POLICY DIALOGUES

Inequality measurements: the impact of a correction for missing top incomes in a South African household survey

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PITCH

Often the richest households are poorly captured in household surveys[1], leading to a likely underestimate of inequality in analyses such as CEQ Assessments[2] that conduct fiscal incidence using household surveys. The South Africa 2014/15 Living Conditions Survey (LCS) is no different. The top 1 percent of taxpayers earn R223 000 on average, versus an average of R1.9 million in taxable income annually in the administrative data[3]. A new CEQ Assessment for South Africa[4] takes advantage of high-quality administrative data on the income distribution to adjust the 2014/15 LCS survey distribution permitting an examination of the impact on inequality, the progressivity of different instruments, and their contributions to inequality.

ISSUES

The survey directly identifies individuals working in the formal sector. There are 35.1 million individuals in the household survey 18 years or older, of which 17.8 million (50 percent) earn zero market income, although they will earn income from other sources such as social grants. We identify 11.5 million formal individuals in the survey, of which 5.1 million (44.4 percent) earn more than the minimum tax credit of R70 000 annually, and 656 000 (5.7 percent) earn more than the 2015 tax year mandatory tax filing threshold of R350 000 annually.

We assume that the number of taxpayers who earn above R70 000 (5.1 million) is also the number of taxpayers with strictly greater than zero taxes paid. In the administrative accounts this number is 6.6 million[5].

We expect the survey data to more accurately characterise the bottom end of the distribution, while the income tax records should have more accurate information on the top end of the distribution and, in particular, records that fall above the mandatory tax filing threshold of R350 000 in annual taxable income for 2015[6]. There is a higher proportion of taxpayers in the survey data than in the income tax records below the R70 000 annual taxable income group. From the threshold towards the higher end of the taxable income distribution, however, the income tax records pick up a higher proportion of taxpayers. We do not capture any households in the survey with an annual income above R2 million. We will therefore likely be missing altogether 0.4 percent of taxpayers and 9.38 percent of taxable income.

METHODS

One of the challenges we face is that we have individual data on income tax, and yet the survey we are working with is a household survey and we must therefore adjust the weights at the household level. We adjust the household weights in the survey such that the proportion of income taxpayers in each income bracket matches the administrative records[7].

Where households have more than one income taxpayer in different income brackets, we assign the household to the bracket of the taxpayer in the highest income group. We calculate the adjustment factor for each Income Group that would yield the same share of total taxpayers in each income group as in the administrative data without changing the total numbers of taxpayers. Calculating the adjustment factor is a two-step process. We first calculate a factor that would apply *were all individuals in a household in same income group* and determine the target number of individuals that such a factor would generate. We then generate a second adjustment factor iteratively. Starting with the highest income group (Group 22), we adjust all the *households* in Group 22, such that the number of taxpaying *individuals* in Group 22 will match the target. However, this necessarily adjusts individuals in the second highest (Group 21) income group as well (and all the other groups). Excluding those pre-adjusted individuals, then, we adjust the other households in Group 21 such that the number of individuals in Group 21 will match the target.

We do this for each Income Group until all the taxpayers in the household Income Group above R70 000 annually have been adjusted such that the proportions match the administrative records.

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Find out more about this project: https://www.afd.fr/en/carte-des-projets/fiscal-incidence-analysis

CEQ INSTITUTE COMMITMENT TO EQUITY Tulane University

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RESULTS

Without correcting for missing top incomes we are both underestimating inequality at prefiscal Market income, and overestimating the efficacy of fiscal instruments in reducing inequality.

Inequality: The correction for top incomes increases the Gini coefficient for prefiscal Market income by increasing the number of income tax payers in the upper deciles, and reducing the number of income taxpayers in the lower deciles.

Fiscal policy: Fiscal policy is inequality reducing in South Africa, starting at a Gini coefficient of 0.727 at prefiscal Market income and reducing to 0.537 with the inclusion of direct taxes, direct transfers, indirect taxes and in-kind benefits in the fiscal system. When we correct for missing top incomes, we see an increase in inequality across all the income concepts, starting at 0.756 and ending at 0.569. We see a reduction in overall redistributive impact from 19.0 to 18.6 Gini points. The smallest increase of 1.69 takes place at Net market income, and the largest inequality correction of 3.24 Gini points takes place at Final income.

