

Supplementary Online Appendix
Wealth Inequality in South Africa, 1993–2017
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S1. Harmonization of Macrodata Sources

The objective of our study is to estimate the distribution of household wealth by matching macrodata on wealth with microdata on reported assets and capital income flows. In order to improve our estimates of the wealth distribution and obtain a better mapping of macrodata and microdata components, we address five shortcomings of available household balance sheets published by the South African Reserve Bank (SARB): the decomposition of nonfinancial assets, the decomposition of housing wealth into tenant occupied and owner occupied, the decomposition of financial assets, the decomposition of pension and life insurance assets, and the inclusion of wealth held offshore in tax havens.

The SARB currently publishes decompositions of household wealth into its financial and nonfinancial components, along with broad decompositions by asset class and information on household debt (see fig. 1 in the main article). Nonfinancial assets are divided into two components: residential buildings (the market value of residential properties owned by households, excluding land) and other nonfinancial assets (including land and unincorporated business assets). Financial assets are divided into three components: interest in pension funds and long-term insurers, assets with monetary institutions, and other financial assets. Interest in pension funds and long-term insurers corresponds to all pension assets and life insurance holdings of the household sector.¹ Assets with monetary institutions include all forms of currency and deposits with banks, as well as notes and coins held by households. Other financial assets include investment in government and public entities stock, collective investment schemes, corporate bonds and equities, other long-term deposits, and households' investment in foreign assets. Finally, the SARB decomposes household debt into two components: mortgage advances, corresponding to loans provided by the commercial banking sector, and other debt (including trade credit, personal bank loans, credit card debt, instalment sales and lease agreements, and other formal and informal loans).

Starting from these broad categories, we derive further decompositions of macroeconomic household balance sheets to match specific types of assets with their corresponding income flows.

Land underlying dwellings. The “Other nonfinancial assets” category provided by the SARB includes both land underlying dwellings and business assets. These two components are arguably distributed very differently. In particular, it is reasonable to assume that land underlying dwellings is distributed similarly to residential buildings (therefore defining total housing assets as the sum of land and residential buildings), while the distribution of unincorporated business assets is better approximated by that of mixed income. Given our income capitalization methodology, we therefore need to split “Other nonfinancial assets” into the two subaggregates. Based on complementary evidence from SARB, we assume that 70 percent of other nonfinancial assets correspond to land underlying dwellings, the remaining 30 percent amounting to the assets held by unincorporated businesses. This implies that total housing wealth (including land) was equal to 38 percent of net wealth in 2018, while business assets (machinery and equipment, excluding land) amounted to about 5 percent of net wealth.

Tenant- versus owner-occupied housing. Housing wealth can be decomposed into tenant-occupied housing and owner-occupied housing. Available studies combining surveys with tax microdata typically assume that the distribution of tenant-occupied housing can be well approximated by the distribution of rental income, while owner-occupied housing assets are better captured using direct measurement

1 This corresponds to the sum of the total assets of official pension and provident funds (series KBP2215 in Capital Markets Statistics), the total liabilities of private self-administered pension and provident funds (KBP2339), and the liabilities of long-term insurers under unmaturing policies from the pension business (KBP2215). Notice that the original estimates of the South African household balance sheets done by [Muellbauer and Aron \(1999\)](#) excluded life insurance assets and all other assets associated with the nonpension business of long-term insurers. However, these items are now included by the SARB in line with the System of National Accounts (SNA) guidelines.

available from surveys or administrative data (Saez and Zucman 2016; Garbinti, Goupille-Lebret, and Piketty 2021). Unfortunately, the “Residential buildings” category published by the SARB does not provide this decomposition, so we choose to derive the proportions from survey data (General Household Survey). To the best of our knowledge, the only available surveys collecting information on housing values for both tenants and owner-occupiers are the Income Expenditure Surveys (IES) and Living Conditions Surveys (LCS) (1995, 2005, 2008, 2010), as well as the General Household Survey (GHS) since 2008. These surveys suggest that the share of tenant-occupied housing assets in total housing assets amounts to about 20 percent in recent years, down from some 25 percent in 1995. Notice however that we are considering all housing assets, including those owned by the government, corporations, and other institutions in the denominator, as well as houses that are rented for free. In order to reach an aggregate closer to households’ housing assets, we exclude tenants living in their dwelling without paying rent, as well as those declaring that they are renting from entities other than individuals. This leaves us with a clear distinction between tenants paying income to individual landlords, and formal owners of their houses, which is the concept we are interested in. This decomposition only exists in the GHS from 2013 onwards. The results show a decrease in owner-occupied housing wealth from above 75 percent in 2008 to 71 percent in 2013. We extrapolate this share to earlier years and apply it to the total reported in the households balance sheets.

Nonpension financial wealth. The “assets with monetary institutions” and “other financial assets” categories published by the SARB gather together very different forms of financial assets, with arguably very heterogeneous distributions at the micro level, and thus must be split as well. “Assets with monetary institutions” include both non-interest-bearing deposits such as cheque accounts, which do not generate any income flow, and interest-bearing deposits, which generate interest income. “Other financial assets” include both bonds and corporate shares, which generate interest and dividends respectively. We follow Orthofer (2015) and assume that the composition of other financial assets held by households is similar to that reported by unit trusts as per SARB capital market statistics. This implies that between 80 percent and 95 percent of other financial assets consist of corporate shares over the 1975–2018 period, the remainder being classified as bonds.² Finally, we separate currency, notes, and coins (0.8 percent of net wealth) from interest-bearing deposits (17 percent of net wealth) using SARB capital market statistics.³

Pension assets and life insurance. Pension assets correspond to the assets accumulated by wage earners through contributions to pension funds throughout their career, so they should in large part be distributed to wage earners and pensioners receiving pension income or annuities. Life insurance assets, by contrast, better correspond to a form of savings device, but they do not directly generate interest income, so they cannot be categorized with interest deposits or bonds and have to be distributed differently. Accordingly, we use available SARB capital market data to decompose the “Interest in pension funds and long-term insurers” item into these two components.⁴ In 2018, pension and life insurance assets amounted to about 28 percent and 13 percent of net wealth respectively.

2 More precisely, we estimate the share of corporate shares in other financial assets by comparing the market value of ordinary shares held by unit trusts (KBP 2412) to the sum of the market values of security holdings of public sector entities, stocks, and debentures held by unit trusts (KBP 2410 + KBP 2411) in the capital market statistics published by the SARB.

3 The variable “Monetary sector liabilities: banknotes and coins in circulation” (series KBP1312) corresponds to currency, notes, and coins held by all institutions. We assume that 70 percent of the total can be attributed to households. Given the small share of this component in total wealth, especially at the top of the wealth distribution, our results are not affected by alternative scenarios.

4 The share of interest in pension funds and long-term insurers corresponding to assets held by long-term insurers is recorded in the Capital Market Statistics published by the SARB under series KBP2215, “liabilities of long-term insurers under unmaturing policies from the pension business.”

Offshore wealth. Offshore wealth corresponds to the assets held abroad by South African residents, mainly for tax avoidance purposes. By definition, these assets are not recorded in official records and are therefore not included in the household balance sheets. [Alstadsæter, Johannesen, and Zucman \(2018\)](#) combine a number of macroeconomic data sources to measure the total amount of financial assets held in offshore tax havens and distribute it to specific countries. They estimate that the equivalent of about 11.8 percent of South African GDP was held offshore in 2007, corresponding to about 5 percent of net wealth. We add this quantity to total household wealth in 2007 and extrapolate it to other years by assuming that it has remained a constant fraction of GDP.⁵

S2: Harmonization of Microdata Sources

S2.1. Harmonization of Household Survey Data, 1993–2018

Broadly speaking, two main types of nationally representative surveys covering the distribution of income and wealth have been conducted in South Africa since 1993: surveys covering all main types of income sources (such as wages, mixed income, rental income, interest, dividends or pension income) and labor force surveys covering only wages and mixed income. The first type of survey includes the 1993 Project for Statistics on Living Standards and Development (PSLSD); the Income Expenditure Surveys (IES) conducted in 1995, 2000, 2005, 2010; the Living Conditions Surveys (LCS) conducted in 2008 and 2015; and the National Income Dynamics Study (NIDS) conducted five times between 2008 and 2017. Labour force surveys include the October Household Surveys (OHS) conducted once a year between 1994 and 1999; the Labour Force Surveys (LFS) conducted twice a year between 2000 and 2007; and the Quarterly Labour Force Surveys (QLFS) conducted every three months since 2008.

In order to get yearly estimates of the wealth distribution between 1993 and 2018, we build a harmonized survey microfile by combining all these surveys in two steps. In a first step, we create a microfile covering the entire 1993–2017 period by combining income surveys (available in 1993, 1995, 2000, 2005, 2008, 2010, and 2015) in the following way: for a given year (for instance 1997), we create a new data set containing all observations from the two surveys available in surrounding years (1995 and 2000), and reweigh the data to give a weight to each survey that is proportional to the distance from the year considered. For 1997, for instance, we combine the 1995 IES survey and the 2000 IES survey, and we multiply existing sample weights by 1/2 for the former and 1/3 for the latter. This is similar to a linear interpolation strategy: it corresponds to considering that in 1997 the distribution of income was somewhere between that of 1995 and that of 2000, and was closer to that of 1995 if inequality evolved linearly. Given issues of comparability in income variables and sampling methods, we rely solely on the PSLSD, the IES, and the LCS, and we do not incorporate the NIDS into our harmonized file.

In a second step, we take advantage of the fact that while income surveys do provide information on the distribution of wages and mixed income, labor force surveys are more reliable for that very purpose and are available on a yearly basis. We therefore rank observations in the income surveys according to wages and mixed income and force the distribution of these two variables in our surveys (including interpolated years) to match that observed in the LFS or QLFS during the corresponding years by rescaling average incomes by rank. Due to difficulties in creating consistent inequality series from the OHS series, especially regarding mixed income, we choose not to exploit this data source and keep the PSLSD 1993 and the IES 1995 as our only survey data sources for the 1990s.

Finally, we extract yearly data on the distribution of the South African population by age, gender, province, and population groups from the PALMS dataset and use simple linear calibration to calibrate

5 Given that offshore wealth is known to have grown globally, this is a relatively conservative assumption for the period after 2007. If anything, wealth inequality could have increased more since 1993 than our series suggest, as offshore wealth is well known for being concentrated at the very top end of the distribution [Alstadsæter, Johannesen, and Zucman \(2019\)](#).

the survey weights on the distribution of these sociodemographic variables. This ensures that the entire dataset is representative of the South Africa population in terms of these variables throughout the 1993–2017 period.

S2.2. Comparing Survey Wealth Aggregates to Macroeconomic Balance Sheet Totals

In this section, we briefly compare estimates of total wealth derived from existing surveys to macroeconomic balance sheet totals. The main finding that arises from this comparison is the existence of large differences between the two sources, due in particular to strong underreporting of financial assets in surveys. This motivates our mixed method of mapping micro wealth components with macro sources and capitalizing relevant income flows.

