

THE CONTRADICTIONS OF CAPITAL
IN THE TWENTY-FIRST CENTURY

THE PIKETTY OPPORTUNITY

Edited by Pat Hudson and Keith Tribe

agenda

THE DIFFERENCES OF INEQUALITY IN AFRICA

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Piketty's main argument on the world's economies, in highly condensed form, is that the rate of return on capital r (annual corporate profits divided by the market value of capital stock) exceeds the rate of growth of domestic economies g (the average annual change in net national income). As a result, income for the wealthy grows so that inequality (measured by distribution of either income or wealth) continues to grow. Further, where formation of capital is through inheritance rather than saving, this inequality is reinforced. Piketty proposes a tax on capital as a way to redress the balance and limit inequality.

The African continent, while often neglected in economic studies, is a region of growing population and economic transformation, though not of impressive growth. The design of this chapter is to assume considerable validity in Piketty's assertions for the leading global economies, and to ask to what degree these assertions apply to Africa: to individual nations or to the continent as a whole. Is it the case that rates of profit in Africa exceed rates of economic growth? Is the level of inequality and the growth of inequality in Africa greater or lower than for leading economies? More generally, in what way does Africa contribute to global inequality?

We review the application of Piketty's thinking on Africa and emphasize three main points. First, African levels of inequality seem generally high, and the temporal shifts of inequality in the undercapitalized countries of the African tropics seem to differ significantly from major economies. Our initial analysis suggests that inequality in African nations has been higher than for the major world economies highlighted in Piketty's analysis and, in addition, that the shifting temporal patterns of inequality for most of Africa differ from patterns for leading economies. In many African economies, the peak of income inequality occurred around the 1960s, the very period of the lowest inequality in Europe and the US. Additionally, while inequality has risen in African economies from the 1990s, most African countries have avoided the rapid increase in income inequality that marked the economies in Piketty's analysis. We also

note that the rate and timing of inequality for African economies is dispersed to a greater degree than for leading economies.

Second, for Africa, Piketty's calculations of income and wealth need to be adjusted to account for international transfers. Moving beyond GDP to consider the details of net national income, especially international transfers, brings increased precision to estimates of the rate of return and levels of inequality within many African domestic economies.¹ Outbound repatriation of profits reduces national income and lowers incremental additions to capital stock, thereby reducing top domestic incomes and overall inequality. Inbound remittance of wages adds to mid-level incomes and further mitigates inequality. Overall, accounting for transfers reduces estimates of African inequality.

Third, deficiencies in African data must be overcome to permit a full analysis. We have not found adequate estimates of African wealth or inheritance patterns. We thus restrict our analysis to income inequality, neglecting patterns of wealth and inheritance. Within the analysis of income inequality, we must still grapple with the deficiencies of survey data. The scarcity of African taxation data requires us to rely on survey data to estimate incomes: these estimates fluctuate with high volatility and, most importantly, underestimate the degree of inequality because of under-sampling among top incomes.² In addition, using Gini coefficients as a measure of inequality (whether with tax-based or survey-based income data) may give underestimates of inequality, especially at upper and lower limits. The deficiencies in African data bring both upward and downward biases, but overall, it appears that current data underestimate African inequality.

The discussion here takes place in four sections. The first two sections address readily available data on African colonial and national economies. First, we explore a range of income inequality measures for African economies from as early as 1910, and focus on the era from 1993 to 2012. With these calculations we estimate levels of African inequality, the timing of shifts in African inequality, the dispersion in African rates of inequality and the discrepancies caused by inadequate data. Second, we explore data on African capital investment from 1870 to 1935, which shows the sharp difference between the highly capitalized mining economy of southern Africa and the territories of tropical Africa.

The second half of the chapter addresses our concerns about, and revisions to, the estimates of African inequality. In the third section, we model two sorts of complication to Piketty's analysis through explicit accounting of international transfers: outbound repatriation of profits and inbound remittance of wages. Fourth, we develop estimates of rates and directions of inequality for African economies beginning in 1993, with attention to international transfers and their effect on growth and profitability. In a concluding section we emphasize the

importance and the feasibility of developing better data for African economies, but we also emphasize the importance of extending studies of inequality from the current focus on income to the broader contours of social inequality.

AFRICAN INCOME INEQUALITY, 1950–2012

We find several distinctive patterns of African inequality, based on evidence drawn primarily from survey data. First, along with Latin America, Africa as a whole is estimated to have the highest level of income inequality today. It also appears to have been among the most unequal regions in the world in the last half of the twentieth century, and perhaps earlier as well.

