

The Distribution of Capital Gains in the United States: A Comment

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National income is estimated based on a consistent treatment of economic income flows. Research on the distribution of income (Piketty, Saez, and Zucman 2018; Auten and Splinter 2024) uses these agreed upon national income concepts. Notably, national income excludes accrued capital gains, as income is only generated by an underlying asset when it contributes to current-year production. Capital gains, in contrast, are based on volatile asset-price changes and are not meaningful measures of economic income. Adding capital gains to national income breaks the consistent approach to income measurement, shifts capital income forward in time, and exaggerates top income shares. This comment reviews the Campbell, Robbins, and Wylde (2024) approach of incorporating capital gains into national income, challenging their analysis, conclusions, and contributions to the literature.

Keywords: Accrued capital gains, Haig–Simons income, heterogeneous returns, national income, Tax progressivity, tax rates, retained earnings.

1. Introduction

In an [IRS](#) working paper, Campbell, Robbins, and Wylde (2024, CRW) combine prior estimates and capitalization methods to estimate accrued capital gains and the implications of allocating these gains for income inequality and the progressivity of the U.S. tax system. This comment highlights three main issues with their estimates: (1) the accrued-capital-gains-inclusive income measure shifts capital income forward in time, relative to internationally agreed upon national income standards; (2) it is not a Haig–Simons income measure, as claimed, because of its failure to remove taxes or add transfers; and (3) there are significant problems with CRW’s underlying national income and tax-rate estimates. As a result of these issues, CRW overestimate income inequality and underestimate tax progressivity.

By adding accrued capital gains to national income, CRW shift capital income forward in time relative to the standard national income concept. While CRW remove corporate retained earnings from capital gains, this only partially address the problem. Their approach still implicitly shifts forward capital income related to passthrough business income and imputed rents from housing. This issue is evident in CRW’s main result, where adding accrued capital gains produces a measure of “income” that exceeds national income by 20%. But those capital gains represent changes in wealth tied to expectations of future

capital income, rather than the resources available for current-year consumption and saving. As set out in the U.S. National Income and Product Accounts and the System of National Accounts (2008),¹ capital gains are revaluations (i.e., price changes) of existing assets—not current income. This treatment goes back to the founding of national accounts. Kuznets, Epstein, and Jenks (1941, p. 12) said “capital gains and losses are not increments to or drafts upon the heap of goods produced by the economic system for consumption or for stock destined for future use, and they should be excluded [from national income].”

CRW also incorrectly claims to measure Haig–Simons income. It equates “factor income plus [accrued] capital gains” with the Haig–Simons income definition of “consumption plus change in wealth.” But the two are not equivalent. CRW’s measure exceeds potential consumption due to forward shifting of capital income. Also, Haig–Simons income is necessarily a post-tax and post-transfer measure, as you can’t consume taxes paid and can consume transfers received. But the CRW measure is pre-tax and pre-transfer, even though Larrimore et al. (2021) clarified that Haig–Simons income deducts taxes and adds transfers.²

The underlying national income data used by CRW also has limitations that exaggerate top capital incomes. The deficiencies in those national income data, which come from Piketty, Saez, and Zucman (2018), have been raised in various papers (Splinter 2020a; Auten and Splinter 2019, 2024, 2025) but go unmentioned by CRW. Additionally, CRW uses a non-standard measure of tax rates (Splinter 2020b), deviates from its own accrued-gains approach for fixed-income assets, and overstates the contribution of the heterogeneous return methods.

2. Capital gains are forward-shifted capital income

Adding capital gains to national income shifts capital income forward in time, even after removing corporate retained earnings, as done in CRW. National income is designed to avoid double counting and to attribute income to the year during which the underlying economic activity occurs. To explain why national income excludes capital gains, the Bureau of Economic Analysis (2005) notes that “capital gains are volatile and not always positive.” Moreover, “capital gains represent changes in the price of already-existing assets, but only an expansion of the real stock of assets via investment represents an increase in the wealth of a society.” The Canberra Group (2001, p. 29) report on national accounts explained another issue with adding capital gains to economic income: “If the value of a share increases because of the increased performance of the company concerned,

¹ The SNA was produced and released by the United Nations, the European Commission, the Organisation for Economic Co-operation and Development, the International Monetary Fund and the World Bank Group.

