

Income Inequality in the United States: A Comment*

Thomas PIKETTY (Paris School of Economics)

Emmanuel SAEZ (UC Berkeley)

Gabriel ZUCMAN (Paris School of Economics and UC Berkeley)

August 19, 2026

Abstract

Piketty, Saez, and Zucman (2018 and updates; PSZ) and Auten and Splinter (2024; AS) provide estimates of the distribution of national income in the United States, starting with income observed on individual income tax returns and adding income not observed on tax returns. This comment discusses eight methodological differences that explain three-quarters of the discrepancies between the two studies in the level of the top 1% income share in 2019 and in its rise since 1979. For pretax income, the largest difference is that PSZ allocate the growing amount of partnership income exempt from taxation—because of increasingly generous fiscal depreciation rules—to partnership owners, while AS overwhelmingly allocate it to owners of sole proprietorships, who are much less rich. PSZ also allocate the growing tax-exempt income of S-corporations to owners of S-corporations, while AS allocate it to the owners of C-corporations, who are less rich. AS add sales taxes, excises, and tariffs as *pretax* income for the corresponding consumers, which depresses inequality and its rise, whereas in PSZ these taxes do not affect pretax inequality. PSZ distribute untaxed retirement account income to beneficiaries of funded pension plans, whereas AS also allocate it partly to beneficiaries of unfunded pension plans that have no assets. For posttax income, PSZ treat government consumption—defense, infrastructure, education, etc.—neutrally, while AS allocate half of it on a per capita basis, reducing the level and rise of inequality. PSZ treat the government deficit neutrally, while AS view it as a progressive tax that also reduces inequality and its rise.

*Thomas Piketty: piketty@psemail.eu; Emmanuel Saez: esaez@berkeley.edu; Gabriel Zucman: zucman@berkeley.edu. We thank Andy Atkeson, John Iselin, Wojciech Kopczuk, Michael Love, Daniel Reck, John Sabelhaus, Danny Yagan, Owen Zidar, and Eric Zwick for helpful discussions and comments, and Gerald Auten and David Splinter for helping us understand their methodology and providing additional results.

1 Introduction

Auten and Splinter (2024; AS) provide estimates of income inequality in the United States. Following Piketty, Saez, and Zucman (2018 and updates; PSZ), AS start with income observed on individual income tax returns and make adjustments to account for income not reported on tax returns. In contrast to PSZ, AS conclude that the top 1% income share has increased only moderately on a pretax basis and almost not at all on a posttax basis since 1980. Because the concentration of income reported on tax returns has increased dramatically—a non-controversial fact—AS must assume that income not reported on tax returns has become much more equally distributed to obtain their results.¹ Given the importance of the question, clarity is needed in understanding what features of AS’s methodology deliver this result.²

We raise issues with eight aspects of AS’s methodology that are key in generating their bottom-line findings. These issues correspond to the allocation of eight specific income components and are summarized in Table 2. The table shows how big each component is in national income, and describes how methodological differences between PSZ and AS for the attribution of this income to households quantitatively contributes to the overall discrepancy between PSZ and AS in their estimates of the top 1% income share. Six components correspond to forms of pretax income not observable on individual income tax returns: partnership excess depreciation, S-corporation exempt income, retirement account income, C-corporation retained earnings, consumption taxes, and underreported income. Two correspond to components of posttax income: government consumption and government deficit/surplus. Altogether, disagreements about these eight sources of income explain about three-quarters of the AS vs. PSZ discrepancies in the level of the top 1% income share in 2019 and in its rise since 1979, both pretax and posttax.

We begin in Section 2 by uncovering the largest difference between AS’s and PSZ’s allocation of pretax income: the treatment of partnerships’ excess depreciation. Partnerships are one of the main type of private businesses in the United States (see, e.g., Smith et al., 2019). About half of

¹The share of income reported on tax returns (excluding capital gains) earned by the top 1% has increased from 8.0% in 1979 to 17.6% in 2019 (Piketty and Saez, 2003, updated). When including realized capital gains, the rise in the top 1% share is slightly larger (in percentage points), from 10.0% in 1979 to 21.1% in 2019.

²Saez and Zucman (2020) examined a previous version of AS, namely Auten and Splinter (2019). This comment examines the final published version of AS and highlights new issues, as the methodology in AS markedly differs from that in Auten and Splinter (2019), even though the bottom-line findings are similar. We compare AS to the most recent version of PSZ, the February 2022 vintage, that incorporates the methodological updates made in Saez and Zucman (2020). AS provide a comparison with the published version of Piketty, Saez and Zucman (2018) in their Table 4. This comparison focuses on 2014, the last year in Piketty, Saez and Zucman (2018), and does not include the methodological updates made in Saez and Zucman (2020), making it partly obsolete.

partnership income is legally exempt from taxation in 2019 due to generous depreciation rules in the tax code. PSZ allocate this untaxed income by first erasing any partnership loss reported on individual income tax returns, and then proportionally to positive reported partnership profit. AS allocate it proportionally to depreciation and expensing reported on individual income tax returns. The issue is the following: only 5% of this observed depreciation and expensing comes from partnerships. The remaining 95% overwhelmingly come from sole proprietorships, which are much less concentrated than partnerships. This treatment of partnerships' excess depreciation did not appear in earlier versions of AS discussed in Saez and Zucman (2020). Our comment brings this issue to light and provides a thorough investigation of it.

We turn in Section 3 to the other sources of discrepancies between AS and PSZ, using a conceptual framework allowing for rigorous quantitative comparisons. For each source of discrepancy we compute the aggregate amount of income at stake, present the methodology used by PSZ and AS to allocate it, back out the shares going to the top 1% in each methodology, and derive the implications of these diverging choices for the level and trend in inequality. The main conclusions are the following.

First, we highlight the role of S-corporation tax-exempt income. Alongside partnerships, S-corporations are the other main type of private business in the United States. PSZ allocate the growing amount of S-corporation untaxed income to the owners of S-corporations. By contrast, AS allocate it to the owners of C-corporations, who are less rich because C-corporations can be owned by pension funds. Together, partnership excess depreciation and S-corporation exempt income explain 41% of the AS vs. PSZ divergence in the rise of the top 1% pretax income share between 1979 and 2019. In a nutshell, business income taxed on individual income tax returns is highly and increasingly concentrated. PSZ assume that tax-exempt business income follows the same evolution as taxed business income. By contrast, AS assume it is much more equally distributed, with little trend. This is the largest source of disagreement between AS and PSZ.

