Comments on measures of progressivity in Saez and Zucman “Triumph of injustice” (plus some other comments)

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Measuring progressivity

\[
\text{average tax rate of a group} = \frac{\text{sum of taxes}}{\text{sum of income}}
\]
Measuring progressivity

average tax rate of a group = \frac{\text{sum of taxes}}{\text{sum of income}}

Group — who do we consider?
Measuring progressivity

average tax rate of a group = \frac{\text{sum of taxes}}{\text{sum of income}}

Sum of taxes — what is a tax and what’s not a tax
Measuring progressivity

average tax rate of a group = \frac{\text{sum of taxes}}{\text{sum of income}}

Sum of taxes — how do we measure tax liability
Measuring progressivity

average tax rate of a group = \( \frac{\text{sum of taxes}}{\text{sum of income}} \)

**Sum of income** — what is income and what’s not income
Measuring progressivity

average tax rate of a group = \frac{\text{sum of taxes}}{\text{sum of income}}

Sum of income — how do we measure income
Measuring progressivity

average tax rate of a group = \frac{\text{sum of taxes}}{\text{sum of income}}

**Group** — who do we consider?
**Sum of taxes** — what is a tax and what’s not a tax
**Sum of taxes** — how do we measure tax liability
**Sum of income** — what is income and what’s not income
**Sum of income** — how do we measure income

What are we doing all of it for?
Table 5: Sensitivity analysis, changes in top 1% income shares

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Corporate tax burden alternatives (pre-tax income)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>25% wages/75% corporate capital (baseline)</td>
<td>11.0</td>
<td>9.5</td>
<td>14.1</td>
<td>4.6</td>
<td>3.1</td>
</tr>
<tr>
<td>50% wages/50% corporate capital</td>
<td>10.6</td>
<td>9.3</td>
<td>14.0</td>
<td>4.7</td>
<td>3.5</td>
</tr>
<tr>
<td>0% wages/100% corporate capital</td>
<td>11.3</td>
<td>9.6</td>
<td>14.2</td>
<td>4.6</td>
<td>2.9</td>
</tr>
<tr>
<td>0% wages/100% non-housing capital</td>
<td>11.1</td>
<td>9.7</td>
<td>14.3</td>
<td>4.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Corporate retained earnings (after-tax income)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>individuals: 25% capital gains/75% dividends (baseline)</td>
<td>7.9</td>
<td>7.2</td>
<td>8.5</td>
<td>1.3</td>
<td>0.6</td>
</tr>
<tr>
<td>individuals: 50% capital gains/50% dividends</td>
<td>7.8</td>
<td>7.1</td>
<td>8.4</td>
<td>1.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Government Consumption (after-tax income)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% after-tax income/50% per capita (baseline)</td>
<td>7.9</td>
<td>7.2</td>
<td>8.5</td>
<td>1.3</td>
<td>0.6</td>
</tr>
<tr>
<td>25% after-tax income/75% per capita</td>
<td>7.6</td>
<td>6.9</td>
<td>8.2</td>
<td>1.3</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Notes: Baseline assumptions are described in text and in detail in the online appendix. Assumptions for sensitivity analysis are described in the text.

Sources: Authors' calculations and Piketty, Saez, and Zucman (2018).

Figure 1: Total income as a share of NIPA income

Notes: Adjustments used to estimate Auten-Splinter pre-tax and after-tax income are listed in Tables 1 and 2 and described in detail in the online appendix.

Sources: Authors' calculations, and Piketty, Saez, and Zucman (2018, PSZ in figure).
### Table 4: Decomposition of top one percent income shares by approaches

<table>
<thead>
<tr>
<th></th>
<th>Auten-Splinter approach</th>
<th>PSZ approach</th>
<th>Percentage point level difference</th>
<th>Percentage point difference in changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-tax income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underreported income by IRS audit data</td>
<td>Underreported income by positive income</td>
<td>0.1</td>
<td>1.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Include distributed &amp; other retirement income</td>
<td>PSZ private retirement distribution</td>
<td>0.3</td>
<td>0.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Non-retirement pre-tax corporate income</td>
<td>PSZ non-retirement pre-tax corp. income</td>
<td>0.5</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Other taxes by disposable income less savings</td>
<td>Other taxes by factor income less savings</td>
<td>0.4</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Various corrections to tax income definition</td>
<td>Use uncorrected tax return market income</td>
<td>-0.1</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Imputed rent by property tax deductions</td>
<td>Imputed rent by housing wealth estimates</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Limit returns to adult residents</td>
<td>No adjustment</td>
<td>-0.1</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Groups by individuals/size-adjusted incomes</td>
<td>Groups by adults/equal-split married inc.</td>
<td>-0.2</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Non-profits/govt. income half per capita</td>
<td>Non-profits/govt. income all by income</td>
<td>*</td>
<td>*</td>
<td>0.1</td>
</tr>
<tr>
<td>Social insurance benefits/deficit excluded</td>
<td>Social insur. ben./def. incl., taxes deducted</td>
<td>0.2</td>
<td>*</td>
<td>-0.1</td>
</tr>
<tr>
<td>Federal Reserve payments by mortgage interest</td>
<td>Fed. Res. payments by income</td>
<td>*</td>
<td>*</td>
<td>0.1</td>
</tr>
<tr>
<td>Inflation correction</td>
<td>No correction</td>
<td>*</td>
<td>-0.5</td>
<td>-0.1</td>
</tr>
<tr>
<td><strong>Pre-tax differences (PSZ less AS) &amp; totals</strong></td>
<td></td>
<td></td>
<td>1.6</td>
<td>1.7</td>
</tr>
</tbody>
</table>