The only available surveys to directly measure wealth inequality in South Africa are waves 4 and 5 of the NIDS. The comparison of household assets and liabilities reported in the NIDS surveys to macroeconomic statistics shows important inconsistencies (see [table S4.2](#)). The market value of owner-occupied housing wealth is between 50 percent and 120 percent higher in the NIDS surveys than in the balance sheets, while tenant-occupied housing is closer to the macro aggregate. This most likely reflects the different methods in measuring market values.⁶ Business assets are covered very differently in the two waves: they are overestimated in wave 4 and underestimated in wave 5. Pension and life insurance assets, after correction,⁷ seem to be relatively close to balance sheet figures, and they even slightly overestimate them. Other financial assets are extremely badly covered: the total reported in the NIDS surveys does not exceed 4 percent of households' bonds and stock reported in the balance sheets by the SARB. Considering that the underlying sources of SARB's series consist of financial statements submitted by all financial intermediaries⁸ and several sets of capital market data, we interpret these discrepancies as a sign of the weakness of the NIDS surveys resulting from the difficulty in surveying the wealthiest individuals. Household debts are slightly better covered, but still fall significantly below macroeconomic statistics.

The other surveys we use in this study (PSLSD, IES, and LCS) also contain some information on owner-occupied housing and debts. Owner-occupied housing seems to be overstated relative to the balance sheets in these surveys as in the NIDS surveys (see [table S4.3](#)). Debts are always below balance sheet totals, but with important fluctuations across surveys. All these limitations justify our approach to correct for discrepancies between micro and macro totals. Indeed, the households balance sheets have the advantage of tracking the evolution of aggregate wealth consistently, in contrast with surveys, which show much greater fluctuations in reported aggregates. By mapping the surveys with macroeconomic statistics, we are at least able to get estimates of the wealth distribution that are consistent with what we know of the level of aggregate wealth and its composition over time.

- 6 It is beyond the scope of this paper to discuss and evaluate these methods. However, this issue is not one specific to South Africa—in the United States, survey values have also been found to be higher than in balance sheet figures, and which source of information provides the more accurate estimate of market values is contested ([Blanchet 2016](#); [Detting et al. 2015](#); [Henriques and Hsu 2014](#)). Another potential issue is how to treat RDP housing, a government-funded social housing project in South Africa, due to complexities around ownership. However, given the typical low market value of these properties, it is unlikely to affect our distributional estimates.
- 7 There are important inconsistencies in data on pensions and other retirement funds in the NIDS survey. For example, in wave 5 of the survey, 61 percent of individuals declaring contributions to pensions funds declare having no “pension or retirement annuity,” while 77 percent of individuals declaring income from a pension or provident fund declare no “pension or retirement annuity.” We correct for these gaps by imputing all missing values using predictive mean matching.
- 8 Monetary authority, banks, insurers, retirement funds, trusts, and other types of finance companies. For more details about how the Flow of Funds data is compiled, see [de Beer et al. \(2010\)](#).

S2.3. Comparing Survey Income Aggregates to National Accounts Totals

As more surveys and available tax microdata deal with incomes, and generally income reporting is seen as more credible, capital-related income provides alternate sources of information for the wealth distribution. In this section, we compare incomes from surveys to the corresponding totals recorded in the national accounts. For our purposes, the components we consider are gross wages (to capitalize pension wealth), mixed income (income from unincorporated enterprises, to capitalize unincorporated business assets), rental income (to capitalize tenant-occupied housing), and interest and dividends (for equity and bonds). The surveys we consider were designed to capture information about consumption, expenditure, and earnings: these are the PSLSD conducted in 1993, the IES from 1995 to 2010, the LCS of 2008 and 2015, and the NIDS surveys.

As [table S4.4](#) shows, gross wages and mixed income are much better covered than capital incomes, and are better covered in the PSLSD, IES, and LCS than in the NIDS surveys. Rental income, interest, and dividends are unfortunately poorly covered in all household surveys. This is due to this sort of income being concentrated by those at the upper end of the income distribution, who are typically underrepresented in surveys due to issues of sampling and nonresponse. This motivates our use of the tax microdata to better cover top incomes.

S2.4. Extrapolation of Tax Data Series Back to 1993

Our wealth inequality series based on tax data cover the 2010–2017 period, while we can go back to 1993 by capitalizing the income flows reported in household surveys. Series based on tax data typically show slightly higher levels of wealth concentration at the very top, so one meaningful way to extrapolate the tax data series back to 1993 is to assume that the underrepresentation of top wealth groups in surveys remained constant before 2010.

We correct the survey series before 2010 by following the methodology developed by [Blanchet, Chancel, and Gethin \(2020\)](#) to correct a distribution based on observed relationships between quantile functions covering different concepts and data sources. Formally, consider, for a given quantile $p \in [0; 1]$, the quantile function of the wealth survey series $Q_S(p)$ and the quantile function of the tax data series $Q_T(p)$. To impute the tax data series from the survey series, one can write

$$Q_T(p) = Q_S(p) \times \beta(p),$$

where $\beta(p) = Q_T(p)/Q_S(p)$. Therefore, it suffices in our case to estimate $\hat{\beta}(p)$ over the 2010–2017 period (where both survey and tax data series are available) and then to multiply $Q_S(p)$ by $\hat{\beta}(p)$ before 2011 to get a corrected survey series. This will be an efficient method, however, only in the case where both $Q_T(p)$ and $Q_S(p)$ are strictly positive, which is not true in our case since our wealth quantile functions include a significant share of zero and negative values. [Blanchet, Chancel, and Gethin \(2020\)](#) show that a good way of accounting for zeros and negative values is to work instead with the following transformation:

$$Q_T(p) = \sinh \left(\operatorname{asinh}[Q_S(p)] + \beta'(p) \right),$$

with $\beta'(p) = \operatorname{asinh}(Q_T(p)) - \operatorname{asinh}(Q_S(p))$, and where $\sinh$ is the hyperbolic sine and asinh is the inverse hyperbolic sine. We apply this method to get consistent series covering the 1993–2017 period.

S3. Other Issues

S3.1. Negative Net Worth and the Measurement of Household Wealth at the Bottom End

Household debts are among the most difficult components of personal wealth to estimate, in part due to the difficulty for survey respondents to properly assess their remaining debt balances. The coverage of debt is very erratic in South African surveys, which cover from 14 percent to 87 percent of mortgage debt, and from 17 percent to 57 percent of other forms of debt. These difficulties are not specific to South

Africa: in France, for instance, [Garbinti, Goupille-Lebret, and Piketty \(2021\)](#) choose to set negative net wealth values to zero, given the unavailability of proper information on the net worth of the poorest households. Other recent comparable studies on India ([Bharti 2018](#)), China (Piketty, Yang, and Zucman 2019), Russia ([Novokmet, Piketty, and Zucman 2018](#)), and the United States ([Saez and Zucman 2016](#)) have generally found negative net worth to be restricted to the bottom 5 percent or 10 percent of the population, with the exception of the United States where households are highly leveraged.

In South Africa, in spite of the lack of high-quality data, there is considerable evidence that a substantial share of households have either zero or negative net worth. The NIDS, for instance, asks specifically of adults, “Suppose you (and your household members living here) were to sell off everything that you have (including your home and vehicles), cash in your investments, and pay all your debts, would you have money left over, break even, or be in debt?” In 2017, 50 percent of households declared they would have something left over, 24 percent declared they would more or less break even, and 4 percent declared that they would still be in debt. The remaining 22 percent declared not knowing whether they would still have something left, which is a relatively clear indication of net wealth being very close to zero. Notice in particular that this question includes household durables, which are excluded from our SNA definitions of household wealth, so that the share of negative-net-worth households is clearly underestimated in this question. In any case, the evidence is suggestive of a substantial share of the population (at least between 30 percent and 50 percent) having either negative wealth, or wealth very close to zero.

Other evidence points to the concentration of debts among the bottom of the wealth distribution, and the lack of assets covering these debts. According to the 2019 Eighty 20 and XDS Credit Stress Report, the number of unsecured credit products—that is, debt that is not backed by any form of asset—far outweighed those holding secured accounts (Eighty 20 and XDS 2019). In terms of values, unsecured debts amounted to 28 percent of total consumer credit products in South Africa in the third quarter of 2019. In the same period, the default rate was as high as 20 percent among consumers aged 18 to 24. These figures clearly indicate that a very large share of the South African population is highly leveraged, contracting consumer credits with no corresponding assets to back them, which means that they are by definition in negative net worth.

Our benchmark method for allocating debt to households is to rely on the share of households declaring debt and on a proxy variable of ability to pay rather than on direct measurement of debt balances. This avoids having too many households with unsustainable debt levels, while at the same time allowing us to fully close the micro–macro gap and distribute all debts recorded in households’ balance sheets. For mortgages, we rely on the reported market value of the house, which is arguably a reasonable proxy for the average size of the mortgage balance across the wealth distribution. This method is comparable to that used by [Saez and Zucman \(2016\)](#), who distribute US mortgages proportionally to reported mortgage payments. For other debts, given the lack of other data, we rely on consumption, which is less unequally distributed than incomes and therefore evens out debts across the wealth distribution. After splitting wealth equally among adult members of the household, our estimates imply that 10 percent of the adult population has negative net worth; the entry thresholds for the next deciles are R 0, R 1700, R 10,000, and R 18,000. Median wealth amounts to R 30,000 (about \$4,800 at purchasing power parity, or about a quarter of the average national income per adult). These low levels are consistent with the descriptive evidence above suggesting that some 30 percent to 50 percent of South Africans have close to zero wealth. In any case, as we show in [fig. S4.14](#), top wealth shares are only moderately affected by the exclusion of debts from our framework: assets are extremely concentrated, with the top 10 percent owning 80 percent of the total.

That being said, it is important to note that durable goods are not included in the SNA definition of wealth, but that debts associated to the purchase of durable goods are. Given the importance, among poorer households in South Africa, of consumer credit and its use to buy cars or furniture, this may explain in large part why wealth is so negative at the bottom of the distribution. Whether durable goods

should be included in wealth or not is a subject of debate. On the one hand, one might argue that the goods purchased with household debt should be included in households' net worth for consistency with individuals' experiences of what they own. On the other hand, debts are a form of stock generating an income flow, while consumer durables are not—they are consumed in a relatively short time, or depreciate at a comparatively high rate, and they do not generally generate any income flow—so that one could argue that all consumer credit should be included in net worth, while consumer durables should not. Finally, let us also stress that survey data does not allow us to capture other forms of collective ownership—such as rights to land or cattle, which are particularly important in rural areas, both economically and symbolically—as surveys are restricted to wealth held at the household level. The inclusion of these components in household wealth can also be debated and should in any case be the subject of future research.

S3.2. Limitations of the Personal Income Tax Data

General Comments

The fact that the ITR12 forms are self-assessed implies that there may be tax evasion or underreporting of income flows, especially if the likelihood of being controlled by tax authorities is low. More importantly, tax microdata only covers forms of income that are useful for tax collection and deductions purposes, which implies that other forms of nontaxable income are not reported in the data. This, as we show below, is particularly problematic for the measurement of capital income.