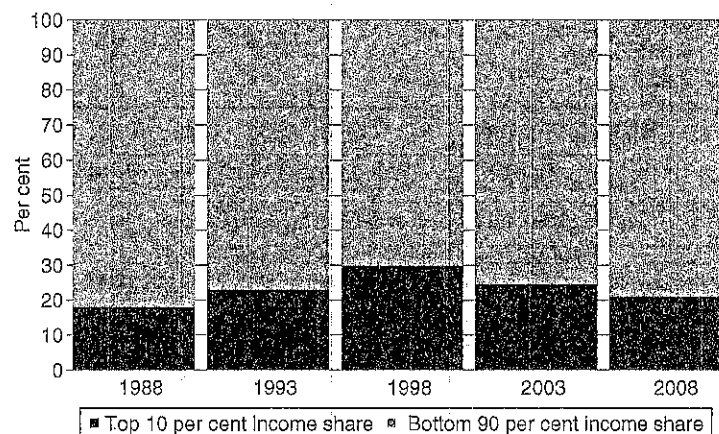


Figure 11.1. Total African top decile income share (1988, 1993, 1998, 2003, 2008). Includes aggregated figures for nations with two-thirds of the African population. (Source: Lakner–Milanovic World Panel Income Distribution database.)

Data from Milanovic's World Panel Income Distribution database on inequality (2008) shows that the top decile's share of total income in surveyed African nations was approximately 51 per cent, compared with Piketty's estimates of 45 per cent for the US and 37 per cent for Europe at that time.³ Another breakdown of income distribution, shown in Figure 11.1 and also prepared by Milanovic, contrasts the top decile of continental African income, for five selected years, with the remaining 90 per cent. These five years of estimates show a decline in African income inequality after 1998 that contrasts with the contemporary upward trend in Europe and North America. The latter estimates of top-decile share of income are lower than in the previous case, since under-sampling for the top decile is more severe in this case.⁴

Figure 11.2 pursues this point, showing steady growth in African inequality from 1950 to 2008. It sums the inequality in mean GDP per capita among African nations, weighted by population. The same figure shows the global average of inequality calculated in the same way. Comparing the curves shows the relative level of African inequality and the distinctiveness of the African trajectory.

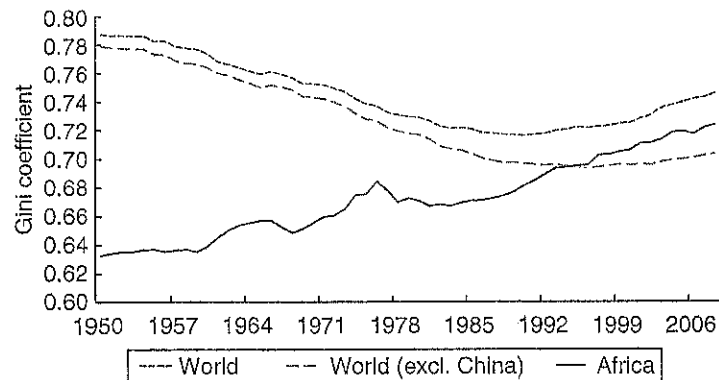


Figure 11.2. Gini coefficient of GDP for African economies, weighted by population, with global comparators. (Source: Angus Maddison project (<http://bit.ly/1oYD3B>), 2013 version.)

The timing of change in African inequality differs substantially from that in Europe. Inequality in Africa was high in the 1950s and 1960s, when it was low in Europe. African inequality declined in the 1970s, both within most countries and among countries in the whole continent. However, it began rising in the late 1980s as it remained flat in continental Europe but increased in North America and Britain. Many African economies avoided the dramatic spike in income inequality in the major economies that started in the 1990s.

Piketty correctly emphasizes that global patterns of destruction and creation of capital, as in the world wars, tend to synchronize the timing of shifts in inequality. On the other hand, variant regional rates of growth, the presence or absence of mineral wealth, fluctuating prices of export commodities and regional or national-level crises can help to explain the lack of unifying trends in African economic inequality.⁵

As a supplementary point, the per capita national income of African countries diverged significantly during the post-independence period. Figure 11.3 shows the share of the top 10 per cent of incomes for West African economies, notably Senegal, Nigeria and Côte d'Ivoire: the period of the 1970s through the 1990s was a period of flat or declining inequality.⁶ As scholars working for

the World Income and Wealth Database have noted, these surveys consistently under-sample high incomes and understate the top echelon's share. While it is the case that many of these surveys are unreliable and rely on equally unreliable national accounts data, the broad trends and directions of the data from household surveys do match top-income data collected from tax records. Both groups of nations – those whose inequality patterns match the cycles of leading economies and those that do not – illustrate that the 1960s was a time of peak inequality in many African economies.

