U.S. Taxes are Progressive:
Comment on "Progressive Wealth Taxation"

David Splinter[1]
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U.S. federal taxes are progressive, as shown by Congressional Budget Office and Tax Policy Center estimates, with average tax rates increasing with income. In fact, the OECD (2011) estimated that the U.S. has the most progressive household taxes among developed countries. Moreover, the 2017 tax reform is expected to have little effect on overall tax progressivity (Tax Policy Center, 2017; Joint Committee on Taxation, 2019). But Saez and Zucman (2019) argue that average tax rates are nearly equal over the income distribution. To examine this claim, this paper compares other estimates of average tax rates by income group, all of which suggest a high degree of progressivity. Three issues are found to bias the average tax rates presented in Saez and Zucman (2019). After correcting for these issues, their estimates align more closely with other estimates that show U.S. taxes are progressive.

I. Comparing Estimates of Average Tax Rates

There are two types of average tax rate estimates in the literature, one based on federal taxes and another on taxes from all sources. Figure 1 considers average federal tax rates over the income distribution, showing estimates from Piketty and Saez (2007), Tax Policy Center (2018, hereafter TPC), Congressional Budget Office (2019, hereafter CBO), and Auten and Splinter (2019, hereafter AS). The left side presents tax rates excluding payroll taxes.[2] For 2004, Piketty and Saez (2007) estimated a second quintile average tax rate of –1%, with the negative rate resulting from refundable credits, while the top 0.01 percent tax rate was 33%. The other three estimates are for 2014, with CBO and TPC estimating bottom quintile tax rates of –8% and –4% and top 1 percent rates of 32% and 31%. AS estimated a bottom 50 percent tax rate of 2% and a top 1 percent rate of 29%. These average tax rates increase with income, suggesting significant progressivity.

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[2] All tax rates presented in this paper include corporate taxes, which are allocated as follows. To wages, CBO and AS allocate 25 percent, TPC 20 percent (Nunns, 2012), and Piketty and Saez (2007) and Piketty, Saez, and Zucman (2018) none. For the non-wage component, CBO allocates to capital income reported on tax returns, AS to all corporate owners, TPC three-quarters to shareholders and one-quarter to all capital, Piketty and Saez (2007) and Piketty, Saez, and Zucman (2018) to all capital.

Figure 1: Average federal tax rates
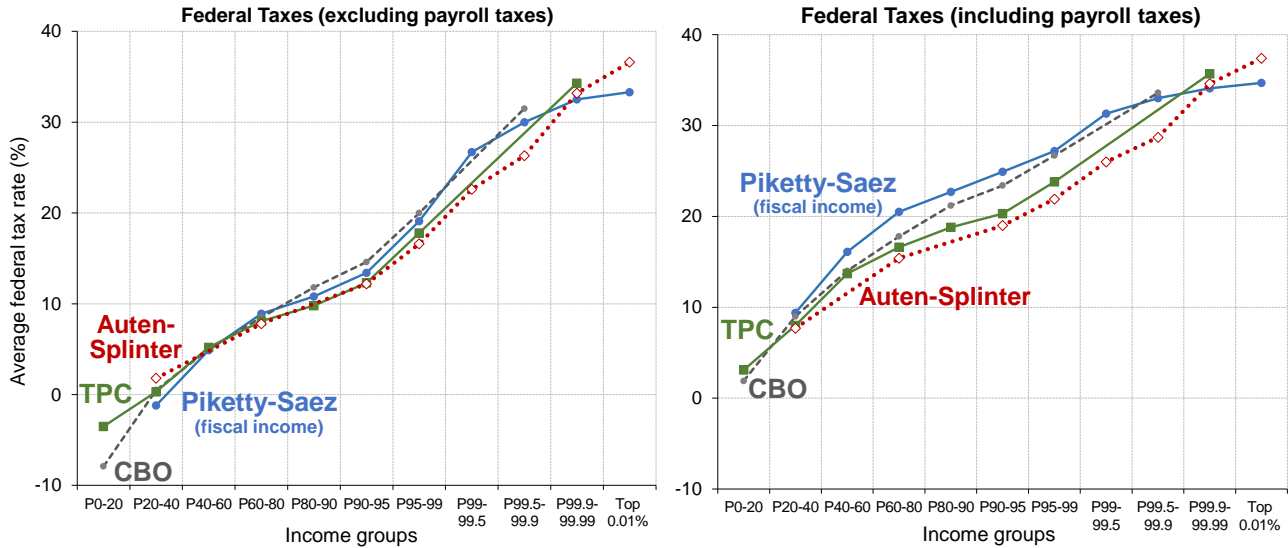
Notes: Average tax rates are taxes divided by income, defined by Piketty-Saez as fiscal income and payroll and corporate taxes; Auten-Splinter as pre-tax/after-transfer national income; TPC as expanded cash income; and CBO as market income plus social insurance benefits. Income include realized capital gains, although Auten-Splinter instead include corporate retained earnings. Auten-Splinter and TPC include income accrued in retirement accounts. Auten-Splinter taxes include non-federal corporate and estate taxes. P0–20 is the bottom quintile, P20–40 the second quintile, etc. Auten-Splinter bottom 50% rate is placed in P20–40 bin and P50–90 in P60–80 bin, CBO top 1% in P99.5–99.9 bin, and TPC top 0.1% in P99.9–99.99 bin. Piketty-Saez rates are for 2004, but otherwise for 2014. *Sources*: Piketty and Saez (2007), TPC, CBO, and AS.