Table S4.7 shows that when looking specifically at capital income in the tax data, the reported totals fall significantly below the national accounts. Interest income is better measured than rental income and dividends, reaching between 25 percent and 30 percent of total interest received by households in the national accounts. Rental income and dividends are significantly lower and inconsistent, covering between 2 percent and 25 percent of national account totals.⁹

This underrepresentation of capital income in the tax data is due to three main factors. First, taxable income is different from income reported in the national accounts, due to filing rules and tax base. This is particularly problematic for dividends, which in the ITR12 relate to dividends from equities that form part of compensation packages, such as equity share plans. This sort of dividend is subject to income tax, and so is part of this data set, whereas dividends from regular ownership of equity is subject to a separate dividend tax. Approximately 80 percent of dividend information would be recorded through this dividend tax return (DTR01/2 forms), and this information would be useful to make our estimate more reliable.

Secondly, there may be issues of misreporting of incomes by individual taxpayers. Interest income seems to be poorly covered as a result of incomplete tax filing by taxpayers. In principle, the SARB receives direct information from banks and financial services that they provide about interest. Banks and financial service providers separately supply customers with a tax certificate (IT3(b) certificate), which is meant to inform the interest income declared by the taxpayer. At the same time, the bank sends the South African Revenue Service (SARS) a third-party submission about incomes its customers receive. However, given that interest income is typically low relative to total taxable income, it is possible that small interest income received goes unreported. The misreporting of rental income received by individual taxpayers is likely to be more significant, given that rental income is self-reported and that there may be a significant amount of informal letting of fixed property.¹⁰

9 The particularly low figures obtained in 2017 (fiscal year 2018) are mainly due to the fact that assessment was incomplete at the time of writing.

10 Notice here that total rental income paid to individuals in the economy is estimated by the authors based on data from the PSLSD, the IES, and the GHS surveys on total rental income paid by households to individual landlords. Therefore, this includes informal rents paid, which may explain why the rental income in the tax data is so low compared to the macro aggregate.

Despite of all this, tax microdata remains much better at capturing dividend and interest income than household surveys.

Trust income

The most important issue regarding the coverage of capital income in the tax microdata is likely to be due to the definition of the taxpayer. The tax data covers only individuals and does not account for forms of capital income received through unit trusts or investment funds. This is particularly problematic in the case of South Africa, both because wealth is highly concentrated at the top of the distribution and because top wealth groups rely extensively on unit trusts. As shown in fig. S4.18, the share of financial assets held through trusts exploded around the time of, politically, the end of apartheid, and economically, liberalization and financialization. Over half of specifically interest-bearing and dividend-earning financial assets are held in trusts. Trusts in South Africa are used more extensively, including housing mutual funds, as well as tax avoidance vehicles, and are one mechanism of several to protect against wealth dilution (wealth loss across generations) (Ytterberg and Weller 2010). There is therefore a clear need to access data on trusts to gain more complete and precise information on the distribution of capital income (and corresponding assets) at the top of the distribution, as well as to understand the mechanisms that result in the persistence of wealth concentration. However, the fact that we could not have access to sufficiently detailed data on trusts does not imply that we did not distribute wealth held by households through trusts. Indeed, our methodology takes this share of wealth into account as it is by definition included in the macro aggregate we distribute over our microfiles. Access to better microdata on trusts would only have allowed more precise allocation of wealth at the extreme top of the wealth distribution. In the following paragraphs we further document our exploration of the issue.

Just like individuals, all unit trusts in South Africa are required to file an ITR12T form covering all nondividend sources of income, as well as a dividend tax form separately. The ITR12T form also contains information on taxpayer reference numbers and passport numbers of the beneficiary to whom income, capital, or assets were distributed or vested with the highest monetary value. In parallel, individuals filing ITR12 returns are asked to provide detailed information on all forms of income distributed or vested to them as a beneficiary of a trust, as well as the trust name, the trust registration number, and the trust tax reference number. In theory, this provides largely sufficient information to link trusts to their beneficiaries and accordingly distribute trust income and trust wealth. Unfortunately, the tax microdata provided by SARS does not include these entries, which were not extracted during the process of making the data accessible to researchers. In the ITR12 data, there is no trust information at all. SARS does provide researchers with the ITR12T data, but available variables are very limited, being restricted to the sources of income received by the different trusts, without any information on who owns them. This makes it impossible to distribute nondividend trust income in any meaningful way, since individuals may have accounts in multiple trusts, and accounts may belong to multiple individuals. Furthermore, given that about 90 percent of trust assets correspond to corporate shares, the ITR12T data is only of very limited use as it excludes dividends from ownership of regular shares.

Table S4.6 shows descriptive statistics computed from the ITR12T data. The number of tax returns decreased from about 140,000 to 94,000 between 2014 and 2018, probably due to incomplete assessments at the time of writing. This implies that there was one trust for about 2,400 adults in South Africa in 2014, which shows how the use of trusts is widespread in the country. When it comes to sources of incomes assessed however, the quantities observed appear to be extremely low compared to macro figures, in particular knowing that trusts hold a substantial share of financial wealth. Interest income received by trusts amounts to only 3 percent of total interest received by households in the national accounts. The corresponding figures are 2 percent of rental income and less than 2 percent of business income. Less than 0.5 percent of dividends are covered, which is consistent with the fact that only very specific types of dividends are covered in this data, the bulk of them being filed separately through the dividends tax

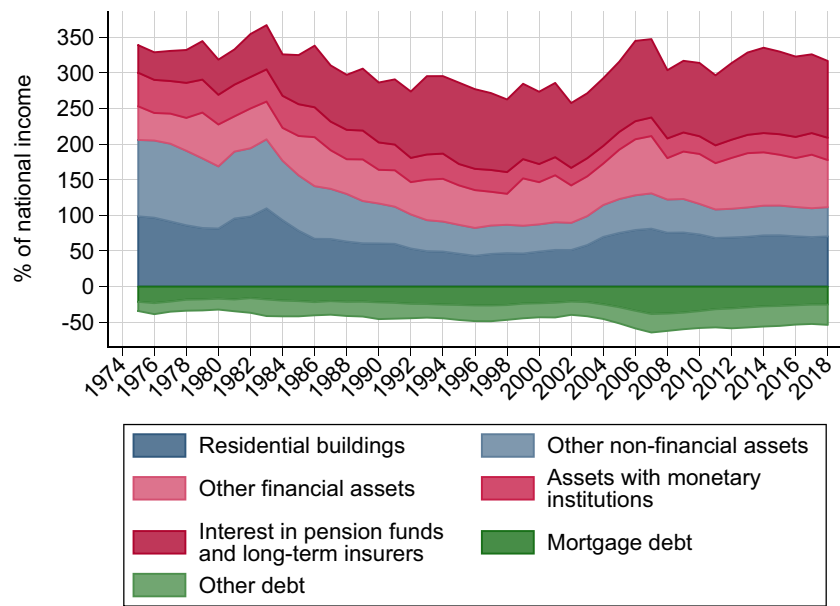
form. Capital gains are among the biggest components of trust income, amounting to between 1 percent and 2 percent of total property income received by households (the sum of interest, rental income, and dividends). Overall, summing all forms of trust income—including other receipts and accruals, and excluding losses—we only reach between 4.5 percent and 6 percent of total property income received by households, or 0.3 percent to 0.45 percent of the national income. This is very puzzling, and points to potentially large underreporting, evasion, or exemptions.

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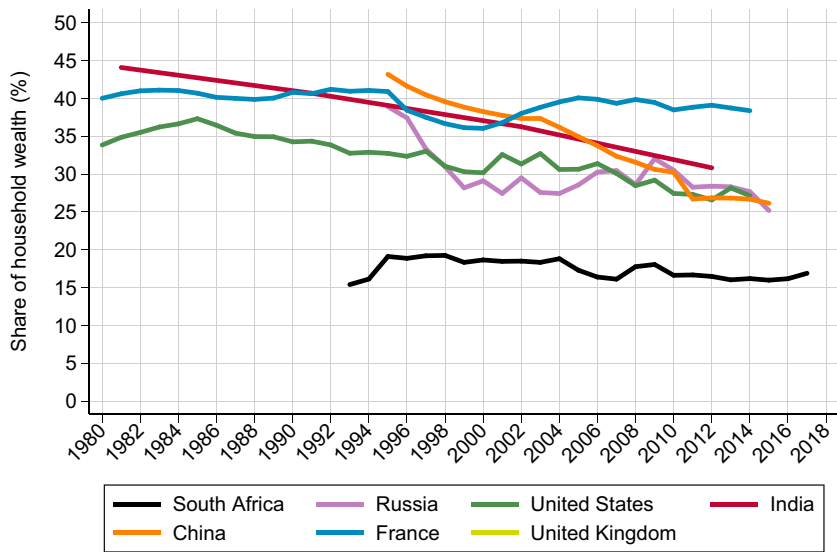
S4: Additional Figures and Tables

Figure S4.1. Evolution of Household Wealth in South Africa, 1975–2018



Source: Authors' compilation based on data from the South African Reserve Bank.
Note: This figure shows the level and composition of household wealth in South Africa between 1975 and 2018, expressed as a share of the net national income.

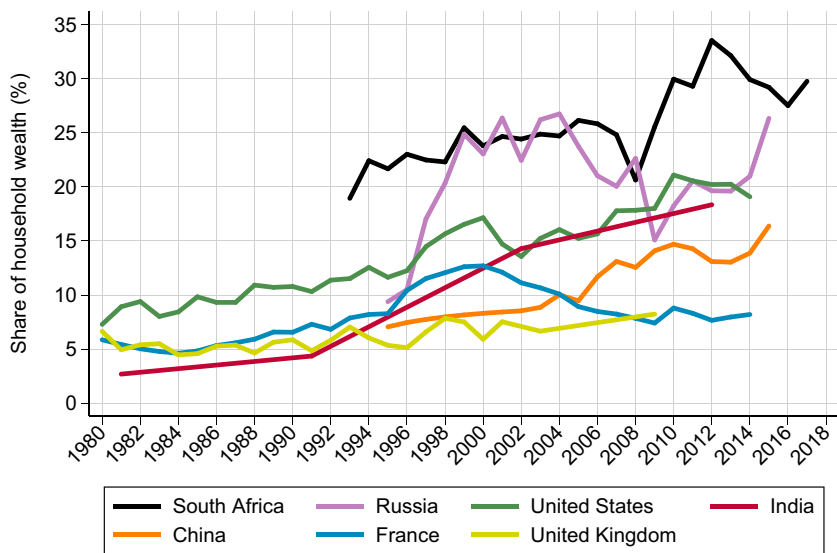
Figure S4.2. South African Wealth Inequality in Comparative Perspective: Middle 40 Percent Wealth Share



Source: Authors' computations based on data for South Africa; World Inequality Database (<http://wid.world>) for other countries.

Note: The figure compares the middle 40 percent wealth share in South Africa to that of other countries. The unit of observation is the individual adult aged 20 or above. Wealth is individualized (South Africa) or split equally among adult household members (other countries).

