.50	4.53	1.84	1.91	2.21	2.10	1.83		5.10	4.02	3.82	1.97	2.68	1.84
1946	(d)		22.15	16.45	11.93	7.51	5.09	2.23	1.89	2.12	2.13	1.89		5.70	4.51	4.42	2.43	2.86	2.23
1947	(c)		19.74	14.48	10.39	6.49	4.43	1.69	1.94	2.41	2.07	1.71		5.26	4.09	3.90	2.06	2.74	1.69
1948	(d)		19.76	14.16	9.92	5.97	3.96	1.45	2.08	2.59	1.92	1.63		5.60	4.24	3.95	2.01	2.50	1.45
1949	(c)		16.41	11.70	8.19	4.93	3.28	1.22	2.09	2.55	1.91	1.65		4.70	3.51	3.26	1.65	2.06	1.22
1950	(b)																		
1951																			
1952																			
1953	(e)	36.43	14.95	10.17	6.79	3.85	2.46		2.44		1.70		21.47	4.78	3.39	2.94	1.39		

Notes:
(a) Estimates are based on assessments compiled up to 12 months after the end of the income year, which cover around 95% of total assessments.
(b) Estimates for 1940-1943 and 1950 are presented in Table A.7 for illustrative purposes, as they are also based on assessments issued up to 12 months after the end of the income year but only cover 70-80% of total assessments.
(c) Estimates are based on assessments compiled up to 24 months after the end of the income year, and also cover around 95% of total assessments.
(d) Estimates are based on assessments compiled up to 36 months after the end of the income year, and also cover around 95% of total assessments.
(e) The results for 1953 are based on Pareto interpolation on the number of assessments by ranges of income only (the information on incomes by ranges is not available) compiled up to 36 months after the end of the income year. There is information on the number of assessments by income ranges compiled up to 24 months after the end of the tax year; top income shares, in this case, are the following: Top 5%: 36.06, Top 1%: 14.80%, Top 0.5%: 10.06%, Top 0.25%: 6.72%, Top 0.1%: 3.81%, Top 0.05%: 2.43%, a difference of around 1% (not 1 percentage point) with respect of top shares estimated on assessments compiled up to 36 months after the end of the income year.
We estimate the Pareto-Lorenz coefficient based on the share of the top y% (Sy%) within the share of the top x% (Sx%) as $\alpha = 1/[1-\log(Sx\%/Sy\%)/\log(10)]$. The inverted Pareto-Lorenz coefficient is $ß=\alpha/(\alpha-1)$.