Second, AS and PSZ make different assumptions to allocate untaxed capital income. PSZ allocate investment income earned in retirement accounts based on the distribution of funded pension wealth. AS allocate it based on the distribution of funded and *unfunded* pension wealth, even though unfunded pension plans—which are more equally distributed than funded pension plans—have no assets. PSZ allocate retained earnings in directly-held corporations based on the distribution of directly-held equity wealth, itself imputed based on dividends, realized capital gains, and non-tax sources such as Securities and Exchange commissions filings for the very top of the wealth distribution. By contrast, AS allocate these retained earnings primarily to

people reporting dividend income. Together, these choices explain 16% of the 1979-2019 trend difference between AS and PSZ.

Third, we raise an issue with AS’s treatment of indirect consumption taxes—sales taxes, excises, and tariffs. For the computation of pretax income, PSZ assume these taxes do not affect inequality; for posttax income, they allocate indirect taxes to the corresponding consumers, just as all US government agencies do. By contrast, for pretax income AS add indirect taxes as fictive income for the corresponding consumers, thus reducing pretax income inequality. For posttax income they remove this fictive income. In other words, in AS regressive consumption taxes are assumed to boost the *pretax* incomes of the poor without affecting their posttax income. We propose a simple conceptual framework to clarify this issue. This discrepancy explains 12% of the 1979-2019 trend difference in the top 1% income share between AS and PSZ.

Fourth, differences in the allocation of tax evasion (labelled underreported income by AS) create a level difference between AS and PSZ, but explain only 5% of the 1979–2019 trend difference.

Last, for posttax income, PSZ—like nearly all other inequality studies—leave out collective consumption expenditures: public spending on defense, police, education, infrastructure, etc. That is, these non-cash components are allocated in a distributionally neutral manner. By contrast, AS allocate half of these expenditures as a large lump sum per capita, equal to 8% of national income in 2019. This reduces the level of inequality and explains 15% of the 1979-2019 trend difference in the posttax top 1% income share. PSZ also allocate the government deficit in a distributionally neutral manner, while AS treat it as a fictive federal income tax that reduces inequality.

Overall, the first six points highlighted in our comment explain 75% of the 1979-2019 trend difference in the top 1% pretax income share between the two studies. The eight points together explain 75% of the difference for the evolution of the top 1% posttax income share. The remaining 25% is driven by a large number of additional differences, most of which were described in Saez and Zucman (2020). We briefly discuss them at the end of the paper.

2 Excess Fiscal Depreciation and Its Distribution

This Section discusses the allocation of the excess fiscal depreciation of partnerships, the largest source of discrepancy between AS and PSZ. We begin by explaining how one can recover the total amount of partnership excess depreciation from readily available national accounts data, before presenting the methodology used by PSZ and AS to allocate this total, and providing a

sensitivity analysis of the PSZ methodology.

2.1 The Size of Partnerships' Excess Fiscal Depreciation

To estimate the economic income of businesses in the National Income and Product Accounts, the Bureau of Economic Analysis (BEA) starts with the tax returns of these businesses and makes adjustments to convert taxable income into economic income. These adjustments are necessary to provide a consistent measure of aggregate income that is not affected by changes in the tax law. A key adjustment is the adjustment for depreciation. BEA replaces the depreciation reported by businesses in their tax returns by its estimate of their true economic depreciation. This adjustment is particularly large for non-corporate businesses (partnerships and sole proprietorships), which deducted \$642 billion in depreciation and amortization for tax purposes in 2019, but had only \$278 billion in economic depreciation according to BEA. Partnerships and sole proprietorships thus had $\$642 - \$278 = \$364$ billion in excess fiscal depreciation, the equivalent of 2.0% of total national income.

Although BEA lumps together partnerships and sole proprietorships in most of its series, it turns out that combining BEA lines with various IRS aggregates (which underlie BEA's totals) allows us to separate the excess depreciation of partnerships from that of sole proprietorships, to within 1% accuracy. Table 1 details this computation for the year 2019. Slightly more than 100% of the total excess depreciation of non-corporate businesses turns out to come from partnerships. Specifically, excess depreciation amounted to \$411 billion in 2019 (2.2% of national income) for partnerships, while it was slightly negative (-0.2% of national income) for sole proprietorships. Appendix A provides complete details.

The excess depreciation of partnerships is primarily due to rules in the tax code allowing businesses to depreciate assets quickly and broadly, such as the full expensing of machinery and equipment (100% depreciation in year 1), accelerated depreciation rules in the oil and gas industry (where partnerships are key actors), relatively fast depreciation of real estate, and generous amortization rules (allowing businesses to write off contracts and goodwill). Appendix B provides case studies and quantifies the main sources of partnership depreciation.

For sole proprietorships, depreciation in tax returns is slightly lower than economic depreciation because depreciation of residential real estate used by sole proprietors (for business use of one's home) is strictly limited in the tax code.³ Moreover, in contrast to partnerships,

³In 2019, sole proprietors deducted only \$1.2 billion in depreciation for the business use of their home (Form 8829 filed by individuals, line 42), when BEA estimates that the net stock of residential real estate used by sole proprietorships was \$1,920 billion.

sole proprietorships make little investments in nonresidential fixed assets and thus benefit only marginally from full expensing provisions.

The excess fiscal depreciation of partnerships has sharply increased over time. As shown by Figure 1, it was negligible in 1980 and then rose to reach 2.5% of national income in 2020. This rise reflects both the rise of partnerships as a form of business organization and the increasing generosity of the rules governing fiscal depreciation. Before the Tax Reform Act of 1986 most large private businesses were organized as C-corporations; partnerships and S-corporations then grew in importance. This caused a rise in the amount of assets owned by partnerships, including assets for which depreciation is faster in the tax code than in the national accounts. In addition, fiscal depreciation became more generous with the gradual transition of the US tax system to full expensing and changes to amortization rules.⁴ In contrast, excess fiscal depreciation for sole proprietorships has remained slightly negative throughout the period. Before 1980, excess fiscal depreciation was negligible for both types of businesses.

2.2 Allocating Excess Fiscal Depreciation: PSZ vs. AS

Partnerships are “passthrough” entities, whose taxable profits and losses flow to partners and are subject to individual income taxation at the partner level.