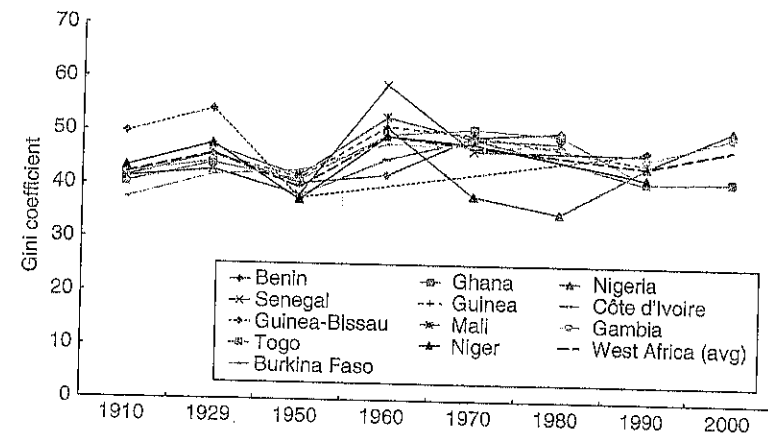


Figure 11.3. National Gini coefficients of income for West African nations with an unweighted average. (Source: Clio Infra.⁷)

South Africa is an outlier in Figure 11.4 (p. 212), which indicates top income shares. It parallels the leading economies surveyed in *Capital in the Twenty-First Century*; the other African countries follow different temporal patterns. The variations in Gini coefficients for West Africa shown in Figure 11.3 illustrate the dispersion of African levels of inequality, in contrast with the consistency of inequality as found by Piketty for European economies.

To explore further the difference in inequality estimates based on survey data and tax-based data, Figure 11.5 presents both types of estimates for South Africa. South Africa is one of the few countries for which inequality can be estimated both from survey and tax-based data. In Figure 11.5, which graphs both survey and tax record estimates of the same measure of top-income shares, we can see that the survey data point for 1965 is significantly lower than the tax record data for the same period. The higher quality surveys from more recent years give numbers quite similar to those from tax data. The use of less reliable surveys to fill in gaps in other records and to approximate trends cannot be overlooked for nations with a paucity of available historical

records. Figure 11.5 shows that South African survey-based estimates of the Gini coefficient of income inequality are more volatile than tax-based estimates. However, it is possible that both are capturing similar general trends in the evolution of national income inequality. Many of the surveys compiled in the global data sets on income inequality for African economies are labelled poor or unreliable, and many more show impossibly large fluctuations from year to year. Improved data are in preparation, but for now we must work with less reliable data from household surveys.⁸

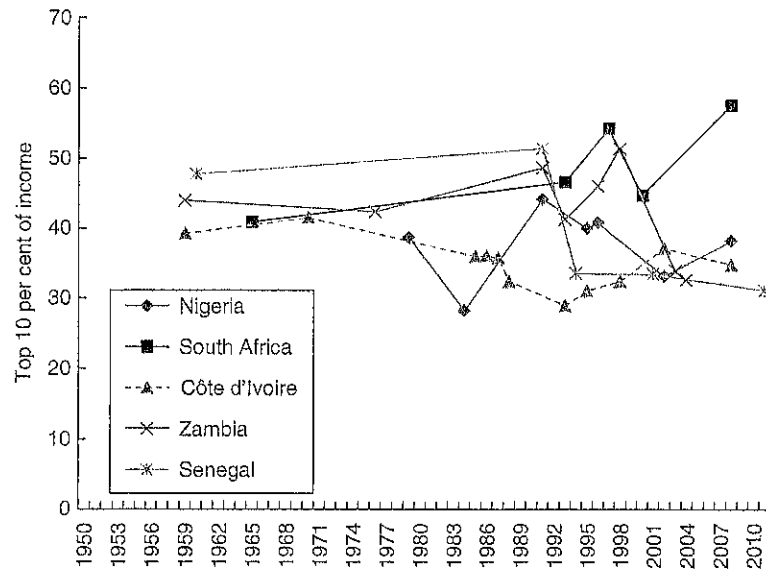


Figure 11.4. Top 10 per cent income shares in select African economies. (Source: UNU-WIID survey data from Côte d'Ivoire, South Africa, Zambia, Nigeria and Senegal.)

We can see that, despite the pitfalls of top-income data, shares of the top decile or top 1 per cent often follow patterns parallel to other measures of inequality, such as the Gini coefficient. The survey data from the United Nations University–World Income Inequality Database (UNU-WIID) follow a pattern similar to the tax record data collected by the WWID, as shown in Figure 11.6. More generally, African economies have the largest percentage of their populations living in poverty: 42.7 per cent were living on \$1.90 or less a day in 2012, according to the World Bank. David Soskice notes Piketty's inattention to poverty and bottom incomes in general; this gap in the analysis is of special concern for African economies.⁹

