Measuring wealth inequality in South Africa

An agenda

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Abstract

Understanding wealth inequality has unique significance in South Africa. The co-existence of extreme poverty and extreme wealth is starkly visible. Apartheid-era inequality has persisted despite more than 20 years of democracy. Much of the research on inequality has focussed on inequality of income and of opportunities. There is a large gap in understanding wealth inequality - levels of wealth inequality, how wealth is held, and the mechanism through which wealth inequality is produced and reproduced. This gap requires a specific research agenda which this paper suggests. The first section will explore why studying wealth inequality is of fundamental importance. The second section will review international data and methods used to research wealth inequality in other countries, before laying out suggested approach to doing such studies in South Africa.

Keywords: administrative data, scoping, wealth inequality

JEL Codes: C80, D31, D63, O55

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Introduction

Understanding wealth inequality has unique significance in South Africa where the co-existence of extreme poverty and extreme wealth is starkly visible. Orthofer (2016) estimates that the top 10 of the population own approximately 95% of all wealth while 80% of the population own no wealth at all. Apartheid-era inequality has persisted despite more than 20 years of democracy. Much of the research on inequality has focussed on inequality of income and of opportunities. There is a large gap in understanding wealth inequality - levels of wealth inequality, how wealth is held, and the mechanism through which wealth inequality is produced and reproduced. This is a gap that requires a specific research agenda. The main aim of this paper is to make a contribution in this regard. The first section will explore why measuring wealth inequality is important to understand overall inequality. The second section will review international data and methods used to research wealth inequality in other countries, before laying out suggested approaches to doing such studies in South Africa.

It is important to note that the concept of asset-based inequality can be broadened. There is stream of inequality literature in economics that that describes capabilities as assets (Sen 1999). Both are extremely important, but for the purposes of this paper, inequality will be defined as material, or money-metric, inequality. At least there is an emerging body of work on capabilities as assets. There is very little work on wealth, making this stock-take an urgent one.

Why is studying wealth inequality important?

Internationally, inequality has retaken centre stage largely due to the focus in the Global North of the causes and consequences of the Great Financial Recession. Among the narratives were that the influence of the rich allowed financial excess to spiral (Stiglitz 2012), leading to the crash. The poor were not only affected by the crash but also government response to the crash, generally cutting spending on social policies to manage the fiscus and pay for quantitative easing programmes, exacerbating hardships of the non-rich. In industrialized countries in the 1950s and 60s every socio-economic group was advancing, and those with lower incomes were rising most rapidly. However, inequality trends have started to reverse. Between 1980 and 2013 in the US, the richest 1% have seen their average real income increase by 142% and their share of national income double, from 10% to 20% (Piketty and Saez 2003). The top 0.1% have fared even better. Over the same 33 years, median household income grew by only 9% and contracted by 0.9% between 1989 and 2013 (Stiglitz 2015). In 2008 – 2009, when the US administration had pursuing its stimulus package, 91% of the gains in income went gone to the top 1% (Piketty and Saez 2003). Similar trends have been seen in the UK, France, and Germany. As a result, inequality has been front and centre of both popular and academic discourse. This is demonstrated by the prioritisation of distributional issues in traditionally conservative organisations such as the IMF, which now highlights the risk that inequality poses to growth (Ostry, Berg, and Tsangarides 2014; Cordoba and Verdier 2007). Inequality in the Global South, however, has a different and more continuous trajectory, with current manifestations of inequality rooted in pre-colonial and colonial political and economic systems. There is a large literature around the historical roots of current economic performance and inequality (for example, see Aboagye and Bolt 2018; Alfani and Tadei

2017; Alvaredo and Atkinson 2010; Banerjee and Iyer 2005; De Haas and Frankema 2016; Rehbein and Souza 2014)

In contemporary economics, the theory of income inequality is organised around the labour market, where, as Stiglitz characterises, income inequality is the result of differing 'returns' to employing a worker, i.e. the productivity of a worker (Stiglitz 2015) . This in turns reflects the capability of a worker, and so the labour market fairly distributes income to workers according to the contribution they make. The market failure in this case is that not everyone has access to same schooling, health care, and other components that allow fair competition in the labour market, and hence income inequality becomes a reflection of the distribution of these services. Indeed, Corak (2013) demonstrates that income inequality and inequality of opportunity are indelibly linked, severely hampering socio-economic (upward) mobility.

However, there are three shortcomings of focusing solely on income inequality. The first is that Mincerian analyses that try to isolate the individuals' determinants of earnings (i.e. human capital) cannot explain the high levels income inequality, let alone overall inequality. Similar individuals receive quite different earnings, while seemingly irrelevant personal characteristics, including beauty and height, are often robust predictors of earnings (Bowles and Gintis 2001). Further, contrary to anti-discrimination law, earnings are often driven by social determinants, such as race and gender (see Elson 1999; Hinks 2002; Kim 2009; Ntuli 2007). This implies that there is some other mechanism through which preferential access to the labour market is attained, such as wealth, but also social and cultural capital. Sociological research indicates that these elements play a key role in maintaining wealth concentration among elites (see Khan 2010; Rivera 2016; Savage 2015). If the difference in wages is also the cause of wealth disparities, then variance in individual traits or meritorious ability fails to explain the massive disparities in private wealth. The second shortcoming is that the prevalence in non-labour income at the top end of the income distribution which can't be explained without analysing wealth. Non-earned income is almost exclusively at the top end of the income distribution (Lydall and Tipping 1961), meaning the polarisation in income inequality is driven by ownership of assets, rather than labour market participation. Understanding wealth inequality is essential to understand income distribution. The third is that inequality of opportunity, which drives income inequality, is driven both by income inequality (Lynch et al. 2004; Macinko et al. 2003; Subramanian and Kawachi 2004), and wealth inequality (Ferreira 2001; Nowatzki 2012; Zimmer 2008). This implies a significant role for wealth in explaining income inequality.

There are important reasons to study wealth inequality in and of itself. Wealth is a stock variable, meaning that it is a quantity of money, stored in different ways, that is accumulated over time by inflows and/or depleted by outflows. In times of economic precarity, wealth allows consumption-soothing and self-insurance. "As households are exposed to increasing levels of risk, success in building personal assets is becoming increasingly important"(Davies 2009). Hence understanding wealth inequality is important to from a household's economic welfare perspective .

Wealth inequality also impacts the economy. Higher wealth concentration has resulted in investment in financial products, meaning capital is tied up in financial products rather than the real productive economy (Stiglitz 2015), depressing economic growth and hampering the creation of decent jobs. Bagchi and Svejnar (2015) use the Forbes listing of billionaires to uncover a negative relationship between wealth inequality and growth, especially where wealth is acquired through political connections. Investigating wealth inequality in terms of its impact on the

economy is crucial. Wealth inequality also has an impact on productivity, public good provision and occupational choice (Banerjee and Newman 1993; Bardhan, Bowles, and Gintis 2000; Bardhan, Ghatak, and Karaivanov 2007).

Wealth inequality also affects society. "Wealth …brings empowerment…to enforce your rights, intimidate others, influence politics. Limits to power of the wealthy are less severe than those on the power of the poor or middle class" (Davies 2009: 128), demonstrating how increasing wealth concentration undermines the democratic representation of all parts of societies in favour of narrow interests. Indeed, among the narratives of the Great Financial Recession were that the influence of the rich allowed financial excess to spiral (Stiglitz 2012), leading not only to the crash but also government responses to the crash, generally cutting spending on social policies to manage the fiscus and pay for quantitative easing programmes which exacerbated hardships of the non-rich. High wealth concentration describes a the presence of a group who have disproportionate control over, or access to, resources - otherwise defined as economic elites (Khan 2010). Elites "secure political and administrative connections in order to maximize their profits, … develop exclusionary practices in higher education in order to preserve their privileged access to top educational credentials, …reproduce their privileges through elite lifestyles or, among other possible examples, …convert their economic capital into other forms of capital" (Jodhka and Naudet 2017). Hence understanding (and addressing) wealth inequality is crucial to maintaining an inclusive and stable society.