PSZ methodology. PSZ allocate the excess depreciation of partnerships by first erasing any partnership loss reported on individual income tax returns. Whatever remains is then allocated proportionally to reported positive partnership profit. In 2019, 45% of partnership excess depreciation is allocated to losses and the rest, 55%, to profits.

AS methodology. AS consider excess depreciation from both sole proprietorships and partnerships lumped together (the headline aggregate published by BEA), and allocate this total based on depreciation and expensing observed on individual tax returns. In 2019, 5% of this observed depreciation and expensing comes from partnerships, the rest overwhelmingly comes from sole proprietorships.

Specifically, the AS methodology operates through these lines of code:

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if (&yr > 1980)and(tPropDepr>0) then do;
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⁴Bonus depreciation rules in force in 2001–2004 and 2008–2017 allowed businesses to deduct from taxable income a large percentage of the cost of investments the year they made these investments. In 2018, the Tax Cut and Jobs Act doubled the bonus depreciation deduction from 50% to 100%. In 2004, the American Jobs Creation Act allowed sports teams to amortize their intangible assets.

$$\text{UNDER} = \text{UNDER} + 0.85 * \text{PropExpn} + (1000000 * \text{nfcc} - 0.85 * \text{totexp}) * (\text{PropDepr} / \text{tPropDepr})$$

These lines add to AS’s estimates of underreported income (**UNDER**, more on this in section 3.2 below) the excess fiscal depreciation of partnerships and sole proprietorships (**nfcc**, \$381 billion in AS’s code in 2019), in two steps. First, AS consider a form of fiscal depreciation known as Section 179 expensing (**PropExpn**, \$79 billion in total in 2019), which comes from sole proprietorships, partnerships, and S-corporations.⁵ They allocate 85% of this expensing directly to the individuals claiming these expenses. The remaining excess depreciation is then allocated proportionally to depreciation deductions plus Section 179 expensing reported on individual income tax returns (**PropDepr**). Depreciation deductions come from sole proprietorships only. Overall, 78% of total excess fiscal depreciation ends up being allocated proportionally to depreciation and expensing claimed by sole proprietorships, 17% proportionally to expensing claimed by S-corporations, and 5% proportionally to expensing claimed by partnerships.⁶

Issues with AS treatment. The issue is that, as we have seen, more than 100% of the total excess depreciation of sole proprietorships and partnerships comes from partnerships (Figure 1). Yet AS allocate 78% of this total to sole proprietorships, which are much less concentrated than partnerships. The top 1% of the fiscal income distribution earns about 15% of sole proprietorship income in recent years, as opposed to about 60%–70% of partnership income.

Moreover, the deduction used to allocate the remaining 22% of excess depreciation—Section 179 expensing flowing from S-corporations and partnerships—is not a valid proxy for the excess depreciation of partnerships, because Section 179 targets small businesses. Section 179 expensing is capped at \$1 million per individual tax return and per business in 2018 (with inflation adjustments in subsequent years) and applies only to businesses that invest less than \$3.5 million (in 2018) in equipment in the year. The excess depreciation of large partnerships, that concentrate investment and are owned by high-income taxpayers, cannot be captured with this deduction.

Concretely, AS add \$381 billion in income in 2019 (and 0 in 1980) to predominantly self-employed individuals such as ride-share drivers, small business owners, and other relatively low-income earners—when that income is primarily attributable to the owners of capital-intensive

⁵Out of the \$79 billion in Section 179 expensing claimed on individual income tax returns in 2019, \$7 billion come from partnerships, \$23 billion from S-corporations, and the rest, \$49 billion, from sole proprietorships.

⁶For partnerships, in billions: $85\% \times \$7 + (\$381 - 85\% \times \$79) \times \$7 / \$156 = \$20 = 5\%$ of \$381. For S-corporations: $85\% \times \$23 + (\$381 - 85\% \times \$79) \times \$23 / \$156 = \$65 = 17\%$ of \$381.

partnerships such as real-estate companies, oil and gas firms, and sports teams that can amortize intangibles (see Appendix B). While the top 1% earns 60%–70% of partnership income, AS allocate only about 11% of partnership excess depreciation to the top 1% in 2019.⁷

Analyzing an earlier version of AS (Auten and Splinter, 2019), Saez and Zucman (2020) highlighted the treatment of excess depreciation as a key source of discrepancy with PSZ and pointed out a methodological issue. “In Auten and Splinter (2019), business profits earned by the top 1% but not taxable (due in particular to generous depreciation rules) are classified as tax evasion; tax evasion is then allocated to the bottom 99% based on an erroneous reading of random audit data” (abstract). In response, AS revised their methodology to allocate excess depreciation separately from tax evasion. However, they allocate excess depreciation overwhelmingly to sole proprietors, not to partnership owners. In both AS and Auten and Splinter (2019), only about 10%–15% of excess fiscal depreciation thus ends up being allocated to the top 1%, explaining why the bottom line findings are similar in the two versions.

2.3 Excess Depreciation: Sensitivity Analysis

Is the PSZ methodology more appropriate? Ideally, partnership excess depreciation should be allocated to the ultimate individual owners of the corresponding partnerships. In practice, key forms of excess depreciation cannot be identified on partnership tax returns, which report only fiscal—not economic—depreciation. Moreover, it is not possible to fully trace the ultimate ownership of partnerships, which can be owned not only by individuals but also by corporations (the shareholders of which might not be known), trusts, non-profits, and non-residents, sometimes through complex holding chains (Cooper et al., 2016). Because about 70% of total partnership income is directly observable on individual income tax returns and this income flags partnership ownership, a natural starting point involves allocating excess depreciation proportionally to partnership income observed on individual tax returns. PSZ follow this approach.

A potential concern with this approach is that the partnerships that have excess depreciation may be different from the partnerships that generate income observable on individual tax returns. For example, law partnerships may have little excess depreciation but may constitute most of the partnership income earned by individuals, while heavy-industry partnerships may have the lion’s share of excess depreciation and may be joint ventures among publicly listed corporations, which are more equally held than law partnerships.

⁷This share $s_s = 11\%$ is estimated using the conceptual framework developed in Section 3.1 below. This statistic means that when AS add depreciation, top 1% incomes (after re-ranking) increase by $s_s = 11\%$ of aggregate depreciation S .