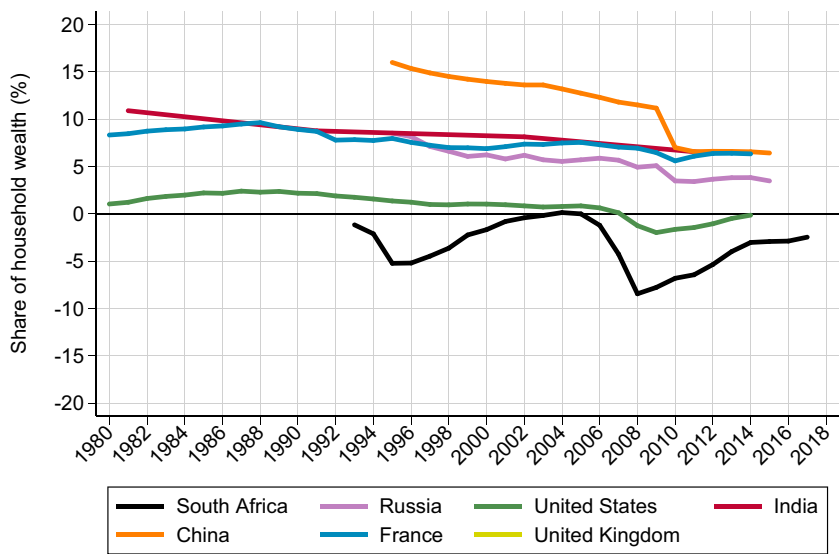
Figure S4.3. South African Wealth Inequality in Comparative Perspective: Top 0.1 Percent Wealth Share



Source: Authors' computations based on data for South Africa; World Inequality Database (<http://wid.world>) for other countries.

Note: The figure compares the top 0.1 percent wealth share in South Africa to that of other countries. The unit of observation is the individual adult aged 20 or above. Wealth is individualized (South Africa) or split equally among adult household members (other countries).

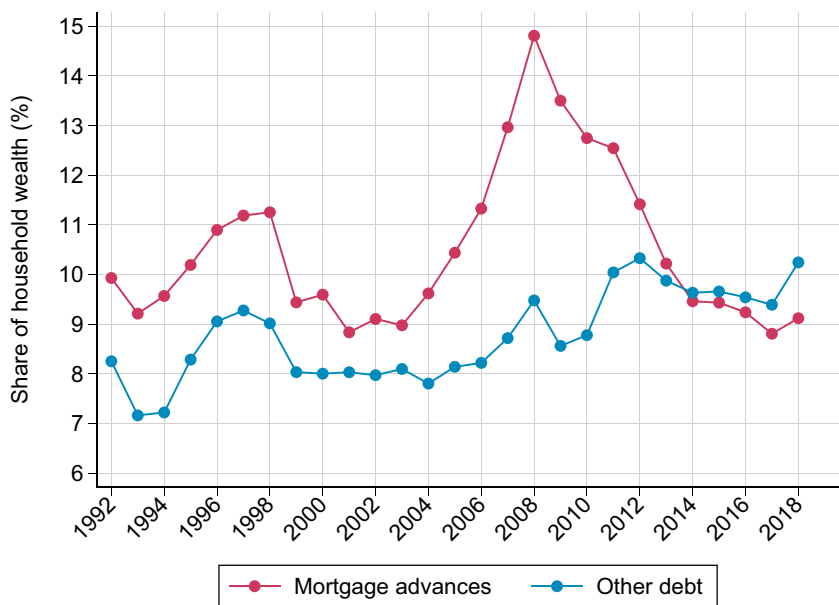
Figure S4.4. South African Wealth Inequality in Comparative Perspective: Bottom 50 Percent Wealth Share



Source: Authors' computations based on data for South Africa; World Inequality Database (<http://wid.world>) for other countries.

Note: The figure compares the bottom 50 percent wealth share in South Africa to that of other countries. The unit of observation is the individual adult aged 20 or above. Wealth is individualized (South Africa) or split equally among adult household members (other countries).

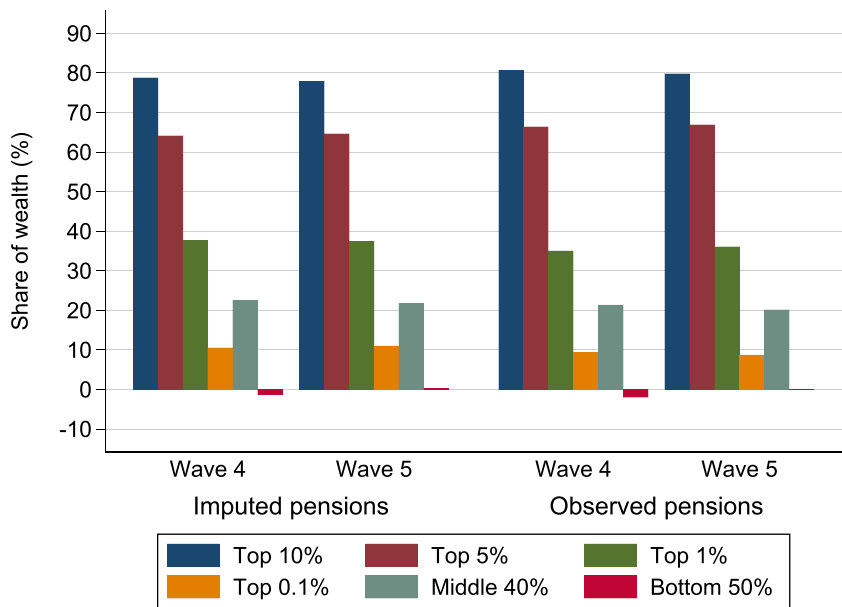
Figure S4.5. Evolution of Household Debt in South Africa, 1992–2018: The Boom and Bust of Mortgage Debt



Source: Authors' computations based on data from the South African Reserve Bank.

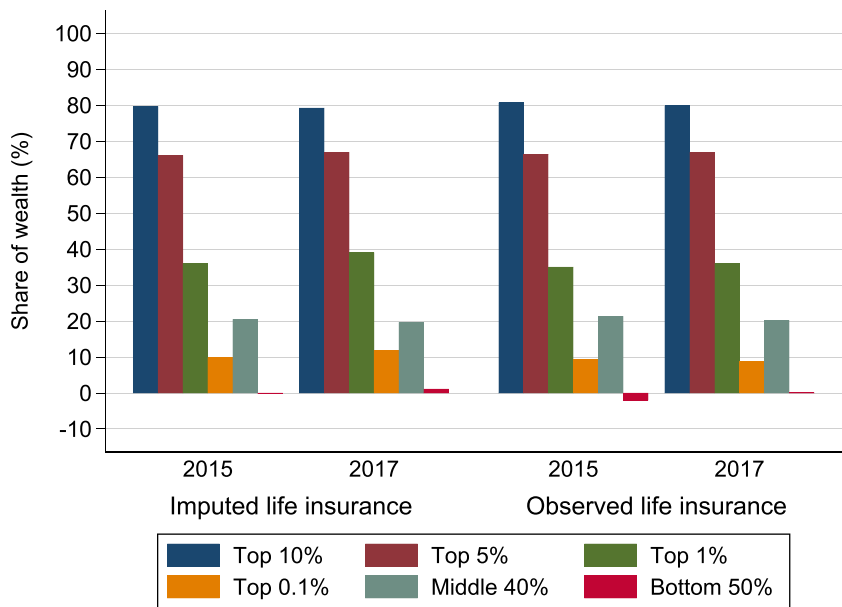
Note: The figure shows the evolution of total household mortgage advances and total other household debts between 1992 and 2018, expressed as a share of household net wealth.

Figure S4.6. Wealth Inequality in NIDS: Reported versus Capitalized Pension Wealth



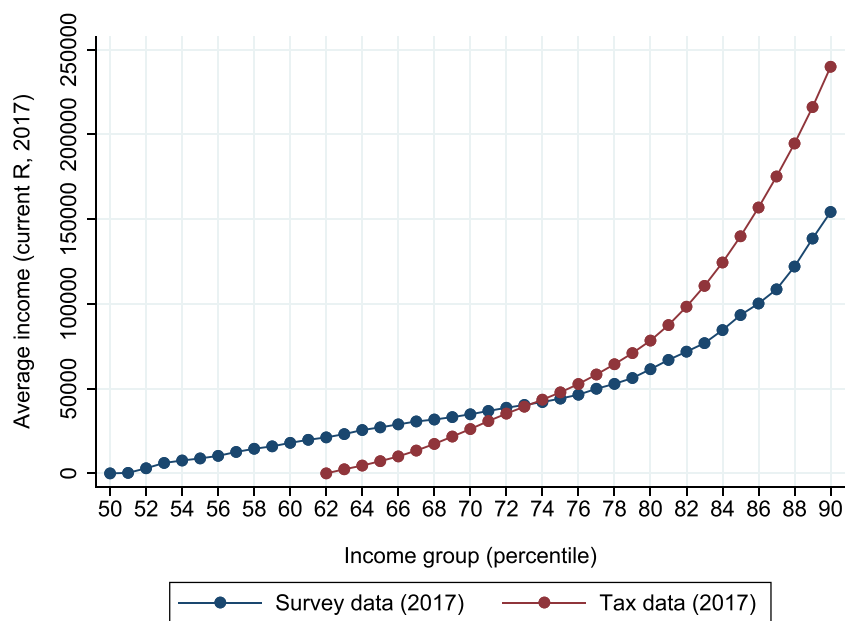
Source: Authors' computations based on the National Income Dynamics Study (NIDS).
Note: The figure compares the wealth shares estimated after capitalizing pension wealth in NIDS (assuming that 75 percent of pension assets go to wage earners proportionally to pension contributions, and 25 percent belong to pensioners proportionally to pension income) to the wealth shares estimated by direct measurement of pension assets in NIDS.

Figure S4.7. Wealth Inequality in NIDS: Reported versus Capitalized Life Insurance Assets



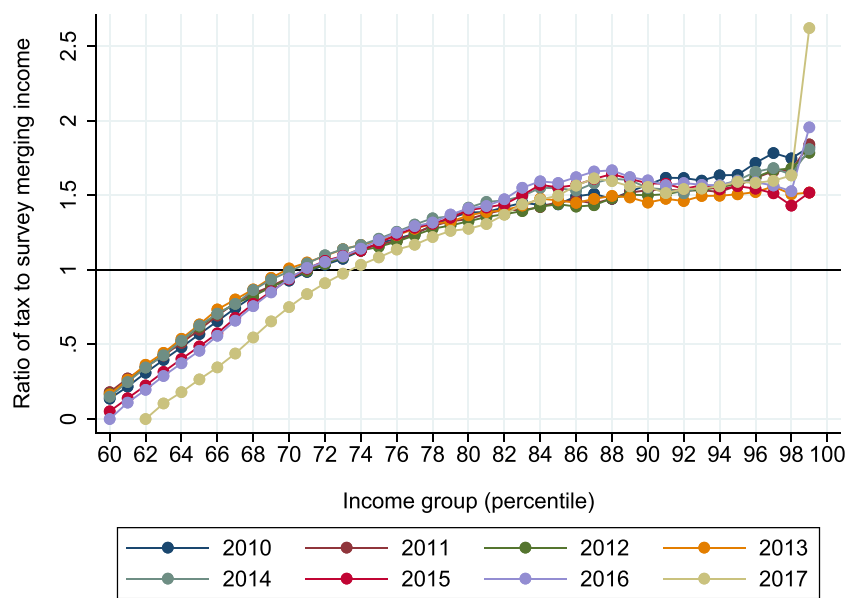
Source: Authors' computations based on the National Income Dynamics Study (NIDS).
Note: The figure compares the wealth shares estimated after capitalizing life insurance assets in NIDS (assuming that 50 percent go to wage earners proportionally to factor income, and 50 percent to other earners proportionally to factor income) to the wealth shares estimated by direct measurement of life insurance assets in NIDS.