² A related Haig–Simons measure with forward-shifted capital income is the Balkir et al. (2025) measure of annualized changes in real wealth, which relies on assuming no consumption for the top group. But selecting the top-group by final-year wealth introduces survivorship bias that pushes up wealth increases. See Splinter (2025).

the increase in the share will be related to the increase in dividends expected in the coming years. To count both as income would be to count the same income flow in two periods.”

Accrued gains essentially bunch profits (losses) from other years into the current year and usually represent future expected capital income that is shifted forward in time. Two examples show how accrued capital gains reflect expected increased future profits (effectively pulling income from later years into the present year) or a drop in discount rates (which values future profits more highly). First, consider a new firm with zero net profit and zero value. If profits increase to \$1 per year (starting next year) and the discount rate is 0.2, the present discounted cash flow valuation increases to \$5, producing an accrued capital gain of \$5. But that gain reflects the capitalization of future profits of \$1 in all the following years. This issue occurs not only from real-income valuation changes but also from discount-rate changes. Continuing the example above, assume the discount rate falls from 0.2 to 0.1 and the present discounted value increases to \$10, another accrued capital gain of \$5. The valuation change is from a larger inclusion of future profits in the present. This discount-rate change also represents forward shifting of capital income. For related discussions see Moll (2020), Cochrane (2020), Greenwald et al. (2023), Aguiar et al. (2024); Catherine et al. (2025), and Auclert et al. (2025).

CRW mentions these issues. Regarding real-income changes, CRW (p. 7) note that “If all changes in asset prices were from changes in expected returns, it would not be appropriate to include capital gains as part of the income measure.” Regarding discount-rate changes, they say: “A rentier owning a consol [sic] that yields a real income stream of \$100 per annum, who does not plan to sell, is neither better nor worse off if a decline in interest rates increases the security’s market value. *The income effect of a change in interest rates may be completely independent of the change in asset value for the holders.*”³ Thus, real-income and discount-rate changes are both recognized issues.

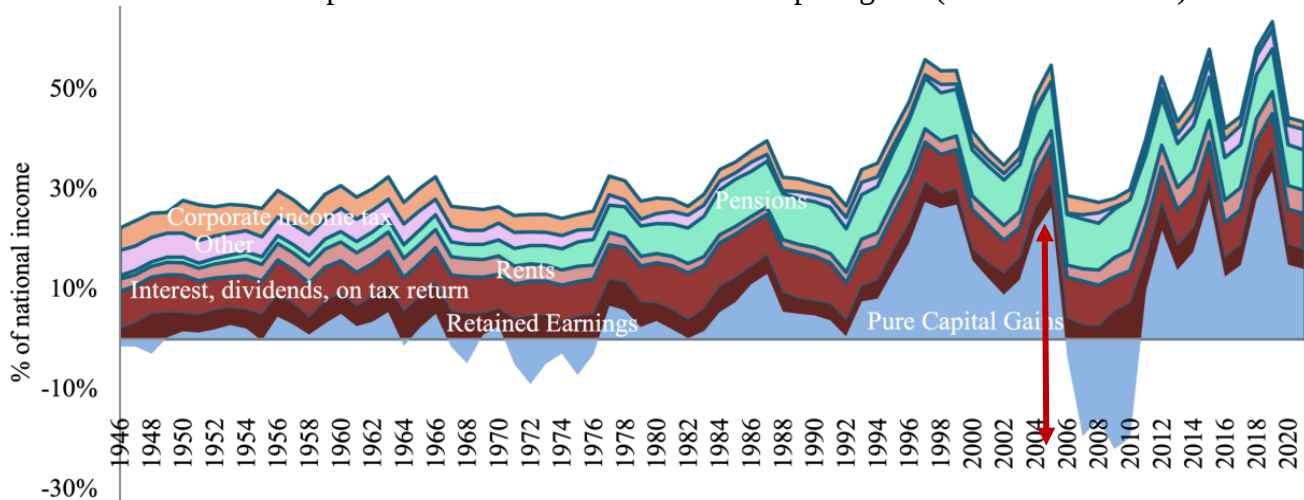
The examples above highlight how changes in estimated wealth (i.e., accrued capital gains) do not give a meaningful measure of annual income. Accrued capital gains can be thought of as “paper” income resulting from timing shifts, not “economic” income like national income. National income combines real economic flows from labor and capital and therefore parallels actual consumption. But CRW creates an accrued-gains-inclusive measure that since 2000 exceeds national income by about 20%, which breaks the link between income and consumption—Americans can’t consume that additional 20%. Instead, accrued capital gains represent *future* income being pulled forward and will only be realized (or possibly lost) in future years. Following the Kuznets et al. (1941) point in the first footnote, these “paper” capital gains are therefore excluded from national income because they are not “economic” income.

