Southern Africa Labour and Development Research Unit

The measurement and distribution of household wealth in South Africa using the National Income Dynamics Study (NIDS) Wave 4

by
Reza C. Daniels and Taryn Augustine

SALDRU Working Paper
Number 183

N.i.D.S.
NATIONAL INCOME DYNAMICS STUDY

NIDS Discussion Paper
2016/10

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Acknowledgements:
Funding for this research from the Department of Planning, Monitoring and Evaluation is gratefully acknowledged.

Recommended citation

Daniels, R.C., Augustine, T. (2016). The measurement and distribution of household wealth in South Africa using the National Income Dynamics Study (NIDS) Wave 4. Cape Town: SALDRU, University of Cape Town. SALDRU Working Paper Number 183/ NIDS Discussion Paper 2016/10.

ISBN: 978-1-928281-44-3

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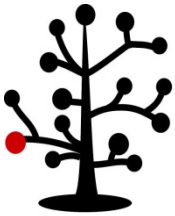

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Abstract

This paper examines the household wealth construct as measured in NIDS Wave 4 (2014-2015). Questionnaire design changes in the wealth module between NIDS Waves 2 and 4 include the addition of questions on household possessions assets and the inclusion of a variable for private property versus communal property rights. For derived household net worth, the inclusion of household possessions assets reduces estimates of household inequality in Wave 4 compared to Wave 2, and alters the portfolio composition of household assets most markedly for low income households. A unique feature of NIDS Wave 4 is that it now allows for accurate identification of South Africa's dual land tenure system. In Tribal Authority Areas (TAAs), households rarely have to finance the acquisition of a home partly because of communal property rights. This results in a very different portfolio of household liabilities than in other areas in the country, where real estate debt dominates the liability portfolio. When comparing NIDS aggregated national totals for estimates of household assets, liabilities and net worth with South African Reserve Bank (SARB) totals that use the national accounts, the NIDS Wave 4 data differs from the SARB data most significantly for financial assets, which are severely under-estimated in NIDS. This is likely a result of disproportionately high attrition among high-income households in the sample over time that cannot be compensated for sufficiently with survey weights. This suggests that it is urgent that the NIDS sample be refreshed, with an over-sampling of high-income households necessary.

1. Introduction

This paper investigates the measurement of household assets, liabilities and net worth, which together comprise the wealth module in Wave 4 of the National Income Dynamics Study (NIDS) 2014-2015 (SALDRU, 2016). The wealth module is a rotating module of NIDS that was first administered in Wave 2 and is designed to enter the survey every second wave. Wave 4 is the second time the household wealth module is included, resulting in the possibility of longitudinal analyses of household wealth. However, the household is an evolving unit that changes over time, and this violates the stable unit treatment value assumption in causal analysis of longitudinal data. Therefore, we do not undertake any longitudinal analysis in this paper, though it should be mentioned that a typology of household types could potentially be created by researchers, and cohorts of stable household types evaluated longitudinally, but this is beyond the scope of this paper.

The wealth construct in NIDS Wave 4 differs from NIDS Wave 2 with respect to two crucial dimensions: (1) household durable assets (variable name: "household possessions" in the data file) enters the wealth module for the first time; and (2) home ownership is differentiated from land ownership, with a land tenure variable identifying private property rights and communal property rights. One implication of the former is that, should net worth be compared between Waves 2 and 4, even for a stable cohort of household types, net worth as a construct will differ, rendering direct comparisons meaningless unless researchers subtract the value of household possessions from derived net worth in Wave 4. This issue does not affect the one shot net worth variable though, where respondents are expected to self-evaluate their net worth and implicitly include possessions in their responses. The implications of including possessions assets in the distribution of derived household net worth is that it increases the value of assets and reduces asset and net worth inequality as a consequence, relative to Wave 2.

With respect to the distinction in land tenure arrangements in NIDS Wave 4, this innovation is necessary in South Africa, where private property land tenure rights coexist with tribal authority communal land tenure rights, presided over by Traditional Councils (see the Extension of Security of Tenure Act, 1997 and the Land Traditional Leadership and Governance Framework Act of 2004). This differentiation of land tenure rights allows for a broad range of research opportunities with NIDS that no other nationally representative survey enables. In this paper, we restrict the analysis to a descriptive analysis of land tenure and discuss its implications for household portfolios, where it is evident that there is much differentiation in the liabilities of households in these areas.

The important question of outliers in the distribution of assets, liabilities and net worth is noteworthy. A naïve, single time-period analysis of outliers in a longitudinal household survey dataset is highly problematic because of the nature of attrition in the survey sample over time. Nonresponse in NIDS is disproportionately high among high income households and this has been the case since Wave 2 (see Brown, Daniels, De Villiers, Leibbrandt & Woolard, 2012). This means that the NIDS sample itself is losing accuracy over time, in terms of representing the South African population as a whole. While panel weights can help reduce the impact of this form of nonresponse in a longitudinal context, when wealth is analysed as a cross-section (as it is in this paper), post-stratification weights must be used and this is where it is not possible to adequately correct for high-income household non-participation in the survey. This is confirmed when we compare estimates of aggregated national total assets and liabilities in the NIDS Wave 4 data relative to South African Reserve Bank (SARB) totals, which show that the NIDS estimates for financial assets are much lower than the SARB totals. A diverse portfolio of financial assets is a feature of high-income households, and an under-estimation of total financial assets implies that high-income households are now under-represented in NIDS Wave 4, the likely result of attrition in the sample. This draws attention to the fact that the NIDS sample must be refreshed as soon as possible, with disproportionate survey sampling taking place among high-income households. It is for these reasons, combined with an analysis of the data itself, that we omit no

observations from the Wave 4 dataset on the basis of being outliers[1] (unlike Wave 2 - see Daniels, Finn & Musundwa, 2014).

The most important variables that are absent from the NIDS Wave 4 wealth module are the same ones absent in Wave 2, and concern risk and time preferences. Risk and time preferences of the sample have become among the most researched dimensions in the international literature on the distribution of wealth because they allow for a behavioural interpretation of the findings. This omission was identified by Daniels, Finn, and Musundwa (2014) for Wave 2. This prompted the NIDS survey team to conduct a pilot project to assess the viability of including risk and time preference questions in Wave 4. Unfortunately, the result of this pilot project suggested that there was too much uncertainty in the way respondents understood typical questions used to evaluate risk and time preferences to include them in Wave 4. This was due partly to the complexity of translating the questions into all eleven South African languages and having them convey the same meaning. Further experimental survey research in this dimension would still be useful for future wealth modules in NIDS.

The rest of this paper proceeds by providing some very brief background on analysing the distribution of wealth before discussing in detail the structure and changes to the wealth module in Wave 4. We then proceed to analyse the distribution of net worth, assets, and liabilities. Household portfolio composition is then analysed with special attention given to land and home ownership and land tenure arrangements, before concluding.

2. Stylized facts about the distribution of wealth

When investigating any distribution of wealth it is useful to remember Davies and Shorrocks' (2000: 607) five stylized facts about wealth distributions around the world:

1. Wealth is distributed less equally than labour income, total money income or consumption expenditure.
2. Financial assets are less equally distributed than nonfinancial assets, at least when owner-occupied housing is the major component of nonfinancial assets. However, in countries where land value is especially important, the reverse may be true.
3. The distribution of inherited wealth is much more unequal than that of wealth in general.
4. In all age groups there is typically a group of individuals and families with very low net worth, and in a number of countries, including the US, the majority have surprisingly low financial assets at all ages.
5. Wealth inequality has, on the whole, trended downwards in the twentieth century, although there have been interruptions and reversals, for example in the US, where wealth inequality has increased since the mid-1970s.

While the fifth point has subsequently been shown by Picketty (2013) to be almost universal nowadays, it is important to bear these stylized facts in mind for South Africa when interpreting the data. All too often, analyses of income and wealth inequality can be undertaken devoid of context and this can lead to misleading and tendentious debate. In this paper we stay away from any normative judgments on inequality and rather inform researchers how to go about analysing the data correctly and estimating statistics on the distribution of components of assets, liabilities and net worth reliably.