To understand whether this concern is likely to bias the PSZ methodology, remember that PSZ allocate excess depreciation—like other forms of untaxed partnership income—first to individuals reporting partnership losses so as to fully offset these losses, and then, if any untaxed income remains to be allocated, proportionally to partnership profits.⁸ As shown by Appendix Figure A1, service-sector partnership like law firms make little losses. Partnerships in capital-intensive sectors, by contrast, account for the bulk of losses and also for the bulk of depreciation—which is logical since depreciation requires assets and reduces income. The allocation of untaxed income to people reporting losses targets owners of capital-intensive firms that are likely to have excess depreciation. Moreover, because losses observable on individual tax returns account for about 70% of total partnership losses (as detailed in Appendix C.2), the distribution of losses reported by individuals is likely to be informative of the distribution of all partnership losses.

To quantify the potential margin of error involved, we can relax the assumptions made by PSZ.

Sensitivity to the weight on loss. First, we can change the weight put on losses. In PSZ, \$1 of reported loss is assumed to reflect \$1 of untaxed income. In other words, it is assumed that reported losses are not real economic losses, but paper losses reflecting features of the tax law such as generous depreciation rules.

Assume now that \$1 of reported loss reflects \$ a of real economic loss and $1 - a$ of paper loss, allowing \$1 of real profit to avoid taxation. Figure 2 considers values ranging from $a = 1$ (reported losses are all real losses) to $a = -1$ (a \$1 million reported loss reflects \$1 million in real profits and \$2 million in paper loss). In the $a = -1$ scenario, nearly all untaxed income is allocated to individuals reporting losses in recent years.⁹ A negligible amount goes to individuals reporting partnership profits such as partners in skill-intensive industries like law firms. It turns out that because both partnership profits and losses are highly concentrated at the top of the income distribution, the effect is modest relative to the $a = 0$ assumption used by PSZ. Balkir et al. (2025) show that the *Forbes* 400 report large partnership losses on their individual income tax returns, but that the corresponding partnerships have positive book income of similar magnitude in absolute value, supporting the $a = -1$ assumption at the very top.

⁸Appendix C.1 provides additional discussion of the treatment of losses in PSZ.

⁹This is because reported partnership losses represent the equivalent of about half of the amount of untaxed partnership income in recent years.

Partnerships not owned by individuals. Second, Figure 2 considers scenarios about who earns the 30% of partnership profit and losses not directly observable on individual tax returns.

The PSZ methodology assumes that the underlying untaxed income is distributed like the untaxed income of partnerships directly held by individuals. Who earns the roughly 30% of partnership income not directly visible on individual income tax returns? Cooper et al. (2016) document that in 2011, 68% of net ordinary business income distributed by partnerships directly went to individuals, 9% to S-corporations, 5% to C-corporations, 4% to estates and trusts, 2% to foreign partners, 1% to tax-exempt investors, and 11% to unidentified partners.¹⁰ Love (2021) shows that these unidentified partners are mostly foreign corporations in tax havens, which in turn may be owned by US pension funds and other nonprofits (e.g., investing in hedge funds through offshore blockers), US individuals, and foreigners.

Informed by this evidence, we consider a low-end scenario where 30% of all untaxed partnership income goes to broad financial wealth (including pension wealth and the wealth of nonprofits), and an intermediate scenario where 15% goes to broad financial wealth and 15% ultimately to individual partners.¹¹ In all cases, 55% to 72% of partnership excess depreciation goes to the top 1% in 2019—as opposed to 65% in PSZ and only 11% in AS.

3 Untaxed Income and its Distribution

This Section discusses eight discrepancies between PSZ and AS. Six relate to AS’s methodology to estimate pretax income not observable on individual income tax returns—untaxed income, for short. Two relate to their methodology for posttax income. AS’s methodology for pretax income is summarized in their Table 1. We discuss four lines in that table: retirement account income, C-corporation retained earnings, indirect taxes, and underreported income, as well as two sources of untaxed income not listed in AS’s Table 1: partnership excess depreciation and S-corporation tax-exempt income. AS’s methodology for posttax income is summarized in

¹⁰E.g., 3.4% of all income distributed by partnerships was paid to S-corporations (Cooper et al., 2016, Figure 3B); 73% of the income paid to S-corporations was ordinary business income (Cooper et al., 2016, Figure 8B); hence 2.5% of the \$895 billion in income distributed by partnerships (a total which includes interest, dividends, etc.) was ordinary business income paid to S-corporations. This represents \$22 billion, or 9% of the total amount of ordinary business income distributed by partnerships that year.

¹¹This intermediate scenario is motivated by the fact that in Cooper et al. (2016), 13% of partnership business income goes to S-corporations and trusts, and thus ultimately to individual partners. A high-end scenario would allocate 15% of untaxed partnership income to individual owners of tax haven assets (instead of broad financial wealth), in light of the analysis of FATCA reports in Johannesen et al. (2024) showing that a large amount of tax haven wealth is owned by US individuals, and that this wealth is extremely concentrated. Note that because the share of partnership business income ultimately going to foreigners is likely to be small, and because allocating a portion to foreigners would require offsetting adjustments to keep matching US national income, all scenarios assume that excess depreciation ultimately going to foreigners can be neglected.

their Table 2. We discuss two lines in that table: government consumption and government deficit/surplus.

In each case we follow the same template: (i) we quantify the aggregate amount of income at stake; (ii) we present the procedure that PSZ and AS use to allocate this income; (iii) we derive the quantitative implications of these methodological differences for the level and trend in the top 1% income share, using a conceptual framework allowing for rigorous quantitative comparisons. We start by presenting this framework before turning to the item-by-item discussion. The results are summarized in Table 2, with additional details provided in Appendix Table A1.

3.1 Conceptual Framework

Start from some income y (e.g., income observable on individual income tax returns) and consider adding an income component s (e.g., partnership excess fiscal depreciation) to y . When adding s , top 1% incomes ranked by $y + s$ grow relative to top 1% incomes ranked by y . They grow by a fraction s_s of the total macroeconomic amount of s . We will call s_s the share of s income going to the top 1%.