THE DIFFERENCES OF INEQUALITY IN AFRICA

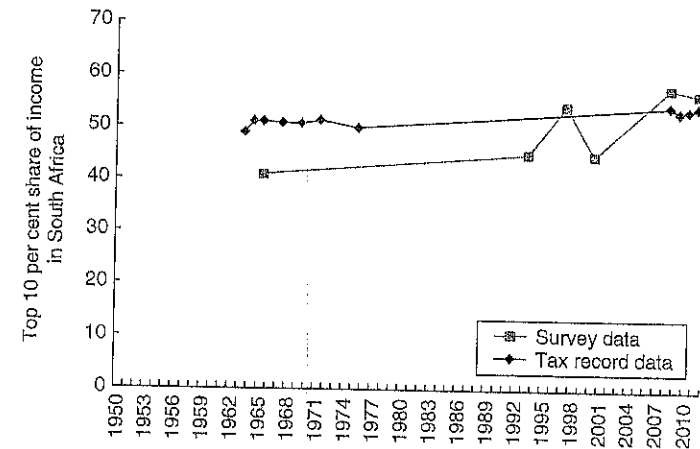


Figure 11.5. Comparison of tax record and survey data measuring top 10 per cent share of income in South Africa. (Source: UNU-WIID (surveys) and WWID (tax records).)

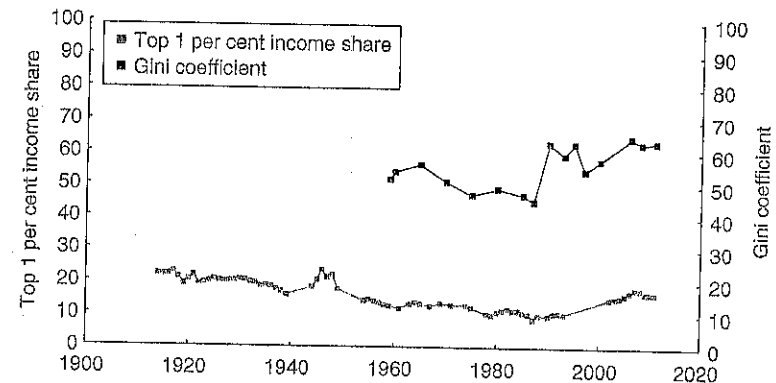


Figure 11.6. Top incomes for South Africa (left y-axis) and Gini coefficients for South Africa (right y-axis). (Source: World Bank Estimates (Gini) and WWID (top 1 per cent).)

CAPITAL AND INEQUALITY IN AFRICAN ECONOMIES, 1870–1935

Historical estimates of domestic product and domestic income in the years before 1960, while estimated in some detail for South Africa, are almost absent for most African economies.¹⁰ Morten Jerven has returned to the

long-abandoned work of estimating national accounts for colonial Africa, but it may be some time before we have solid time series for these important variables.¹¹ The currently available data for African economies before 1960 consist of data on exports, imports, capital flows, tax revenue and expenditure, plus other data on a less consistent basis. One valuable analysis is S. H. Frankel's 1938 study estimating the "growth of accumulated wealth" in sub-Saharan Africa from 1870 to 1935.¹²

Table 11.1. Capital invested in Africa from abroad, 1870-1936, in British pounds. (Source: Frankel (note 12), pp. 158-9.)

	Public-listed capital	Private-listed capital	Non-listed capital (est.)	Total capital
Regions				
Southern Africa	285,802,000	311,547,000	59,735,000	657,084,000
British West Africa	50,871,000	60,430,000	5,429,000	116,730,000
British East/NE Africa	112,163,000	30,569,000	13,791,000	156,523,000
French Africa	43,031,000	23,931,000	3,348,000	70,310,000
Portuguese Africa	18,532,000	42,710,000	5,390,000	66,732,000
Belgian Africa	97,509,000	167,311,000	15,559,000	280,379,000
Total	617,908,000	636,498,000	103,252,000	1,347,758,000
Territories				
Union of South Africa	224,089,000	250,835,000	47,547,000	522,471,000
Nigeria	34,721,000	36,790,000	3,576,000	75,087,000
Tanganyika & Zanzibar	31,340,000	15,841,000	4,718,000	51,899,000

Frankel showed that huge amounts of European capital flowed to South Africa from the 1870s for investment in the diamond mines of Kimberley.

These investments were highly profitable, and the profits were held dominantly in South Africa. As a result, when the gold mines expanded dramatically in the 1890s, they drew especially on the accumulated profits from diamonds to invest in gold, rather than expanding sharply the overseas investment in gold. The high profitability of gold mining continued for the first half of the twentieth century; the South African government taxed gold enterprises very heavily, investing the revenues especially in programmes of social support for the Afrikaner population, principally in rural areas.¹³

Frankel's estimate of aggregate overseas investment in sub-Saharan Africa (1870-1913) totalled £610 million, including £370 million for Southern Africa.¹⁴ By 1935, this total had roughly doubled to £1,322 million for sub-Saharan Africa, with £523 million for the Union of South Africa alone. The deceleration of overseas investment in South Africa was in response to the early accumulation and high profitability of domestic South African capital. For sub-Saharan Africa as a whole, the annual net overseas investment averaged £7-8 million per year from 1870 to 1936.¹⁵

Table 11.1 shows a regional breakdown of aggregate overseas investment in sub-Saharan Africa. This is based on published records for government and public investment as well as on statements of private listed capital. For non-listed capital, notably that brought by immigrants to Africa, Frankel offered speculative estimates.