[1] Note that after NIDS Wave 4 version 1.1. of the data was released, it was found that there was an incorrect number for vehicle assets for hhid: 412910. The NIDS team phoned the household to clarify the value of the debt and found out that it was in fact R130,000 rather than R10,070,000. We therefore changed vehicle debt accordingly and recalculated total liabilities and derived household net worth for this household. The NIDS team will update this record from Wave 4 version 1.2 onwards.

3. Measuring household wealth in NIDS

In this section we focus on how NIDS enables household wealth to be measured. Wealth is a 'stock', rather than a 'flow', and when it is measured as the net worth of an individual or household it reflects the net difference between assets minus liabilities. Research on household wealth sheds light on many different issues including the importance of saving for retirement and its empirical existence relative to that postulated by the lifecycle hypothesis (Davies & Shorrocks, 2000; Modigliani & Brumberg, 1954). In South Africa, which is characterised by very high levels of income and wealth inequality (see Daniels, et al, 2014), the ability to model asset accumulation behaviour, liquidity constraints, savings, consumption smoothing, and debt behaviour is underpinned by understanding household wealth.

Measuring wealth has its challenges, in that one is not always able to get respondents to provide accurate information because of recall error and the social sensitivity of disclosing one's financial information to an interviewer, which may make respondents reluctant to answer questions (Juster, et al., 1999). However, in a panel survey like NIDS, respondents can steadily build up trust in the survey organisation because they are exposed to the survey repeatedly over time. One of the advantages of administering the wealth module in Wave 4 is precisely the repeated exposure of respondents to the NIDS and their increased trust in the organisation and the confidentiality of their information.

In both Wave 2 and Wave 4, household wealth is estimated by the respondent who answers the household questionnaire, and the accuracy of the information would be proportional to that respondent's knowledge of the household finances. Unlike Wave 2, Wave 4 did not have a special follow up phase of fieldwork (where wealth questions were omitted) and as such there are no complications with regard to using the cross-sectional weights to obtain nationally representative estimates of assets, liabilities and net worth (see Daniels et al., 2014 for discussion). The existence of household wealth in two waves of NIDS theoretically allows for longitudinal (panel) analyses, but because households vary in composition over time, it is difficult to conduct such analyses without creating a specific variable that identifies stable household types.

Similar to Wave 2, there are two variables that can be utilised to evaluate household net worth: the derived net worth variable and the one-shot variable. Individual wealth is not evaluated in this paper, but is available in the data. The derived household net worth variable is derived as the sum of the components of disaggregated assets and liabilities. The one-shot net worth question asks the respondent directly what the value of their net worth is, i.e.:

> 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?

The one shot question asks respondents to estimate their net worth, either negative, positive, or zero. Then the respondent is led into a series of unfolding brackets (for either positive or negative net worth) which allows for the identification of a plausible range for the respondent's answer. Respondents may also choose to refuse to answer the question/s or state that they do not know.

The derived household net worth variable is constructed and is thus found in the derived household data file. The net worth variable is created as the difference between total assets and total liabilities. Total assets are the sum of livestock, financial, retirement annuities, household possessions, real estate, and business assets. Total liabilities include financial, real estate, business, and vehicle debts.

Before the data can be used it must be deflated. We deflate to the modal month of interview (i.e. November 2014), as fieldwork in Wave 4 took place over 12 months. The CPI values are taken from StatsSA (2016) for the years 2014 -2015. All tables and figures have been created utilising the post-stratified weights that make the analysis representative of the South African population.

3.1 Questionnaire design changes between Wave 2 and Wave 4

The wealth module was one of the special themes of Wave 2 and the standard questionnaires were modified to include components of assets and liabilities, which allowed for the calculation of a more refined and accurate measure of household net worth. There are significant changes in the questionnaires between Wave 2 and Wave 4 with regard to wealth. In the Household questionnaire, the question of land and home ownership has been separated and a new question on land tenure rights has been added. A new asset has also been included in the household questionnaire (household possessions) and adult questionnaire (individual possessions).

The home loan, vehicle financing and other debt questions have been split into three categories. Firstly, “what is the outstanding balance on the debt”, “whom is the debt shared with” and lastly, “of the remaining/outstanding balance, how much is yours?” There have also been changes to the way in which cash and life insurance are dealt with in the Adult questionnaire. Respondents are asked a yes/no question to indicate if they have life insurance, but no value is reported. Cash amounts have been absorbed into the question about bank accounts. The inheritance question simply asks if the individual received an inheritance in the last month, so this is not informative of the value of inheritances.

Figure 1: W4 Derivation of Individual Net Worth from components of Assets and Liabilities