Figure 1, right side, includes payroll taxes. This generally increases federal tax rates by about 10 percentage points for the bottom 99 percent of the income distribution and 2 percentage points for the top 1 percent—a result of the Social Security contribution taxable maximum.[3] Average tax rates taxes are very similar among these four estimates and imply a highly progressive federal tax system.[4] The Joint Committee Taxation (2019) also estimated average federal tax rates. For 2019, before accounting for the effects of the 2017 tax reform, these tax rates almost exactly match those of Piketty-Saez. For 2015, U.S. Treasury (2015) data indicate that average federal tax rates were more progressive than those presented in Figure 1: ranging

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[3] Payroll taxes are considered social insurance contributions and associated with individuals accruing rights to benefits. These benefits are progressive relative to contributions—even when accounting for differential mortality (Congressional Budget Office, 2006)—and therefore the tax component provides an incomplete measure of overall social insurance progressivity.

[4] Some differences result from equivalence scales. CBO, AS and U.S. Treasury rank observations by income divided by the square-root of sharing unit size. Piketty and Saez (2007), TPC, and the Joint Committee on Taxation rank by tax unit income. Cronin, DeFilippes, and Lin (2012) found that these two approaches give similar results for federal individual income taxes, with the exception of the bottom quintile—consistent with the left side of Figure 1.

from –5% for the bottom quintile to 39% for the top 0.1 percent.[5] Note that Figure 1 exaggerates the share of the population at the top. While this emphasizes differences in top tax rates, Figure 2 instead uses an equal-spacing approach that shows how average tax rates truly spike for a small share at the top of the distribution.

Figure 2: Average federal tax rates
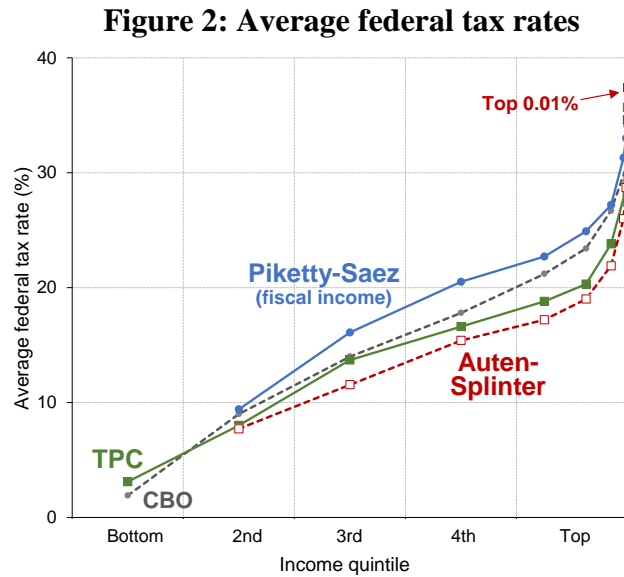
Notes: See Figure 1. *Sources*: Piketty and Saez (2007), TPC, CBO, and AS.