Table A.5B Top income shares (including dividend income), South Africa 1914-1993

		Top 10%	Top 5%	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	Pareto-Lorenz Coefficient 1%-0.1%	Pareto-Lorenz Coefficient 0.05%-0.01%	Inverted Pareto-Lorenz Coefficient 1%-0.1%	Inverted Pareto-Lorenz Coefficient 0.05%-0.01%	Top 10-5%	Top 5-1%	Top 1-0.5%	Top 0.5-0.25%	Top 0.25-0.1%	Top 0.1-0.05%	Top 0.05-0.01%	Top 0.01%
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1914-191	(a)								2.66												2.66
1916	(a)							5.96	2.84		1.85		2.18							3.11	2.84
1917	(a)							6.74	3.34		1.77		2.30							3.39	3.34
1918	(a)							5.42	2.54		1.89		2.12							2.88	2.54
1919	(a)							4.81	2.27		1.88		2.14							2.54	2.27
1920	(a)							4.74	2.04		2.10		1.91							2.70	2.04
1921	(a)							4.85	2.07		2.13		1.89							2.78	2.07
1922	(a)							4.20	1.70		2.28		1.78							2.50	1.70
1923	(a)							4.59	1.95		2.13		1.89							2.63	1.95
1924	(a)							4.80	2.07		2.09		1.91							2.73	2.07
1925	(a)							4.74	1.98		2.19		1.84							2.76	1.98
1926	(a)							4.68	1.90		2.26		1.79							2.77	1.90
1927	(a)							4.47	1.81		2.29		1.78							2.66	1.81
1928	(a)							4.63	1.90		2.23		1.81							2.72	1.90
1929	(a)							4.53	1.80		2.34		1.75							2.73	1.80
1930	(a)							4.53	1.77		2.39		1.72							2.76	1.77
1931	(a)								1.69												1.69
1932	(a)								2.05												2.05
1933	(a)							5.14	2.42		1.89		2.13							2.73	2.42
1934	(a)							4.72	1.99		2.16		1.86							2.73	1.99
1935	(a)							4.84	2.07		2.12		1.89							2.78	2.07
1936	(a)						6.73	4.69	1.95		2.19		1.84						2.04	2.74	1.95
1937	(a)							4.32	1.74		2.29		1.77							2.58	1.74
1938	(a)							4.04	1.62		2.32		1.76							2.42	1.62
1939	(a)							3.85	1.61		2.18		1.85							2.24	1.61
1940	(b)																				
1941	(b)																				
1942	(b)																				
1943	(b)																				
1944	(c)			18.24	13.13	9.27	5.80	4.03	1.67	1.99	2.20		1.83			5.10	3.87	3.47	1.77	2.35	1.67
1945	(c)			20.44	15.18	11.00	7.00	4.91	2.04	1.87	2.20		1.83			5.26	4.18	4.00	2.08	2.87	2.04
1946	(d)			23.61	17.74	13.06	8.48	5.99	2.51	1.80	2.18		1.85			5.87	4.68	4.58	2.49	3.48	2.51
1947	(c)			21.29	15.83	11.52	7.34	5.09	2.03	1.86	2.33		1.75			5.46	4.30	4.18	2.26	3.06	2.03
1948	(d)			22.09	16.09	11.46	7.03	4.71	1.85	1.99	2.39		1.72			6.01	4.63	4.43	2.32	2.86	1.85
1949	(c)			17.74	12.84	9.11	5.60	3.78	1.48	2.00	2.41		1.71			4.90	3.72	3.51	1.82	2.31	1.48
1950																					
1951																					
1952																					
1953																					
1954	(c)		35.68	14.16	9.53	6.31	3.54	2.24		2.51		1.66			21.51	4.64	3.22	2.77	1.30		
1955	(c)		35.81	14.42	9.70	6.41	3.59	2.26		2.53		1.65			21.38	4.72	3.30	2.82	1.32		
1956	(e)		35.37	13.92	9.27	6.09	3.40	2.14		2.58		1.63			21.45	4.65	3.18	2.69	1.25		
1957	(e)		35.20	13.56	8.94	5.84	3.25	2.05		2.63		1.61			21.65	4.61	3.11	2.58	1.20		
1958	(e)		34.56	12.93	8.41	5.44	3.07	1.97		2.66		1.60			21.63	4.52	2.97	2.37	1.10		
1959	(e)		33.58	12.59	8.19	5.31	2.93	1.86		2.72		1.58			20.99	4.40	2.88	2.38	1.07		
1960																					
1961	(e)		31.65	11.79	7.67	4.97	2.75	1.73		2.72		1.58			19.86	4.12	2.70	2.22	1.02		
1962																					
1963	(f)	48.95	34.29	13.20	8.71	5.72	3.23	2.07		2.57		1.63		14.66	21.09	4.49	2.99	2.49	1.16		
1964	(f)	51.07	35.65	13.67	9.02	5.91	3.33	2.13		2.59		1.63		15.42	21.98	4.65	3.11	2.59	1.20		
1965	(f)	51.10	35.48	13.26	8.68	5.68	3.20	2.05		2.62		1.62		15.63	22.22	4.58	3.00	2.48	1.15		
1966																					
1967	(g)	50.75	34.97	12.64	8.14	5.25	2.90	1.83		2.77		1.56		15.78	22.33	4.50	2.89	2.35	1.07		
1968																					
1969	(g)	50.66	35.37	13.38	8.74	5.59	3.00			2.85		1.54		15.29	21.99	4.64	3.15	2.59			
1970																					
1971	(g)	51.30	35.47	12.90	8.24	5.16	2.73			3.07		1.48		15.82	22.57	4.66	3.08	2.43			
1972																					
1973																					
1974	(g)		34.84	12.94	8.35	5.33	2.94			2.80		1.55			21.90	4.58	3.03	2.39			
1975	(g)	49.94	34.70	12.18	7.68	4.81	2.59			3.06		1.49		15.24	22.52	4.50	2.87	2.23			
1976																					
1977																					
1978	(g)	45.43	31.48	10.35	6.28	3.80								13.95	21.13	4.08	2.48				
1979	(g)	42.53	29.79	9.93	6.08	3.72								12.75	19.86	3.85	2.36				
1980	(g)	43.20	30.58	10.89	6.95	4.45	2.48			2.80		1.56		12.62	19.69	3.94	2.50	1.98			
1981	(g)	45.44	32.21	11.35	7.27	4.71								13.23	20.86	4.08	2.56				