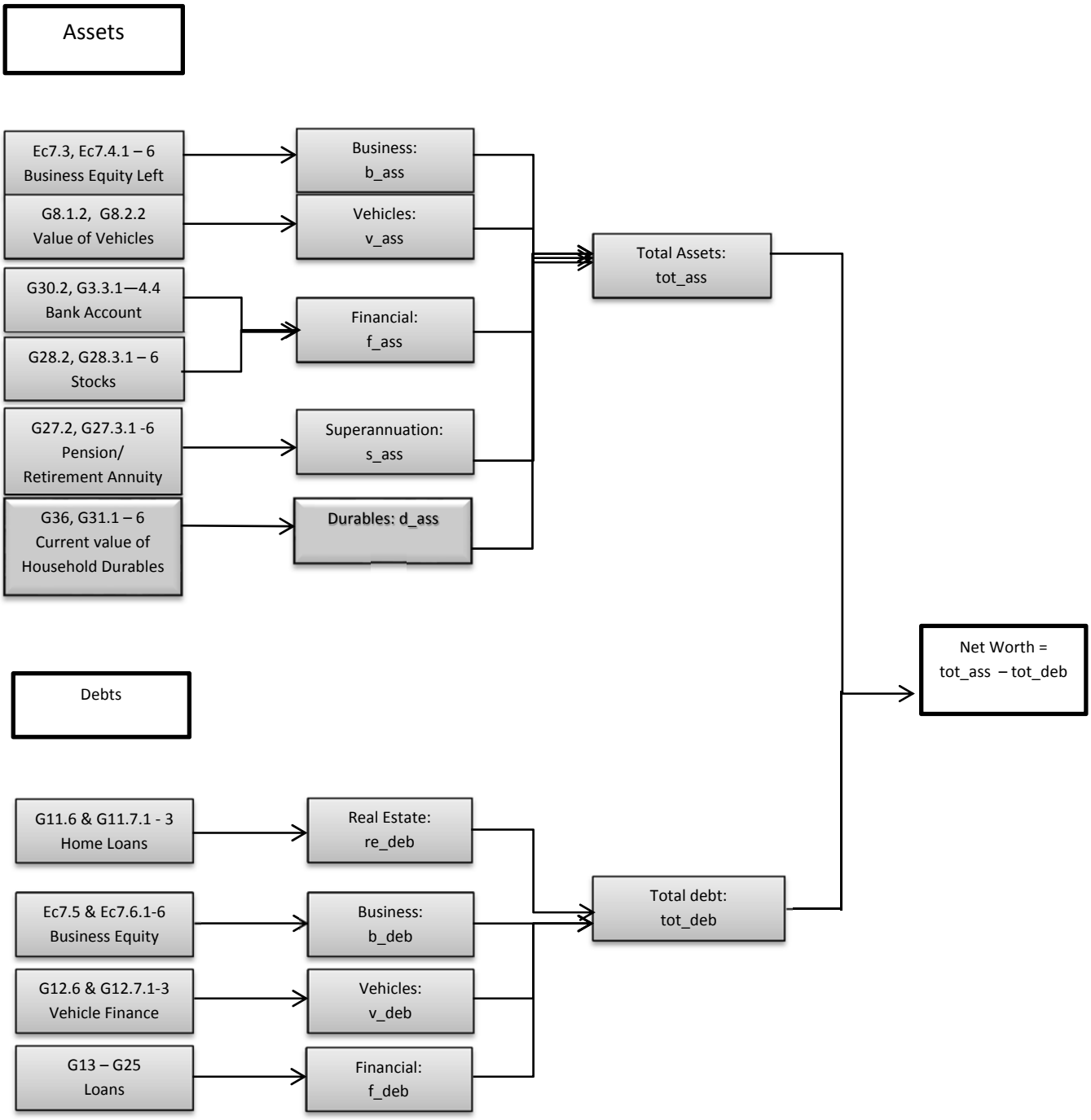
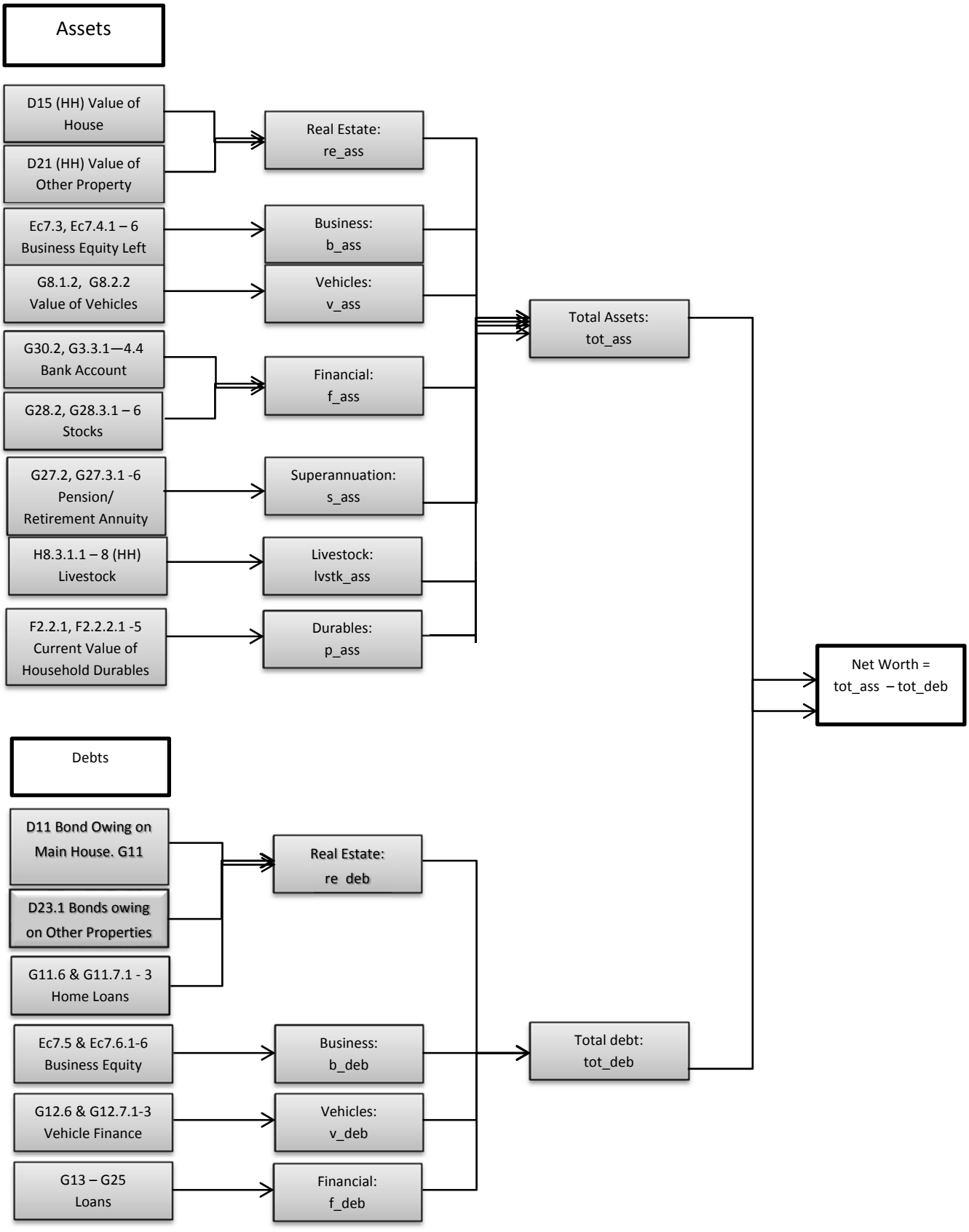


Figure 2: W4 Derivation of Household Net Worth from components of Assets and Liabilities



4. The distribution of assets, liabilities and net worth

In this section we evaluate the univariate and bivariate distributions of assets, liabilities, and net worth. As in Daniels, Finn and Musundwa (2014) which analysed Wave 2 NIDS data, we also investigate the internal and external validity of the data. For internal validity, we analyse the wealth variables and its particular characteristics, relative to informative extant data in NIDS and sometimes with Wave 2, where this is relevant. For external validity, we compare nationally aggregated estimates of components of net worth to equivalent constructs in the national accounts compiled by the South African Reserve Bank (SARB).

The distribution of responses for one-shot wealth is displayed in the table below.

Table 1: Household-level response for one-shot wealth

One-shot HH Net Worth	Frequency	Percent	Cumulative
Don't Know	1551	16.55	16.55
Refused	104	1.11	17.66
Missing	2	0.02	17.68
Something left over	4461	47.60	65.28
Break even	2885	30.78	96.06
Debt	369	3.94	100
Total	9372	100	

Only successfully interviewed households are reported in this table. About a third of respondents indicated that they would break even and almost half indicated that they would have something left over. There are very few households who indicated that they would be in debt and who refused to answer the question. Roughly 17% of households indicated that they 'don't know'.

These results are vastly different to the Wave 2 data, where over a third of respondents answered that they did not know their net worth, suggesting that respondents are more willing to disclose their financial status to NIDS interviewers than they were before. This suggests that respondents are beginning to trust the NIDS organisation enough to believe that their data will be treated confidentially.

The second, more disaggregated measure of household net worth is the derived variable. The logic of including this variable in the data is that, by focussing on components of assets and liabilities, respondents are more likely to be provided with recall cues that can reduce recall bias. The assets and liabilities components are then aggregated and subtracted to obtain net worth. The distributions of the two net worth variables are shown in Table 2 below. The percentiles, mean, minimum, and maximum values are reported, as well as the coefficient of variation and the sample size.

Table 2: Distributions of Two Measures of Household Net Worth

Variable	Min	P10	P25	P50	Mean	P75	P95	Max	CV	N
					Unweighted					
Derived net worth	-6,717,659	5,009	18,786	58,992	338,767	161.000	942,978	5.02e+08	16.73	9372
One shot net worth	-1,003,610	0	0	5,71	152,647	58,322	500.000	9.58e+07	9.26	7503
					Weighted					
Derived net worth	-6,717,957	4,873	18,198	74,315	686,577	264,699	1,764,255	5.02e+08	9.99	9372
One shot net worth	-1,003,610	0	0	5,984	265,114	80,289	957,795	9.58e+07	6.42	7503

The table presents the unweighted and weighted numbers in order to demonstrate the difference in the raw data in the sample compared to the estimates for the national population. We can see that, while the numbers below the fiftieth percentile (P50) are relatively similar between the weighted and unweighted data, from the median onwards they increase in magnitude quite dramatically, to the point that by the 95th percentile they are nearly double the magnitude. This suggests that the sample of high income households is small and the weights are having to do a lot of 'work' here. The difference between the median and mean estimates of household net worth are high, suggesting that large values of net worth at the top of the income distribution significantly impact inferences about the distribution. However, when we evaluate the tails of the distribution in more detail we find insufficient evidence to justify omitting outliers at either the bottom or top end of the distribution, partly because of the under-represented high income groups in the sample.