The statistic s_s is the relevant statistic to understand whether adding s raises income concentration. Formally, denoting the top 1% income share in y by $sh(y)$ and the top 1% income share in $y + s$ by $sh(y + s)$ we have:

$$sh(y + s) = sh(y) \cdot Y/(Y + S) + s_s \cdot S/(Y + S),$$

where Y and S are the total macroeconomic amounts of y and s , respectively. Adding income component s to income y increases concentration if and only if $s_s > sh(y)$.¹²

Table C1 in AS’s online Excel file¹³ allows us to compute s_s at each stage of moving from income observed on individual income tax returns y to broader income concepts. We compare the s_s in AS’s methodology to the corresponding s_s in PSZ’s methodology and clarify the choices behind the difference.¹⁴

¹²We show in Appendix D.1 that s_s is larger than the share of s income accruing to top 1% y -earners but lower than the share of s income accruing to top 1% $y + s$ -earners. These two concepts, often mentioned in various discussions of inequality measurement, are not directly relevant for understanding how adding s changes income concentration. In this comment, except explicitly noted, we always use the s_s concept.

¹³<https://www.davidsplinter.com/AutenSplinter-IncomeIneq-2024.xlsx>

¹⁴When adding several income components $s_1, s_2, \dots$, to observable income y , the corresponding $s_{s_1}, s_{s_2}, \dots$, depend on the order of the addition, but with a valuable additive property that $s_{s_1+s_2+\dots}$ is the same whether s_1 is added first, second, or later. In practice, the s_s shares do not depend significantly on the order of the additions, making our comparisons meaningful.

3.2 Eight Categories of Untaxed Income

1. Partnerships excess depreciation As shown in Section 2 above, partnership excess depreciation is significant: 2.2% of national income. PSZ allocate $s_s = 65\%$ of this aggregate to the top 1% in 2019. AS allocate $s_s = 11\%$ of it to the top 1%. This leads to a 1.2 percentage point difference in the top 1% income share. Because excess partnership depreciation was negligible in 1979, it also leads to a 1.1 point difference in the rise of the top 1% income share since 1979. Table 2 shows that this is the single largest source of discrepancy between AS and PSZ.

2. S-corporation exempt income. Like for partnerships, there is a gap between the amount of S-corporation income reported on individual income tax returns and the economic income of these businesses as recorded in the national accounts (Figure 3, panel a). This gap is due both to tax evasion—discussed separately below—and to legally tax-exempt income. This legally exempt S-corporation income, discussed here, in turn almost entirely comes from excess depreciation. It amounts to 1.7% of national income in 2019.¹⁵

PSZ allocate this income first to erase reported S-corporation losses, then proportionally to S-corporation profits. This is the same approach as the one used for partnerships, with the added simplicity advantage that S-corporations are all owned by individuals. A fraction $s_s = 56\%$ of untaxed S-corporation income goes to the top 1% in the PSZ methodology in 2019.

AS allocate tax-exempt S-corporation income not to owners of S-corporations, but to owners of C-corporations, who are less rich due to the ownership of C-corporations by pension funds.¹⁶ In AS, a fraction $s_s = 28\%$ of S-corporations’s exempt income is allocated to the top 1%. Because S-corporation income was negligible before the 1980s, this leads to a 0.5-point difference with PSZ in both the top 1% income share in 2019 and its rise since 1979.¹⁷

Ideally, one would match all S-corporations to their owners, identify untaxed business income in S-corporation tax returns, and apportion it to the corresponding shareholders. In practice

¹⁵Specifically, according to BEA (2021), S-corporation pretax profit with capital consumption and inventory valuation adjustments amounted to \$747 billion in 2017 (the latest year in BEA, 2021), or 46% of total domestic corporate profits (NIPA Table 1.14 line 11) that year. Domestic profits added up to 10.1% of national income in 2019, hence S-corporation profit amounted to about 4.7% of national income ($46\% \times 10.1\%$, or \$850 billion), of which 2.5% (\$461 billion) were taxed on individual income tax returns and 0.4% correspond to the BEA estimate of tax evasion, leaving 1.7% in legally exempt income. These are the aggregates underpinning the February 2022 PSZ vintage, which we use for our comparison with AS. BEA subsequently updated its estimates of S-corporation profit in BEA (2024). In these revised numbers (used in Figure 3), S-corporation legally exempt income amounts to 1.0% of national income in 2019.

¹⁶AS do not discuss this issue in their main text. In their Online Appendix (footnote 39 p. 21) they acknowledge it and claim that it is likely small. We provide a precise quantification here.

¹⁷Using the updated BEA estimates of S-corporation profits released in 2024 changes this number to 0.3 points.

this task is made difficult by the fact that key differences between fiscal and economic depreciation cannot be identified in S-corporation tax returns. The PSZ methodology, if anything, may be too conservative. According to publicly available SOI tabulations of S-corporations tax returns, depreciation claimed by S-corporations is more concentrated than S-corporation income: in 2019, S-corporations with more than \$10 million in assets claimed 50% of depreciation deductions but earned only 32% of ordinary business income of all S-corporations.

Together, partnership excess depreciation and S-corporation exempt income explain 41% of the AS vs. PSZ divergence in the rise of the top 1% pretax income share between 1979 and 2019. As shown by panel (b) of Figure 3, the observable income of pass-through businesses—car dealerships, plumbers and painters, doctors and dentists, retail chains, real estate firms, oil and gas partnerships, law firms, etc.—is highly and increasingly concentrated since 1960. PSZ assume that the legally tax-exempt income of these businesses follows the same evolution, whereas AS assume it is much more equally distributed, with little trend. This is by far the largest source of disagreement between AS and PSZ.

3. Tax evasion. To measure national income, BEA makes an allowance for tax evasion, based on random audits conducted by the IRS for its National Research Program (NRP). There is also a small allowance for underreported wages. Altogether, this total tax evasion—referred to as “underreported income” in AS—adds up to 4.6% of national income in 2019, up from 3.4% in 1979.

PSZ allocate underreported business income to individuals just like legally tax-exempt business income, i.e., first to erase losses, and then proportionally to reported positive business income, for each type of business—sole proprietorships, partnerships, and S-corporations—separately.¹⁸ Underreported wages are allocated proportionally to reported wages. As shown in Table 2, the PSZ method attributes $s_s = 28.3\%$ of total underreported income to the top 1% in 2019.

AS instead use a new method designed by Auten and Splinter (2021), using random audit studies and making assumptions about the tax evasion undetected in these audits. They attribute $s_s = 11.4\%$ of total underreported income to the top 1% in 2019, with little change over time.

The AS methodology has primarily a level effect relative to PSZ. It depresses the top 1% income share by 0.6 points in 1979 (Appendix Table A1) and by 0.8 points in 2019—hence its

¹⁸The allocation of legally untaxed income and tax evasion is done in one single step in PSZ, for each type of business separately.