³ Italics added. A consol is a bond paying an unending stream of fixed interest payments.

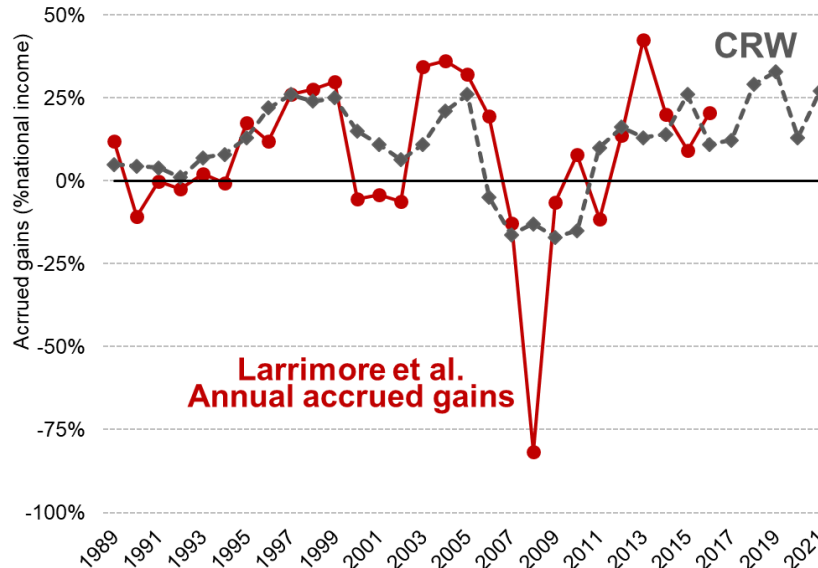
The extreme volatility of accrued capital gains also demonstrates its failure to measure real economic income. Even after averaging capital gains over five years, the red line in Figure 1A shows that from 2005 to 2007 accrued-gains-inclusive income fell by about 30% of national income, far more than any reasonable measure of changes in living standards. The five-year averaging, however, shifts the losses from 2008 across surrounding years. Without averaging, accrued capital gains become even more volatile and clearly diverge from measures of real economic activity.

Figure 1. Accrued capital gains forward-shift capital income

A. CRW capital income with forward-shifted capital gains (%national income)



B. Larrimore et al. (annual) and CRW (5-year averages), %national income



Notes: CRW income is national income less corporate retained earnings plus estimated 5-year-average accrued capital gains. Arrow added by author, otherwise, Panel A is from CRW Figure 2, which says: “Comparison of capital income. ‘Pure capital gains’ are real capital gains of households after subtracting retained earnings, 5 year moving average, estimated from the Financial Accounts. Other components of capital income adopted from Piketty, Saez and Zucman (2018).” Source: CRW and authors’ calculation using Larrimore et al. (2021) and NIPA table 1.12.

While CRW do not reveal their annual capital gains estimates, annual measures are available from Larrimore et al. (2021), which used a similar estimation approach and data as CRW. Larrimore et al. (2021) estimated annual accrued capital loss in 2008 of about 80% of national income that year. That annual measure emphasizes that capital gains are not meaningful measures of real economic income. Americans did not produce or consume four-fifths less in 2008 than in surrounding years.⁴

3. Haig–Simons income requires removing taxes and adding transfers

CRW (p. 6) asserts that Haig–Simons income “is measured as consumption plus change in wealth, or equivalently (as in this paper) factor income plus capital gains.” But those two measures are not equivalent. As explained in Larrimore et al. (2021), Haig–Simons income is necessarily a post-tax and post-transfer measure. This is because, in theory, it equals what a person could consume in a year while maintaining their wealth, and taxes reduce one’s consumable resources while transfers increase them.