Wealth inequality can be representative of social injustice. The definition of wealth is a stock of money, which topped up by inflows after costs have been deducted. Inflows include savings, investment income and other receipts. Hence the ability to build wealth depends on the effectiveness of creating savings, investment income and capital receipts. Those with a higher starting level of wealth are able to build wealth quicker than those with lower or no wealth to begin with, leading to increasing wealth inequality.

In South Africa and elsewhere, the starting levels of wealth have been configured by dispossession and discrimination (Conley 1999; Terreblanche 2002). This, together with gendered and racial labour market discrimination has supported the wealth accumulation for certain members of society. Piketty (2014) demonstrates that in periods when the return to wealth (what he defines as r) exceeds the overall growth rate, the gap between those that earn predominantly through wealth and those that earn through participation in the labour market will widen, and will continue to widen substantially. This role of inherited wealth is demonstrated in the UK (Atkinson 2018), where transmitted wealth (expressed as a percentage of national income) rose from under 5 per cent in the 1970s to around 8 per cent in 2006, equivalent to the proportion of pensions and annuities in total gross household income. Various studies of the USA show that intergenerational transfers are significant, if not more important in wealth accumulation than life-cycle savings (Kotlikoff and Summers 1981; Gale and Scholz 1994). Several studies on the Scandinavian experience also show the importance of hereditary wealth (Adermon, Lindahl, and Waldenström 2018; Black et al. 2015; Boserup, Kopczuk, and Kreiner 2016).

Given the historical role of dispossession and discrimination in capital and labour markets, and intergenerational transfer of wealth (through inheritance), wealth inequality also "captures the historical legacy of low wages, personal and organizational discrimination, and institutionalized racism" (Oliver and Shapiro 2013: 5). In the US financial inheritances may account for between 10% and 20% of the average difference in black-white household wealth (Menchik and Jianakoplos 1997). While most of the focus lies in the role of inheritance in reproducing wealth at the top end,

Oliver and Shapiro (2013) argue that "The effect of this inherited poverty and economic scarcity [for African Americans] for the accumulation of wealth has been to "sediment" inequality into the social structure". Applied to South Africa, wealth inequality is a strong indicator of the perpetuation of Apartheid-era injustice (Terreblanche 2018).

Another important aspect of wealth inequality is how it links to household and gender inequality. Elson (1999) has argued that wealth inequality strongly influences various aspects of the household. The majority of households maintain themselves with a mixture of incomes earned in the public and private sectors, subsistence production, cash transfers, public services, and the unpaid care provided by family members, which mostly fall on women. The minority of wealthier households, which constitute a minority, gain a large part of their income from asset ownership and, relative to the majority of households, undertake very little unpaid care for family members, instead employing domestic workers. The role of wealth as a buffer in times of economic precarity mean in households with little to no wealth, women incur the most hardship, especially, but not exclusively, in developing countries. Firstly, they are more likely to lose their jobs and have worse access to social safety nets. Secondly, given that access to benefits is largely based on a "male breadwinner" model, women are excluded from access to entitlements, as they participate in the labour market on a different basis, or in the sphere of social reproduction. Thirdly," in periods of economic crisis, women will be more likely to act as ``provisioners of last resort." Even in periods of economic prosperity, commodification bias is likely to confine women, especially poor women, to low-paid and insecure forms of paid work" (Elson 1999). Elson argues that policy decisions to cut social spending hit the poorest women the hardest, while wealthy households who have little interaction with the social provision, motivate for policy decisions that protect and grow their wealth. The role of wealth inequality on gender inequality therefore is crucial to explore.

Studying wealth inequality is important for policymaking. Firstly, equity is one of the core principles in tax policy. However, historically, "structure of taxation…discriminated against income and in favour of wealth, wealth acquisitions, and capital gains. This benefited those people who could switch back and forth between income, wealth and capital gains to reduce their tax liabilities and penalised others, largely wage earners, who could not."(Harbury and Hitchins 1979). Hence evaluating tax policy in the presence of better understanding of wealth is important. Secondly, given the high levels of poverty a policy response to wealth inequality has been to propose a 'wealth tax'. The viability of such a tax was investigated by the Davis Tax Committee (Woolard 2018), which concluded that the quality of existing data on wealth holding needed to be improved to understand several issues - is a wealth tax the most appropriate policy in light of how wealth is held? If so, what form would it take? What administrative systems and data would be required to implement a tax? What would be the economic impact of such a policy? Therefore to develop an effective policy tool, requires an evidence pool on the wealth distribution, its components, and its evolution.

There has been some research done on the wealth distribution in South Africa (reviewed in a later section). However, given the research community's focus on other areas of the economy, these studies need to supplemented with a larger research agenda.

To do this, the following is required:

- Develop data sources to use the various methods of estimation of wealth distribution.

- Estimate wealth distributions using different methods, to triangulate a better understanding of wealth inequality. These estimates should as far as possible include information on its components of wealth
- Analyse how wealth concentration is influenced by intergenerational transfers and other factors.
- Study how wealth inequality affects other inequalities and economic outcomes.
- Use the preceding analyses to develop realistic and effective policy tools to address high levels of inequality.

Without a complementary research programme on wealth inequality, inequality studies cannot form a full understanding of inequality in South Africa.

Wealth distribution - How has it been created globally?

This section will summarise the approaches taken to studying wealth inequality globally and will be structured as follows: (1) definition of wealth; (2) wealth distribution data and methods (top shares, non-top shares, combined); and (3) Analysis of the distribution.

Definition of wealth

Wealth is broadly defined as non-financial and financial assets over which ownership rights can be enforced and that provide economic benefits to their owners. This is in line per the international standards set in the System of National Accounts (United Nations 2009). These include tangible assets (real estate and land, and consumer durables), fixed claim assets (cash, deposits, etc.), corporate equities, equity in unincorporated businesses (farms, small businesses), and other various miscellaneous assets. Further, some research also consider pension wealth and life insurance policies. Valuations of these need to be considered carefully, as they involve unrealised value, and what the most appropriate valuation method (e.g. realisation value or going concern value) may vary according to circumstance.

Researchers can consider an expanded definition of wealth, particularly in the Global South, where rural livelihoods are governed by non-market institutions. For example, cattle is a store of wealth in sub-Saharan Africa (Jarvis 1980; Stroebel et al. 2008; Turner 2004), while in parts of India, trees are grown separately as a form of insurance to guard against the risk of market participation in cash crop agriculture (Ravindran and Thomas 2000).

There are issues to consider when bringing in a wider definition of wealth, relating to availability of data, valuation and conceptual relevance. (1) Availability of data: While some household surveys do include cattle as part of household assets (e.g. National Income Dynamics Survey in South Africa), other forms of household assets that are specific to a localised culture are unlikely to be captured (e.g. the NSS All-India Debt and Investment Survey Data include livestock, but not trees) (2) Valuation: These alternative stores of wealth play a conceptually broad socio-economic role, such as social currency, source of subsistence, provider of power, security (Ravindran and Thomas 2000; Turner 2004). A market valuation of these items would inaccurately reduce them to a single-role commodity in market exchange. i.e. a value de-linked to the value placed on them by the society. (3) Relevance and comparability: Although inclusion of these items provide a more

complete picture, it is unlikely that ownership of these assets are driving the concentration of wealth. Indeed including these items would also make inter-country comparisons more challenging.