Figure S4.8. Combination of Survey and Tax Data: Quantile Functions of Merging Income, 2017



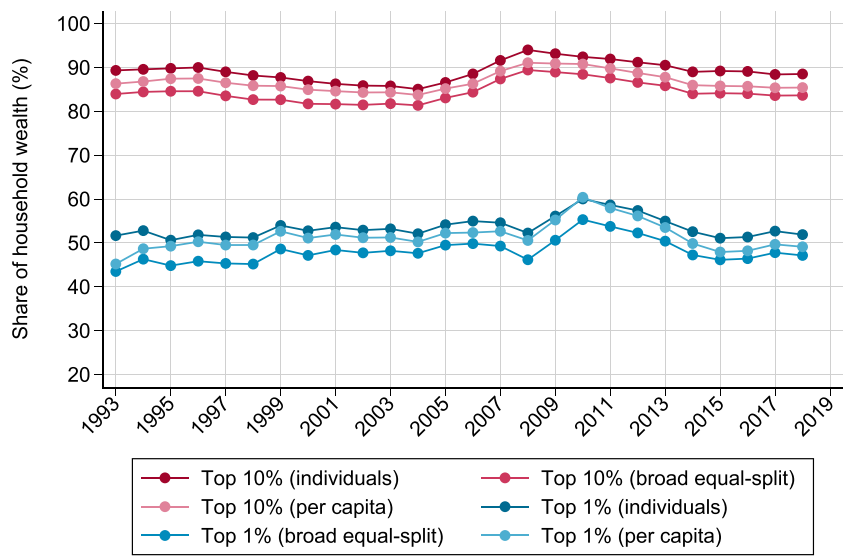
Source: Authors' computations based on data.
Note: The figure compares the average merging income by percentile in the survey and in the tax microdata in 2017. Merging income is the sum of gross wages, business income, rental income, interest income, and private pension income.

Figure S4.9. Combination of Survey and Tax Data: Ratio of Quantile Functions of Merging Income, 2010–2017



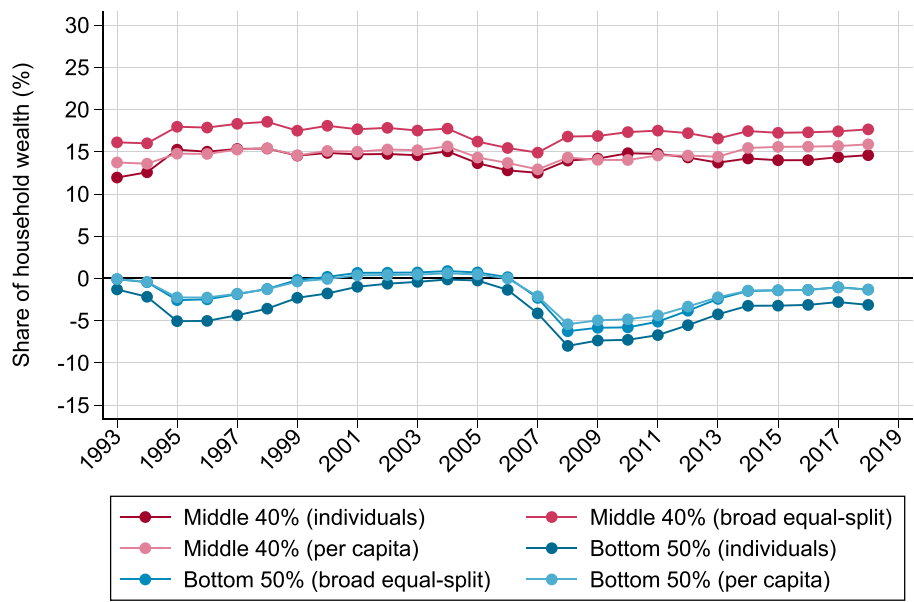
Source: Authors' computations based on data.
Note: The figure plots the ratio of average merging income by percentile in the tax microdata to the harmonized survey data between 2010 and 2017. Merging income is the sum of gross wages, business income, rental income, interest income, and private pension income.

Figure S4.10. Impact of Changes in Equivalence Scales on Wealth Inequality: Top 10 Percent and Top 1 Percent Shares



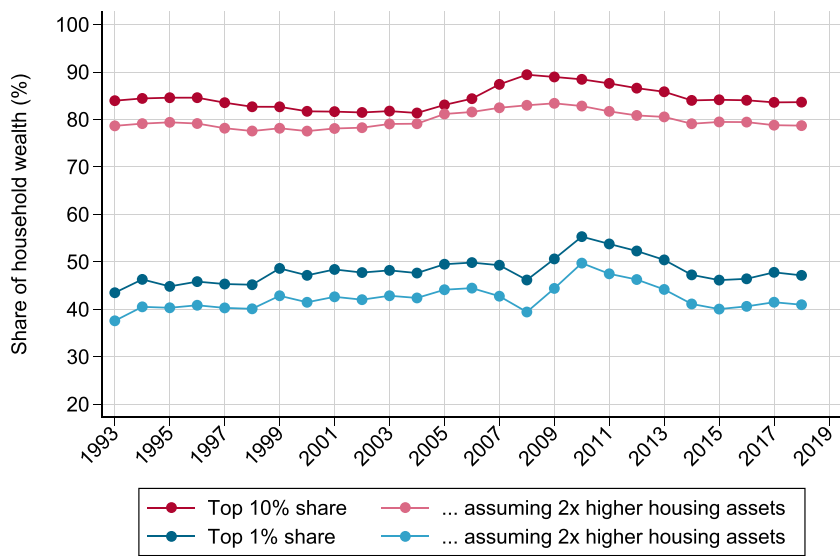
Source: Authors' computations based on data.
Note: The figure compares the wealth shares estimated from the mixed method applied to household surveys depending on three different equivalence scales: individual series, broad equal-split series, and per capita series.

Figure S4.11. Impact of Changes in Equivalence Scales on Wealth Inequality: Middle 40 Percent and Bottom 50 Percent Wealth Shares



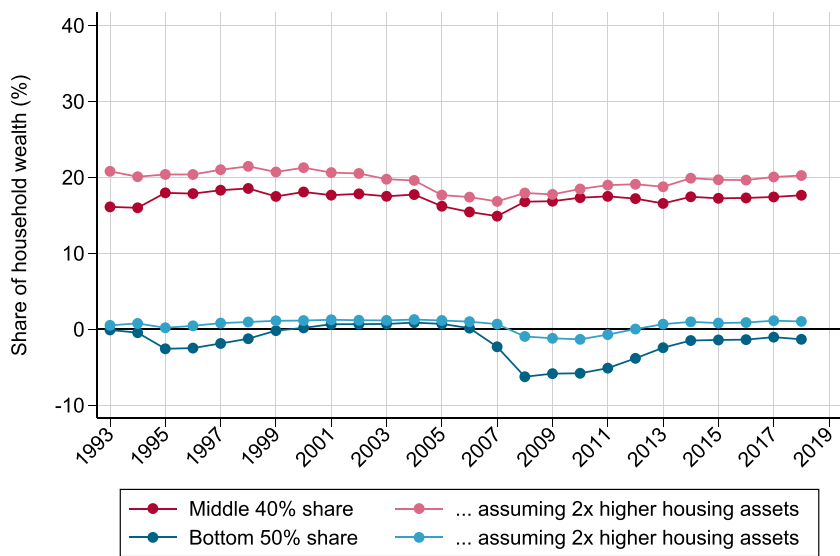
Source: Authors' computations based on data.
Note: The figure compares the wealth shares estimated from the mixed method applied to household surveys depending on three different equivalence scales: individual series, broad equal-split series, and per capita series.

Figure S4.12. Impact of Changes in Aggregate Housing Wealth on Wealth Inequality: Top 10 Percent and Top 1 Percent Wealth Shares



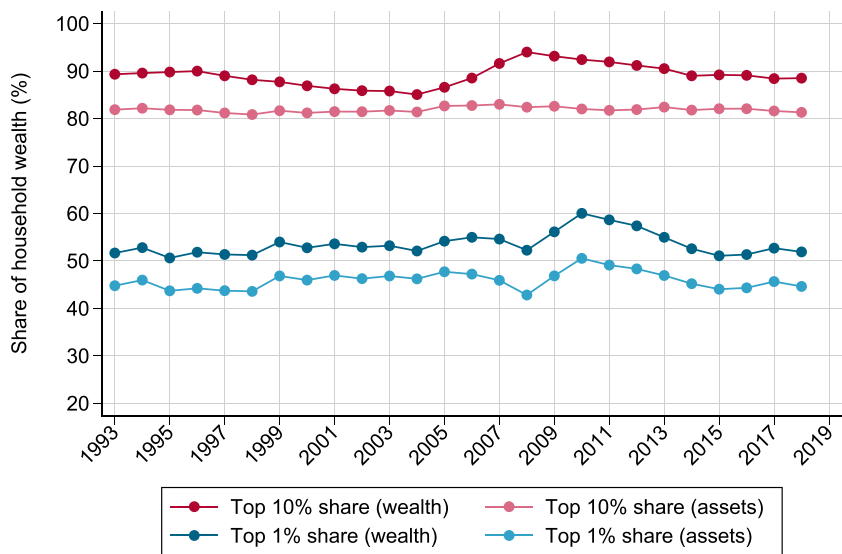
Source: Authors’ computations based on data.
 Note: The figure compares the wealth shares estimated from the mixed method applied to household surveys under two scenarios: one in which total aggregated housing wealth corresponds to official balance sheet figures and one in which it is estimated to be twice that amount.