As far as the difference between derived net worth and one-shot net worth is concerned, we can see that the one-shot net worth variable has far more people who state that they break even (implying that net worth is zero), which mimics the findings of Wave 2 (see Daniels et al., 2014). For the analysis below, we use (and recommend other researchers to use) the derived wealth variable because of the reduced recall bias associated with this variable. We also proceed from this point on by only presenting weighted estimates of the data.

The table below presents the univariate distributions for all components of assets and liabilities used for calculating derived net worth.

Table 3: The Distribution of Components of Assets & Liabilities – weighted

Variable	Min	P10	P25	P50	Mean	P75	P95	Max	CV	N
Total Assets	45	6,981	22,503	81,565	750,275	300,000	2,129,878	5.02e+08	9.23	9372
Real Estate	1	4,789	18,680	58,475	558,375	238,091	1,293,239	1.81e+08	10.47	7670
Business	29	1,000	2,903	10,000	445,677	38,983	2,200,000	4.79e+07	7.07	336
Vehicles	1	19,155	33,656	60,536	122,373	143,669	420,000	3,871,193	1.57	1255
Financial	1	60	270	1,100	21,246	5,000	51,810	3.35e+07	14.55	4808
Retirement	1	6,900	36,749	145,170	1,269,735	500,000	6,774,587	5.00e+08	9.45	761
Livestock	2	401	1,560	11,968	38,742	42,152	135,521	2,681,826	2.86	720
Possession	1	2,500	6,000	19,664	83,563	50,000	350,000	1.50e+07	4.13	9372
Total Debt	5	492	1,352	5,434	117,823	32,058	418,890	1.51e+07	6.09	4710
Real Estate	1,500	39,167	86,239	193,560	499,490	393,280	1,200,000	1.50e+07	2.99	397
Business	0	150	2,458	9,832	52,408	25,000	198,000	1,000,000	3.51	42
Vehicles	27	3,597	20,000	67,242	116,702	160,000	340,210	2,777,606	1.45	375
Financial	5	450	1,100	4,027	38,315	15,185	79,581	1.20e+07	9.90	4557

From the table it is noteworthy that possessions (household durable assets) have very high values. This variable was absent from the calculation of derived household net worth in Wave 2, and the magnitude of this variable suggests that total assets and net worth in Wave 2 are under-estimated. Researchers should note that any longitudinal analyses of household wealth should subtract possessions from Wave 4 derived net worth in order to make the two surveys comparable (alternatively, one-shot net worth can be used).

We now turn to investigating the Gini coefficients for key wealth variables.

Table 4: Gini coefficients of financial variables

Assets/Debts/Income	Gini
Total Assets	0.87
Total Debts	0.90
Net Worth	0.90
Income	0.61
Property Assets	0.88
Retirement Annuities	0.87
Financial Assets	0.92

The table shows the Gini coefficients of the component variables of household net worth as well as household monthly income. As expected, income inequality is much lower than wealth inequality, and inequality on financial assets is very high, affirming the stylized facts of Davies and Shorrocks (2000). Overall, net worth inequality as measured by the gini coefficient is similar in Wave 4 compared to Wave 2 (see Daniels et al., 2014). However, the Gini coefficient is not a sufficient statistic on which to base concluding statements about the distribution of wealth between two time periods because there can be considerable change taking place within each distribution that the Gini won't capture.

Table 5 presents the quantile shares of net worth per decile.

Table 5: Quantile Shares in Net Worth

Decile	Share (%)	Median Value (Rands)
1	.10	R3,899
2	.31	R10,675
3	.74	R22,503
4	1.40	R40,599
5	2.27	R65,000
6	3.01	R101,104
7	4.57	R154,725
8	7.37	R300,000
9	15.39	R641,567
10	64.85	R 2,129,878

The shares increase more dramatically in the lower deciles compared to Wave 2, suggesting a less unequal distribution in Wave 4. For example, the median value in the 1st decile is R60 in Wave 2, whereas it is R3513 in Wave 4; also, the top 10% of households share 84% of net worth in Wave 2, whereas they share 64% of net worth in Wave 4 (see Daniels et al. (2014) for Wave 2 estimates). This difference is partly attributable to the inclusion of household possession assets in the estimates of net worth in Wave 4, which has a more significant impact at the lower end of the net worth distribution. This once again highlights the difference between the two derived household wealth constructs in the two Waves.

4.1 The external validity of the data

We now turn to evaluating whether NIDS estimates of sample totals compare well with the South African Reserve Bank's (SARB) estimates from the national accounts. The SARB's methodology for calculating components of household net worth is different due to the use of different data sources. Table 6 below shows the components of assets and liabilities that make up the household wealth construct in NIDS compared to the SARB data.

Table 6: NIDS and SARB components of assets and liabilities

Components of assets and liabilities	NIDS	SARB
Financial assets		
Cash	No	Yes
Bank Account	Yes	Yes
Life Insurance	No	Yes
Stocks, bonds and other (domestic) assets	Yes (do not differentiate between foreign and domestic assets)	Yes
Pension/retirement annuity	Yes	Yes
Foreign assets	No	Yes
Non-financial assets		
Vehicle assets	Yes	Yes
Business assets	Yes (one-shot)	Plant and machinery, construction works, cultivated assets and inventories
Real – estate assets	Yes	Yes
Consumer durables	Yes	Yes
Livestock assets	Yes	No
Possession assets	Yes	No
Liabilities		
Real-estate debt/mortgage advances	Yes	Yes
Business debt	Yes	Contained in financial debt categories
Vehicle debt	Yes	Contained in financial debt categories
Financial debt	Yes	Yes (open account credit, personal loans extended by banks, credit card facilities, instalment sale transactions and lease agreements, other personal loans and non-bank loans)

We can see from the table above that, while the constructs are broadly similar, they are not identical, and this should be kept in mind when making these comparisons.

In Table 7 below, the NIDS Wave 4 data is frequency weighted in order to generate estimates of the totals of components of assets, liabilities and net worth that can be compared to annualised SARB data for the year 2014. However, in order to compare business debt, vehicle debt and financial debt between NIDS and the SARB we have to add these three liabilities together in NIDS because they are not easily separable in the SARB data. The estimates between the two data sources also differ because the NIDS data is deflated to November 2014 while the SARB data is annualised for 2014.

Table 7: Rand value of components of assets and liabilities in NIDS and SARB

Wealth Variable	NIDS 2014	SARB 2014	NIDS/SARB 2014
Financial assets	211,000,000,000	7,035,000,000,000	0.03
Non-financial assets	12,400,000,000,000	2,860,000,000,000	4.34
Total assets	12,600,000,000,000	9,894,000,000,000	1.27
Real-estate debt	607,000,000,000	854,000,000,000	0.71
Other debt	459,000,000,000	939,000,000,000	0.49
Total debt	1,070,000,000,000	1,792,000,000,000	0.60
Net worth	11,500,000,000,000	8,102,000,000,000	1.42

The findings show that, most significantly, financial assets are much lower in magnitude in the NIDS data than in the SARB data, while non-financial assets are much lower in magnitude in the SARB data compared to the NIDS data. In general, these findings are similar to findings in Wave 2 (see Daniels et al, 2014), though the magnitudes are much larger in Wave 4. NIDS is a better instrument for measuring non-financial household assets while SARB is a better source for measuring financial assets.