Creating a wealth distribution

Broadly speaking, data sources have influenced how the wealth distribution is estimated. Administrative data is used to estimate top shares, and much of the recent literature has been **much less reflective of creating a whole distribution.** Household surveys have been used to estimate the non-top shares, though are also used to create the distributions where data from administrative systems is not available, or where wealth and incomes of the top shares are unlikely to be reflected in the tax systems. Some studies do combine two data sources to create the whole distribution. The section below then will cover all the approaches.

Top Shares – Estate duty Method

Estate duty is a tax paid on the estate (money and property) of a deceased person. The term 'estate duty' is interchangeably used with the term 'inheritance tax', though there is an important difference – estate duty is determined and applied on the assets of the deceased, whereas inheritance tax is assessed on beneficiaries' share of the assets. The method takes the value of assets recorded in the estate duty records (the dead), and multiplies it by (the inverse of) the mortality rate, deriving an estimate of what the value of assets of those living would be. This is then compared to the total personal sector wealth (from an external source, such as the national accounts) and population figures to assign these observations to a position in the upper end of the distribution. Thus the key bits of information for this method are: (1) Data for Estate values (2) mortality rates.

Data from Estate Values

Data from revenue authorities have historically been summaries of estate values by assets type by age group. The estate duty method was first used in 1908 (Mallet 1908), as estate duty was the first and for a long time the only source of tax revenue and administrative data collected that revealed a person's total assets and liabilities. By multiplying this by a general multiplier, Mallet obtained a very high level estimate. The Inland Revenue (the British tax authority) provided information on estates based on a sample drawn from its records. This information was classified by the size of estates and age, gender and (usually) marital status. The mortality rate by age and gender was then applied to each cell providing a slightly more refined estimate. This method has developed along with the complexity of data available, though it is useful to understand the principle of this method from these studies to develop a series from earlier years with less sophisticated data. These early methods are used in studies that build a longitudinal wealth distribution series use mixed data types. Piketty, Postel-Vinay, and Rosenthal (2006) use the estate duty method to estimate wealth concentration in Paris and France from 1807 to 1994, using a series constructed from samples of archived individual estate tax returns for the years 1807 to 1902, and tabulations compiled by the French tax administration in the years after that.

The more recent studies adapt these earlier methods to take advantage of the release of micro-data from tax administration records. Kopczuk and Saez (2004) use the estate duty method to estimate the top wealth shares in the US from 1916, also using mixed formats of estate tax information, but

importantly for us, including microdata for some years. This, along with detailed exposition of methods, makes this study initially more relevant to the discussion here, and so the following paragraph will focus on this paper.

Kopczuk and Saez only analyse the top 2% of the wealth distribution as, due to large exemption levels, only a small fraction of estates were required to file estate tax returns. Wealth is defined as in the earlier section. This also includes the cash surrender value of pensions (so future pension wealth in the form of defined benefits plans, and annuitized wealth with no cash surrender value is excluded), the cash value of life insurance payouts, and vested defined contributions accounts. From this total, liabilities, such as mortgages and loans, are subtracted.

The estate duty data available came in different forms:

Data	Years
All estate tax returns filed for deaths	1916-45, 1962
Samples of returns	1965, 1969, 1972, 1976, 1982-2000
Published tabulations	1946-1950, 1953, 1954, 1956, 1958, and 1960

Where there are samples of returns, coverage of the largest estates (in the top 0.01%) is 100%. Any estates below the filing thresholds were ignored, given that not all estates below the threshold file their estates, and so there is no way to tell what proportion of estates are filed. The Inland Revenue Service take the samples during the processing of returns, which are stratified by three variables: year of death, age and size of gross estate.

Where there are only tabulations, estate information provided are cross-tabulations by size of gross estate and age groups. For each age group and gender cell, the estate multiplier is the product of the average mortality for the cell and the social differential mortality factor. The authors multiply the number of decedents and the amount of gross estate reported by the estate multiplier, obtaining the distribution by gross estate brackets for the living population. There is a separate adjustment for the multiplier in the top bracket, given the small number of observations. The Pareto distribution is then applied to estimate the thresholds and amounts corresponding to each fractile (e.g. top 2%, top 1%,..., top 0.01% thresholds).

Mortality Rates

Using the most appropriate mortality rates for this method are crucial, as estimates are sensitive the selection of the mortality rates. In earlier studies, a general multiplier was used on estates below a certain amount, and an occupational and/or social class mortality rate on estates above that amount. The suitability of these multipliers was questioned by Lampman (1962), who used mortality rates from life assurance companies. A sensitivity analysis of the two types of rates showed that there was small effect on the cumulative shares of total wealth held by a given percentage of the population, but the effect on the absolute numbers in each range was significant (Atkinson and Harrison 1974). Even when looking at shares, where there is a difference of approximately 1 percent of total wealth in the top 1 percent, this could be vital in understanding the breakdown of that share. Lyons (1975) however shows more clearly the significant impact of multipliers on estimation of the top wealth categories – a doubling of the multiplier for the top wealth category increases the share of the top 20 per cent of population in total wealth from 75 per cent to 76.9 per cent. More generally, the two main concerns with multipliers are: (a) mortality

multipliers tend to understate the number of wealthy persons and their total wealth, producing errors in the size of the wealth distribution; and (b) the deceased may not be a representative sample of the population, leading to bias in the estimate (Lyons 1975).

This method was refined Atkinson and Harrison (1978) to take into account the various concerns including the mortality multiplier., and multipliers adjusted. For those included in the data (i.e. above the tax threshold), social class multipliers were used. For those below, social class multipliers were adjusted for discrepancies between occupational statements in the census and the death register and smoothed between estate size classes.

Kopczuk and Saez use baseline mortality rates (from the Human Mortality Database), which decompose death rates by year, age and gender. These are then adjusted for using socioeconomic mortality differentials. Following extensive consideration of the mortality rates literature, they use a mortality differential for white college graduates (by gender), relative to the average population and are assumed constant over the whole period. Another source of mortality rates are the insurance tables. However, actuarial mortality rates are constructed differently, and due to changes in the customer base of insurance companies with the rapid expansion of financial services, comparing the differential mortality rates and tracking its progression over time make it difficult to use. For lack of other rates that are linked to wealth and age, this measure is seen as the best.

The assumption that the mortality differential does not change over time may lead to systematic bias in the mortality rates. The assumption that within the year, gender, age cell, mortality rates are constant, may also lead to bias. If higher mortality rates lead to lower wealth (through higher health expenditure, tax planning, etc), then the multiplier and wealth will be positively correlated, biasing wealth shares downwards. Nevertheless, wealth estimates' sensitivity to mortality rates, as described above, means that this is an area that requires constant refinement.

<u>Missing wealth</u>

Estimates are also sensitive to missing wealth. Missing data comes from three areas: (1) Under reporting; (2) Tax evasion and avoidance (illegal and legal ways of minimising tax); (3) under valuation of assets. Using alternative sources of data can help deal with under-reporting. Atkinson and Harrison (1978) use national balance sheet data, with more reliable totals for the holding of certain asset, to ascertain the difference in estimates for asset categories they deemed important. After performing sensitivity analyses, this information was then used as follows: a certain proportion of the relevant asset category was allocated to the excluded population (below the threshold), missing wealth was allocated proportionately to wealth holdings of included population (above the threshold), land and building assigned to the excluded population For example, the National Accounts record national household wealth by assets. Later studies do something similar. The estimate from the estate duty method can be 'grossed up' to match the National Accounts totals, with the missing data assigned to different parts of the distribution using various statistical methods.