Frankel also provided estimates of funded debt, though only for British African territories, as shown in Table 11.2. For South Africa, he estimated that 90 per cent of funded debt was external; the figure would have been even higher for other territories. Interest rates on these debts ranged from 3 per cent to 5 per cent per year. While GDP figures are not yet available for African territories in the inter-war years, Frankel did calculate ratios of debt charges to the value of domestic exports, and to the value of territorial government revenue, for the years 1928-35. For Kenya, debt charges ranged from 16 per cent to 44 per cent of export value, and from 18 per cent to 34 per cent of revenue. For Nigeria, debt charges ranged from 8 per cent to 19 per cent of export value, and from 22 per cent to 33 per cent of revenue.¹⁶

Table 11.2: Funded debt of British African territories, in British pounds. (Source: Frankel (note 12), pp. 176-7.)

	Union of South Africa	Other British Africa
1925	209,310,000	63,699,000
1935	247,439,000	99,320,000

In sum, Frankel shows that South Africa received large amounts of overseas capital, especially during the mining boom before the First World War, and retained most profits to build a substantial domestic capital stock that has since fuelled growth in the domestic economy. Among African economies, South Africa has been closest by far to the pattern of leading economies. Unsurprisingly, South African income inequality in the rest of the twentieth century is much closer to the pattern in major economies outside of Africa. Tropical African territories, of much larger area and population, received smaller amounts of overseas capital. Even in the Belgian Congo, a site of relatively high investment, it is likely that large proportions of mining profits were repatriated. Teasing out the implications of these colonial-era patterns for the levels and timing of inequality in tropical Africa, however, remains a task for future research.

MODELLING INEQUALITY WITH ATTENTION TO TRANSFERS

Piketty, after initially expressing his interpretation in terms of r (rate of return on capital) and g (annual growth in national income), extends his argument by exploring the accounting identity $\alpha = r \times \beta$. In this identity, α is the share of income from capital in national income, β is the overall capital-income ratio and r remains the rate of return on capital. As noted earlier, the details of our analysis are not in terms of the GDP figures on which Piketty mainly relies, but rather in terms of net national income (NNI), in order to give attention to transfers. "National income", in this case, is net national income, after depreciation of capital, but adding and subtracting international transfers of income (T); overall capital at market rate is K .¹⁷ As shown in the accompanying note, we find that important issues can be raised by breaking down the various international transfers of income to reveal big questions about inequality in the domestic economy.¹⁸

The result of this specification of transfers, for African and doubtless other economies, is that α decreases and β increases. Further, for the identity $\alpha = r \times \beta$ to remain in force, the decrease in α and the increase in β mean that r must decrease, and by a larger degree than the change in either α or β . The simple algebra of this exercise demonstrates that repatriation of profits must reduce the profitability of the domestic economy. The same algebraic statements indicate the effects of other types of African transfers on the shares of income and the capital-income ratio. The implications of these points for African inequality are substantial, as we will show below.

Now that we have derived the direction of the effects of transfers on African macroeconomies, we must inquire as to their magnitude. At this point, we are

short of data, but we can offer a heuristic estimate to suggest that transfers can in fact be significant overall. Let us begin with the common figure for shares of income: 30 per cent profit and 70 per cent wages. Then, we can cautiously suggest that corporate profits are half of income from capital (15 per cent of national income), while rent and interest comprise the other half. If 60 per cent of corporate profits were repatriated, that would come to 9 per cent of NNI, enough to create a measurable reduction in overall domestic rates of return. Further, as we show in the next section, transfers from migrant workers commonly reach 3 per cent of GDP, and sometimes exceed that level. Our overall point is that, if the magnitude of some of these transfers becomes large enough, they can influence the value of all the variables in this analysis of economic growth and inequality.

A perhaps smaller, but still significant, issue in the African macroeconomics of growth and change is the consistent underestimation of domestic capital formation. This includes underestimation of African financial capital, but the issue focuses primarily on underestimation of investment in housing, land improvements, intermediate goods and human capital.¹⁹ If capital stock is estimated as the full market value of in-country capital, but in-country income does not include departing repatriation of profit by either domestic or foreign investors, the level of r will be reduced. If the estimate of capital stock adds neglected small-scale domestic capital, the level of β increases and the level of r for the domestic economy will be reduced as a result.

In short, because of the significance of international transfers, calculations based simply on GDP may significantly distort the levels and distribution of African national incomes. For Piketty's analysis, the estimation of g is not difficult, in that annual estimates of NNI and interannual growth rates are calculated by individual countries and international organizations. But as with capital and investment, the calculation of national income and national product involve many options for transfers that can raise and lower the estimates for key variables. The rising importance of remittances from emigrant nationals adds to the nation's income and tends to balance any outflow of corporate profit. It is worthy of note that financial transactions are formally left outside of national income analysis, so that even "income" may mean a different thing when one is calculating r rather than calculating g . A few experiments with alternative possibilities show that the potential fluctuation of estimates for r is greater than that for g ; the overall potential fluctuation in the ratio of r to g is greater than either taken alone.