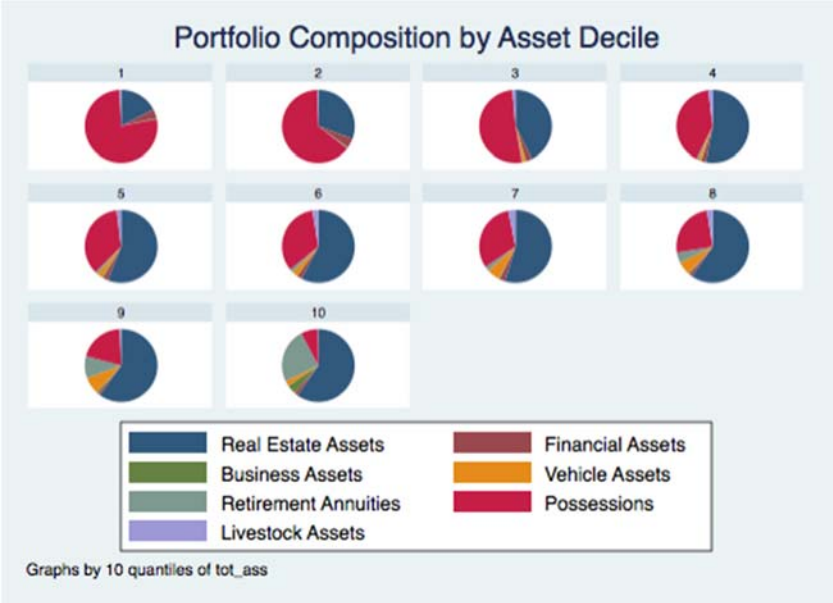
The size of the under-estimation of financial assets in NIDS Wave 4 is troubling though because it suggests that high income households are severely under-represented in the sample since it is this group that have the highest levels of financial assets. The difference between non-financial assets is now also very big due to the inclusion of “household possessions” as assets in this estimate in Wave 4. There are also large differences between other components of assets and liabilities between the two data sources. These relative differences provide important insight into the external validity of NIDS and point to the need for further methodological research on this topic that NIDS and the SARB could collaborate on.

We now turn to analysing household portfolios across a range of covariates in the NIDS Wave 4 data.

5. Household portfolio composition

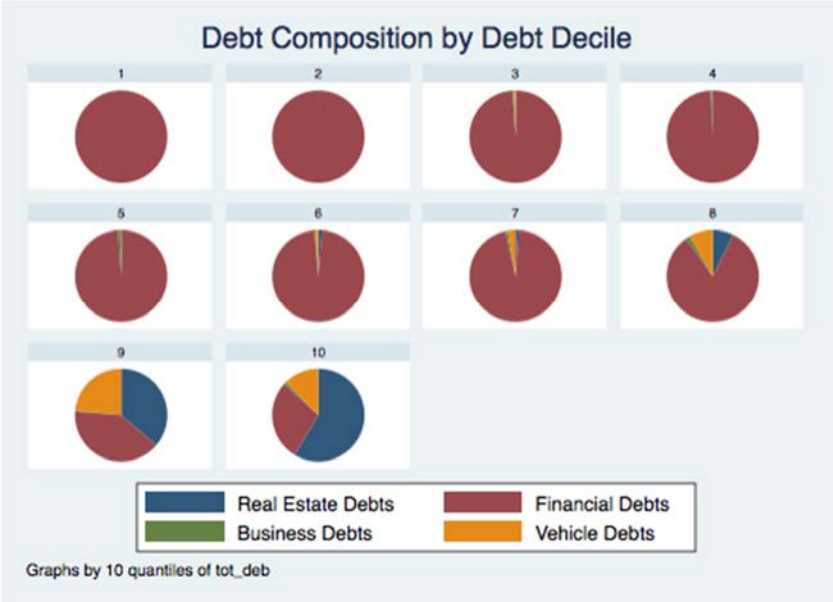
The figures below present the assets (Real Estate, Business, Retirement Annuities, Livestock, Financial, Vehicles, Possessions) and debts (Real Estate, Business, Financial and Vehicles) across various covariates, including geographical location (Rural Formal, Tribal Authority Area, Urban Formal, Urban Informal).

Figure 3: Portfolio composition by asset decile



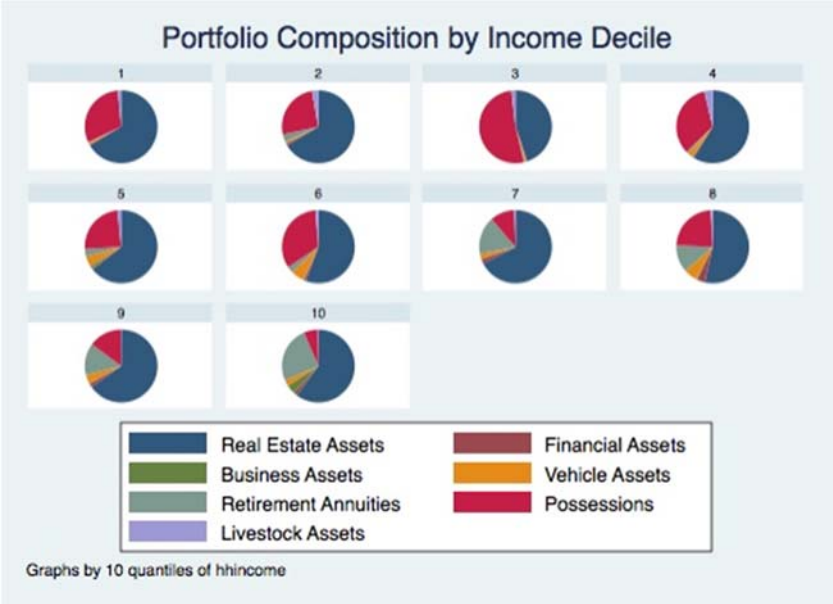
The dominant asset categories throughout the asset deciles are the possessions and real estate assets. It appears that the fewer assets you have, the more your assets are comprised of possessions and as your assets increase, the more real estate assets are owned. Retirement annuities begin to make an impact in the 7th and 8th deciles, but get much larger in the 10th decile. The rest of the asset categories (business, livestock, financial, and vehicles) are minor components of assets in all deciles.

Figure 4: Debt composition by debt decile



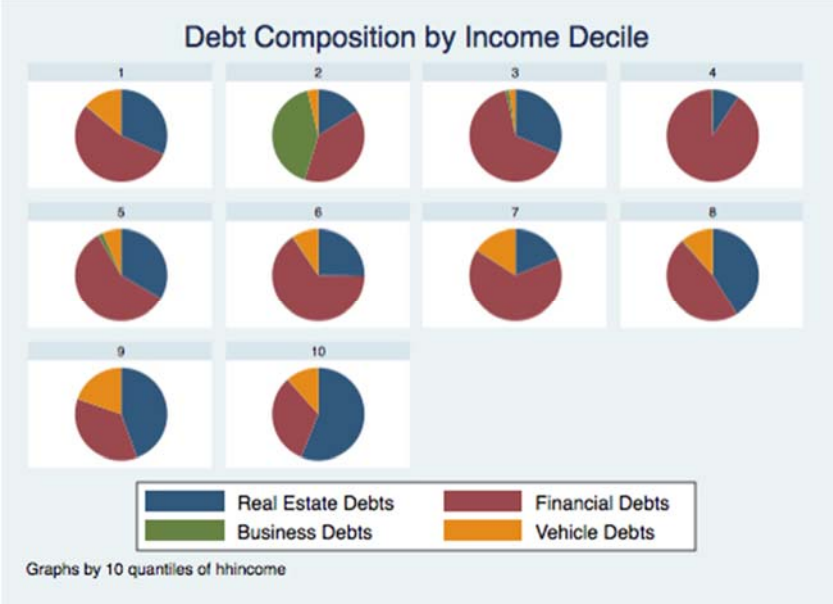
All households in every decile have a large proportion of financial debt. Debt deciles 1-7 have barely any variation in liabilities; in fact, deciles 1 and 2 are almost exclusively comprised of financial debts. The upper end of the debt deciles (9 and 10) are the only deciles that show real variation in liabilities. In fact, in the 10th decile, real estate debts overshadow financial liabilities. Business debts are discernible at the 4the decile onwards, while vehicle debt becomes significant from the 8th decile onwards. There are no possession debts indicated in the liability categories, although they could be included within financial debts (e.g. hire purchase debt taken out in retail or furniture stores that offer hire purchase agreements).