Figure 3 considers average tax rates for all taxes, including state and local income, property, and sales taxes. There are few estimates of the distribution of all taxes, and therefore only two estimates are compared. The left side considers 2014 estimates from AS and Piketty, Saez, and Zucman (2018, hereafter PSZ). AS average tax rates are about 10 percentage points higher than when only considering federal taxes. While some state and local taxes are regressive, property taxes and state and local income taxes are progressive, partly from state-level earned income credits and "millionaires" taxes. In addition, the national accounts show that state and local taxes represent only about a third of all taxes and hence are unlikely to significantly alter tax progressivity. PSZ estimates, however, are much less progressive than those of AS, with relatively higher bottom 95 percent tax rates and lower top 1 percent tax rates. The reasons for these differences are discussed next.

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[5] Federal tax progressivity increased in recent decades. Between 1985 and 2015, the CBO-estimated difference between bottom quintile and top 1 percent average tax rates increased by 17 percentage points, from a difference of 14 to 32 percentage points. Splinter (2019) estimated that the Kakwani index of progressivity for federal individual income taxes increased nearly 60 percent between 1985 and 2015, largely due to expanded tax credits.

Figure 3: Average tax rates
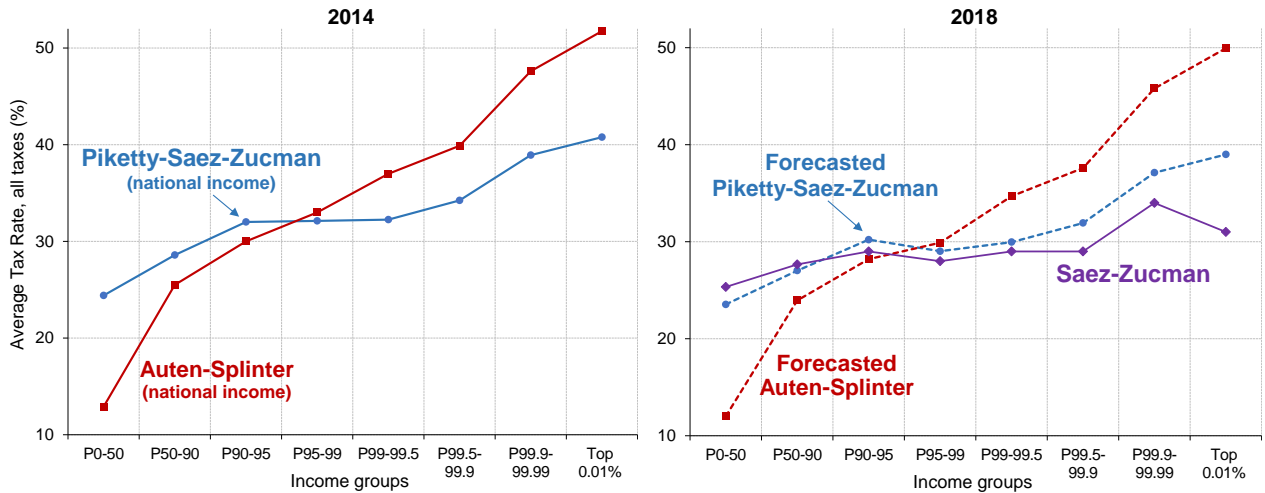
Notes: Average tax rates are all taxes divided by income. Both PSZ and Auten-Splinter exclude the refundable portion of tax credits, which are categorized as transfers in the national accounts—adding them would lower bottom 50 percent tax rates up to 3 percentage points. Forecasted rates apply Tax Policy 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.

II. Reconciling PSZ and AS Estimates

Average tax rates result from dividing total taxes of an income group by their income. Largely due to differences in the allocation of corporate taxes, the amount of 2014 taxes paid by each income group are slightly *more* progressive for PSZ than AS and therefore differences in the income denominator fully explain the less progressive PSZ estimated tax rates. These income-denominator differences also contribute to PSZ rates being less progressive than the various federal tax rate estimates discussed above. Three differences in how incomes are estimated stand out: the allocation of underreported income, the allocation of retirement income, and the definition of income.