Table A.5B Top income shares (including dividend income), South Africa 1914-1993

		Top 10%	Top 5%	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	Pareto-Lorenz Coefficient		Inverted Pareto-Lorenz Coefficient		Top 10-5%	Top 5-1%	Top 1-0.5%	Top 0.5-0.25%	Top 0.25-0.1%	Top 0.1-0.05%	Top 0.05-0.01%	Top 0.01%
										1%-0.1%	0.05%-0.01%	1%-0.1%	0.05%-0.01%								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1982	(g)		33.17	12.00	7.84	5.22	3.12	2.14		2.41		1.71			21.18	4.16	2.61	2.10	0.98		
1983	(g)		30.92	11.34	7.46	5.02	3.03	2.08	0.90	2.35	2.10	1.74	1.91		19.58	3.88	2.44	1.99	0.95	1.18	0.90
1984	(g)		31.24	11.30	7.38	4.91	2.91	1.96	0.80	2.44	2.27	1.70	1.79		19.94	3.92	2.47	2.00	0.95	1.16	0.80
1985	(g)		29.52	10.64	6.91	4.57	2.68	1.80		2.49		1.67			18.88	3.73	2.34	1.89	0.89		
1986	(g)		28.90	10.35	6.66	4.34	2.49	1.64	0.62	2.62	2.52	1.62	1.66		18.54	3.70	2.31	1.85	0.86	1.02	0.62
1987	(g)		25.35	8.78	5.48	3.47	1.94	1.25		2.91		1.52			16.58	3.30	2.01	1.53	0.68		
1988	(g)		26.34	9.88	6.43	4.21	2.42	1.59		2.57		1.64			16.45	3.46	2.22	1.79	0.83		
1989	(g)			7.19	4.47	2.80	1.54	0.99	0.36	3.03	2.72	1.49	1.58			2.73	1.67	1.26	0.55	0.63	0.36
1990	(g)	42.86	29.27	9.85	5.88	3.35				3.30		1.43		13.59	19.42	3.98	2.52				
1991	(g)	44.17	30.45	10.54	6.57					2.99		1.50		13.72	19.91	3.96					
1992	(g)	42.77	30.37	10.56	6.54	4.07				3.00		1.50		12.40	19.81	4.02	2.47				
1993	(g)	41.55	28.95	10.27	6.36	3.93				2.93		1.52		12.61	18.68	3.91	2.43				

Notes:
(a) Estimates are based on assessments compiled up to 12 months after the end of the income year, which cover around 95% of total assessments. The estimate for 1914-1915 is based on the average income of IY1914 and IY1915.
(b) Estimates for 1940-1943 and 1950 are presented in Table A.7 for illustrative purposes, as they are also based on assessments issued up to 12 months after the end of the income year, but only cover 70-80% of total assessments.
(c) Estimates are based on assessments compiled up to 24 months after the end of the income year, and also cover around 95% of total assessments.
(d) Estimates are based on assessments compiled up to 36 months after the end of the income year, and also cover around 95% of total assessments.
(e) Estimates based on assessments compiled up to 12 months after the end of the tax year.
(f) Estimates are based on Pareto interpolations on the number of tax assessments only, compiled up to 24 months after the end of the tax year.
(g) Estimates are based on Pareto interpolations on the number of tax assessments only. Exact compilation period unknown; it is pressumed that they correspond to assessments compiled at least 24 months after the end of the income year, as they come from SAS. Estimates for 1989 are affected by an abnormally low number of tax assessements reported in the tabulations (52% of those assessed in 1988).
We estimate the Pareto-Lorenz coefficient based on the share of the top y% (Sy%) within the share of the top x% (Sx%) as $\alpha = 1/[1-\log(Sx\%/Sy\%)/\log(10)]$. The inverted Pareto-Lorenz coefficient is $ß=\alpha/(\alpha-1)$.

Table A.5C Top income shares (including dividend income), South Africa 2002-2007

	Top 10%	Top 5%	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	Pareto-Lorenz Coefficient 1%-0.1%	Pareto-Lorenz Coefficient 0.05%-0.01%	Inverted Pareto-Lorenz Coefficient 1%-0.1%	Inverted Pareto-Lorenz Coefficient 0.05%-0.01%	Top 10-5%	Top 5-1%	Top 1-0.5%	Top 0.5-0.25%	Top 0.25-0.1%	Top 0.1-0.05%	op 0.05-0.01%	Top 0.01%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
2002		32.69	14.58	10.07	6.96	4.28	2.96	1.24	2.14	2.18	1.88	1.85		18.11	4.50	3.11	2.68	1.32	1.72	1.24
2003	43.10	33.42	14.84	10.20	6.99	4.24	2.88	1.15	2.19	2.34	1.84	1.75	9.68	18.58	4.64	3.21	2.75	1.35	1.74	1.15
2004	44.04	33.58	15.05	10.38	7.15	4.38	3.01	1.22	2.16	2.28	1.86	1.78	10.46	18.53	4.67	3.23	2.78	1.37	1.79	1.22
2005	44.26	33.86	15.50	10.82	7.55	4.70	3.26	1.37	2.08	2.18	1.93	1.85	10.40	18.36	4.68	3.27	2.85	1.44	1.90	1.37
2006	43.04	33.66	15.77	11.11	7.85	4.96	3.50	1.52	2.01	2.08	1.99	1.93	9.38	17.89	4.66	3.27	2.88	1.46	1.98	1.52
2007 (a)		34.10	16.25	11.48	8.13	5.18	3.70	1.68	1.99	1.96	2.01	2.04		17.84	4.77	3.35	2.95	1.48	2.02	1.68

Notes:
(a) Preliminary results based on incomplete assessments.
We estimate the Pareto-Lorenz coefficient based on the share of the top y% (Sy%) within the share of the top x% (Sx%) as α = 1/[1-log(Sx%/Sy%)/log(10)]. The inverted Pareto-Lorenz coefficient is ß=α/(α-1).