Figure 5: Portfolio composition by income decile



The depiction of assets and liabilities by income decile shows intriguing results. Here, the pie charts have a similar pattern to those grouped by asset deciles, in that real estate assets and possessions dominate in almost every income decile. However, the deciles have more asset category variation than those grouped by asset decile. Retirement annuities are more noticeably present in deciles 7 to 10. This reiterates the conclusion from Figure 3 that households with more assets (or more income), have more variation in the assets that they hold, which is to be expected, from a portfolio diversification point of view. Livestock assets are visible up until the 8th decile, but makes a very small contribution to the total assets of households.

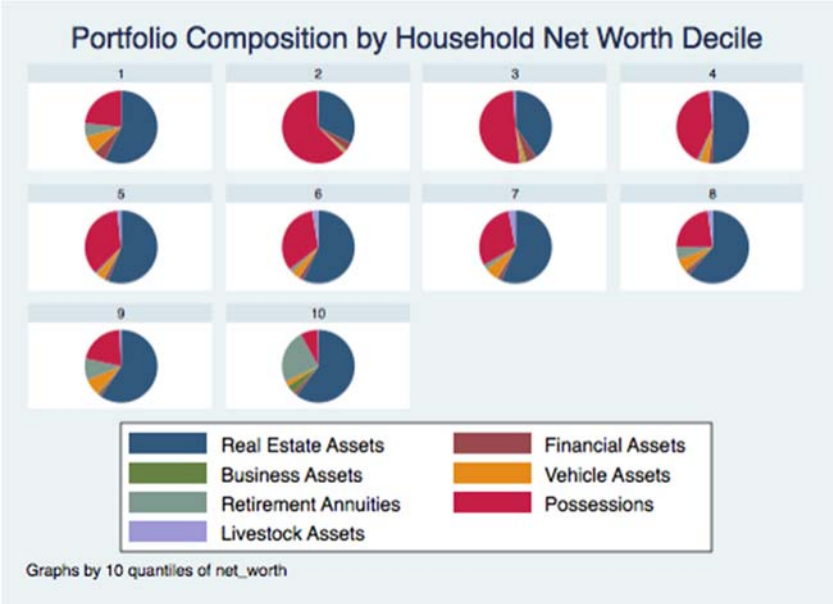
Figure 6: Debt composition by income decile



In Figure 6, financial debts are the dominant component in almost every income decile. However, we see a large portion of business assets in the 2nd decile, while the rest of the deciles show barely detectable business debt. This is an unexpected result, with no real explanation other than this could be for survivalist entrepreneurial endeavours in this part of the income distribution, or alternatively that it could be driven by outliers in the distribution of business debt. Vehicle debts are present in every income decile in varying proportions.

We now evaluate assets and liabilities by net worth decile, which allows us to see the pattern of accumulation as wealth increases.

Figure 7: Asset portfolio composition by household net worth decile

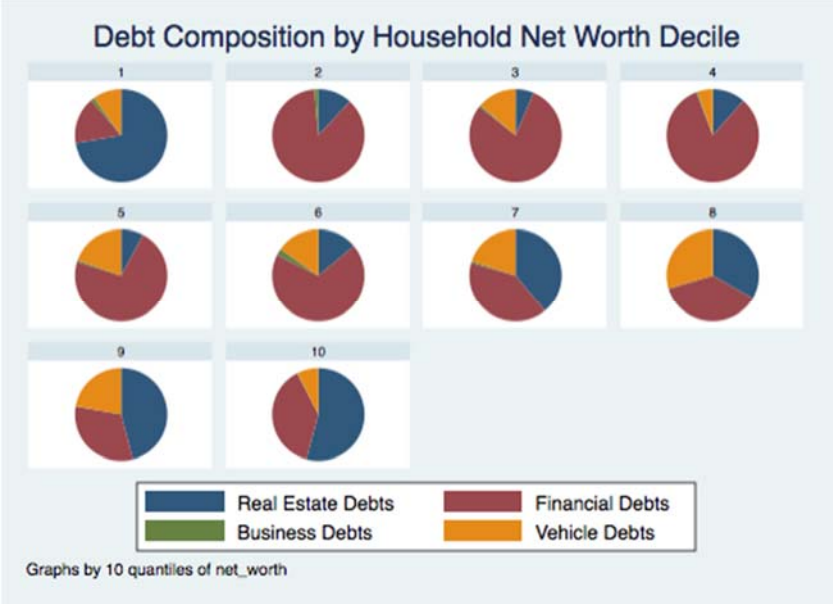


In Figure 7 possessions and real estate assets dominate in the household net worth deciles. The lowest decile demonstrates the most variation in asset holdings at the bottom end of the distribution, with a noticeable proportion of retirement annuities. It is important to remember that those in negative net worth, which represent the first net worth decile, are likely to be younger and have higher human capital endowments that result in a very different profile of assets and liabilities to the second decile.

In the 1st decile, real estate assets are dominant, followed by possessions and then roughly equal proportions of other asset categories. This changes in the 2nd decile, with possessions dominant, followed by real estate and then other assets. This pattern continues until the 5th decile, where the 5th through 8th deciles all have largely similar asset compositions. Real estate assets and possessions are approximately the same size in these deciles, followed by varying small portions of other asset categories. The last decile shows a significant decrease in possessions in favour of retirement annuities.

In Figure 8 financial debts are the dominant feature in most deciles along with real estate liabilities, although real estate debts are more prominent in the 1st, 7th - 10th deciles.

Figure 8: Debt composition by household net worth decile

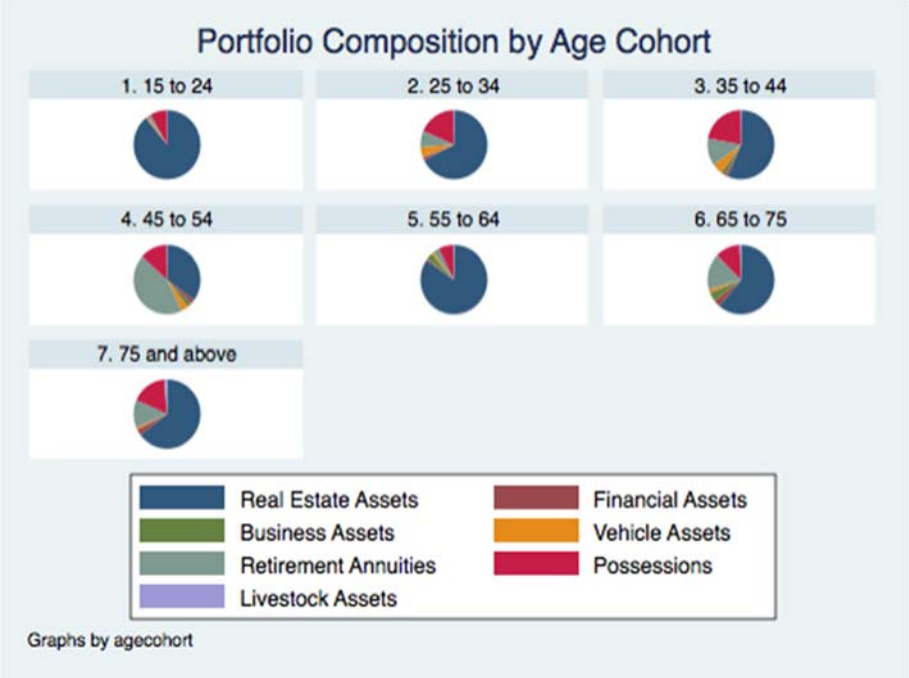


Vehicle debts are a prominent item in almost every net worth decile, except the second. The composition of the 1st decile is once again very different to the second and middle deciles. The 1st decile represents the lowest, negative values of net worth but with substantial housing debt that could simply reflect the negative equity associated with younger households taking our home loans.