Tax evasion and avoidance however are harder to track, given the transnational nature and expertise in moving wealth to offshore locations or keeping then other types of tax entities. This would certainly lead to bias in the estimates. However, building a wealth distribution without accounting for these is still useful as the bias almost certainly understates the concentration of wealth at the top end, so would not change the structure of the wealth distribution. It would also provide practical information about a tax base that is accessible. Kopczuk and Saez (2004) evaluate studies on tax evasion to determine this does not provide a major risk to their study.

Valuation concerns are dealt with differently by various studies. Atkinson used different valuations methods (realisation value or going concern value) according to asset type, as well as applying discount factors for discretionary trusts and occupational pensions. Kopczuk and Saez carefully consider how to treat life insurance policies and pension. Life insurance, of particular importance at the top end of the distribution, can be term or life policies, though there is no information is in estate duty data on which of these they are. They assume that the life insurance payout is split equally between term- and whole-life policies. Valuation can occur either on a cash surrender value (i.e. before maturity of the policy) or the full payout, though here they find the results are robust according to either valuation method. Pension information is provided according to the cash surrender value, with realisation value potentially only impactful for deaths under the 'pension age'.

Top Shares – Income Capitalisation Method

A simple description of the method is that it applies a yield multiplier to the distribution of investment income to estimate a wealth distribution. The investment capitalisation method also has a long history, with early references to its methodology appearing in 1913 (by Giffen, as described in Atkinson and Harrison (1974)).

The investment income method uses the investment income from tax data, and an assumption about what the yield is, to reverse out an estimate of the value of the estimate. There are two different methods of calculating the yield multiplier, which also inform the data requirements. The first is by ascertaining the average yields on different categories of asset, and multiplying it by the proportion of income from that asset of the total income (i.e. composition of investment income). This is simple where investment income data is classified by type. However, where this is not the case, asset composition data needs to be estimated from other sources. Atkinson and Harrison (1978) take the asset compositions from estate duty method. They then combine this with yield data calculated on 28 categories of assets. Assets are grouped according to different methods used to estimate the yields, mainly to be transparent on the resulting reliability. For example, yield on cash deposit accounts is from commercial banks data, and so is more reliable than yields on unquoted ordinary shares, which used quoted shares as a proxy. Categories of assets excluded are those that generate non-taxable income (e.g. tax-exempt savings products), capital gains (as that income does not correspond to a continued wealth holding), or rent from owner-occupied houses. Investment income data only covers those with assessable income beyond a threshold, and so then only represents the uppermost ranges in the estate estimates. The data for this were tables that summarised net investment income by ranges in 'surtax' returns, meaning only income above a very high income threshold is included. However, the 28 categories of assets enables more detailed yield multipliers to be used. The wealth estimates using this investment income method are highly sensitive to the yield multipliers, namely the choice of yields, and the estimates of the asset composition.

In more recent work, Saez and Zucman (2014) use a different method of capitalisation. They calculate a capitalisation factor that is a ratio of the equivalent category's aggregate Flow of Funds (or national accounts) wealth to the tax return income. In doing so, it reduces risk of estimating yields, and by design that the tax income based wealth estimates are consistent with the national accounts' wealth estimate. Pre 1962, no micro data was available, and so a series of top incomes constructed from tabulations of income and its composition by size of income is used. After 1962, the authors use a large sample of taxy payers' tax returns. The authors use nine categories of capital

income: taxable interest (generated by fixed income claims), tax-exempt interest (generated by state and local bonds), dividends and capital gains (generated by corporate equities), and business and rental income (generated by closely held businesses and non-home real estate). This is sufficient as the yield multiplier is calculated on the basis of the equivalent categories in the Flow of Funds.

The first step is to report the shares of taxable capital income by fractile relative to the total population. The second step is to capitalise the investment income over the asset classes. Within each asset class, the authors assume that everybody has the same capitalisation factor, which is a strong assumption. However, the authors study foundational wealth to show that the return is not different among asset classes as wealth increases, thus the assumption holds. Equities can result in capital gains income and dividend income. Realised gains also provide useful information about stock ownership, but the selling of stocks is lumpy (say stock gets sold all at once at retirement age, rather than gradually or cyclically). A mixed capitalisation method is used here, so that gains are ignored when ranking individuals into wealth groups, but taken into account when computing the top shares. This decision does not really affect the top shares, given that those who receive high dividends also received high capital gains, and so how these are distributed across groups doesn't change dependent on whether gains are included or excluded.

Dealing with assets that do no generate taxable income, namely pensions and owner-occupied housing, is the third step. This was excluded by Atkinson and Harrison. These categories are not that important for the top wealth shares, but nevertheless are included. The value of owner-occupied housing is inferred from property taxes paid, assuming all property owners pay the same property tax. In reality, this varies across and within States, so using tax addresses would improve this calculation. However, this is not seen as a big problem given that only 5% of the wealth of the top 0.1% is from housing. Pension fund, which in the US account for a third of total household wealth, is more evenly distributed than overall wealth, and so is distributed in line with the Survey of Consumer Finance (SCF), a household survey, and a similar process is followed for life insurance and non-taxable fixed income claims (i.e. government bonds). Trust wealth is estimated by using the trust income in the individual's tax return. Offshore wealth is accounted for by distributing a separately estimated series and distributing it similarly to trust income (i.e. highly concentrated). The robustness of these estimates is checked by reconciling them with estimates from estates.

The choice to use this method is well informed by the following studies. Alvaredo, Atkinson, and Morelli (2016) reject using the income capitalisation method, citing the insufficient breakdown of investment income categories in recent UK tax data. In Atkinson and Harrison (1974), estate data categorisations are used to estimate the components in investment income. This hybrid technique is still not deemed sufficient, with six categories of assets. Saez and Zucman (2014) specifically use the investment income capitalisation technique because there is more disaggregated data (11 categories). Interestingly, when looking at US wealth from the Flow of Funds (equivalent to the national accounts), they noted financial assets were a more significant component compared to France or UK, and hence this method seemed more appropriate.

Top Shares – Rich Lists

Rich lists are lists of large wealth-holders compiled globally by Forbes magazine (though nationally other sources exist, for example in the UK, Sunday Times also compile a rich list for the UK). They provide information to examine the top end of the wealth distribution. However, there are some concerns in using this information. First, it is compiled using interviews from a range of

people linked with the billionaires, but the numbers aren't "easy to validate" (Alvaredo, Atkinson, and Morelli 2016). Additionally, it reports the wealth to hundred millions USD. Therefore, many individuals share the same rank causing a discontinuous ranking. Nevertheless, this source of information does provide useful information to inform missing and understated wealth at the top end of the distribution.

Non-top Shares – Sample and Household Surveys

Household surveys offer a different perspective to the wealth distribution. Atkinson and Harrison (1978)used this information source has been used to furnish information about pension holdings and savings when combining with top share estimates. Historically, surveys to record wealth holdings have been less frequent, and subject to statistical concerns, making this method less useful to develop an accurate and continuous distribution. There are four main concerns: the first is the relatively low response rate, leading to underrepresentation from upper wealth groups. As the majority of wealth studies have shown, the top end of the distribution is where wealth is concentrated and nature of wealth can be studied. The second concern is that of incomplete information, and high potential for understatement in terms of both completeness and valuation. Thirdly, incomplete coverage in survey design means that some types of assets are excluded, and so the definition of net worth is not comprehensive. (More recent surveys may be more comprehensive, though this creates continuity issues). The fourth concern is sampling error, which becomes more amplified at the top end of the distribution given the fewer numbers of the wealthy. More recent surveys have tried to rectify some of these problems. The Wealth and Asset Survey in the UK was launched in 2006, and used tax data to identify wealthy addresses. These addresses were oversampled. In the case of the ONS survey, the response rate didn't improve significantly, and incomplete responses, especially about business assets, also contributed to concern about the upper wealth ranges specifically. In the French household finance and consumption survey, the improvements have been meaningful, though "its sample size is still too small to go beyond the 99th percentile"(Garbinti, Goupille-Lebret, and Piketty 2017). Given the unsatisfactory information then about the upper tail of the wealth distribution, surveys themselves cannot be used on their own, but do play a very important role, either to reconcile other estimates, or to combine with other methods. This helps provide a more complete picture of the rest of the wealth distribution (Anthony Barnes Atkinson and Harrison 1974; Alvaredo, Atkinson, and Morelli 2016).