Consider someone with no market income or wealth who consumes only from transfers, this person’s consumption far exceeds their factor income plus accrued capital gains (which is zero). Now consider someone with no wealth and \$1 million of labor income, half of which is paid in taxes and half of which is consumed: their consumption plus change in wealth is only half of their factor income plus accrued capital gains. In the first example, Haig–Simons income exceeds CRW’s factor-income-plus-gains measure; in the second, Haig–Simons income is less than CRW’s measure. These examples show that CRW is not measuring Haig–Simons income.

An additional issue is that wealth can be pre-tax or post-tax. The accrued capital gains estimated in CRW are pre-tax (except for wealth in Roth retirement accounts). These gains would need to be converted to after-tax amounts to measure changes in potential consumption, the goal of Haig–Simons income.

4. Issues with baseline Piketty, Saez, and Zucman (2018, PSZ) income estimates

CRW extends the estimates of PSZ. Auten and Splinter (2024) discussed limitations of these estimates. For example, PSZ conflate pension flows with pension wealth and allocate misreported income proportionally to positive reported income, which allocates much more misreported income to the top than seen in the audit studies used to estimate misreported income for national accounts (Auten and Langetieg 2023; IRS 2024; Auten and Splinter 2025). Therefore, the CRW estimates piggyback on already inflated top income shares. The embedded assumptions in the underlying PSZ data also magnify CRW’s estimates of high-income accrued capital gains.

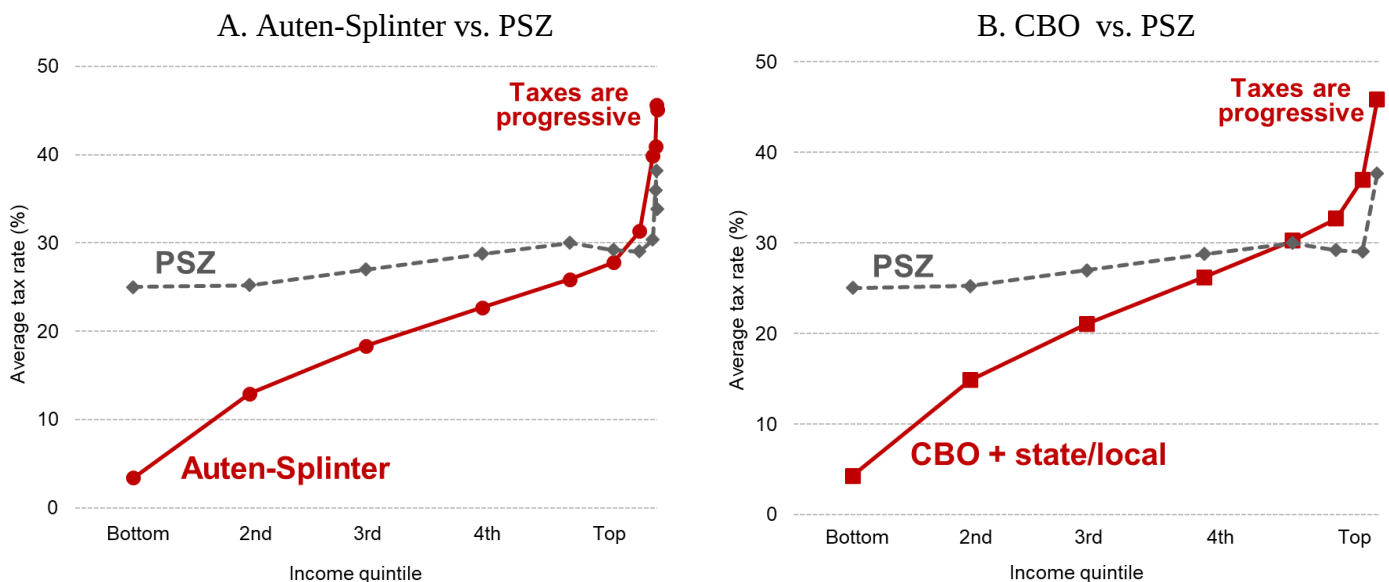
⁴ CRW show five years of losses centered around 2008 (2006–2010) of about 20% each year, suggesting a 2008 accrued loss of similar magnitude to national income, i.e., similar to the finding in Larrimore et al. (2021).