Progressivity:

Using the Kakwani Index as a summary statistic of progressivity of the distribution of a tax or transfer relative to market income, we find that the in-kind transfers and direct transfers become more progressive, and the direct taxes become less progressive. There is no change to the progressivity of the indirect taxes.

Inequality		
Income Concept	**Baseline inequality**	**After correction**
Market *(Prefiscal income)*	0.727	0.756
Net market *(Less direct taxes)*	0.710	0.727
Gross *(Plus direct transfers)*	0.630	0.658
Consumable *(Less indirect taxes)*	0.632	0.659
Final *(Plus in-kind benefits)*	0.537	0.569
Redistributive impact (Gini points)	19.0	18.6

Marginal contribution to Inequality		
Fiscal instrument	**Baseline contribution**	**Correction**
In-kind benefits	10.04	-0.52
Direct taxes	2.68	1.79
Indirect taxes	-0.13	0.00
Direct transfers	11.76	-1.67

Source: authors' calculations based on the 2014/15 and SARS (2016)

There is an increase in concentration of in-kind transfers in the bottom 6 deciles of Market income, and a decrease in concentration in deciles 7 to 10. Overall, in-kind transfers therefore appear more progressive after the correction.

The concentration of direct taxes decreases in all except the 10th decile. Despite the shift in concentration towards the upper deciles, the shift is smaller than the shift in market income, and overall direct taxes appear less progressive.

The concentration of indirect taxes in deciles 1-8 decreases, and increases in deciles 9 and 10. The shift in concentration is in line with the shift in market incomes, however and so the change in progressivity of indirect taxes is neutral.

There is an increase in concentration of direct transfers in deciles 1-4, and deciles 7 and 10. There is a decrease in deciles 6 and 8 and 9. Direct transfers appear more pro-poor after the correction.

Marginal contributions of fiscal instruments to inequality reduction:

By changing the distribution of Market income, and the distribution of fiscal instruments, the correction for missing top incomes results in the following changes in the marginal contributions of the different fiscal instruments to inequality reduction: i) a larger marginal contribution to inequality reduction from the direct taxes (1.79 Gini points); ii) no change to the impact of indirect taxes on inequality; and iii) a smaller marginal contribution to inequality reduction from the in-kind transfers and direct transfers (0.52 and 1.67 Gini points respectively).

RECOMMENDATIONS

- Policymakers and researchers should be aware that missing top incomes in household surveys likely result in an underestimate of inequality. There are two aspects to the underestimate of inequality measurements. When we do not adjust for top incomes, we not only underestimate prefiscal market income, but we also overestimate the impact of fiscal instruments in reducing inequality.
- The main microdata set (typically a household budget survey) should be adjusted to ensure accurate inequality measurements and estimates of the impacts of fiscal instruments. Where this data is not available, it may be useful to policymakers to acknowledge the limitations mentioned above.

[1] See Atkinson, A. B., Piketty, T., and Saez, E., 2011. Top incomes in the long run of history. Journal of Economic Literature 49, 1, 3-71.

[2] Lustig, N. (2018). Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on Inequality and Poverty. Washington, D.C.: Brookings Institution Press. (For more information see www.commitmenttoequity.org).

[3] SARS, 2016. Personal Income Tax (PIT) Data 2013 - 2014 [dataset]. South African Revenue Service, Pretoria (2016).

[4] Goldman, M; Woolard, I; & Jellema, J. (2020). The Impact of Taxes and Transfers on Poverty and Income Distribution in South Africa 2014/15. Agence Française de Développement, Paris.

[5] National Treasury, 2020. Personal Income Tax (PIT) Data 2015 [dataset]. National Treasury, Pretoria (2020).

[6] Hundenborn, J., Woolard, I. & Jellema, J. (2018) The effect of top incomes on inequality in South Africa. WIDER Working Paper 2018/90. Helsinki: UNU-WIDER.

[7] We do this adjustment only for individuals earning above the R70 000 threshold as we believe the survey data to be more reliable than the income tax records below that threshold.

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