Combined methodologies

Combined methods use the three sources described above to piece together a wealth distribution over time, and use sophisticated techniques to provide continuity. One of the most comprehensive studies to do this is that of Garbinti, Goupille-Lebret, and Piketty (2017), who combine income tax data, inheritance registers, national accounts and wealth surveys to create a consistent, unified wealth distribution series by percentiles for France over the 1800-2014 period. They use estate-multiplier method from 1800 to 1970 period and use generalized, non-parametric Pareto interpolation techniques. They then link up this series with a new series for the 1970-2014 constructed using a mixture of income capitalization and survey-based method. The authors judged the estate multiplier method as inferior for this time period for two reasons: firstly, access to inheritance data in France has become more difficult; secondly, inheritance data and estate-multiplier methods, as rising life expectancy (so that it is increasingly rare and abnormal to observe decedent wealth at earlier ages) and intensive terminal tax planning raise more problems

in deriving estimates[2]. This study provides valuable techniques to apply: how to use wealth surveys and Pareto adjustments using billionaire rankings to supplement other methods; where fiscal sources don't exist, how to develop flexible, non-parametric generalized Pareto interpolation methods.

Methodology	Data	Years
Estate duty	Large individual-level micro-samples of estates	1800-1902
Estate duty	Detailed tabulations by age and asset category	1902-1970
Estate duty	National micro-samples of inheritance tax returns	1977, 1984, 1987, 1994, 2000, 2006 and 2010
Income capitalisation	Income tax tabulations	All years
Income capitalisation	Sample of income tax returns	1970, 1975, 1979, 1984. 1988 - 2010
Income capitalisation	All income tax returns	2010-2012

The tax micro files provide individual level information about the component assets that generate income, and, as explained in the previous section, average rates of return for each component is used to calculate the stock of the asset. Assets that do not generate taxable income, such as owner-occupied housing and life insurance, are imputed using housing and wealth surveys. The surveys are divided by age, then in each age category by financial income, and then in each age/financial income category by labour and replacement income. The proportion of individuals holding the asset in the group (extensive margin) and the share of the asset owned by the group (intensive margin) is calculated. For imputed housing, a debt ratio is calculated for the group that takes into account a mortgage/bond.

In the income tax micro files, groups are defined according to the same dimensions (age, financial and labour incomes). Within each group, the authors randomly select tax units who own the asset according to the extensive margin computed in the survey. Those tax units are assigned the proportion of total asset, adjusted for the debt ratio in the case of imputed housing. Where this information from the survey is at household level, the values would have to be allocated to the tax unit. Finally, the different components of capital income are calculated by simply multiplying each asset by the corresponding economic rate of return. Interesting to note is that interest and dividend income are defined differently across the years, for example with income from mutual funds first classified as interest before 2005, and then dividends. This led the authors to jointly capitalise taxable interest and dividends and then reclassify them into equities or bonds proportionally to the respective importance of interests and dividends in the individual income.

There are some years where micro-samples weren't available. These missing years were interpolated by using the asset categories from national accounts and applying linear trends in within-asset-class distribution.

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[2] This is not necessarily the case in every country, with each country's informational varieties needed to provide an analysis.

Analysing Wealth Inequality

Distribution of National Accounts

The Commission on the Measurement of Economic Performance and Social Progress, tasked with investigating the limits of using GDP as a measure of economic performance and social progress, suggested that economic statistics should "give more prominence to the distribution of income, consumption and wealth" (Stiglitz, Sen, and Fitoussi 2009). The distribution of national accounts provide a way of assessing how economic performance is distributed in society. National accounts are a "coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules (OECD 2013). The accounts provide aggregate figures about macroeconomic categories of production and purchases – in essence, measures of economic activity - also about the levels of an economy's productive assets and the wealth of its inhabitants at particular points of time. However, Alvaredo et al. (2017) provide a methodology that makes the definitions of income and wealth consistent with the national accounts, and so aligns the distributions of wealth and income, calculated using the techniques above, with the national income. This is a critical piece of information in understanding how either prosperity or hardship from economic growth/contraction affects society, and can be a strong tool for policy makers to pursue an inclusive economic system.

Calibrated Models of Wealth Distributions

Dynamic quantitative models of wealth inequality can help to understand the channels through which the wealth distributions are realised. Policies focus on these channels and, these models therefore provide indispensable tools to explore how policy can be designed to be effective at influencing the wealth distribution, while mitigating negative effects. The models have explored channels such as savings, intergenerational transfers, fiscal policy and taxes.

Cagetti and Nardi (2008), provide a useful survey of quantitative models of wealth inequality. Computable general equilibrium models assume wealth accumulation only happens through savings, and they analyse household decisions to save to mitigate the risk from loss of earnings. As this accumulation increases beyond a certain level, the savings rate starts to decline, taking into account lifecycle periods. The distribution of earnings is exogenous, and shocks to the household earnings then creates a distribution of wealth that is endogenous to the model. The early models vary on the type of household (e.g. if altruistic to their descendents, dynastic models are used, otherwise lifecycle models), savings behaviour (to fully or partially 'insure' their earnings; higher savings rates for richer), the earnings type (e.g. entrepreneurial), level of government support to supplement income and shocks (Quadrini and Ríos-Rull 1997). However, these models have generally not been able to reproduce the levels of wealth concentration, which Cagetti and Nardi (2008) attribute to the models not taking into account that rich people keep saving, older people keep saving, and the importance of bequests.

More recent models incorporate intergenerational transmission of wealth and redistributive fiscal policy, studying sensitivities to capital income taxes, estate taxes, and welfare subsidies (Benhabib and Bisin 2006; Benhabib, Bisin, and Zhu 2011). These models result in a Pareto distribution aligned to the empirics and demonstrate that it is mitigation of risk to capital income loss, rather than labour income loss, that drives wealth accumulation at the tail. Risk is particular to two types of capital income: ownership of principal residence, and private business equity, which together

account for 55% of household wealth. These models demonstrate that a more progressive tax on specific assets may provide a realistic tax base. In general, they are extremely informative to show what the mechanics of wealth accumulation are, and so particularly relevant for understanding which policy mechanisms can influence the distribution. For example, Benhabib, Bisin, and Zhu (2011) demonstrate that "when idiosyncratic rates of return across generations are a significant source of wealth inequality, reducing estate taxes, or … capital income taxes, can significantly increase wealth inequality in the top tail of the distribution of wealth", implying that idiosyncratic variability of rates of return must be analysed to understand the full impact of estate or capital income taxes.

Intergenerational mobility

In studying the wealth distribution, we also aim to understand how such inequality exists, and how it impacts the other outcomes in the economy. In relation to the former, a fairly simplistic, but important, answer is that "wealth inequality may be driven by differences in saving behaviour, or in the intergenerational transfers received" (Cagetti and Nardi 2008). This can be broadened to find out which is more prevalent: newly created wealth (which can include savings) or hereditary wealth. In relation to the latter, we can investigate the various outcomes for those with inherited wealth, and test if they are significantly different from those without inherited wealth.