TABLE A.6 Normal Tax and Super Tax: Number of tax assessments and tax assessed, South Africa 1913-1953

	Normal Tax										Super Tax					
	(1) # tax assessments	(2) value of tax	(3) # tax assessments	**(4) (3)/(1)**	(5) value of tax	**(6) (5)/(2)**	(7) # tax assessments	**(8) (7)/(1)**	(9) value of tax	**(10) (9)/(2)**	(11) # tax assessments	(12) value of tax	(13) # tax returns	**(14) (13)/(11)**	(15) value of tax	**(16) (15)/(12)**
	As of 1955 000	As of 1955 £000	compiled +1year 000	%	compiled +1year £000	%	compiled +2years 000	%	compiled +2years £000	%	As of 1955 000	As of 1955 £000	compiled +1year 000	%	compiled +1year £000	%
1913	5.54	178	5.14	**92.7**	167.2	**93.9**										
1914	44.13	843	39.71	**90.0**	787.2	**93.4**										
1915	47.18	1,031	40.18	**85.1**	925.8	**89.8**					1.14	336				
1916	53.62	1,348	48.25	**90.0**	1,213	**90.0**					1.66	572				
1917	66.21	1,806	57.87	**87.4**	1,563	**86.6**					2.22	847	1.95	**88.0**	730	**86.3**
1918	79.56	1,924	71.23	**89.5**	1,653	**85.9**					2.38	709	2.03	**85.4**	606	**85.4**
1919	62.99	2,175	53.60	**85.1**	1,773	**81.5**					3.35	991	2.69	**80.5**	789	**79.6**
1920	106.65	2,132	96.45	**90.4**	1,913	**89.7**					2.52	1,080	2.23	**88.7**	1,009	**93.4**
1921	82.47	1,620	76.77	**93.1**	1,515	**93.5**					1.93	787	1.83	**94.8**	746	**94.8**
1922	81.77	1,645	78.30	**95.8**	1,562	**95.0**					2.03	785	1.95	**96.5**	744	**94.8**
1923	88.64	1,833	84.27	**95.1**	1,754	**95.7**					2.43	1,036	2.34	**96.3**	1,023	**98.8**
1924	88.79	1,924	85.73	**96.6**	1,859	**96.6**					2.65	1,146	2.55	**96.4**	1,166	**101.8**
1925	69.90	1,825	66.26	**94.8**	1,736	**95.1**					2.95	1,205	2.80	**94.8**	1,171	**97.2**
1926	71.73	1,915	67.43	**94.0**	1,790	**93.5**					3.12	1,313	2.99	**96.0**	1,222	**93.1**
1927	76.97	1,691	72.51	**94.2**	1,584	**93.7**					3.50	1,324	3.32	**94.7**	1,283	**96.9**
1928	71.14	1,593	66.70	**93.8**	1,479	**92.8**					3.49	1,456	3.36	**96.2**	1,359	**93.4**
1929	68.47	1,751	65.99	**96.4**	1,658	**94.7**					3.07	1,214	2.99	**97.3**	1,104	**90.9**
1930	85.79	1,745	82.72	**96.4**	1,675	**96.0**					2.56	898	2.51	**98.0**	882	**98.2**
1931	74.28	1,430	71.59	**96.4**	1,372	**95.9**					1.96	660	1.91	**97.2**	630	**95.5**
1932	69.81	1,516	68.05	**97.5**	1,469	**96.9**					2.15	965	2.08	**96.7**	925	**95.8**
1933	47.92	1,326	46.46	**97.0**	1,275	**96.2**					2.99	1,631	2.90	**97.2**	1,578	**96.7**
1934	50.66	1,166	48.54	**95.8**	1,097	**94.1**					3.42	1,603	3.28	**95.7**	1,469	**91.7**
1935	59.47	1,394	57.32	**96.4**	1,316	**94.4**					4.16	1,898	3.95	**94.9**	1,812	**95.5**
1936	69.15	1,664	65.17	**94.2**	1,543	**92.7**					4.95	2,284	4.66	**94.2**	2,122	**92.9**
1937	73.72	1,786	67.83	**92.0**	1,642	**91.9**					4.64	1,903	4.38	**94.4**	1,805	**94.9**
1938	77.55	1,604	73.12	**94.3**	1,465	**91.3**					4.58	1,849	4.28	**93.3**	1,705	**92.2**
1939	81.60	2,846	76.25	**93.4**	2,575	**90.5**					4.75	2,325	4.35	**91.6**	2,157	**92.7**
1940	158.17	6,000	135.68	**85.8**	4,687	**78.1**					9.41	5,745	7.00	**74.4**	4,281	**74.5**
1941	192.35	7,169	161.99	**84.2**	5,440	**75.9**					11.34	6,264	8.16	**72.0**	4,399	**70.2**
1942	214.77	9,324	172.59	**80.4**	6,683	**71.7**					13.60	7,332	9.01	**66.3**	4,899	**66.8**
1943	242.07	10,610	172.04	**71.1**	6,555	**61.8**					19.30	8,619	11.15	**57.8**	4,943	**57.4**
1944	269.54	11,565	156.44	**58.0**	6,011	**52.0**	254.08	**94.3**	10,516	**90.9**	20.46	8,997				
1945	317.43	15,723	178.22	**56.1**	7,284	**46.3**	291.81	**91.9**	14,098	**89.7**	25.29	15,242				
1946	332.16	18,377	189.47	**57.0**	9,101	**49.5**					29.58	20,528				
1947	267.50	14,012	131.98	**49.3**	6,024	**43.0**	247.23	**92.4**	12,750	**91.0**	33.68	17,189				
1948	314.71	17,895	159.44	**50.7**	7,760	**43.4**	281.84	**89.6**	15,572	**87.0**	37.52	19,701				
1949	335.31	18,078	162.40	**48.4**	7,666	**42.4**	300.69	**89.7**	15,827	**87.5**	37.94	19,101				