5. Average tax rate estimates deviate from standard measures

The average tax rate estimates in CRW deviate from the standard approach. Standard measures include transfers in the income denominator and account for refundable tax credits in the tax numerator. Estimates from the Congressional Budget Office (CBO), Joint Committee on Taxation, Tax Policy Center, Treasury Department, and Auten and Splinter (2024) all follow this standard approach, using expanded pre-tax income plus transfers to better reflect the potential tax base (Splinter 2019, 2020b). In contrast, the CRW approach—following PSZ—ignores transfers and refundable tax credits, which by construction yields flatter tax rates over the income distribution. However, this deviates from the conventional approach, which includes transfers to reflect actual resources and includes tax credits to reflect the full impact of taxes.

Figure 2 presents two standard estimates—Auten–Splinter and the Congressional Budget Office (both in red)—which show that the total federal, state, and local tax system is highly progressive. In 2018, the Auten–Splinter estimates of average tax rates increased from 3% for the bottom income quintile to 46% for the top 0.1%. The CBO estimates, with state and local taxes added, show average tax rates increased from 4% for the bottom income quintile to 46% for the top one percent.

Figure 2: Average U.S. Tax Rates by Income Group, 2018



Notes: Auten-Splinter average tax rates are federal, state, and local taxes divided by national income plus transfers (full population). CBO tax rates are federal taxes divided by expanded fiscal income plus transfers (excludes those living in group quarters) plus Auten-Splinter state/local tax rates. PSZ tax rates are federal, state, and local taxes (no refundable tax credits) divided by transfer-exclusive national income (sample excludes about ten percent of adults with market income under half the minimum wage).

Source: Auten and Splinter (2024 and updates), PSZ (2018 and updates), and Congressional Budget Office (2024).

The PSZ approach, however, shows nearly flat tax rates that only increase from 25% to 38% across the income distribution. For low-income groups, PSZ tax rates are overstated because they include sales taxes in the numerator but omit the transfer income used to finance those purchases in the income denominator (Splinter 2025), and also fail to account for refundable tax credits. Furthermore, CRW only presents the bottom 50% as one aggregated group, which obscures this issue. For high-income groups, PSZ tax rates are understated due to the inclusion of excess imputed income (Splinter 2020b [appendix](#)).

6. Fixed-income assets and removing inflation

While CRW uses real rates of return to convert certain capitalized wealth into income, it does not fully remove inflation from the income measure. For fixed-income assets (e.g., interest-bearing bonds), instead of capitalizing and then applying real rates of return, CRW retains nominal interest income. CRW notes that the approach used for other assets, applying real rates of return to capitalized wealth, leads to negative real accrued capital gains for fixed-income assets. But these appear to be real losses compensated for by lower risk among these assets. Instead of adding these estimated capital gains on fixed-income assets, one could instead retain interest income but remove the inflationary component of nominal interest income from the baseline data. Steuerle (1985), which is cited by CRW, makes this same point and was used by Auten and Splinter (2024) to motivate the removal of inflation from nominal interest income.

CRW use the Net National Product price index to adjust accrued capital gains for inflation. This is not an appropriate measure of inflation for indexing accrued capital gains. Because the gains result from asset-price changes, those changes should be reflected in the measure of inflation, but the index used in CRW ignores them. For example, ignoring asset-price changes for the inflation adjustment is problematic for housing. If my house price doubles but all the other nearby houses to which I may move also double in price, my real purchasing power is unchanged—implying an effective inflation rate of 100%. That is, my real housing wealth (i.e., my real flow of housing consumption) would be unchanged and real accrued capital gains would be zero.⁵