1979–2019 rise by 0.2 percentage points. How can we reconcile this finding with the widespread view, emphasized in AS, that the treatment of tax evasion is a key factor of divergence between AS and PSZ? In AS’s Table 4, underreported income is the largest source of discrepancy between the two studies. In this line, however, AS lump together tax evasion with legally exempt business income, an artifact of their older methodology that conflated both (Auten and Splinter, 2019). Over the 1979–2019 period, it is the treatment of legally exempt income—not tax evasion—that drives the AS vs. PSZ divergence in the rise of the top 1% income share.

Guyton et al. (2025) study the distribution of tax evasion in the United States and point the main limitation of the audit data used by Auten and Splinter (2021). While sole proprietorship income is comprehensively examined in these audits, partnership and S-corporation income goes largely unexamined, suggesting that the $s_s = 11\%$ of AS is too low. Appendix E.1 provides additional discussion.

4. Tax-exempt capital income from funded pensions. Retirement account income—capital income earned from pension fund assets, including individual retirement accounts—is large: 6.7% of national income in 2019.

PSZ allocate it to owners of funded pension wealth: a share $s_s = 10.3\%$ goes to the top 1% in 2019. AS allocate it proportionally to funded and *unfunded* pension wealth, leading to $s_s = 6.3\%$. This depresses the top 1% income share in 2019 and its rise since 1979 by about 0.3 points relative to PSZ. This difference is not visible in AS’s Table 4, for two reasons. First, while s_s hovers around 6% in AS before and after 2014, there is a discrete jump to 11.0% (about the same level as PSZ) in 2014, the year used by AS for their comparison with PSZ.¹⁹ Second, PSZ made a mistake in their original estimates of retirement account income—which are those discussed in AS’s Table 4—subsequently corrected in Saez and Zucman (2020).

Conceptually, unfunded pensions should not be considered when allocating retirement account income, since by definition they have no assets and hence generate no investment income—they are simply promises of future pension benefits. The beneficiaries of these unfunded promises are almost entirely government workers, who generally are in the bottom 99% of the income distribution: 93% of total unfunded pension wealth is attributable to government workers in 2019. Appendix E.2 provides additional details.

¹⁹In correspondence with AS, David Splinter writes that there is evidence that “this blip is, to some degree, from bad underlying data on some Forms 5498,” one of the forms used by AS for the estimation of retirement accounts income.

5. C-corporation retained earnings. These retained earnings amount to 3.1% of national income in 2019. The fraction of retained earnings attributable to shares held in retirement accounts is treated exactly as discussed above, with AS attributing part of it to unfunded pensions.

For directly-held equity, PSZ estimate equity wealth and allocate retained earnings proportionally to that wealth. Equity wealth is estimated using income tax data (50% based on dividends and 50% based on a smoothed measure of realized capital gains) and adjusted to match external sources on equity ownership at the very top. Specifically, the equity wealth of the top 400 richest individuals, which cannot be captured accurately using tax data (due to low dividend yields at the top and limited capital gains realization, see Saez and Zucman, 2022; Balkir et al., 2025; Boll et al., 2026) is upgraded to match data from the *Forbes* 400 ranking, which itself incorporates mandatory disclosures to the Securities and Exchange Commission on stakes owned by insiders in publicly listed firms. This adjustment makes it possible to allocate a meaningful amount of retained earnings to large owners of non-dividend paying firms, such as Amazon’s Jeff Bezos, Facebook’s Mark Zuckerberg, Berkshire Hathaway’s Warren Buffett, Alphabet’s Sergey Brin and Larry Page in 2019.

AS allocate three-quarters of retained earnings attributable to directly-held shares proportionally to dividends reported on individual income tax returns and one-quarter proportionally to realized capital gains. AS attribute a declining share of retained earnings to the top 1% ($s_s = 37\%$ in 1979 and 28% in 2019) while the share is stable in PSZ ($s_s = 33\%$ in both years), see Appendix Table A1. This depresses the level of the top 1% income share by 0.2 points relative to PSZ in 2019, and its 1979–2019 rise by 0.4 points.²⁰

Ideally, one would allocate retained earnings by linking C-corporations to their shareholders. This is generally not possible in the United States, however, even with internal administrative data. The next-best, albeit imperfect, approach involves using the available evidence on the distribution of corporate equity wealth. A body of work documents the evolution and composition of top wealth shares, using multiple sources: household surveys, estate tax returns, named lists of wealthy individuals, in addition to individual income tax returns. PSZ base their allocation of retained earnings on equity wealth series reconciled with these sources, while AS do not report the wealth distribution resulting from their assumptions. One conceptual issue

²⁰Based on Securities and Exchange Commission filings, Balkir et al. (2025) and Boll et al. (2026) estimate that the pretax profits attributable to Bezos, Brin, Buffett, Page, and Zuckerberg alone amounted to about \$16 billion in 2019, that is 0.1% of national income. Because they realized negligible amounts of capital gains and their companies did not distribute dividends, the AS methodology assigns them a negligible amount of retained earnings. This alone accounts for nearly half of 0.2-percentage-point discrepancy with PSZ in 2019.

with putting a heavy weight on dividends, as AS do, is that high-dividend-paying corporations, everything else equal, have low retained earnings. One empirical issue is that large firms are less likely to distribute dividends today than in 1979 (Fama and French, 2001). These firms either retain their earnings or buy back their shares—generating capital gains for owners who sell and making dividends uninformative about their ownership. Appendix E.3 provides additional discussion.

6. Consumption taxes: Moving from basic-price to market-price national income.

In national account statistics, market-price national income (or national income, for short) is the sum of basic-price national income—income received by workers and capital owners—and consumption taxes or “taxes on products and imports:” sales taxes, excises, and tariffs. Absent consumption taxes, basic-price national income buys net national product at market prices (i.e., national income). In the presence of consumption taxes, income received by workers and capital owners is not enough to buy net national product at market prices. Consumption taxes are conventionally added to basic-price incomes for international incomes comparisons, even though no worker or capital owner “earns” consumption taxes as an income.²¹

Consider now the effect of government intervention in the economy. At the individual level, pre-tax-and-transfer income at basic prices y (pretax income, for short) and post-tax-and-transfer income at basic prices c (posttax income, for short) are related as follows:

$$c + t_c = y - t_y + g, \tag{1}$$

where y is pretax income, t_y are taxes paid on y , g are transfers from the government to the person, c is consumption—from private and public goods, but exclusive of consumption taxes paid—plus saving, and t_c are consumption taxes.²² In the United States, consumption taxes t_c add up to 6.6% of national income in 2019, up from 6.1% in 1979.