This is the basic dilemma of investigating Piketty's theses for Africa. The need to account for international flows of capital, income and output makes it difficult to calculate rates of g and r for any individual nation and, further, basically makes it necessary to conduct the analysis for groups of nations

rather than for any single nation. To know whether growth rates and profit rates in Africa are higher or lower than for other regions – that is, whether Africa is adding to global inequality or not – requires taking positions on the various ways of estimating r and g for Africa, finding relevant data and conducting the test.

AFRICAN INEQUALITY SINCE 1993: ACCOUNTING FOR TRANSFERS

Data from the World Bank Migration Remittance Project shows that twenty of Africa's fifty national units have incoming migrant remittance rates of over 3 per cent of GDP per year; for all of them, the outgoing remittance rates are far smaller and are commonly negligible. The African nations with relatively high incoming remittances are especially small countries, with populations under 2 million (Gambia: 21.2 per cent of GDP per year, Comoros: 20.2 per cent, Cabo Verde: 10.5 per cent and São Tomé: 8.0 per cent). However, also included are countries with populations of over 10 million, including Senegal (10.5 per cent), Mali (7.4 per cent), Egypt (6.5 per cent), Ghana (5.2 per cent), Madagascar (4.0 per cent), Nigeria (3.7 per cent), Uganda (3.3 per cent), Benin (3.2 per cent) and Burkina Faso (3.2 per cent), as well as two countries with a population of over 80 million: Egypt (6.5 per cent of GDP) and Nigeria (3.7 per cent).

Most remittances come from outside of Africa. There is also significant remittance among African countries, commonly with neighbouring countries. For Nigeria in 2014, \$14.8 billion in remittances came from outside Africa out of a total of \$20.8 billion in total remittances; for Senegal the equivalent figures were \$1.1 billion out of \$1.6 billion, and for Liberia they were \$263 million out of \$528 million. An exception was Lesotho, for which remittances came overwhelmingly from South Africa. Remittance streams, though poorly documented until recently, seem to be fairly stable for each country, though they vary significantly among countries. They add to national income and to the non-corporate sector of the national economy.

A 2014 study estimated large-scale African transfers, suggesting that a net \$46 billion in corporate profit is transferred annually out of Africa, plus an additional \$30 billion in illicit financial flows.²⁰ A 2015 *Wall Street Journal* article argued that, for US corporations in 2014, some 65 per cent of net profits in overseas enterprises were repatriated to the US.²¹ For many economies, two-way repatriation of corporate profit would yield a small net flow. But African economies have not made substantial direct investments overseas, so the annual outflow of corporate profits is likely to be rather close to the net flow of corporate profits. In sum, this quick exploration suggests that the contribution of corporate

profits to NNI in African economies is significantly reduced by transfers. As a result, the domestic rate of return on capital and the domestic share of capital in national income are each reduced measurably.

CONCLUSION

Piketty argues, in his projection for the future, that "Africa would be the only exception: in the central scenario ... the capital-income ratio is expected to be lower in Africa than in other continents throughout the twenty-first century (essentially because Africa is catching up economically much more slowly and its demographic transition is also delayed)".²² Piketty's analysis is based on gross capital stock. However, if substantial repatriation of profits continues at the present rate, the size of African capital stock will be even smaller than he has shown. The pattern of substantial repatriation of profits has continued in Africa for over a century (with the exception of South Africa); changing that pattern will be difficult.²³

We are left, then, with seemingly contradictory conclusions about African inequality and about African capital-income ratios. The empirical surveys of inequality appear to show that African inequality is relatively high, which would tend to suggest a high capital-income ratio. But the study of Africa's international transfers suggests that high levels of repatriation of profits remove a large stream of capital from African domestic economies, thereby reducing the domestic capital-income ratio. At this stage of our research, we are unable to resolve this contradiction. Instead, we make the argument that this contradiction makes African situations into a set of interesting outliers in the global economic system, and we call for more research into the details underlying these initial observations.

We have established a strong presumption that African levels of inequality, for the twentieth and twenty-first centuries, have been high on a world scale. We propose a comparison of African inequality with that of India and Indonesia. To take the comparison further, we would test the hypothesis that inequality and its shifts for those two national economies are intermediate between African economies, whose pattern they most closely resemble in the decades after independence, and those of Europe, whose pattern these economies have moved towards in the last three decades. What, then, is the practical social character of such inequality? What social description can be given to such inequality? For instance, are households separated into discrete strata and regional groupings at various levels of income, or are households of various incomes linked to each other in chains of dependence? One approach to answering such questions requires pursuing deeper economic analysis. For instance, while inequality surveys

commonly identify subjects as equal members of households, the surveys can be expanded to analyse individuals within their households. This would make it possible to learn, for instance, whether female incomes have risen over time, thus lowering inequality. Another approach to the meaning of inequality is to consult the very large literatures in the sociology and anthropology of Africa, which can surely be linked to evidence on economic inequality to construct a picture of the character and functioning of these inegalitarian societies. The problem presents an opportunity for historians and economists to incorporate more local or micro-level information, as well as patterns of everyday living, into larger studies.