To first investigate the phenomenon of inheritance, Piketty (2011) and Atkinson (2018) look at the relative importance of aggregate inheritance flows. They both measure total annual transfers (at death through estates, or inter-vivos gifts) using estate statistics, correcting for estates below the tax threshold ("non-filers"), under-valuation or exemption of certain classes of assets, and wealth transferred before death (gifts inter vivos). This is then expressed as a percentage of national income. Piketty finds that the annual inheritance flow was about 20%-25% of national income around 1900-1910. It then gradually fell to less than 0% in the 1920s-1930s, and to less than 5% in the 1950s. It has been rising regularly since then, with an acceleration of the trend during the past 30 years to close to 15% in 2008. Atkinson (2018) finds that transmitted wealth fell to under 5 per cent in the 1970s and has risen to around 8 per cent. This seems a simply but vital first step to understanding inheritance flows.

Household surveys that have information about sources of income and assets are one source of these studies. In the US, Wolff (2002) used the Survey of Consumer Finances (SCF) to provide various descriptive statistics to demonstrate the importance of inheritance transfers on the distribution of household wealth. The survey itself had questions on wealth transfers, inhertiances and gifts. This was used then to compute insightful descriptives such as the present value of wealth transfers received as a percentage of the current net worth of household, and track them according to different groups as well as over time.

Linking of the various tax datasets available can also help in answering the two questions raised at the start of the section. In principle, matching income tax data to gift and estate tax data could also shed light on the fraction of wealth coming from inheritances (as opposed to self-made) (Saez and Zucman 2014). Saez and Zucman suggest this is a project for the future, however the IRS seems to already have done this. Joulfaian (1994) uses data prepared by the IRS that consists of a national sample of estate tax records of decedents in 1982, along with their income tax records from 1980 to 1982, as well as income tax records from their heirs from 1980 to 1982, then 1985. This is allowed by the fact that estate tax records register the tax reference number of heirs, as well as the amount of inheritance and the nature of the relationship. The link allows Joulfaian to make some

powerful findings: the average inheritance is approximately three times that of the heir's income (child, as opposed to spouse)l and that wealth parents are more likely to have higher income children.

The Scandinavian analyses mentioned in section 2 (Adermon, Lindahl, and Waldenström 2018; Black et al. 2015; Boserup, Kopczuk, and Kreiner 2016) benefit significantly from registration information available that allow children to be linked to parents. This source of data is not widely available elsewhere. Adermon, Lindahl, and Waldenström (2018) use data on midlife wealth across three generations, and a fourth generation of children/early adults, to perform both bivariate regression models of child's wealth on ancestors' wealth, and a standard first-order autoregressive model that includes grandparents and parent's wealth. This part only looks at the intergenerational effect of wealth. However, they then vitally track the link of transfers, and different type of transfers (i.e. inheritance, gifts, etc), to study how large a share of wealth mobility can be attributed to these sort of transfers. Crucial to this study however is the availability of administrative records on taxable wealth (not just at death, but during life). Sweden also has wealth-register data for the years 1999-2006, collected for the wealth tax that was implemented during those years. This data combines property tax data on non-financial assets with third-party (banks and financial intermediaries) reported statements on financial assets and liabilities.

Boserup, Kopczuk, and Kreiner (2016) use meticulously collected data on wealth in Denmark from both the statistical agency and the tax administration to generate a baseline sample of child cohorts who are 45-50 years old in 2010 and their (biological) parents observed at the same point in the life-cycle. The authors take the average wealth of children over the three-year period 2009-2011 and measure (average) parental wealth 25 years before, corresponding to the median age of the parents when getting the children, i.e. 1984-1986. Thus, parents and children are approximately the same age when wealth is measured. They firstly provide non-parametric evidence of the relationship between child-cohort and parent-cohort wealth, in the middle of life-cycle, showing a strengthening relationship towards the top of the distribution, with a child average rank going from percentile 68 to percentile 73, when going from percentile 99 to percentile 100 in the parental wealth distribution. They also investigate the role of bequests in intergenerational wealth, but interesting to note is that they do it without direct information on bequests, but create an experiment that exploits inheritance laws whereby a spouse can retain undivided possession of an estate, and inheritance of that estate only occurs after death of both parents. They use this to create a treatment group where the parent dies in 2010, and a control group where the parent does not die in 2010, and compute the percentile ranks for each individual separately in each group, and look in each group at the mobility pre- and post- parental death. However, despite the sophistication of the dataset available in Scandinavia, the lack of similar data sources do not preclude insightful analyses on the importance of inheritance, as demonstrated from the other studies mentioned.

How has wealth been studied in South Africa?

Wealth inequality research has not been comprehensively approached, and it is the hope of this paper to motivate for such. However, there has been some research in this area, which provide important context. Furthermore, some papers not relating to wealth inequality will also be included, as they provide methodological insight.

One of the earliest studies on South African wealth inequality uses primarily the estate duty method described above (McGrath 1982). From the Survey of Household Expenditure, he notes that distribution of income from wealth is highly unequal, though underreporting remains a key concern. McGrath then uses the estate-returns method from 1974/75, with estate records drawn the Natal Supreme Court in Pietermaritzburg for every estate lodged in 1975. He notes that 75% of the estates accounts were White, Asians making up 21% with only 2.6% from the Coloured category and 1.5% from the Black African category. The Black African category is too small to be as representative. The mortality multiplier applied is specific to the age, gender and racial group of the deceased.

McGrath uses the South African Life Tables 1967 – 1971, where black/Africans were excluded as there were not part included in the vital registration system, and were also deemed to be citizens of the independent homelands (Dorrington, Moultrie, and Timaeus 2004). For the estimates at this time, this doesn't cause a problem, given that black/Africans sample was too small, and largely legally prevented from owning wealth. However, actuarial analyses show that these life tables demonstrate an underestimation of mortality rates for the white population and an irregular pattern for the coloured population (Bah 1998).

Given the sensitivity using this method to the mortality multipliers, these estimates of wealth require testing with more refined mortality multipliers. Following the estimation of wealth, information in the estate duty records allowed the wealth holdings to be decomposed by occupation as well as race, gender and age groups. Orthofer (2016) uses the National Income Dynamics Study, a household survey, and a sample of personal income tax records, to estimate a combined wealth distribution, while adjusting the distribution to take into account the totals in the national accounts. The NIDS data captures information about the households non-financial assets and mortgages, while also ascertaining these details for each household member. The personal income tax data is a sample from the self-assessed income tax records, and so captures non-labour income, and so the assets that generate the taxable incomes.

Orthofer follows the capitalisation technique from Atkinson and Harrison, rather that of Saez, in using average investment returns for each asset class. The NIDS is limited in its coverage of the top end of the distribution, and does not capture pensions sufficiently either. The tax data is limited in its coverage of the bottom end of the distribution, especially those below the filing threshold. However, using extrapolation techniques, Orthofer scales the bottom tail of the PIT, and resamples the top tail of NIDS, before comparing the two distributions. She finds that top inequality is much higher in the tax records than in the NIDS, although inequality in the overall distribution is comparable. Though it provides no information on the incomes on pension assets, though does contain data on contributions to pension or retirement annuity funds, through which the stock can be estimated. Given the limits on both sources, Orthofer combines the datasets by imputing estimates of inequality from NIDS for owner-occupied housing and other non-financial assets.