TABLE A.6 Normal Tax and Super Tax: Number of tax assessments and tax assessed, South Africa 1913-1953

	Normal Tax										Super Tax					
	(1) # tax assessments	(2) value of tax	(3) # tax assessments	**(4) (3)/(1)**	(5) value of tax	**(6) (5)/(2)**	(7) # tax assessments	**(8) (7)/(1)**	(9) value of tax	**(10) (9)/(2)**	(11) # tax assessments	(12) value of tax	(13) # tax returns	**(14) (13)/(11)**	(15) value of tax	**(16) (15)/(12)**
	As of 1955 000	As of 1955 £000	compiled +1year 000	%	compiled +1year £000	%	compiled +2years 000	%	compiled +2years £000	%	As of 1955 000	As of 1955 £000	compiled +1year 000	%	compiled +1year £000	%
1950	393.62	25,526	191.57	**48.7**	10,941	**42.9**					48.58	28,175				
1951	505.14	23,805									53.05	21,192				
1952	570.77	27,626									58.44	19,529				
1953	544.85	26,188					544.85	**100.0**			63.21	19,096				

Notes:
Column (1) and (11) display the number of tax assessments to the Normal and Super taxes as of 1955, informed in the Report of the Commissioner for Inland Revenue 1953-1956. Columns (2) and (12) show the value of tax collected for those taxes by the same date. The table also reports the number of assessments to the Normal Tax, compiled up to 12 months (column 3) and up to 24 months (column 7) after the end of the income year, and the number of assessments to the Super tax (column 11) compiled up to 12 months after the end of the income year. The organization of the information in the published tabulations does not allow to provide the number of assessments to the Super Tax compiled up to 24 months after the end of the income year after 1943. Columns (5), (9) and (15) give the amounts of tax collected.

Table A.7 Top shares and sensibility to compilation period, South Africa 1944-1949

	compilation period	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	% Assessments Normal Tax	% Value of Normal Tax assessed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1944	+12 months	12.72	9.05	6.45	4.08	2.88	1.26	58.04	51.98
	+24 months	17.31	12.31	8.58	5.28	3.63	1.46	94.26	90.93
1945	+12 months	12.90	9.30	6.78	4.34	3.08	1.37	56.14	46.33
	+24 months	19.45	14.35	10.33	6.50	4.53	1.84	91.93	89.66
1946	+12 months	14.59	10.71	7.85	5.09	3.61	1.55	57.04	49.53
	+36 months	22.15	16.45	11.93	7.51	5.09	2.23	98.30	98.00
1947	+12 months	12.85	9.40	6.82	4.31	3.00	1.22	49.34	42.99
	+24 months	19.74	14.48	10.39	6.49	4.43	1.69	92.42	90.99
1948	+12 months	12.58	8.98	6.41	3.97	2.71	1.08	50.66	43.36
	+24 months	18.55	13.33	9.36	5.65	3.76	1.39	89.56	87.02
	+36 months	19.76	14.16	9.92	5.97	3.96	1.45	98.25	97.60
1949	+12 months	11.10	7.80	5.53	3.40	2.32	0.92	48.43	42.40
	+24 months	16.41	11.70	8.19	4.93	3.28	1.22	89.68	87.55

Table A.8 Top Income Shares in South Africa, 1940-1943 and 1950

Assessments issued up to 12 months after the end of the income year

	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%
	(1)	(2)	(3)	(4)	(5)	(6)
A. Excluding dividends						
1940	16.02	11.71	8.62	5.65	4.10	1.90
1941	15.55	11.30	8.17	5.25	3.74	1.66
1942	15.25	10.96	7.79	4.89	3.41	1.43
1943	14.02	10.05	7.13	4.44	3.11	1.35
B. Including dividends						
1940				6.27	4.58	2.13
1941				5.78	4.14	1.86
1942				5.38	3.81	0.00
1943				4.84	3.43	1.52
1950	12.11	8.88	6.43	3.97	2.68	1.04