We favour not only deepening the economic analysis of inequality but also expanding the analysis beyond economic data to consider social, health and other dimensions of human inequality. While income and wealth reflect the most prominent dimensions of inequality, it is not necessarily the case that today's situation of massive economic inequality has its origin or its underlying motor in economic phenomena. That is, it might be that social prejudices and stratification have done much to initiate inequality, and that differential health conditions have reinforced inequalities in income. This is in addition to economic mechanisms expanding inequality, such as those identified by Piketty. Similar to Piketty's outlining of the broad forces of convergence and divergence in levels of economic inequality, scholars should seek to outline what forces, actions, state policies and historical inheritances drive other forms of non-economic inequality to either crosscut and bridge divisions of wealth and income, or reinforce and bolster economic strata. To explore this range of social and historical issues, our research group is building infrastructure and collecting data to create and to archive world-historical information on inequality and related phenomena.²⁴

Notes for Chapter 11

1. Piketty gives a clear and early statement of the advantages of net national income over gross domestic product (GDP) for the study of income inequality (pp. 43–5), but in practice he uses GDP for his analysis and illustrations. Thomas Piketty, *Capital in the Twenty-First Century* (Cambridge, MA: Harvard University Press, 2014), pp. 60–1.
2. Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez, "Top Incomes in the Long Run of History", *Journal of Economic Literature* 49 (2011), pp. 3–71. Additional complications of interest are that African economies, while they are and have long been thoroughly monetized, maintain significant boundaries among different market segments. Distinctions of rural versus urban and domestic versus international sectors of the economy make it difficult to come up with internationally comparable figures for national income; much less economic welfare. Small-scale domestic investment is typically underestimated or neglected for African economies.

3. The survey covers two-thirds of Africa's population. Branko Milanovic, 2008 update to the World Income Distribution (WYD) data set; Piketty, *Capital*, statistical appendix; Atkinson *et al.*, "Top Incomes in the Long Run".
4. While this survey only breaks down each of the sixteen countries surveyed into income percentiles, it most likely still under-samples the upper tail of the income distribution beyond the top 1 per cent. The estimates of Figure 11.1, while illustrative, lack the complete coverage of the continent needed for a comparison with other African data and with the major world economies. Christoph Lakner and Branko Milanovic (2013), "World Panel Income Distribution", in "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession", World Bank Policy Research Working Paper 6719 (Washington, DC: World Bank, 2013).
5. Piketty, *Capital*, pp. 146–50.
6. Based on surveys of varying-quality data compiled from the UNU-WIDER project (www.wider.unu.edu/).
7. "Income Inequality" data set by Michalis Moatsis, Jan Luiten van Zanden, Joerg Baten, Peter Foldvari and Bas van Leeuwen, Clio-Infra (www.clio-infra.eu/datasets/search/). The records are derived from surveys, historical reconstructions, and estimations.
8. In comparison to the US and the Western European economies, we have little compiled data on top incomes for African economies, although Tony Atkinson of the WWID is making remarkable progress on this front.
9. David Soskice, "Capital in the Twenty-First Century: A Critique", *British Journal of Sociology* 65 (2014), p. 651.
10. Exceptions are the important initial work of Phyllis Deane, focusing on what is now Zambia, and P. N. C. Okigbo for Nigeria. See Phyllis Deane, *The Measurement of Colonial National Incomes: An Experiment* (Cambridge: Cambridge University Press, 1948); Phyllis Deane, *Colonial Social Accounting* (Cambridge: Cambridge University Press, 1953); P. N. C. Okigbo, *Nigerian Public Finance* (Evanston, IL: Northwestern University Press, 1965).
11. Morten Jerven has embarked on work to create retrospective national accounts for the colonial era for some African countries. See also Morten Jerven, *Economic Growth and Measurement Reconsidered in Botswana, Kenya, Tanzania, and Zambia, 1965–1995* (Oxford: Oxford University Press; 2014).
12. Frankel drew on 1913 estimates of British overseas capital investment to 1913 by Sir George Paish, and added his own estimates for the period to 1935. See S. Herbert Frankel, *Capital Investment in Africa* (Oxford: Oxford University Press, 1938). The earlier works of Sir George Paish, published 1909–14, are reprinted in Mira Wilkins (ed.), *British Overseas Investments, 1907–1948* (New York: Arno Press, 1977).
13. Frankel, *Capital Investment*, pp. 52–148.
14. The remainder of aggregate overseas investment in Africa, 1870–1913, included £37 million for British West Africa, £30 million for British East Africa and Sudan, £40 million for the Belgian Congo, £85 million for German Africa and £25 million for French Africa. *Ibid.*, p. 150.
15. *Ibid.*, p. 151.