Figure S4.13. Impact of Changes in Aggregate Housing Wealth on Wealth Inequality: Middle 40 Percent and Bottom 50 Percent Wealth Shares



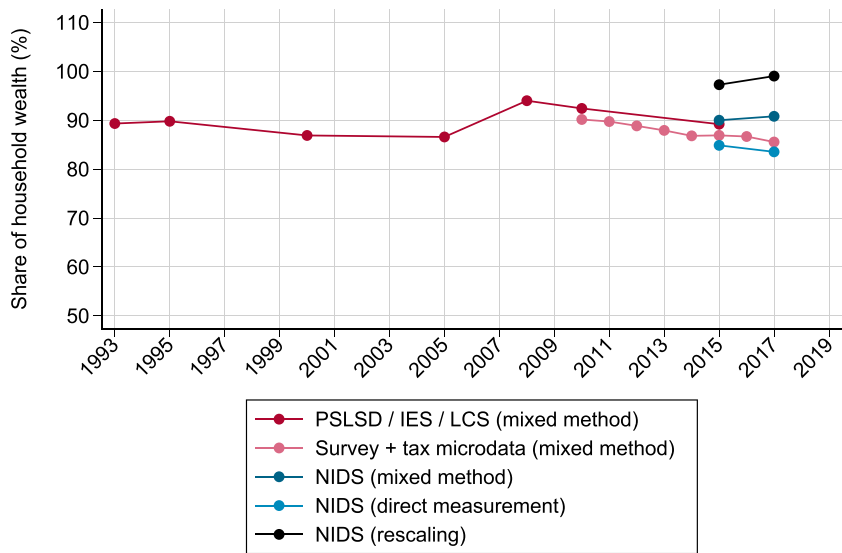
Source: Authors’ computations based on data.
 Note: The figure compares the wealth shares estimated from the mixed method applied to household surveys under two scenarios: one in which total aggregated housing wealth corresponds to official balance sheet figures and one in which it is estimated to be twice that amount.

Figure S4.14. Distribution of Wealth versus Distribution of Assets: Top 10 Percent and Top 1 Percent Shares



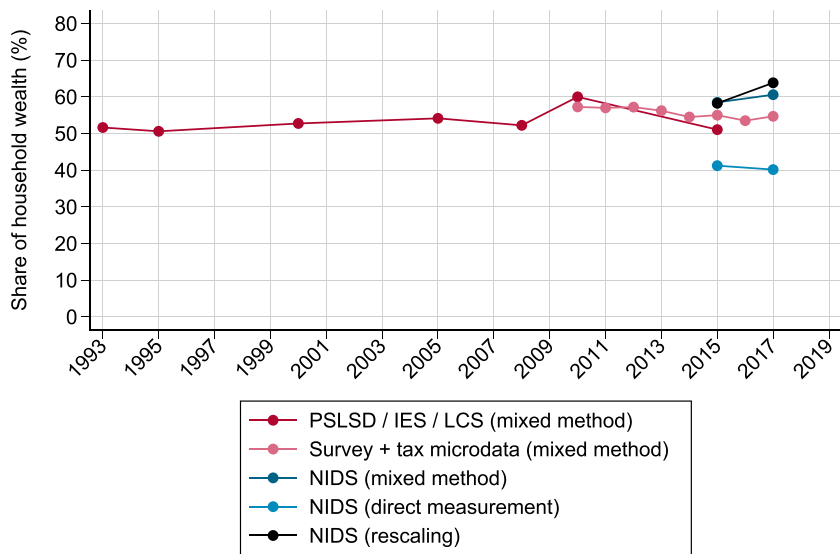
Source: Authors' computations based on data.
Note: The figure compares the distribution of wealth and the distribution of assets (that is, excluding debt) in South Africa, estimated from surveys using the mixed method.

Figure S4.15. Comparison of Methodologies: Top 10 Percent Share



Source: Authors' computations based on data.
Note: The figure compares the wealth shares estimated from the mixed method, direct measurement, and rescaling of reported wealth components.

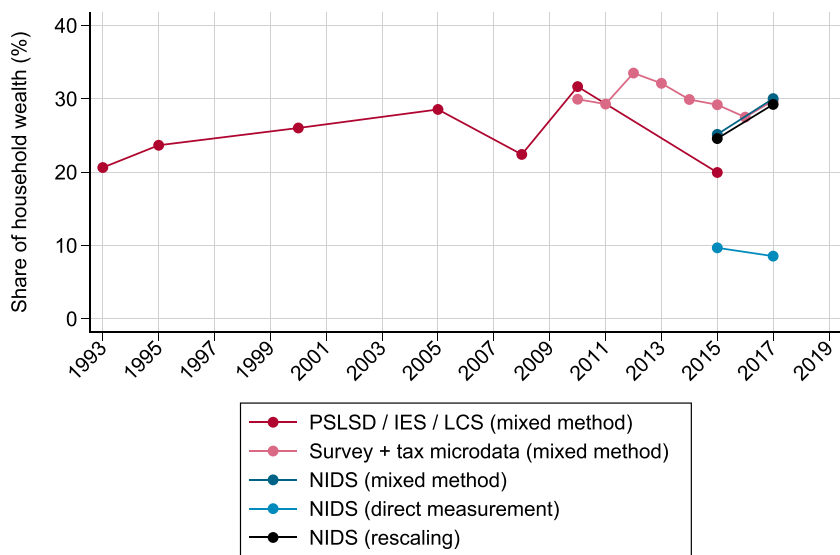
Figure S4.16. Comparison of Methodologies: Top 1 Percent Share



Source: Authors' computations based on data.

Note: The figure compares the wealth shares estimated from the mixed method, direct measurement, and rescaling of reported wealth components.

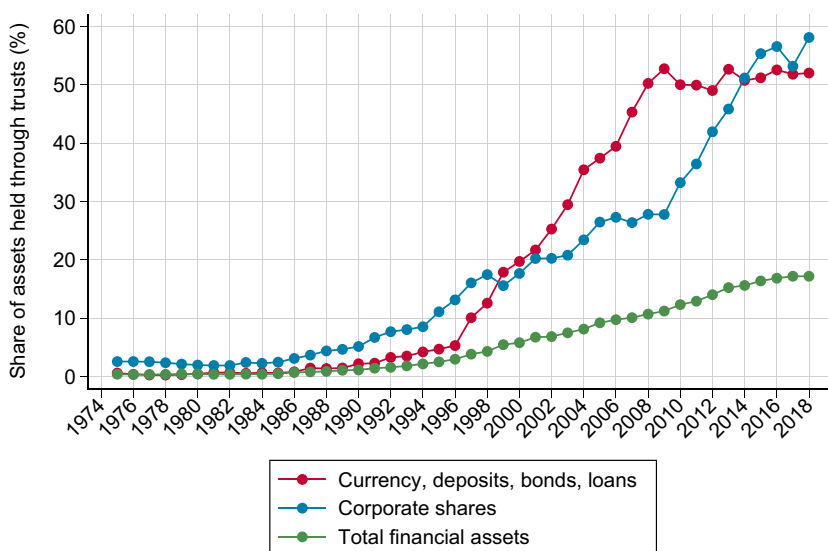
Figure S4.17. Comparison of Methodologies: Top 0.1 Percent Share



Source: Authors' computations based on data.

Note: The figure compares the wealth shares estimated from the mixed method, direct measurement, and rescaling of reported wealth components.

Figure S4.18. Share of Financial Assets Held through Trusts, 1975–2018



Source: Authors' compilation based on data from the South African Reserve Bank.

Note: The figure shows the share of total household assets in the economy held by unit trusts.

Table S4.1. Level and Composition of Household Wealth in South Africa in 2018

	Market value (R billion)	Percent of national income	Percent of net wealth
Nonfinancial assets	4,504	111.4	42.4
Owner-occupied housing	3,020	74.7	28.4
Tenant-occupied housing	988	24.4	9.3
Business assets	497	12.3	4.7
Financial assets	8,294	205.1	78.0
Pension assets	2,944	72.8	27.7
Life insurance assets	1,412	34.9	13.3
Bonds and interest deposits	1,798	44.5	16.9
Currency, notes, and coins	87	2.2	0.8
Corporate shares	2,053	50.8	19.3
Total liabilities	2,170	53.7	20.4
Mortgage debt	1,022	25.3	9.6
Nonmortgage debt	1,148	28.4	10.8
Net household wealth	10,629	262.9	100.0
Offshore wealth	575	14.2	5.4
Net wealth incl. offshore wealth	11,204	277.1	105.4

Source: Own estimates combining available data sources from the South African Reserve Bank.

Note: The table shows the level and composition of household wealth in South Africa in 2018. The market value of each component is expressed in current billion rands.

Table S4.2. Ownership Rates and Coverage of Household Balance Sheets by Asset Class in NIDS

	Percent of adults with asset or debt		Percent of balance sheets covered	
	Wave 4	Wave 5	Wave 4	Wave 5
Household assets				
Owner-occupied housing	72.3	65.2	151.7	220.8
Tenant-occupied housing	3.3	3.5	122.4	97.2
Business assets	5.6	5.0	135.4	59.6
Pension and life insurance	25.7	24.4	110.0	104.3
Bonds and stock	1.5	1.3	3.9	3.8
Household debts				
Mortgage debt	8.0	7.0	71.0	56.8
Other debts	36.3	33.7	54.5	37.0

Source: Authors' computations based on the National Income Dynamics Study (NIDS).

Note: The table shows the share of South Africans who declare having a particular type of asset or debt, along with the share of the total value of this asset or debt in the economy captured by the NIDS survey. The unit of observation is the adult individual aged 20 or above. Calculations based on weighted sample using design weights.

Table S4.3. Coverage of Owner-Occupied Housing, Mortgage Debt, and Other Debt in South African Surveys

	Owner-occupied housing	Mortgage debt	Other debt
PSLSD, 1993	143.5%	86.5%	37.4%
IES, 1995	121.7%	27.2%	16.5%
IES, 2000	—	40.3%	34.9%
IES, 2005	105.9%	67.9%	41.5%
IES, 2010	193.9%	16.4%	20.5%
LCS, 2008	145.4%	13.9%	18.4%
LCS, 2015	179.5%	51.0%	22.2%
NIDS, wave 4	122.3%	74.3%	57.4%
NIDS, wave 5	258.8%	56.8%	37.0%

Source: Authors' computations based on data.

Note: The table shows the ratio of total assets or debts reported in surveys to the corresponding totals reported in the household balance sheets. PSLSD: Project for Statistics on Living Standards and Development. IES: Income and Expenditure Survey. LCS: Living Conditions Survey. NIDS: National Income Dynamics Study. The unit of observation is the adult individual aged 20 or above. Calculations based on weighted samples using weights calibrated by the authors (see appendix S2).

Table S4.4. Coverage of Selected National Accounts Components in South African Surveys

	Gross wages	Mixed income	Rental income	Interest and dividends
PSLSD, 1993	87.7%	51.7%	38.4%	11.5%
IES, 1995	76.9%	55.0%	9.9%	8.8%
IES, 2000	70.9%	37.2%	23.1%	3.4%
IES, 2005	80.5%	64.2%	21.7%	3.8%
IES, 2010	80.2%	71.9%	13.5%	4.5%
LCS, 2008	77.7%	75.8%	16.3%	8.4%
LCS, 2015	74.6%	86.8%	21.6%	12.6%
NIDS, wave 1	62.7%	12.0%	65.4%	7.3%
NIDS, wave 2	67.6%	4.1%	13.0%	0.8%
NIDS, wave 3	65.7%	20.6%	20.7%	7.3%
NIDS, wave 4	73.5%	12.9%	43.9%	2.5%
NIDS, wave 5	72.1%	14.1%	41.0%	5.5%

Source: Authors' computations based on data.