Table A.9 Composition by Race in Top Income Groups, South Africa 1956-1987

	Top 5%				Top 1%				Top 0.5%				Top 0.1%				Top 0.05%				Top 0.01%			
	White	Coloured	Asian	Bantu	White	Coloured	Asian	Bantu	White	Coloured	Asian	Bantu	White	Coloured	Asian	Bantu	White	Coloured	Asian	Bantu	White	Coloured	Asian	Bantu
1956	98.38	0.44	1.13	0.05	98.49	0.09	1.37	0.04	98.81	0.07	1.10	0.03	99.12	0.02	0.82	0.03	99.18	0.00	0.82	0.00	99.83	0.00	0.17	0.00
1957	98.32	0.48	1.13	0.07	98.48	0.09	1.38	0.06	98.85	0.08	1.02	0.05	99.29	0.06	0.59	0.05	99.37	0.05	0.49	0.09	99.92	0.00	0.08	0.00
1958	98.31	0.52	1.09	0.08	98.51	0.09	1.35	0.06	98.74	0.08	1.15	0.03	99.00	0.08	0.89	0.03	99.27	0.12	0.58	0.03	99.73	0.00	0.27	0.00
1959	98.26	0.60	1.06	0.08	98.64	0.09	1.23	0.05	98.84	0.06	1.05	0.04	99.07	0.03	0.88	0.02	99.37	0.02	0.61	0.01	100.00	0.00	0.00	0.00
1960																								
1961	98.37	0.58	0.97	0.07	98.51	0.10	1.33	0.06	98.66	0.07	1.23	0.04	99.38	0.02	0.57	0.03	99.62	0.03	0.35	0.00	100.00	0.00	0.00	0.00
1962																								
1963	98.22	0.53	1.15	0.10	98.36	0.11	1.44	0.09	98.50	0.08	1.34	0.08	99.13	0.07	0.74	0.06	99.36	0.09	0.50	0.05	99.60	0.09	0.26	0.04
1964	98.15	0.61	1.15	0.09	98.30	0.14	1.48	0.08	98.45	0.11	1.38	0.06	99.19	0.05	0.70	0.06	99.51	0.03	0.42	0.05	99.69	0.03	0.21	0.07
1965	98.24	0.58	1.09	0.08	98.33	0.15	1.43	0.09	98.53	0.12	1.27	0.08	99.34	0.04	0.58	0.05	99.61	0.00	0.34	0.05	99.78	0.00	0.19	0.03
1966																								
1967	98.29	0.57	1.05	0.09	98.55	0.12	1.23	0.10	98.61	0.11	1.18	0.10	99.20	0.06	0.69	0.05	99.47	0.09	0.41	0.03	99.48	0.10	0.39	0.03
1968																								
1969	98.35	0.51	1.06	0.08	98.37	0.20	1.33	0.10	98.45	0.16	1.29	0.09	99.12	0.08	0.75	0.04	99.28	0.06	0.65	0.01	99.28	0.06	0.65	0.01
1970																								
1971	98.27	0.63	1.10	0.00	98.34	0.21	1.45	0.00	98.28	0.21	1.50	0.00	98.86	0.16	0.98	0.00	98.86	0.16	0.98	0.00	98.86	0.16	0.98	0.00
1972																								
1973																								
1974	97.84	0.83	1.33	na	98.10	0.21	1.69	na	98.15	0.16	1.69	na	99.17	0.03	0.81	na	99.17	0.03	0.81	na	99.17	0.03	0.81	na
1975	98.05	0.77	1.19	na	98.20	0.23	1.57	na	98.10	0.21	1.68	na	98.96	0.06	0.98	na	98.96	0.06	0.98	na	98.96	0.06	0.98	na
1976																								
1977																								
1978	97.25	1.28	1.47	na	98.33	0.29	1.38	na	98.32	0.24	1.45	na	98.50	0.24	1.26	na	98.50	0.24	1.26	na	98.50	0.24	1.26	na
1979	97.01	1.50	1.49	na	98.30	0.29	1.41	na	98.24	0.23	1.52	na	98.55	0.16	1.29	na	98.55	0.16	1.29	na	98.55	0.16	1.29	na
1980	96.51	1.68	1.81	na	97.70	0.42	1.88	na	97.65	0.36	1.99	na	98.70	0.22	1.08	na	98.78	0.19	1.03	na	98.78	0.19	1.03	na
1981	96.06	1.96	1.98	na	97.65	0.46	1.89	na	97.73	0.35	1.92	na	98.39	0.21	1.40	na	98.39	0.21	1.40	na	98.39	0.21	1.40	na
1982	95.86	2.01	2.13	na	97.53	0.56	1.91	na	97.65	0.42	1.93	na	98.38	0.33	1.28	na	98.71	0.25	1.04	na	99.50	0.09	0.41	na
1983	95.55	2.30	2.15	na	97.73	0.51	1.76	na	97.80	0.33	1.87	na	98.33	0.21	1.45	na	98.98	0.06	0.95	na	99.53	0.00	0.47	na
1984	94.62	2.26	2.41	0.71	96.84	0.74	2.14	0.28	97.00	0.57	2.22	0.21	97.80	0.38	1.72	0.10	98.01	0.36	1.51	0.12	98.63	0.23	1.05	0.09
1985	94.43	2.37	2.40	0.80	97.04	0.75	1.88	0.33	97.37	0.47	1.93	0.23	97.93	0.37	1.57	0.14	98.04	0.29	1.54	0.13	98.33	0.14	1.19	0.34
1986	92.90	2.87	2.85	1.38	96.54	0.90	2.17	0.38	96.78	0.67	2.26	0.29	96.96	0.52	2.36	0.16	96.90	0.53	2.40	0.17	96.61	0.33	2.65	0.40
1987	90.55	3.88	3.11	2.46	96.65	1.15	1.69	0.50	97.15	0.78	1.69	0.38	97.46	0.46	1.92	0.17	97.52	0.36	1.94	0.18	98.08	0.22	1.30	0.41

Notes: The table reads as follows: in 1956, 98.37% of the top 5% income receivers were White, 0.44% were Coloured, 1.13% were Asian and 0.05% were Bantu.