| After-tax income          |                          |                                             |       |       |       |           |           |
| Govt. consumption allocated half per capita | Govt. consumption all by after-tax income | 0.8  | 0.7  | 1.2  | 0.5  | 0.4  |
| Non-SS deficits by federal income taxes | Half by government transfers, half taxes | -0.2 | 0.1  | 0.6  | 0.5  | 0.7  |
| Government transfers as described in text | PSZ transfers distribution | -0.3 | -0.2 | *    | 0.2  | 0.3  |
| Estate tax by prior decade decedent income | Estate tax by wealth distribution | *   | *   | *    | *    | *    |
| Corporate taxes by wages and corp. ownership | Corporate taxes by capital ownership | -0.2 | -0.3 | -0.3 | *    | -0.1 |
| Other taxes by disposable income less savings | Other taxes by factor income less savings | -0.2 | -0.1 | -0.3 | -0.2 | -0.1 |
| **After-tax differences (PSZ less AS) & totals** |                          |                                             | 0.2   | 0.3   | 1.1   | 0.8   | 0.9   |

* denotes changes between -0.05 and 0.05.

Notes: Auten-Splinter approach is described in text and in detail in the online appendix. Percentage point differences are from changing each assumption independently (as opposed to stacking changes) and therefore may not sum to the PSZ less AS difference. Results are the average changes in top one percent income shares of going from AS to PSZ and PSZ to AS assumption (see online data for details). The total after-tax difference nets out the pre-tax difference. * denotes changes between -0.05 and 0.05.

Sources: Authors’ calculations and Piketty, Saez, and Zucman (2018).

Total average tax rates, federal and state, PSZ vs SZ (book, NYT) 1962

In order to match categories:
NYT P0-50 and P50-90 are simple averages of P0-10...P80-90 in NYT
PSZ P99-99.9 is the weighted average of P99-99.5 and P99.5-P99.9
Top 0.001 is 2434 individuals in 2014

- Blue: Piketty-Saez-Zucman (2018)

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- Piketty-Saez-Zucman (2018)
- Saez-Zucman, NYT visualization (2019)
Progressivity top 0.01% — SZ (2019) vs PSZ (2018)

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Average tax rate, all taxes (%)

Year

Piketty-Saez-Zucman, QJE (2018)
Progressivity — other sources: Auten-Splinter (2019)

**Figure 3: Average tax rates**

Notes: Average tax rates are all taxes divided by income. Both PSZ and Auten-Splinter exclude the refundable portion of tax credits, which are categorized as transfers in the national accounts—adding them would lower bottom 50 percent tax rates up to 3 percentage points. Forecasted rates apply Tax Policy Center (2017) estimated changes to 2014 rates. To match the 2014 PSZ groups, the Saez-Zucman bottom groups are averaged for the P0–50 bin, P99–99.9 values are applied to separate groups, and the top 400 rate is excluded.

Sources: PSZ, AS, Saez and Zucman (2019), and author’s calculations.
Average Tax Rates by Before-Tax Income Distribution, 2016

Percent of Income Before Taxes and Transfers

- State and Local Taxes
- Other Federal Taxes
- Federal Income Tax
- Total

Credit: Jason Furman, https://twitter.com/jasonfurman/status/1181276490047975425

Percent of Income Before Taxes and Transfers

Credit: Jason Furman, https://twitter.com/jasonfurman/status/1181276490047975425
I guess my point is that excluding transfers and consideration of incidence sound like rigorous criteria, but are actually more problematic, involving more judgement calls, than they seem.

Saez and Zucman make this point brilliantly, and also tell us a lot about how that happened. So the important thing is not to get too hung up on the technical disputes. The core SZ insight is totally robust.

- Allocate everything consistently with national accounts.
  \[\Rightarrow\] it does not directly answer any well-defined questions related to consequences of tax-and-transfer system on well-being

- Rely on **statutory** incidence of taxation
  \[\Rightarrow\] it is much more arbitrary than you may think and does not answer any well-defined questions related to consequences of tax-and-transfer system on well-being
**Measurement at the bottom**

**sum of income** pre-tax, pre-transfer (except for Social Security), negative interest income (7.5% reduction!)

**sum of taxes** ignore transfers, refundable credits,

**sum of taxes** • allocate sales/excise tax based on consumption (transfer income not counted!); payroll tax all on employees

• Sales/excise tax of 10% at the bottom — sales tax rates 6-7% with lots of exemptions (food, rent!); gasoline, alcohol, tobacco

• Aside: statutory incidence of payroll tax partially on employers; statutory incidence of sales/excise tax on sellers.

division sign

sales tax based on consumption but no transfer income accounted for → infinite/very large tax rate

**group**

• drop 27 million very low income people when talking about tax rates, still use them for inequality statistics

• transfers still relevant higher up

• low income people include: college students (adults 20 and up), institutionalized population, retirees. Demographic trends.