Note: The table shows the ratio of total income reported in surveys to the total corresponding income reported in the national accounts published by the South African Reserve Bank. PSLSD: Project for Statistics on Living Standards and Development. IES: Income and Expenditure Survey. LCS: Living Conditions Survey. NIDS: National Income Dynamics Study. The unit of observation is the adult individual aged 20 or above. Calculations based on weighted samples using weights calibrated by the authors (see appendix S2).

Table S4.5. Shares of Household Wealth Held by Groups in South Africa: Results from Tax Microdata and Survey Combined

	Bottom 50 percent	Middle 40 percent	Top 10 percent	Top 1 percent	Top 0.1 percent
2010	−6.8	16.6	90.2	57.3	30.0
2011	−6.4	16.7	89.8	57.0	29.3
2012	−5.3	16.5	88.9	57.2	33.5
2013	−4.0	16.0	87.9	56.3	32.1
2014	−3.0	16.2	86.8	54.5	29.9
2015	−2.9	16.0	86.9	55.0	29.2
2016	−2.9	16.2	86.7	53.5	27.5
2017	−2.5	16.9	85.6	54.7	29.8

Source: Authors' computations based on data.

Note: The table shows estimates of the share of household wealth owned by the bottom 50 percent (p0p50), the middle 40 percent (p50p90), the top 10 percent (p90p100), the top 1 percent (p99p100), and the top 0.1 percent (p99.9p100) obtained from the income capitalization method combining surveys and tax microdata. The unit of observation is the individual adult aged 20 or above.

Table S4.6. Trust Data (ITR12T) Descriptive Statistics

	2014	2015	2016	2017	2018
Number of trusts	138,859	134,106	127,457	115,825	93,379
Dividends (percent of household dividends)	0.0	0.3	0.5	0.5	0.3
Interest income (percent of household interest)	3.1	2.9	2.5	2.6	1.7
Capital gain (percent of property income)	1.3	1.6	2.4	1.4	0.6
Rental income (percent of household rental income)	2.4	2.4	2.1	1.9	1.4
Business income (percent of mixed income)	1.7	1.6	1.6	1.4	1.0
Total trust income (percent of property income)	4.6	5.2	5.9	4.7	2.9

Source: Authors' computations based on data.

Note: The table provides information on the number of trusts filing ITR12T forms in South Africa, as well as coverage of selected national income components.

Table S4.7. Coverage of Capital Income in the Tax Microdata

	Rental income	Interest income	Dividends
2010	9.5%	25.4%	2.4%
2011	11.7%	25.0%	5.3%
2012	12.3%	28.3%	3.9%
2013	13.4%	28.8%	5.2%
2014	12.1%	27.8%	25.1%
2015	12.3%	27.8%	10.6%
2016	13.7%	31.0%	13.1%
2017	6.9%	18.3%	15.8%

Source: Authors' computations based on data.

Note: The table shows the ratio of total income reported in the tax microdata to the corresponding total reported in the national accounts published by the South African Reserve Bank.

S5: Data Appendix: Tax Microdata

The tax microdata used in this paper refers to the “Individual Panel” dataset (see [Ebrahim and Axelson 2019](#)). The data was accessed from August 2019 to March 2020. The version of the dataset used in this paper is 2019_1. [Table S5.1](#) shows all the source codes used, along with the corresponding income category attributed to each source code.

Table S5.1. Source Codes Categories Used in Tax Microdata

Income concept	Source code	Description
Gross wage	3601	Income (subject to PAYE)
Gross wage	3602	Income (nontaxable)
Gross wage	3605	Annual payment (subject to PAYE)
Gross wage	3606	Commission (subject to PAYE)
Gross wage	3607	Overtime (subject to PAYE)
Gross wage	3608	Arbitration award (subject to PAYE)
Gross wage	3609	Arbitration award (nontaxable)
Gross wage	3611	Purchased annuity (subject to PAYE)
Gross wage	3612	Purchased annuity (nontaxable)
Gross wage	3613	Restraint of trade (subject to PAYE)
Gross wage	3615	Director's remuneration (subject to PAYE)
Gross wage	3616	Independent contractors (subject to PAYE)
Gross wage	3617	Labor brokers (subject to PAYE)
Gross wage	3619	Labor brokers (IT)
Gross wage	3620	Director's fees RSA resident
Gross wage	3621	Director's fees nonresident
Gross wage	3651	Foreign income (subject to PAYE)
Gross wage	3652	Foreign income (nontaxable)
Gross wage	3655	Foreign annual payment (subject to PAYE)
Gross wage	3656	Foreign commission (subject to PAYE)
Gross wage	3657	Foreign overtime (subject to PAYE)
Gross wage	3658	Foreign arbitration award (subject to PAYE)
Gross wage	3659	Foreign arbitration award (nontaxable)
Gross wage	3661	Foreign purchased annuity (subject to PAYE)
Gross wage	3662	Foreign purchased annuity (nontaxable)
Gross wage	3663	Foreign restraint of trade (subject to PAYE)
Gross wage	3665	Foreign director's remuneration (subject to PAYE)
Gross wage	3666	Foreign independent contractors (subject to PAYE)
Gross wage	3667	Foreign labor brokers (subject to PAYE)
Gross wage	3669	Foreign labor brokers (IT)
Gross wage	3670	Foreign director's fees RSA resident
Gross wage	3701	Travel allowance (subject to PAYE)
Gross wage	3702	Reimbursive travel allowance (IT)
Gross wage	3703	Reimbursive travel allowance (nontaxable)
Gross wage	3704	Subsistence allowance local travel (IT)
Gross wage	3705	Subsistence allowance local travel (nontaxable)
Gross wage	3706	Entertainment allowance (subject to PAYE)
Gross wage	3707	Share options exercised (subject to PAYE)
Gross wage	3708	Public office allowance (subject to PAYE)
Gross wage	3709	Uniform allowance (nontaxable)
Gross wage	3710	Tool allowance (subject to PAYE)
Gross wage	3711	Computer allowance (subject to PAYE)
Gross wage	3712	Telephone allowance (subject to PAYE)

Table S5.1. Continued

Income concept	Source code	Description
Gross wage	3713	Other allowances (subject to PAYE)
Gross wage	3714	Other allowances (nontaxable)
Gross wage	3715	Subsistence allowance foreign travel (IT)
Gross wage	3716	Subsistence allowance foreign travel (nontaxable)
Gross wage	3722	Reimbursive travel allowance
Gross wage	3751	Foreign travel allowance (subject to PAYE)
Gross wage	3752	Foreign reimbursive travel allowance (IT)
Gross wage	3753	Foreign reimbursive travel allowance (nontaxable)
Gross wage	3754	Foreign subsistence allowance local travel (IT)
Gross wage	3755	Foreign subsistence allowance local travel (nontaxable)
Gross wage	3756	Foreign entertainment allowance (subject to PAYE)
Gross wage	3757	Foreign share options exercised (subject to PAYE)
Gross wage	3758	Foreign public office allowance (subject to PAYE)
Gross wage	3759	Foreign uniform allowance (nontaxable)
Gross wage	3760	Foreign tool allowance (subject to PAYE)
Gross wage	3761	Foreign computer allowance (subject to PAYE)
Gross wage	3762	Foreign telephone allowance (subject to PAYE)
Gross wage	3763	Foreign other allowances (subject to PAYE)
Gross wage	3764	Foreign other allowances (nontaxable)
Gross wage	3765	Foreign subsistence allowance foreign travel (IT)
Gross wage	3766	Foreign subsistence allowance foreign travel (nontaxable)
Gross wage	3772	Foreign reimbursive travel allowance
Gross wage	3801	General fringe benefits (subject to PAYE)
Gross wage	3802	Use of motor acquired by employer not via operating lease (subject to PAYE)
Gross wage	3803	Use of asset (subject to PAYE)
Gross wage	3804	Meals etc. (subject to PAYE)
Gross wage	3805	Accommodation (subject to PAYE)
Gross wage	3806	Services (subject to PAYE)
Gross wage	3807	Loans or subsidy (subject to PAYE)
Gross wage	3809	Taxable bursaries or scholarships to a nondisabled person basic education (subject to PAYE)
Gross wage	3810	Medical aid contributions (subject to PAYE)
Gross wage	3813	Medical services costs (subject to PAYE)
Gross wage	3815	Nontaxable bursaries or scholarships to nondisabled person basic education
Gross wage	3816	Use of motor vehicle acquired by employers via operating lease (subject to PAYE)
Gross wage	3820	Taxable bursaries or scholarships to a nondisabled person further education (subject to PAYE)
Gross wage	3821	Nontaxable bursaries or scholarships to nondisabled person further education
Gross wage	3822	Nontaxable benefit on acquisition of immovable property
Gross wage	3829	Taxable bursaries or scholarships to a disabled person basic education (subject to PAYE)
Gross wage	3830	Nontaxable bursaries or scholarships to a disabled person basic education
Gross wage	3831	Taxable bursaries or scholarships to a disabled person further education (subject to PAYE)
Gross wage	3832	Nontaxable bursaries or scholarships to a disabled person further education
Gross wage	3851	Foreign general fringe benefits (subject to PAYE)
Gross wage	3852	Foreign use of motor acquired by employer not via operating lease (subject to PAYE)
Gross wage	3853	Foreign use of asset (subject to PAYE)
Gross wage	3854	Foreign meals etc. (subject to PAYE)
Gross wage	3855	Foreign accommodation (subject to PAYE)
Gross wage	3856	Foreign services (subject to PAYE)
Gross wage	3857	Foreign loans or subsidy (subject to PAYE)
Gross wage	3859	Foreign taxable bursaries or scholarships to a nondisabled person basic education (subject to PAYE)
Gross wage	3860	Foreign medical aid contributions (subject to PAYE)
Gross wage	3863	Foreign medical services costs (subject to PAYE)
Gross wage	3865	Foreign nontaxable bursaries or scholarships to nondisabled person basic education