16. In addition, Gold Coast debt charges ranged from 5 per cent to 9 per cent of export value and from 18 per cent to 30 per cent of revenue; for Tanganyika, debt charges ranged from 4 per cent to 19 per cent of export value and from 8 per cent to 25 per cent of revenue. *Ibid.*, p. 182.
17. David Soskice notes that Piketty actually uses the standard neoclassical definition of capital in his estimates. Soskice, "*Capital in the Twenty-First Century*", p. 651.
18. In this discussion, we break down national income to reveal elements of wages, profits and transfers. We divide wages into domestic wages " $W(d)$ " and wages of expatriates " $W(e)$." We divide profits into net business profits after depreciation " π ", rents " R ", and interest income " i ". For net transfers, we identify four categories: repatriation of profits " $T(\pi)$ "; remittances by migrants " $T(m)$ ", mostly low-paid; remittances by expatriate wage-earners " $T(e)$ ", mostly high-paid; and transfers by non-governmental or governmental international organizations " $T(n)$ ". We sum up these transfers as follows. Equation (1): $T = -T(\pi) + T(m) - T(e) + T(n)$. The signs of each term are assigned based on the expected value for African economies. That is, profit transfers are mainly out of the country and thus negative, migrant wage transfers are mostly into the country, transfers by expatriates are mainly out of the country, and transfers by NGOs are mostly into the country. Now we explore Piketty's $\alpha = r \times \beta$ identity to show how transfers in African economies can affect α (the share of income from capital in national income) and β (the capital-income ratio). Equation (2): $\alpha = [\pi - T(\pi) + R + i] / [W(d) + W(e) + \pi - T(\pi) + R + i + T(m) - T(e) + T(n)]$. Equation (3): $\beta = K / [W(d) + W(e) + \pi - T(\pi) + R + i + T(m) - T(e) + T(n)]$. Assuming, as shown, that transfers of profits $T(\pi)$ are negative, net domestic business profit now declines to $\pi - T(\pi)$.
19. To analyse this issue formally, one might use $K1$ as a term for capital stock at market value and $K2$ for the unlisted, small-scale domestic capital. If the sum of the two were used in place of $K1$ for calculations of income and growth, small but perhaps important differences would result.
20. "Honest Accounts? The True Story of Africa's Billion Dollar Losses" (www.francofonie.org/IMG/pdf/honest-accounts_final-version.pdf). In response to these outflows of profits, Aarsnes and Pöyry suggest tax policies by which African countries could limit profit repatriation. Frian Aarsnes and Econ Pöyry, "The Taxation of Multinationals in Africa: Fiscal Competition and Profit Repatriation (Including Transfer Pricing)", OECD report (www.oecd.org/site/devaeo10/44276251.pdf).
21. Vipal Monga, "US Companies Bring More Foreign Profit Home", *Wall Street Journal*, 23 March 2015 (www.wsj.com/articles/u-s-companies-bring-more-foreign-profit-home-1427154070).
22. Piketty, *Capital*, p. 461.
23. *Ibid.*, Figure 12.5, p. 462.
24. Collaborative for Historical Information and Analysis (CHIA, <http://chia.pitt.edu>). This multidisciplinary, cross-institutional collaborative was created in 2011.

INCOME DISTRIBUTION IN PRE-WAR JAPAN

Tetsuji Okazaki

Increasing income inequality is one of the most serious problems in the contemporary world, and Japan is no exception. In this context, it is only natural that Thomas Piketty's *Capital in the Twenty-First Century* has attracted great interest from general audiences as well as from academia. His book is impressive because it is based on extensive research and a rich long-term data set for the major developed countries. This data set includes the research by Moriguchi and Saez,¹ who studied long-term change in the top income share in Japan. As these authors pointed out, there is a great deal of literature on the long-term development of income distribution patterns in Japan. In this chapter, I begin by surveying this literature, focusing on research into the pre-war period; this is unique, in that studies based on individual-level data exist for this period and, moreover, there is scope to extend these studies. Then, using the new data set, I explore the relationship between income and assets at the individual level in Japan during the pre-war period.

This chapter is organized as follows. The first two sections survey the literature, with the former looking at the functional income distribution and the latter focusing on the individual income distribution. The third section relates the individual distribution of income to the distribution of assets. The final section gives my concluding remarks.

THE FUNCTIONAL DISTRIBUTION OF INCOME

The functional distribution of income in Japan has been studied since the pre-war period,² but the systematic estimation of long-term economic statistics in the 1970s substantially improved income distribution estimates. The most important work on this issue is that by Minami and Ono,³ who estimated the functional distribution of income in the private non-agricultural sector by industry, focusing on the manufacturing and mining industries ("M industry") and the service sector ("S industry").