There are some concerns. Similar to those with McGrath, the estimate is highly sensitive to the capitalisation multiplier. The data provided in the sample is at a high level of aggregation, specifically, local interest, other investment, foreign interest and foreign investment. Orthofer uses averaged returns in these very broad categories. Without a decomposition of incomes by the different categories of these assets, the estimate is highly sensitive to this capitalisation multiplier and not likely to give an accurate estimate.

Mbewe and Woolard (2016) explore two waves of the NIDS survey to examine the cross-sectional distribution of wealth in South Africa. Having created a net wealth variable for each households, the NIDS survey allows for negative wealth, which is often missed in other data sources. However, there doesn't seem to be any analysis on the representivity of the top tail, given the likely bias stated above, and whether corrective actions were taken in sampling. This makes understanding the top shares challenging. However, this provides a crucial source of information for the rest of the wealth distribution.
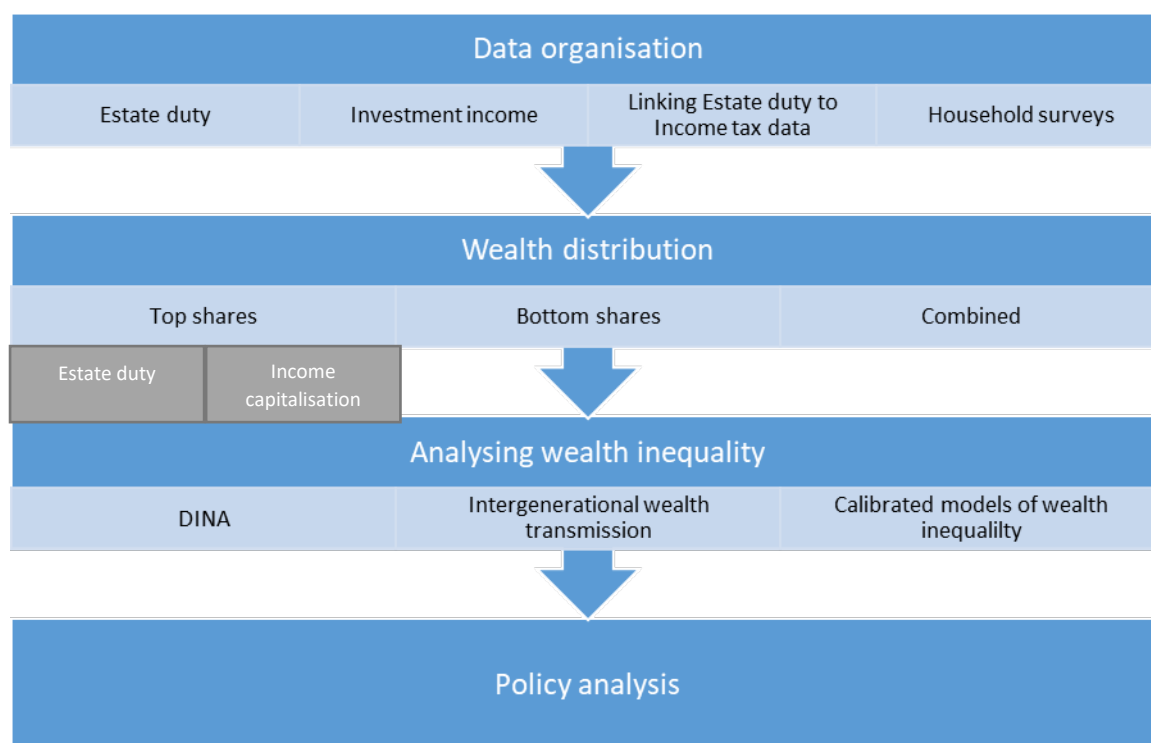
A DINA type methodology has been used using private sector survey data (van Tonder, van Aardt, and de Clercq 2018). Momentum/Unisa Household Financial Wellness Index surveys from 2011-2015, comprising of 12500 households, was used to derive an aggregate household balance sheet. This was merged with Bureau of Market Research at Unisa's Household Income and Expenditure Database to derive 2016 distributional balance sheet statistics. At present, further information is required both about the data and the method to understand what contribution this paper has made to understanding the wealth distribution. This data was used by the Word Bank to investigate wealth inequality (Sulla and Zikhali 2018).

Another distinct approach to looking at wealth comes from investigating asset distributions and constructing indices in South Africa. Wittenberg and Leibbrandt (2017) first review and then extend this literature by using household survey information on 31 categories of household assets to create an asset index. This is particularly interesting as it values access to goods such as livestock, which in a South African rural context are "stores of value or wealth"(Wittenberg and Leibbrandt 2017). This then provides a more holistic picture of wealth inequality. However, as the authors themselves note, this approach does have limited application. The quantity and quality of the assets don't contribute to the measure, and neither does its value in the market, and so its ability to reproduce wealth in the economy. This then does not on its own provide a different method to building a wealth distribution, but certainly does give us pause for thought about how to capture the non-standard elements of wealth, especially at the lower end of the distribution.

It is important to mention another study in the South African context that relates to the income distribution, rather than the wealth distribution, for its potential contribution to methodological considerations when forming the wealth distribution. In relation to the potential to create a historical series, Alvaredo and Atkinson (2010) study the top income shares in South Africa from 1903 to 2005, and so provides some insight into historical sources of data and methods used to adjust the data into a series. The authors use tabulated data published by the income tax authorities for the Cape Colony (data for 1903-1907) and the Union of South Africa (data from 1913). From 1968, South African Statistics provides information, and from 2009, the Tax Statistics. There is an informational gap between 1994 to 2001. Crucially for our purposes, dividend was exempt from income tax in the Union except, but not exempt for higher income persons under the Super Tax, meaning estimates prior to the 1940s are limited to the share of the top 0.05 per cent. PAYE was introduced in 1960 which has more or less continued to its present form. From 1955, incomes are classified according to source in groups of income, including dividends and other capital income. This could potentially allow a historical series of the wealth distribution, should this income be declassified sufficiently to allow a capitalisation method. The authors use national income estimates to control for total income, used UN Population Division estimates to correct for missing populations, and use mostly interpolation techniques from the detailed tabulations to estimate the distribution of top incomes (extrapolation is used but sparingly).

Research agenda for South Africa

Research into wealth inequality then require the following projects:

Data Organisation:

Estate duty

Estimating top shares using the estate duty methodology requires accessing estate duty information from the South African Revenue Service. Executors submit information on an estate on behalf of the deceased in the REV267 form. For the method, the value of the gross estate, age at death, date and gender are the key variables by ID number. This can be obtained from all estate tax submissions for as many years as available. This data should contain all fields in the estate duty tax form, as far as does not compromise confidentiality (see Appendix 1), as this could help inform key valuation decisions. This form however is not sufficient as the key field, Gross Value, is not itself broken down as it is ultimately informed by the liquidation and distribution (L+D) accounts of the estate. The L+D accounts are lodged at the Master of the High Court. This information could be obtained and linked to the tax administrative data. The estate duty totals should compare to what Estate Duty revenue stated in Tax Statistics Report released by SARS - this check can inform us about completeness/accuracy of records. Gender should be added in to this dataset, given the importance of this for mortality rates. Finally, to start building a historical series, archived estate duty information needs to be investigated.

Investment Income Capitalisation

The micro data sits within IRP5/IT3(a), IT3(b) and ITR12, datasets as part of the SARS income tax data set. The sources of income need to be more explicitly available than were for Orthofer (2016), where income was summarised as 'interest' and 'other investment' income. Variables

available include Annuities, Local interest income, Foreign interest income, Foreign Dividends, Dividends from REIT, Dividends Deemed To Be Income In Terms Of S8e And S8ea and Foreign income (excluding investment income and capital gains tax). As before, to start building a historical homogenous series, archived income tax information needs to be investigated.