Table S5.1. Continued

Income concept	Source code	Description
Gross wage	3866	Foreign use of motor vehicle acquired by employers via operating lease (subject to PAYE)
Gross wage	3870	Foreign taxable bursaries or scholarships to a nondisabled person further education (subject to PAYE)
Gross wage	3871	Foreign nontaxable bursaries or scholarships to nondisabled person further education
Gross wage	3872	Foreign nontaxable benefit on acquisition of immovable property
Gross wage	3879	Foreign taxable bursaries or scholarships to a disabled person basic education (subject to PAYE)
Gross wage	3880	Foreign nontaxable bursaries or scholarships to a disabled person basic education
Gross wage	3881	Foreign taxable bursaries or scholarships to a disabled person further education (subject to PAYE)
Gross wage	3882	Foreign nontaxable bursaries or scholarships to a disabled person further education
Gross wage	4236	Remuneration from foreign employer for services rendered in South Africa
Business income	102-4222	Business income (gains and losses)
Pension contributions	4001	Total pension fund contributions paid and deemed paid by employee
Pension contributions	4002	Arrear pension fund contributions paid by employee
Pension contributions	4003	Total provident fund contributions paid and deemed paid by employee
Pension contributions	4004	Arrear provident fund contributions paid by employee
Pension contributions	4006	Total retirement annuity fund contributions paid and deemed paid by employee
Pension contributions	4007	Arrear retirement annuity fund contributions paid by employee
Pension income	3603	Pension (subject to PAYE)
Pension income	3604	Pension (nontaxable)
Pension income	3610	Annuity from a RAF (subject to PAYE)
Pension income	3614	Other retirement lump sums (subject to PAYE)
Pension income	3653	Foreign pension (subject to PAYE)
Pension income	3654	Foreign pension (nontaxable)
Pension income	3660	Foreign annuity from a RAF (subject to PAYE)
Pension income	3664	Foreign other retirement lump sums (subject to PAYE)
Pension income	3902	Pension or RAF in respect of withdrawal (subject to PAYE)
Pension income	3903	Pension or RAF in respect of retirement (subject to PAYE)
Pension income	3904	Provident in respect of withdrawal (subject to PAYE)
Pension income	3905	Provident in respect of retirement (subject to PAYE)
Pension income	3908	Surplus apportionments and exempt policy proceeds (nontaxable)
Pension income	3909	Unclaimed benefits
Pension income	3915	Retirement or termination of employment lump sum benefits or commutation of annuities
Pension income	3920	Lump sum withdrawal benefits (subject to PAYE)
Pension income	3921	Living annuity and section 15C of the pension funds act, surplus apportionments (subject to PAYE)
Pension income	3923	Transfer of unclaimed benefits
Pension income	3924	Transfer on retirement (subject to PAYE)
Pension income	3952	Foreign pension or RAF in respect of withdrawal (subject to PAYE)
Pension income	3953	Foreign pension or RAF in respect of retirement (subject to PAYE)
Pension income	3954	Foreign provident in respect of withdrawal (subject to PAYE)
Pension income	3955	Foreign provident in respect of retirement (subject to PAYE)
Interest income	4201	Local interest excluding SARS
Interest income	4218	Foreign interest
Interest income	4237	SARS interest received
Interest income	4241	Tax-free investment account interest
Rental income	2532	Business income component: property letting income, residential accommodation

Table S5.1. Continued

Income concept	Source code	Description
Rental income	2533	Business income component: property letting loss, residential accomodation
Rental income	4210	Local rental from letting of fixed property
Rental income	4288	Foreign rental gain
Dividends	3717	Broad-based employee share plan (subject to PAYE)
Dividends	3718	Vesting of equity instruments or return of capital iro restricted instruments (PAYE)
Dividends	3719	Dividends not exempt ito para (dd) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3720	Dividends not exempt ito para (ii) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3721	Dividends not exempt ito para (jj) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3723	Dividends not exempt ito para (kk) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3767	Foreign broad-based employee share plan (subject to PAYE)
Dividends	3768	Foreign vesting of equity instruments or return of capital iro restricted instruments (PAYE)
Dividends	3769	Foreign dividends not exempt ito para (dd) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3770	Foreign dividends not exempt ito para (ii) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3771	Foreign dividends not exempt ito para (jj) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	3773	Foreign dividends not exempt ito para (kk) of the proviso to s10(1)(k)(i) (PAYE)
Dividends	4216	Foreign dividends
Dividends	4230	Controlled foreign company share of profit
Dividends	4238	Taxable local dividends i.e., REIT
Dividends	4242	Tax-free investment account dividends
Dividends	4257	Tax-free investments other
Dividends	4292	Dividends deemed to be income in terms of s8E and s8EA
Not used	3618	Misclassification or undefined
Not used	3695	Misclassification or undefined
Not used	3696	Gross nontaxable income
Not used	3697	Gross retirement funding employment income
Not used	3698	Gross nonretirement funding employment income
Not used	3699	Gross employment income taxable
Not used	3808	Employee's debt (subject to PAYE)
Not used	3817	Benefit employer pension fund contributions (subject to PAYE)
Not used	3818	Misclassification or undefined
Not used	3819	Misclassification or undefined
Not used	3825	Benefit employer provident fund contributions (subject to PAYE)
Not used	3826	Misclassification or undefined
Not used	3827	Misclassification or undefined
Not used	3828	Benefit retirement annuity fund contributions (subject to PAYE)
Not used	3858	Foreign employee's debt (subject to PAYE)
Not used	3867	Foreign benefit employer pension fund contributions (subject to PAYE)
Not used	3875	Foreign benefit employer provident fund contributions (subject to PAYE)
Not used	3876	Misclassification or undefined
Not used	3877	Misclassification or undefined
Not used	3878	Foreign benefit retirement annuity fund contributions (subject to PAYE)
Not used	3901	Gratuities and severance benefits (subject to PAYE)
Not used	3906	Special remuneration (subject to PAYE)
Not used	3907	Other lump sums (subject to PAYE)
Not used	3922	Compensation iro of death during employment (nontaxable)
Not used	3951	Foreign gratuities and severance benefits (subject to PAYE)
Not used	3956	Foreign special remuneration (subject to PAYE)
Not used	3957	Foreign other lump sums (subject to PAYE)
Not used	4005	Medical scheme fees paid and deemed paid by employee
Not used	4008	Misclassification or undefined
Not used	4009	Misclassification or undefined
Not used	4011	Donations allowable in terms of section 18a to an approved public benefit organization
Not used	4014	Misclassification or undefined

Table S5.1. Continued

Income concept	Source code	Description
Not used	4015	Travel expenses (no allowance, commission income)
Not used	4016	Other deductions
Not used	4017	Expenses against local taxable subsistence allowance
Not used	4018	Premiums paid for loss of income policies
Not used	4019	Expenses against foreign taxable subsistence allowance
Not used	4024	Medical services costs deemed to be paid by the employee
Not used	4025	Medical contribution paid by employee allowed as a deduction for employees tax purposes
Not used	4026	Arrear pension fund contributions nonstatutory forces
Not used	4027	Depreciation
Not used	4028	Home office expenses
Not used	4029	Retirement fund contributions total
Not used	4030	Donations deducted from the employee remuneration and paid by employer to organization
Not used	4031	Section 8C losses
Not used	4032	Remuneration (s8A/8C gains) taxed on IRP5 but comply with exemption in terms of s10(i)(o)(ii)
Not used	4033	Remuneration taxed on IRP5 but comply with exemption in terms of s10(1)(o)(i)
Not used	4041	Remuneration taxed on IRP5 but comply with exemption in terms of s10(1)(o)(ii) (excluding sz8A/8C gains)
Not used	4042	Amounts refunded into section 11(nA) and 11(nB)
Not used	4043	Allowable accountancy or administration expenses
Not used	4044	Legal expenses
Not used	4045	Bad debt
Not used	4046	Use of motor vehicle
Not used	4047	Holders of public office deduction
Not used	4048	Misclassification or undefined
Not used	4050	Misclassification or undefined
Not used	4051	Misclassification or undefined
Not used	4101	SITE
Not used	4102	PAYE
Not used	4103	Misclassification or undefined
Not used	4104	Misclassification or undefined
Not used	4110	Misclassification or undefined
Not used	4111	Other foreign tax credits individuals
Not used	4112	Foreign tax credits on such foreign dividends
Not used	4113	Foreign tax credits on foreign interest
Not used	4114	Foreign tax credits in respect of foreign capital gain or loss
Not used	4115	Tax on retirement lump sum and severance benefits
Not used	4116	Medical scheme fees tax credit
Not used	4117	Foreign tax credits in respect of S6quin
Not used	4118	Sum of ETI amounts
Not used	4120	Additional medical expenses tax credit
Not used	4121	Foreign tax credits on foreign rental income
Not used	4141	UIF contribution
Not used	4142	SDL contribution
Not used	4149	Total tax
Not used	4150	Metadata
Not used	4211	Local rental loss from letting of fixed property
Not used	4212	Royalties
Not used	4213	Loss royalties
Not used	4214	Other receipts and accruals
Not used	4215	Misclassification or undefined
Not used	4219	Tax-free investment account contribution

Table S5.1. Continued

Income concept	Source code	Description
Not used	4220	Misclassification or undefined
Not used	4221	Misclassification or undefined
Not used	4223	Loss foreign business or trading
Not used	4228	Other foreign income
Not used	4229	Loss other foreign income
Not used	4235	Income reflected on a South African IRP5 or IT3a that was subject to tax outside SA
Not used	4239	Tax-free investment account net return on investment profit
Not used	4240	Tax-free investment account net return on investment loss
Not used	4243	Tax-free investment account capital gain
Not used	4244	Tax-free investment account capital loss
Not used	4245	Misclassification or undefined
Not used	4246	Tax-free investment account transfer in
Not used	4247	Tax-free investment account transfer out
Not used	4248	Tax-free investment account withdrawal
Not used	4249	Foreign tax credits refunded or discharged in terms of S6quat(1C)
Not used	4250	Local capital gain
Not used	4251	Loss local capital
Not used	4252	Foreign capital gain
Not used	4253	Loss foreign capital
Not used	4278	Foreign royalties
Not used	4279	Loss foreign royalties
Not used	4280	Sporting
Not used	4281	Loss sporting
Not used	4282	Collectables
Not used	4283	Loss collectables
Not used	4284	Animal showing
Not used	4285	Loss animal showing
Not used	4286	Gambling
Not used	4287	Loss gambling
Not used	4289	Foreign rental loss
Not used	4291	Foreign income in terms of s6quat(1C)
Not used	4301	Misclassification or undefined
Not used	4302	Misclassification or undefined
Not used	4472	Employer pension fund contributions paid for the benefit of employee
Not used	4473	Employer provident fund contributions paid for the benefit of employee
Not used	4474	Employer medical scheme fees paid for the benefit of employee
Not used	4475	Employer retirement annuity fund contributions paid for the benefit of employee
Not used	4476	Misclassification or undefined
Not used	4485	Medical services costs deemed to be paid by the employee for other relatives
Not used	4486	Capped amount determined by employer in terms of section 18(2)(c)(i)
Not used	4487	No-value benefits in respect of medical services provided or incurred by the employer
Not used	4493	Employer's medical scheme fees paid for the benefit of a retired/former of the Seventh Schedule
Not used	4497	Total deductions and contributions
Not used	4582	The portion of the allowances and benefits which represents remuneration
Not used	4583	The portion of other allowances and benefits which represents remuneration

Source: Authors' elaboration.

Note: The table reports the source codes available in the tax microdata and the income categories attributed to each source code. PAYE: Pay As You Earn; RAF: Retirement Annuity Fund; SITE: Standard Income Tax on Employees; ETI: Employment Tax Incentive; UIF: Unemployment Insurance Fund; SDL: Skills Development Levy; ito: in terms of; iro: in respect of.