For distributional analysis, y and c are the relevant concepts. PSZ scale up these basic-price incomes to national income proportionately: moving from basic-price national income to national income does not change the distribution of income.

By contrast, AS define pretax income as $y + t_c$. They add consumption taxes of the corresponding consumers to their pretax labor and capital income. A person with zero labor and

²¹International comparisons require using purchasing-power-parity conversions which always use prices inclusive of consumption taxes.

²²To add up to national income, all forms of government consumption and the government deficit have to be allocated at the micro-level in both c and g (as imputed consumption and imputed dissaving). They cancel out on each side of the equation so that it is naturally possible to consider narrower posttax income concepts which do not include such components (see discussions of points 7 and 8 below).

capital income, receiving government transfers, and paying consumption taxes on these transfers is assigned positive *pretax* income.²³ AS attribute a share $s_s = 6.8\%$ of consumption taxes to the top 1% as opposed to $s_s = 19.0\%$ in PSZ, the same as the top 1% share of pretax income at basic prices. The AS methodology depresses the top 1% pretax income share by 0.8 points in 2019 and its rise by about 0.5 points relative to PSZ.

When computing posttax income, AS subtract the same t_c that they added to consumers for the estimation of their pretax income. Their posttax income concept is: $(y + t_c) - t_y - t_c + g = y - t_y + g = c + t_c$. It adds up to national income, but it corresponds to saving plus consumption inclusive of consumption taxes, i.e., a broad form of disposable income that does not remove consumption taxes.

To illustrate this somewhat abstract matter, consider the recent increase in US tariffs. Tariffs are not included in basic-price national income but are included in “taxes on production and imports” and therefore in US national income. In PSZ, tariffs do not mechanically affect pretax income inequality. They are subtracted from the income of the corresponding consumers in posttax income, which increases inequality.²⁴ In AS, by contrast, tariffs are *added* as pretax income for the corresponding US consumers, mechanically lowering pretax inequality. Tariffs do not directly affect the distribution of posttax income $y - t_y + g$.

To be sure, tariffs can indirectly affect pretax income and pretax consumption prices through tax incidence effects. But the AS vs. PSZ disagreement is not about tax incidence: both AS and PSZ assign t_c to the corresponding consumers, i.e., use the same tax incidence assumption. The disagreement is about how to handle the conventional adjustment from basic-price to market-price national income.²⁵

7. Government consumption. In 2019, the US government spends 15.7% of national income in collective consumption of public goods—defense, police and prison, infrastructure, education, etc.—with no trend since 1979.

PSZ exclude government consumption from distributional analysis: they assign it proportionally to posttax income exclusive of government consumption, a simple rescaling. A share $s_s = 15\%$ of government consumption goes to the top 1% in 2019, the same share as the top 1% share of posttax income.

²³This issue was pointed out in Saez and Zucman (2020, pp. 30-31).

²⁴This is how consumption taxes are treated in almost all government and think-tank tax models (see Saez and Zucman, 2026).

²⁵The original version of PSZ attempted to distribute total national income instead of basic-price national income, a mistake corrected in the February 2022 vintage. AS offer a variant of the initial PSZ approach, declining to incorporate subsequent fixes.

In AS, half of government consumption, about 8% of national income, is allocated as a lump sum per capita. This lump sum is equivalent to \$4,500 per person in 2019, \$9,000 for a married couple with no children. The other half is allocated proportionally to AS’s after-tax income. The large lump sum is highly equalizing: AS assign $s_s = 6\%$ of government consumption to the top 1% in 2019 and $s_s = 40\%$ to the bottom 50%. This reduces the level of the top 1% posttax income share by 1.4 points in 2019 relative to PSZ. It also reduces the 1979–2019 rise in the top 1% income by 0.8 points—even though total government consumption is broadly flat—because the equalizing effect of the lump-sum allocation is larger when inequality is high (i.e., in 2019) than when it is low.

Only spending on education—30% of total government consumption, with no trend since 1979—could in principle be allocated across individuals and legitimately be viewed as reducing posttax inequality.²⁶

8. Government surplus/deficit. The United States has moved from a government surplus of 1.9% of national income in 1979 to a deficit of -3.6% in 2019. PSZ allocate the government surplus/deficit neutrally, i.e., with a simple rescaling of posttax income.

In AS, the government surplus/deficit is assigned proportionally to federal income and payroll taxes. When there is a deficit like in 2019, this procedure creates a new tax that is progressive, i.e., more concentrated than after-tax income: $s_s = 18\%$ in 2019. Relative to PSZ ($s_s = 15\%$), this shaves off 0.1 percentage points in the top 1% posttax income share. When there is a surplus, as in 1979, the AS treatment is akin to a progressive tax cut for the rich, increasing posttax inequality. This explains why the AS treatment depresses the 1979–2019 rise of the top 1% income share by 0.2 percentage points relative to PSZ, where the government surplus/deficit is always neutral.

In reality, only the future will tell whether government debt created by the deficit will be paid through inflation, reduced government spending, or increased taxes on the poor vs. the rich—affecting the distribution of post-tax income at that future time. In the meantime the deficit itself does not affect the distribution of current consumption and current private saving, which is why PSZ opt for a neutral treatment.

In the end, these posttax discrepancies are definitional. Nearly all inequality studies focus on narrower posttax income concepts that include only cash or quasi-cash transfers, closest

²⁶PSZ provide sensitivity analysis in which education spending is distributed as a lump sum per child (i.e., targeting tax units with dependent children). AS provide sensitivity analysis allocating 25% (instead of 50%) of government consumption (i.e., roughly the share corresponding to education) as a lump sum per individual.

to people’s intuition about disposable income. PSZ go one step further by adding health care transfers at cost, which substantially reduces the level and rise of inequality and can be criticized (see Saez and Zucman, 2020b, pp. 23–25). AS go even further by adding 50% of collective consumption of public goods as a large per capita lump-sum and the federal deficit as a growing fictive progressive tax.