Table A.10 Top income shares among the white population (including dividend income), South Africa 1956-1987

	Top 10%	Top 5%	Top 1%	Top 0.5%	Top 0.25%	Top 0.1%	Top 0.05%	Top 0.01%	Pareto-Lorenz Coefficient 0.1%-0.05%	Pareto-Lorenz Coefficient 1%-0.1%	Inverted Pareto-Lorenz Coefficient 1%-0.1%	Inverted Pareto-Lorenz Coefficient 0.1%-0.05%	Top 10-5%	Top 5-1%	Top 1-0.5%	Top 0.5-0.25%	Top 0.25-0.1%	Top 0.1-0.05%	op 0.05-0.01%	Top 0.01%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1956 (a)	20.77	13.94	5.33	3.42	2.15	1.14				3.018	1.50		6.83	8.61	1.91	1.27	1.01			
1957 (a)	20.47	13.65	5.15	3.30	2.07	1.10				3.056	1.49		6.82	8.50	1.85	1.23	0.98			
1958 (a)	19.94	13.18	4.93	3.17	2.00	1.08				2.938	1.52		6.77	8.25	1.77	1.16	0.92			
1959 (a)	19.33	12.68	4.59	2.90	1.80	0.95				3.179	1.46		6.65	8.09	1.69	1.10	0.85			
1960																				
1961 (a)	18.50	12.08	4.47	2.88	1.83	1.01				2.832	1.55		6.42	7.61	1.59	1.04	0.83			
1962																				
1963 (b)	21.41	14.17	5.38	3.49	2.25								7.24	8.79	1.89	1.25				
1964 (b)	22.42	14.79	5.59	3.62	2.32								7.63	9.20	1.97	1.30				
1965 (b)	22.82	14.91	5.59	3.63	2.33								7.90	9.33	1.96	1.29				
1966 (c)	22.76	14.77	5.44	3.52	2.25															
1967 (c)	22.91	14.72	5.31	3.40	2.15								8.19	9.41	1.92	1.25				
1968																				
1969 (c)	24.05	15.80	5.80	3.64									8.26	10.00	2.16					
1970																				
1971 (c)	23.95	15.45	5.39	3.34									8.49	10.06	2.05					
1972																				
1973																				
1974 (c)	23.57	15.32	5.52	3.53									8.25	9.80	1.99					
1975 (c)	22.92	14.52	4.97	3.11									8.39	9.55	1.86					
1976	22.21	13.85	4.53	2.79																
1977	20.01	12.32	3.88	2.35																
1978 (c)	20.16	12.37	3.88	2.35									7.78	8.50	1.53					
1979 (c)	19.07	11.77	3.78										7.30	7.99						
1980 (c)	19.84	12.64	4.48	2.88									7.20	8.16	1.60					
1981 (c)	20.68	13.10	4.71	3.08									7.58	8.40	1.63					
1982 (c)	21.37	13.71	5.19	3.52	2.41	1.49	1.05			2.187	1.84		7.66	8.52	1.68	1.11	0.92	0.44		
1983 (c)	18.43	11.63	4.20	2.81	1.91	1.16	0.80			2.276	1.78		6.80	7.43	1.39	0.91	0.75	0.36		
1984 (c)	19.83	12.73	4.81	3.24	2.19	1.31	0.89			2.304	1.77		7.10	7.92	1.57	1.06	0.88	0.42		
1985 (c)	17.90	11.34	4.10	2.72	1.81	1.06	0.71			2.418	1.71		6.56	7.24	1.38	0.91	0.75	0.35		
1986 (c)	18.07	11.52	4.18	2.75	1.81	1.04	0.68			2.539	1.65		6.56	7.34	1.44	0.94	0.77	0.35		
1987 (c)	15.65	9.78	3.33	2.14	1.39	0.79	0.51			2.682	1.59		5.87	6.45	1.19	0.75	0.60	0.27		

Notes:
As tax statistics do not provide a decomposition of tax assessments by ethnic origin between 1913 and 1955, this table assumes that all taxpayers were white in those years. For 1956-1987, as only the number of taxpayers is decomposed by ethnic origin, estimates are base on Pareto interpolations.
(a) Estimates are based on Pareto interpolations on the number of tax assessments only, compiled up to 12 months after the end of the tax year.
(b) Estimates are based on Pareto interpolations on the number of tax assessments only, compiled up to 24 months after the end of the tax year.
(c) Estimates are based on Pareto interpolations on the number of tax assessments only. Exact compilation period unknown. Given the publication dates of SAS, it is pressumed that they correspond to assessments compiled at least 24 months after the end of the income year.
We estimate the Pareto-Lorenz coefficient based on the share of the top y% (Sy%) within the share of the top x% (Sx%) as $\alpha = 1/[1-\log(Sx\%/Sy\%)/\log(10)]$. The inverted Pareto-Lorenz coefficient is $ß=\alpha/(\alpha-1)$.