Linking Estate duty to Income tax data

This section is focussed on creating a database to investigate hereditary wealth and its impact on labour market incomes.

It should be noted that inherited wealth is not taxed, as these are assets (so not subject to income tax), and capital gains is settled by the estate, rather than the inheritor. But transfers of property from a deceased estate to an heir or legatee entitle the estate to capital gains rollover, which could provide a linking mechanism.

A second link to develop between the datasets comes through donations tax data. Information from here can be used to link taxpayers in the IRP5 dataset. Information of incomes from trusts, donations, and gifts may offer some understanding of hereditary wealth impact on labour market participation. The likely irregularity of donations and gifts may not make it suitable for analyses, though this route can still be investigated.

Depending on the circumstances, the income of a trust can be taxed in the hands of the donor, beneficiary or trust. Where the trust income is taxed in the hands of the beneficiary, trust income information sits under various source codes (reflecting the type of income) but in a "Trust Income" section. This can also be informative to look at impacts of family wealth through trusts on an individual's interaction in the labour market .

Household survey and sample data

The primary wealth data in household survey comes from NIDS. This datasource also provides information on hereditary links. Other useful survey data to bring in comes from Stats SA: Living Conditions Survey (LCS), General Household Survey (GHS), and the Income and Expenditure Survey (IES). Other surveys from private sector financial services companies - such as the Momentum/Unisa Household Financial Wellness Index surveys – and other organisations that focus on this area, (e.g. The Association for Savings and Investment South Africa and Eighty20), can provide supplementary data to check on financial assets at the top end of the distribution.

Wealth distribution:

To accurately estimate the wealth distribution, both methods (estate duty and investment income capitalisation) are required to estimate the top shares. Each method will have to align the tax data totals to national accounts data, explore various valuation techniques for wealth holdings (e.g. property, life insurance policies, pension assets), understand and account for missing areas of wealth, and perform a check with (and potential supplementation with) rich lists. In addition, developing accurate mortality and capitalisation mutliplers would be extremely important. Combining household data for the bottom shares with estimates from the top shares would then complete the creation of the distribution. From this distribution, a compositional analysis could then inform us how wealth is held.

Analysing Wealth Inequality:

Following completion of the wealth distribution, Calibrated Models of Wealth Inequality can investigate the channels that produce outcomes that match the extreme levels of wealth inequality in South Africa. Given South Africa's unique history, this would require models to go beyond standard savings based models and incorporate hereditary modes of wealth transmission. The models should then assist develop an understanding of policy options and potential benefits and costs. Studies on Intergenerational mobility should explore the impact of inherited wealth on intergenerational wealth and wealth mobility, income and labour market participation. Labour market participation investigations can include, but not limited to, the impact of (hereditary) wealth on employability, income, job duration, labour market progression, and other relevant variables.

Policy analysis:

Each part of the work project provides important information in developing policy to address the high levels of wealth inequality. Research can focus on:
   o Which policy instruments are available to influence each component of wealth (not limited to tax policy)?
   o Through what mechanisms and channels the policy would work
   o What are the impacts, both positive and negative, of the policy interventions?
   o What are the institutional and administrative requirements needed for successful policy implementation?
   o What are the risks and how can the risks be mitigated?

Conclusion

Key to understanding and addressing the high wealth disparities in South Africa is to build up data sources on the distribution of wealth. This will help us locate how much wealth is held, how it is held, and how it is passed on to maintain the patterns of inequality. I have reviewed methods used worldwide, as well as in South Africa, to suggest that both the data and the methods are available and applicable. After building a distribution, further analysis can be done to understand the type of interventions that work. However, the measurement of wealth is only the first important step. A multidisciplinary approach will can use the quantitative information to isolate further areas of investigation, and provide a richer understanding of the how wealth inequality and produced and reproduced. This multidisciplinary approach can provide the evidence to develop policy aimed at redressing wealth inequality.

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Appendix 1.

Data that can be extracted from Estate Duty forms (Source: REV 267 Form, South African Revenue Services)

Personal details												
Anonymised Identity number	Estate number	Date of birth	Date of death	Last residential address	Postal code	Country of ordinary residence	Period from	Period to	Country of ordinary residence if not RSA	Period from	Period to	Postal code / Marriage type

Account 1 - Property of the deceased as at date of death				
A. Gross value of all property disclosed in the liquidation and distribution (L&D) account		**Value of other property (if any) not reflected in the L&D account**	**B. Value of any fiduciary, usufructuary or other like interest in property situated in the Republic.**	**C. Value of any right to an annuity**
Deductions	Proceeds of all "domestic policies" of insurance upon the life of the deceased reflected in the L&D account Any benefit which is due and payable by a fund reflected in the L&D account Value of any property which is not "property" Selling price of non-listed shares / members interest in CC Fair market value of farming property as per valuation Total Deductions	Description of property (beneficiary becomes the owner) Value of property Description and location of Immovable and movable property situated outside the Republic Value Name and location of company where Shares held by or on behalf of the deceased Value	Description of the burdened property Nature of interest, when and how the deceased acquired it Fair market value of property at date of death of deceased Name, address and date of birth of person who upon the cessation of deceased's interest becomes entitled to the right of enjoyment of the property and period for which such right is held. Less: Consideration paid for right of ownership and date of payment	Annual amount of annuity How and when deceased first acquired it. Name, address and date of birth of person to whom the annuity accrues on death of deceased and period for which such person is to enjoy the annuity. Period for which such person is to enjoy the annuity Value of interest calculated
Additions	Counter-claim for suretyship given by the deceased - if such a claim is included in the liabilities Valuation of non-listed shares / members interest in CC Fair market value of farming property as per valuation Less: 30% in terms of (b) of the definition of "fair market value" Total Additions	Name and address of debtor or other institution where debt not recoverable or right of action not enforceable in courts of RSA Value Gratuities or benefit society awards - name of payee and payer Value Survivor's share thereof if the marriage was in community of property		
Total value of A.				
Total Property of the deceased (A+B+C)				

Account 2 - Property deemed to be property of the deceased as at the date of death				
A. Proceeds of all 'domestic' policies of insurance upon the life of deceased	**B. Benefit due and payable from a fund:**	**C. Value of property donated in terms of Income Tax Act**	**D. Property acquired by the deceased under Matrimonial Act**	**E. Property not already been accounted for of which the deceased was immediately prior to his death competent to dispose of for his own benefit or the benefit of his estate**
Gross proceeds of policy Deductions Aggregate amount of premiums paid by the person (other than the deceased) entitled to the proceeds plus interest at 6% per annum Consideration paid by the person entitled to the proceeds plus interest at 6% per annum thereon Proceeds of policy recoverable by surviving spouse or child of deceased under a registered antenuptial or post nuptial contract Proceeds of policy taken out or acquired by a partner/co-member of CC/co-shareholder of the deceased Proceeds of policies which were not effected by or at the instance of the deceased Total value of deductions Net value of all taxable policies	Less: Contributions or consideration paid by the beneficiary together with 6% interest Net benefit due and payable by any fund	Description of property Value	Amount of claim	Description of property Value
Total A+B+C+D+E				

Account 3 - Deductions claimed in terms of section 4 of the Act			
A. Total amount of liabilities disclosed in the L&D account	**B. if married in CoP**		**Total A or B**

Deduction   Value
     Any claim to property donated by the deceased
     Total A value
	Deduction
	
	Add
		Total A value
		Funeral costs
		Half share of liabilities
		Funeral costs if deceased in CoP
			Deductions
			Total

Net value of estate (Account 1 + Account 2 - Account 3)
Less Section 4A
Dutiable amount
Duty payable
Interest on duty