First, wage and business income in national income data exceed amounts reported on tax returns by over a trillion dollars. Both PSZ and AS include these untaxed underreported amounts; the PSZ estimates, however, over-allocate underreported income to the top. This is because PSZ allocate underreported income using an ad hoc assumption that such income is proportional to reported source-specific income, whereas AS rely on representative IRS audit studies that are the basis for including these amounts in national income. These studies consistently show that the ratio of underreported income to reported income declines for higher levels of reported income, while the PSZ approach effectively assumes the opposite. Differences

in the allocation of underreported income have large consequences for top incomes.[6] To illustrate this effect, assume a high-income single filer has $10 million of reported income on her individual tax return, including $3 million from self-employment, resulting in $6 million in taxes (income, payroll, corporate, sales taxes, etc.). The PSZ approach approximately doubles her self-employment income because only about half of self-employment income in the national accounts is reported on tax returns. This increases the filer's total income to $13 million and has no effect on taxes, decreasing her tax rate from 60% to 46%. In comparison, audit-based net misreporting rates for her reported income level would add about $0.1 million of underreported income (Johnston, 2008), lowering her average tax rate by only one percentage point to 59%.

Second, the PSZ allocation of untaxed retirement income further reduces average tax rates for the top of the distribution. This results from PSZ imputing this income, in part, using non-taxable rollovers. If the filer reported a rollover, this merely represented her assets shifting between accounts rather than a current-year income flow. But the PSZ approach treats rollovers as income and grosses up this amount (along with taxable retirement income) to wealth based on an assumed rate of return. This results in an over-allocation of non-taxable retirement income to the top of the distribution and further depresses her estimated tax rate. If the PSZ approach allocates $1 million of untaxed retirement income, her tax rate decreases from 46% to 43%. The AS approach, however, ignores non-taxable rollovers and allocates about a third as much at this income level, decreasing her rate from 59% to 58%.

The PSZ and AS approaches use similar allocations of corporate retained earnings. Assuming $1 million is allocated under both approaches lowers her PSZ rate to 40% and AS rate to 52%. These tax rates approximate those of the top 0.01 percent in Figure 3.

Symmetric effects occur at the bottom of the reported income distribution. To illustrate differences in bottom 50 percent rates, assume a low-income single filer has $20 thousand of reported wages and pays $5 thousand in taxes. The PSZ approach adds a negligible amount of underreported income. Based on IRS net misreporting rates for this reported income level (Johnston, 2008), the AS approach adds about $4 thousand of underreported income—increasing total income to $24 thousand and decreasing the tax rate from 25% to 21%. The addition of non-taxable retirement income decreases the tax rate another 2 percentage points under both approaches.

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[6] In recent decades, PSZ approach allocate about 50% of underreported business income to the top 1 percent. In comparison, a special audit study composed of a representative sample shows that the top 1 percent by *reported* income accounts for only 5% of underreported income (see Table 3 in Johns and Slemrod, 2011).

Third, differences in the income definition have significant effects on lower-income tax rates. A broad definition of pre-tax income should be used to calculate average tax rates, but PSZ exclude non-social insurance transfers and deduct most payroll taxes, decreasing income and thereby increasing the PSZ low-income tax rate to 24%. Using a more consistent approach, AS include all government transfers and all payroll taxes in the income measure, which decreases the AS low-income tax rate to 13%. These tax rates approximate the bottom 50 percent rates in Figure 3.

III. Unclear Source of 2018 Estimates

Figure 3, right side, compares forecasted 2018 average tax rates. Because 2018 estimates from AS and PSZ are not yet available, the 2014 tax rates are adjusted using Tax Policy Center (2017) estimates of changes from the 2017 tax reform, which are similar to estimates by Joint Committee on Taxation (2019). The dashed lines are the resulting forecasted tax rates and are slightly less progressive than 2014 rates, with bottom 50 percent rates decreasing 1 percentage point and top rates 2 percentage points.

The flat solid line, however, are the rates presented by Saez and Zucman (2019). It is not clear why these top tax rates are much lower than suggested by forecasted 2018 rates. They cite PSZ as the source for these 2018 estimates. But PSZ only provided estimates using the tax files through 2014, and as of October 1, 2019, the PSZ online data had no subsequent estimates. Moreover, the 2018 tax data files used for PSZ estimates will not be available until about a year after their conference draft was posted. Hence, these estimates necessarily use a different method than the cited source.

IV. Conclusion

Saez and Zucman (2019) argue that the U.S. has a relatively proportional tax system across all income levels. However, federal taxes are progressive, as shown by Piketty and Saez (2007), Auten and Splinter (2019), The Urban-Brookings Tax Policy Center, the Joint Committee on Taxation, the U.S. Treasury, and the Congressional Budget Office. Three issues with the Saez and Zucman (2019) methodology for calculating tax rates are shown to explain much of their deviation from other measures.

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