Table A.11 Income Composition in Top Income Groups, South Africa 1954-1961

	Top 5%				Top 1%				Top 0.5%				Top 0.1%				Top 0.05%			
	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income
1954	14.8	66.5	6.2	12.5	25.0	43.4	9.5	22.1	27.7	35.4	10.4	26.4	26.8	26.9	10.1	36.2	24.4	25.1	9.6	41.0
1955	14.8	64.4	7.9	12.8	24.8	41.0	11.5	22.7	26.5	34.3	12.4	26.8	25.6	26.9	10.9	36.7	23.5	25.2	9.9	41.3
1956	13.5	65.9	8.6	12.0	23.4	40.7	14.3	21.6	25.0	33.8	15.9	25.3	24.8	24.2	17.3	33.7	23.7	21.1	17.6	37.6
1957	13.3	67.5	6.9	12.3	22.2	44.4	10.8	22.6	23.8	37.5	11.7	26.9	23.1	28.8	11.4	36.7	20.7	27.0	10.6	41.8
1958	11.5	71.6	4.7	12.3	20.3	49.4	7.3	22.9	22.3	42.4	8.0	27.3	21.6	31.1	8.4	39.0	19.4	28.5	7.3	44.7
1959	11.3	71.9	5.3	11.6	19.8	50.9	8.2	21.1	22.3	43.5	9.0	25.2	22.6	32.6	9.4	35.5	21.5	29.5	9.0	40.0
1960																				
1961	9.7	72.8	6.0	11.5	17.8	51.9	9.7	20.6	20.6	43.0	11.0	25.4	20.3	32.6	11.6	35.6	18.7	30.2	10.9	40.3

	Top 5-1%				Top 1-0.5%				Top 0.5-0.1%				Top 0.1-0.05%				Top 0.05%			
	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income	Business and Services Income	Employment Income	Farm Income	Capital Income
1954	8.1	81.6	4.1	6.2	19.4	59.7	7.6	13.3	28.3	40.3	10.6	20.8	30.9	30.1	11.1	27.9	24.4	25.1	9.6	41.0
1955	8.1	80.3	5.5	6.1	21.2	54.7	9.7	14.4	27.0	38.6	13.3	21.1	29.0	29.8	12.5	28.7	23.5	25.2	9.9	41.3
1956	7.0	82.2	5.0	5.8	20.2	54.3	11.1	14.4	25.2	39.4	15.1	20.4	26.6	29.5	16.9	27.0	23.7	21.1	17.6	37.6
1957	7.7	81.9	4.5	5.9	18.9	57.7	9.1	14.2	24.3	42.5	11.9	21.4	27.2	31.8	12.8	28.1	20.7	27.0	10.6	41.8
1958	6.2	84.7	3.1	6.0	16.7	62.5	6.0	14.8	22.7	48.8	7.8	20.7	25.3	35.6	10.2	28.9	19.4	28.5	7.3	44.7
1959	6.1	84.5	3.5	5.9	15.3	64.8	6.6	13.3	22.1	49.5	8.8	19.5	24.6	37.9	9.9	27.6	21.5	29.5	9.0	40.0
1960																				
1961	4.8	85.3	3.9	6.0	12.6	68.5	7.2	11.7	20.8	48.9	10.7	19.6	22.9	36.6	12.8	27.7	18.7	30.2	10.9	40.3

Notes: Fractiles defined by size of total income. For each fractile, the first four columns (summing to 100%) give the percentage of business income and income from services and professions, employment income (wages and salaries), farming income and capital income (dividends, interest, rents and other investment income) in total income.
Details on methodology are presented in Appendix.
Source: Computations based on tax return statistics

Table A.12 Top income shares within shares, Cape of Good Hope 1903-1907

	Top 1% within Top 5% (1)	Top 0.5% within Top 1% (2)	Top 0.1% within Top 1% (3)	Top 0.25% within Top 0.5% (4)	Top 0.05% within Top 0.1% (5)	Top 0.01% within Top 0.05% (6)	Top 0.01% within Top 0.1% (7)	Pareto-Lorenz Coefficient (8)	verted Pareto-Loren Coefficient (9)
A. Whole population									
1903					0.69	0.39	0.27	2.35	1.74
1904					0.69	0.39	0.27	2.34	1.74
1905					0.70	0.42	0.29	2.17	1.85
1906					0.68	0.38	0.26	2.43	1.70
1907	0.44	0.70	0.28	0.68	0.65	0.33	0.21	3.08	1.48
B. White population									
1903				0.69	0.66	0.37	0.24	2.61	1.62
1904				0.69	0.66	0.37	0.24	2.61	1.62
1905				0.70	0.68	0.41	0.28	2.22	1.82
1906				0.68	0.66	0.34	0.23	2.82	1.55
1907	0.42	0.66	0.23	0.65	0.61			2.89	1.53