The fact that those with negative net worth are not necessarily poor, but rather have their liabilities outweighing their assets, can have a number of explanations. The most important of these is related to the age of household members and the stage of the lifecycle that they are in. Those who are young but have high levels of human capital will just be entering the labour market and beginning to accumulate assets. This will most likely require a significant amount of debt to purchase a home or vehicle and therefore result in the household being in negative net worth. This is in contrast to older households that have been able to pay off that debt over time and steadily accumulate assets.

Following from this, we evaluate the assets and liabilities by age cohort of the household head to determine if these lifecycle effects are in fact present in the data. The lifecycle hypothesis posits that households accumulate savings during their lifetime as a result of labour market participation, and once the household's earners retire, they begin dissaving from those wealth holdings. By investigating assets and liabilities separately, we are able to gain a greater understanding of the compositional changes in portfolios as people age.

Figure 9: Asset portfolio composition by age cohort

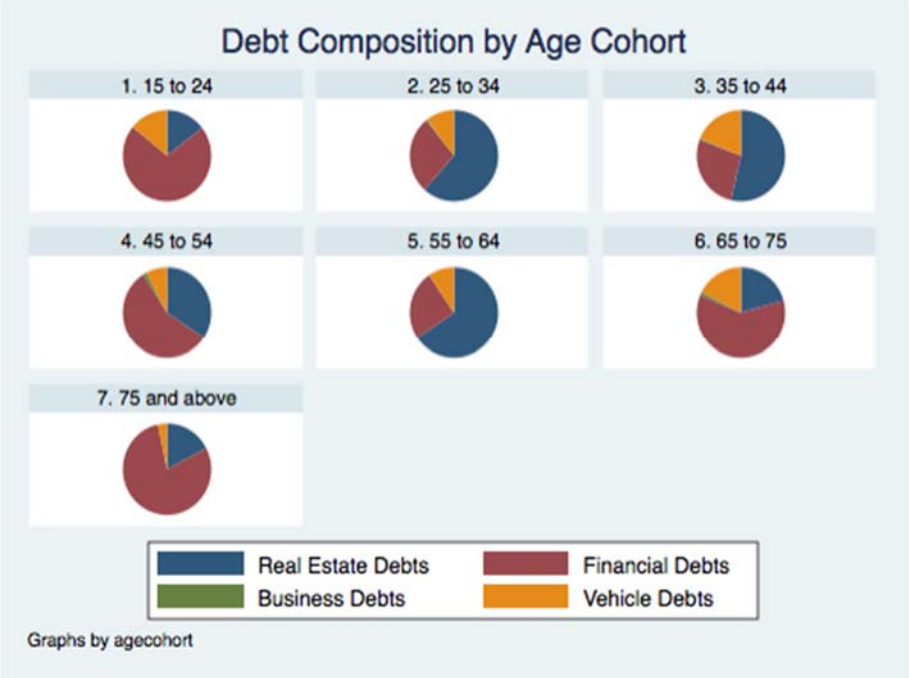


It is evident from Figure 9 that real estate assets are dominant throughout the lifecycle. However, the dominance of this asset decreases from ages 15-54. Retirement funds increase significantly for the 45-54 age cohort, suggesting that those assets become liquid and accessible in this age group. The Pension Funds Act of 1956 has different criteria for different financial products relating to retirement, and these still hold today. Retirement annuities may only be redeemed after 55, but pension and provident funds can be redeemed before that. Further research on this topic would be useful, but the lack of questions on different financial products in the NIDS questionnaires limits such efforts.

Possessions are also prevalent assets throughout the age distribution, but tend not to vary as much as income or net worth deciles. Vehicle, business, and financial assets are discernible throughout the age cohorts, but in relatively small proportions.

Figure 10 shows the composition of liabilities across the age distribution.

Figure 10: Debt composition by age cohort

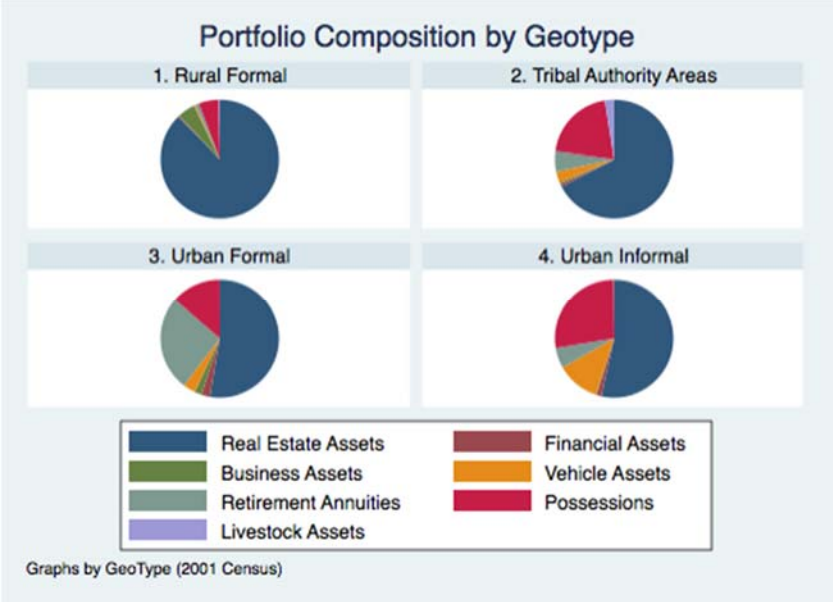


The figure shows that financial debts dominate throughout most age cohorts. They account for over half of the debts in the 15-24, 45-54 and over 65 age groups. Real estate debts dominate for the 25-44 and 55-64 age groups.

Taking stock of the evidence presented in Figures 9 and 10, we see that definitive accumulation patterns emerge. Real estate assets are a very large contributor to household portfolios in almost all age cohorts and the corresponding real estate debt is present in every age cohort. However, there appears to be a decrease in the portion of both real estate assets and liabilities in age cohort 45-54 and then an increase again over the remaining age cohorts. Here, there is some unidentified effect occurring at 45-54, with the data seeming to suggest that retirement funds are being reinvested in property after age 54.

Finally, we evaluate the composition of assets and liabilities by geographical location (geotype). This analysis is particularly important because it allows us to gain preliminary insight into the asset and liability portfolios in private versus communal land tenure regions. Note that while Tribal Authority Areas (TAAs) do largely consist of communal property rights, they also have some private property rights areas within them, a characteristic we investigate in the next section of this paper.

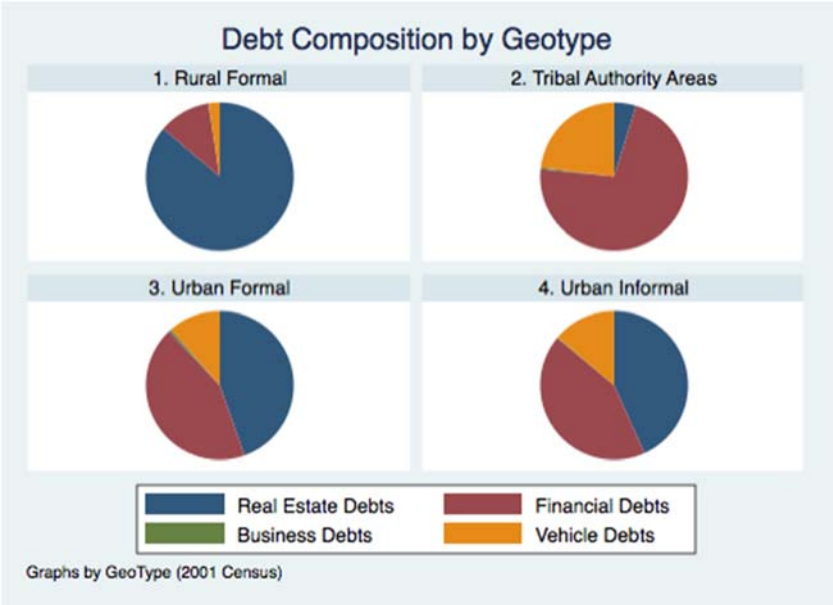
Figure 11: Asset portfolio composition by geotype



In Figure 11 the assets are separated across the four geographic locations in the survey. Real estate assets are dominant in every location. Vehicle assets are the most noticeable in the Urban Informal category, while business assets are most noticeable in the Rural Formal chart. Retirement annuities are most prominent in the Urban Formal category, which is precisely where you would expect to see the largest accumulation of private pension funds. The Urban Formal geotype includes major cities in South Africa and the economic hubs of the country, thus it would likely have the largest formally employed population, most of whom own some form of retirement fund. Lastly, financial assets are barely discernible in all geotype categories, while livestock assets only feature in TAAs, which is to be expected.