• no economies of scale

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

- Piketty-Saez-Zucman, QJE (2018)

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Remove changes in corporate tax incidence

Average tax rate, all taxes (%)

- Piketty-Saez-Zucman, QJE (2018)

Year


Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Remove changes in corporate tax incidence plus average change in incidence of income and sales taxes (4.83pp)
Measurement at the top

**sum of taxes** Big one: corporate tax incidence

- familiar question: does labor bear any burden? Both PSZ and SZ assume no (good recent evidence though that it is $>0$, AER papers by Suarez-Serrato and Zidar (2016) and Fuest, Peichl and Siegloch (2018))

- less familiar: does other capital bear burden? Everybody (including PSZ) assumes so. SZ do not.

- why does it matter? **Historical trend.** According to the wealth data they rely on (I have issues with it, but let’s put aside), top 1% owned directly
  — 40% of equities and 20% of fixed income in the 1970s
  — 60% of equities and 60% of bonds now.

- Move everything to shareholders → increase tax liability of the rich in the past. **It creates strong trend where there was not much of it.**

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Average tax rate, all taxes (%)

Year

Piketty-Saez-Zucman, QJE (2018)

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Average tax rate, all taxes (%)

Year

Piketty-Saez-Zucman, QJE (2018)

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Total average tax rates, federal and state, PSZ (2018) vs SZ (2019) Top 0.01%

Average tax rate, all taxes (%)

Year

Piketty-Saez-Zucman, QJE (2018)
**Sum of income**  Treatment of capital gains
- “Pure” capital gains (over 3%) included in income
- It breaks national accounts (so much for that principle)
- Included in year when realized not earned; double counting if CGs reflect future profits; corresponding losses not fully accounted for

**Sum of income**
- Recall Auten-Splinter. Put wide confidence bands on measures of inequality
- Where is economic income of Forbes 400 coming from? It’s based on Forbes estimates. Best evidence shows about 50% of Forbes estimate on estate tax returns. Maybe evasion, but also (1) debt (2) family ownership (3) errors.
- 2017 and 2018 are projections, no tax data yet
Tons of assumptions, inconsistent with the literature but very consequential.

The principle of reliance statutory incidence is economically meaningless, you cannot run away from counterfactuals.

It is also not consistently applied (employer share of payroll, sales tax). Neither is reliance on national accounts consistently applied (population, capital gains).

Read the book if you can see past the numbers.
Highest VAT revenue:
- Denmark 9.4%
- New Zealand 9.4%
- Hungary 9.3%
- Sweden 9.2%
- Finland 9.1%

Revenue (%GDP) — VAT and excise
Revenue (%GDP) — income and corporate tax

[Bar chart showing revenue (%GDP) for United States, Canada, and OECD average. The chart breaks down revenue into All consumption, Corporate, Income, and All other sources.]
Revenue (%GDP) — Social Security and payroll taxes

- Consumption+Income+Corporate
- Social Security/payroll
- All other sources

United States
Canada
OECD – Average
(a) Top 0.1% wealth share

Notes: The top panel depicts various estimates of share of wealth held by the top 0.1% of family tax units in the United States: (1) survey data combining the SCF and the Forbes 400 rich list, (3) the capitalization method of Saez and Zucman (2016) updated to 2016 and improved upon in Piketty, Saez, and Zucman (2018), (3) the capitalization method with adjustments to capitalizing interest income and valuing pass-through businesses, (4) the estate multiplier method from Kopczuk and Saez (2004) updated in Saez and Zucman (2016), smoothed out after 2000, adjusted for more accurate mortality differentials by wealth from Chetty et al. (2016) and converted into tax units (instead of individual adults). See Figure 3 below for a step by step decomposition of these adjustments. The bottom panel depicts estimates of the share of wealth held by the bottom 90% of families (households for the SCF) (no estate multiplier estimates are available for this measure). To improve comparability, the SCF estimates exclude consumer durables and add back the wealth of the Forbes 400 which are excluded by design from the SCF.
Figure 1: Wealth Concentration in the United States

A. Top 0.1% Share of Total Wealth

The figure plots the share of total household wealth for different wealth groups. Panel A graphs the top 0.1% share of net household wealth from Saez and Zucman (2016), Kopczuk and Saez (2004), and the SCF, as well as our preferred specification. Panel B plots the share of net household wealth of the bottom 90%, P90-99, and the top 1% of the wealth distribution under the baseline and our preferred alternatives.