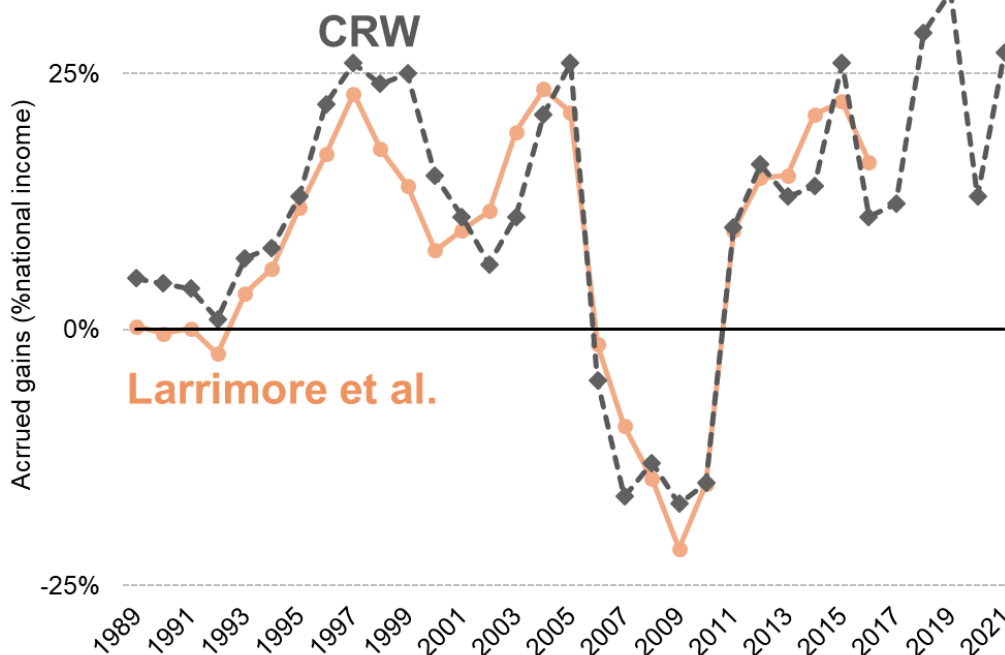
⁵ Similarly, Sinai and Souleles (2005) estimated that that housing price increases mostly capitalize future expected rent increases and hedge future rent risk, i.e., does not represent real increased in consumption. Bajari, Benkard, and Krainer (2005, p. 474) estimate that “up to a first-order approximation, there is no aggregate change in welfare due to price increases in the existing housing stock...capital gains experienced by sellers are exactly offset by welfare losses to buyers.” And, as in the example above, sellers are also often buyers. Moreover, “the only changes in aggregate welfare due to house price changes come from new construction, or from changes in the price of renovating and upgrading the existing stock” (p. 484)

7. Heterogeneous returns and property taxes in prior work

A prior literature has explored capitalization factors that deviate from the equal-returns assumption. Heterogeneous returns for fixed-income assets were discussed by Bricker, Henriques, and Hansen (2018) and Smith, Zidar, and Zwick (2023). Larrimore et al. (2021) and Smith, Zidar, and Zwick (2023) applied heterogeneous property tax rates. Prior papers also used heterogeneous returns for private business assets (Bricker, Moore, and Volz 2021; Larrimore et al. 2021; Campbell and Robbins 2023). Given that the CRW approach mimics the main heterogeneous-return approaches in Larrimore et al. (2021), it is unsurprising that the two papers' results are nearly identical, as seen in Figure 3. That is, CRW's estimates just reproduce what we already knew from Larrimore et al. (2021).

Finally, for residential home values, CRW discuss why higher-income homeowners may enjoy lower assessed value-to-market ratios. But Larrimore et al. (2021) pointed out there are reasons for the reverse outcome. Tiered property tax rates, e.g. fixed dollar exemptions from property values, benefit lower-wealth individuals and lead to richer individuals facing higher (not lower) ratios. They also discussed tenure-based horizontal inequities in assessments, such as those arising from California's proposition 13.

Figure 3: Accrued capital gains, 5-year averages (%national income)



Source: Author's calculations from Larrimore et al. (2021), CRW, and NIPA table 1.12.