We now turn to liability composition by geographical location.

Figure 12: Debt composition by geotype



From the Figure we see that either financial or real estate debts dominate across all geotypes. Business debts are largely absent from every geotype, while vehicle debts comprise a relatively large portion in every geotype except rural formal. A vast portion of real estate debt in Rural Formal, Urban Formal, and Urban Informal areas correspond to the fact that real estate assets dominate the asset portfolio in those locations. However, this is not the case in TAAs, where it must be noted that the small portion of real estate debts is an irregularity given the high proportion of real estate assets in these areas. Part of the explanation for this is given by the fact that land in communal areas does not need to be financed but negotiated with Traditional Councils or local chieftains, a fact that has a dramatic impact on the liability portfolio of TAAs. We explore this further below.

5.1. Land tenure arrangements and home ownership

Home ownership in SA is the most important component of a household's asset base and wealth accumulation strategy, as seen above. However, there is a feature of the South African economy that is far too often ignored in research on household welfare and financial wellbeing, notably the dual land tenure system. Here, private property land tenure rights coexist with tribal authority communal land tenure rights presided over by Traditional Councils in rural areas. The latter is a manifestation of the transition to democracy where the rights of tribal authorities in the former Bantustans couldn't be resolved by 1994 (see the Extension of Security of Tenure Act, 1997, with proposed amendments in 2013, and the Traditional Leadership and Governance Framework Act of 2004). From the analysis in the previous section, if one lives in TAAs, it is rare that loans are taken out for property. Instead, negotiations with Traditional Councils must take place to secure the land rights upon which homes are built, and this alters the behaviour of individuals and households who live under such a property right regime.

The table below presents the proportion of the sample that own homes but live under different property rights regimes, namely private ownership with rights to sell, and communal, tribal land.

Table 8: Land tenure rights in the NIDS sample

	Private ownership with right to sell	Secure rights on tribal land allocation	Other	Total
		Rural Formal		
Frequency	210	20	3	233
%	89.84	8.67	1.49	100
		Tribal Authority Areas		
Frequency	910	411	5	1,325
%	68.67	30.98	0.36	100
		Urban Formal		
Frequency	2,146	27	11	2,185
%	98.25	1.23	0.52	100
		Urban Informal		
Frequency	375	29	6	410
%	91.54	7.04	1.42	100
		National		
Frequency	3,641	486	25	4,153
%	87.68	11.71	0.61	100

The table above indicates that in TAAs, 31% of the population live in areas with tribal land allocations. This is also the case for about 9% of those living in rural formal areas and 7% of those living in urban formal areas. While these numbers are not dramatically high, they are sufficiently high to suggest that the accumulation of wealth through home ownership is not as simple as an implicit focus on privately traded property rights would suggest, which underpins theories like the life cycle hypothesis. In fact, it may very well be that the land in these areas is not financed at all but rather granted on a leasehold basis after negotiation with Traditional Councils. This dimension of the South African economy is frequently ignored in its entirety, and this evidence suggests that this is unwise.

It is also important to note that those living in areas with communal land tenure arrangements are not all poor. The table below shows the distribution of households in the two different property rights regimes across net worth deciles.

Table 9: Land tenure rights by net worth decile

Net Worth Decile	Private ownership with right to sell	Secure rights on tribal land allocation	Other	Total
1	105	42	1	148
%	70.95	28.38	0.68	100
2	178	65	3	246
%	72.36	26.42	1.22	100
3	257	95	5	357
%	71.99	26.61	1.40	100
4	318	93	0	411
%	77.37	22.63	0	100
5	337	85	2	424
%	79.48	20.05	0.47	100
6	420	82	3	505
%	83.17	16.24	0.59	100
7	453	78	1	532
%	85.15	14.66	0.19	100
8	414	91	2	507
%	81.66	17.95	0.39	100
9	427	64	3	494
%	86.44	12.96	0.61	100
10	503	25	0	528
%	95.27	4.73	0	100

These findings suggest that there are in fact high net worth households in areas with communal property rights, as would be expected. Further research on this topic would be useful, especially with respect to the levels of inequality and the political economy of access to land in communal property rights regimes (and the gender implications of this).

6. Conclusion

This paper analyses the components and portfolio composition of household wealth in South Africa using data from NIDS Wave 4 (2014-2015). The wealth module rotates into the survey every alternate Wave, and this time around important questionnaire design changes included (1) the addition of household possessions assets, and (2) the separation of land tenure rights into private property rights and communally-owned tribal property rights.

The addition of possession assets is an important addition to the portfolio of household assets, evidenced by the fact that it represents the majority share of household assets for the second and third deciles (i.e. the poorest households) of the net worth distribution. Real estate assets represent the majority share of household assets for every other net worth decile, noting that the first decile includes presumably well-collateralised households that are in negative net worth and therefore not strictly poor. The portfolio composition of liabilities across the net worth distribution demonstrates that financial debt is the main household debt for the second through eighth net worth deciles, while real estate debt is the dominant debt type for the first, ninth, and tenth net worth deciles.

Portfolio asset composition across the age distribution demonstrates an interesting finding in that retirement annuities represent the largest share for the 45-54 age group. Given the fact that retirement annuities (RAs) can only be redeemed after the age of 55 in South Africa (according to the Pension Funds Act, 1956), and no withdrawals are allowed from RAs before that, it is likely that this finding may be explained by the redemption of pension and provident funds, both of which are at least partially accessible (in that they allow anything from partial to full withdrawals, depending on the financial instrument) before the age of 55. However, this is conjecture because the variable "superannuation" in the data conflates RAs, pension funds, and provident funds, or any other savings that an individual deems as retirement savings – all of which have different liquidity rules. In future, NIDS may want to separate out the various financial products for retirement planning so that researchers can better understand (the transition to) retirement in South Africa.

For household debt across the age distribution, the findings support the intuitive finding that the youngest (15-24) and oldest households (>65) have the highest share of their liability portfolio in financial debt, but also the counter-intuitive finding that the 45-54 age cohort also do. We would expect debt to be low at retirement, predominantly comprised of small financial debts, and prior to that home loans to dominate the portfolio. The fact that the latter is not the case for the 45-54 group is puzzling and requires further research.

Asset portfolio composition by geotype indicates that real estate assets are most prevalent in households in all areas, suggesting that home ownership is the most important asset for accumulating wealth for households in South Africa. However, real estate liabilities are not the main liability for households in Tribal Authority Areas. This raises questions about the relationship between home ownership and property rights regimes in SA, something that NIDS is uniquely able to answer as a nationally representative household survey.

An important limitation of the analysis in this paper is that it is not multivariate, and therefore is subject to the vagaries of descriptive analyses. Researchers need to interrogate the constructs of interest in more detail to glean more rigorous findings from the data. In this respect the combination of Wave 2 and Wave 4 wealth data makes for potentially interesting research. This research will need to compare stable household types over time, and subtract possessions from Wave 4 assets and derived net worth in order to make the constructs comparable (or alternatively, one-shot net worth can be used, though here higher recall bias would be present).

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southern africa labour and development research unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.

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