VII. Discussion

National income definitions are based on consistent counting of economic income flows to provide a comprehensive measure that prevents double counting and captures income the year it is generated. Adding capital gains to national income shifts capital income forward in time and exaggerates top income shares. This comment discusses Campbell, Robbins, and Wylde (2024), which adds accrued capital gains to national income (less corporate retained earnings). Additionally, this comment highlights that Haig–Simons income is a post-tax and post-transfer measure, that standard average tax rate estimates show the U.S. tax system is highly progressive, and that prior papers already used heterogeneous returns and property tax rates.

Accrued capital gains are a volatile measure—both at the individual level over time and at the macro-level over the business cycle. This makes capital gains distributions difficult to interpret relative to standard measures like national income. While Americans faced many “paper” losses from asset-price declines in 2008, we did not produce or consume 80% less in 2008 than in surrounding years, as suggested by measures combining accrued capital gains with national income. This is because capital gains reflect volatile swings in asset prices and are not a meaningful measure of real economic income. While separate measures of inequality for economic income flows and wealth stocks can be informative, Combining them yields a misleading measure.

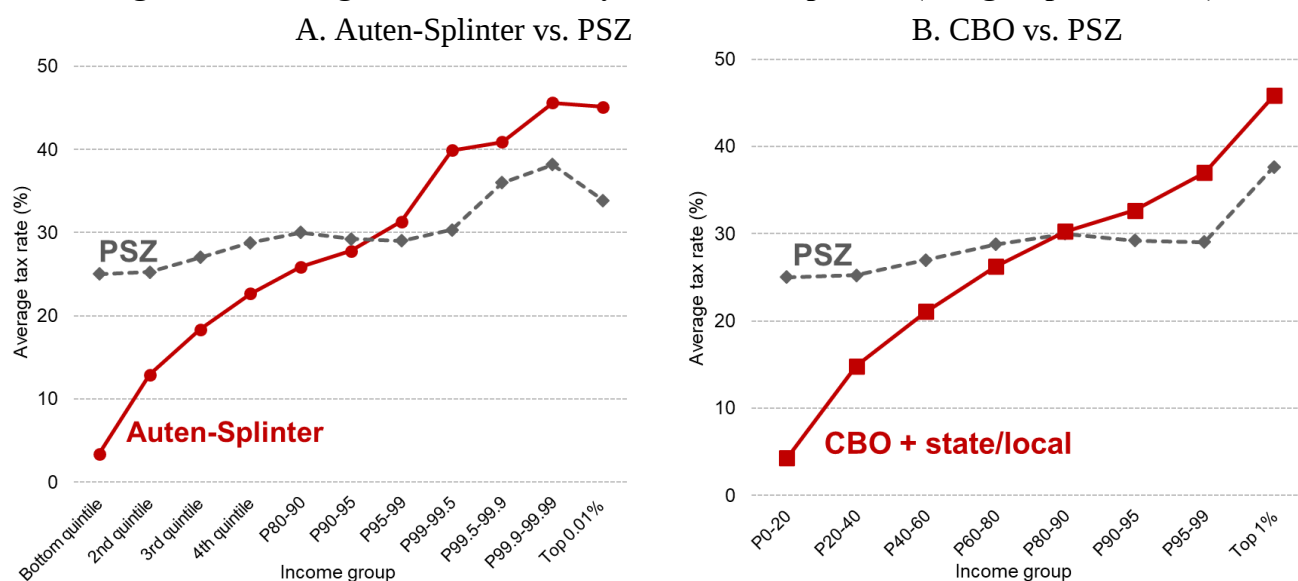
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Appendix

Figure A1: Average U.S. Tax Rates by Income Group, 2018 (sub-group breakouts)



Notes: Auten-Splinter average tax rates are federal, state, and local taxes divided by national income plus transfers (full population). CBO tax rates are federal taxes divided by expanded fiscal income plus transfers (excludes those living in group quarters) plus Auten-Splinter state/local tax rates. PSZ tax rates are federal, state, and local taxes (no refundable tax credits) divided by transfer-exclusive national income (sample excludes about ten percent of adults with market income under half the minimum wage).

Source: Auten and Splinter (2024 and updates), PSZ (2018 and updates), and Congressional Budget Office (2024).