3.3 Putting It all Together

PSZ and AS agree that the concentration of fiscal income, observed on individual income tax returns, has risen considerably between 1979 and 2019. As reported in Table 2, fiscal income excluding capital gains amounts to 58% of national income in 2019. Out of that observed income, 17.2% goes to the top 1% when using the benchmark PSZ unit of observation (individual adult aged 20 and above, with equal-split of income between married couples), up from 7.4% in 1979.

The disagreement between PSZ and AS is overwhelmingly about the distribution of income not observed on individual income tax returns. After accounting for this untaxed income, PSZ obtain a top 1% pretax income share of 19.0% in 2019, as opposed to 13.8% in AS, a 5.2 point discrepancy. In 1979, this discrepancy is only 1.4 points. The trend difference is 3.8 points. Table 2 summarizes the contribution of the items discussed above to the 2019 and 1979–2019 gaps.²⁷

The six pretax income components highlighted in our comment add up to 25% of national income in 2019, or 59% of the gap between fiscal income and national income. Taken together, they explain 70% of the 2019 level difference and 75% of the 1979–2019 trend difference in the top 1% income share.

The rest is explained by a large number of additional differences in the allocation of the residual untaxed income (17% of national income) and by different choices about which unit of observation to choose and how to rank these units. These issues are discussed in Saez and Zucman (2020, pp. 22–23) and our criticisms remain. Most notably, PSZ allocate the corporate tax to shareholders while AS assign some of it to workers, reducing top pretax income shares throughout (with small effects on 1979–2019 trends); Saez and Zucman (2026) provide the conceptual grounding for the PSZ treatment. PSZ include Social Security and unemployment insurance benefits in pretax income (for consistency with private pensions and international comparisons) whereas AS don’t; see, e.g., Clarke and Kopczuk (2025). PSZ allocate nonprofit dividends and interest neutrally while AS allocate half per capita, etc.

²⁷Appendix Table A1 provides the detailed computations for 1979 and 2014, the year used in AS’s Table 4. The annual time series for the top 1% income shares is depicted in Figure 4.

Notably, AS also use a different measure of income when ranking tax units vs. when computing their income. To rank tax units, AS divide tax-unit income by the square-root of the number of individuals in the unit. But to compute income shares, they use the actual income of the tax unit, not adjusting for family size. Rich families with kids are moved down the income ladder and assigned high incomes, increasing the bottom 99% income share.²⁸ This procedure mathematically depresses the top 1% income share relative to the procedure used by PSZ where the income of the top 1% corresponds to the income of the units ranked in the top 1%, the commonly understood definition of “the top 1%.”²⁹

Among all the adjustments proposed by AS in their Tables 1 and 2 that diverge from PSZ, we agree with just one: removing non-resident filers. This correction, however, cannot be implemented using publicly available microfiles of tax returns, which is the reason why PSZ do not implement it.

The top panel of Figure 4 shows that with just the 6 adjustments we discussed, the AS pretax series becomes similar in level and trend to PSZ over the entire 1979–2019 period.

Similarly, in AS the top 1% posttax income share rises by only 1.4 point between 1979 and 2019 as opposed to 6.6 points in PSZ. After the eight differences discussed in this comment, AS’s share rises by $1.4 + 3.8 = 5.3$ points, close to the 6.6 points in the PSZ series (bottom panel of Figure 4). Three-quarters of the adjustment comes from pretax income and one quarter from posttax income.

In Appendix Table A1, we replicate Table 2 for the period 1979-2014, to mimic AS’s Table 4. From 1979 to 2014, excess partnership depreciation plays a smaller role because expensing grew after the 2017 tax reform, but it remains the single largest contributor to the AS vs. PSZ pretax discrepancy. Because retirement account income is much more concentrated in AS in 2014 than in surrounding years, it does not contribute to the difference in trends for 1979-2014 (see footnote 19 above). Other results are nearly identical.

Last, in Appendix Figure A4 we provide similar comparisons for the top 0.1% and top 0.01% income shares. Piketty and Saez (2003) showed that the growth in top fiscal income shares was larger and larger as one moves up the distribution. This “fractal” result remains true in both PSZ and AS—even though in AS the very top income shares exhibit a less significant rise. After implementing the same adjustments as those applied to the top 1%, AS’s top 0.1% and

²⁸See AS p. 2193: “Size-adjusted incomes are used only to rank tax units and determine their income group. Income group shares are based on total tax-unit incomes so that they sum to national income.”

²⁹This discrepancy is not visible in AS’s Table 4, because size-adjustment for ranking is lumped with another feature of their methodology under the line “Groups by individuals/size-adjusted incomes” and the net effect is about zero.

top 0.01% income shares also become very close to PSZ on a pretax basis, and nearly identical on a posttax basis.

4 Conclusion

According to all available sources—income reported on individual tax returns, wages and salaries from Social Security earnings, CEO pay, household wealth surveys, and rich lists such as the *Forbes* 400—observable income and wealth have become massively more concentrated in the United States since the 1980s.

To offset the rise in the top 1% income share, it must be that unobservable income has become much more equally distributed, a general point we made in Piketty, Saez, and Zucman (2019). Most labor income in the economy is taxed, but most capital and business income is untaxed. Thus, by choosing different assumptions about the distribution of untaxed business and capital income, one can obtain many different possible distributions of these forms of income, which play a key role at the top of the distribution. Auten and Splinter (2024) make a large number of assumptions that all go in the same direction and cumulatively offset the rise of business and capital income inequality. Among these assumptions, some are in our view indefensible: the allocation tax-exempt partnership income primarily to sole proprietors; the allocation of tax-exempt S-corporation income to the owners of C-corporations; the attribution of capital income to unfunded state pensions; the treatment of consumption taxes as reducing pretax inequality. Others—such as the allocation of C-corporation retained earnings—can be a legitimate subject of disagreement given the limitations of existing data in the United States. Contrary to a widely held view, the treatment of tax evasion is not a key source of discrepancy in trends between AS and PSZ.

The most important data improvement that would allow for refining the estimation of US income inequality is a comprehensive shareholder registry that would link all US businesses to their ultimate owners (National Academies of Sciences, Engineering, and Medicine, 2024). Administrative firm-owner links are available in a few other countries and have been used successfully for research on tax and inequality (see Bach et al. 2025 in France; Bruil et al. 2025 in the Netherlands; Ring et al. 2026 in Sweden and Norway). Balkir et al. (2025) took a first step by linking individuals appearing on the *Forbes* top 400 list to the businesses they own. Additional future improvements would be possible should improved administrative data become available.

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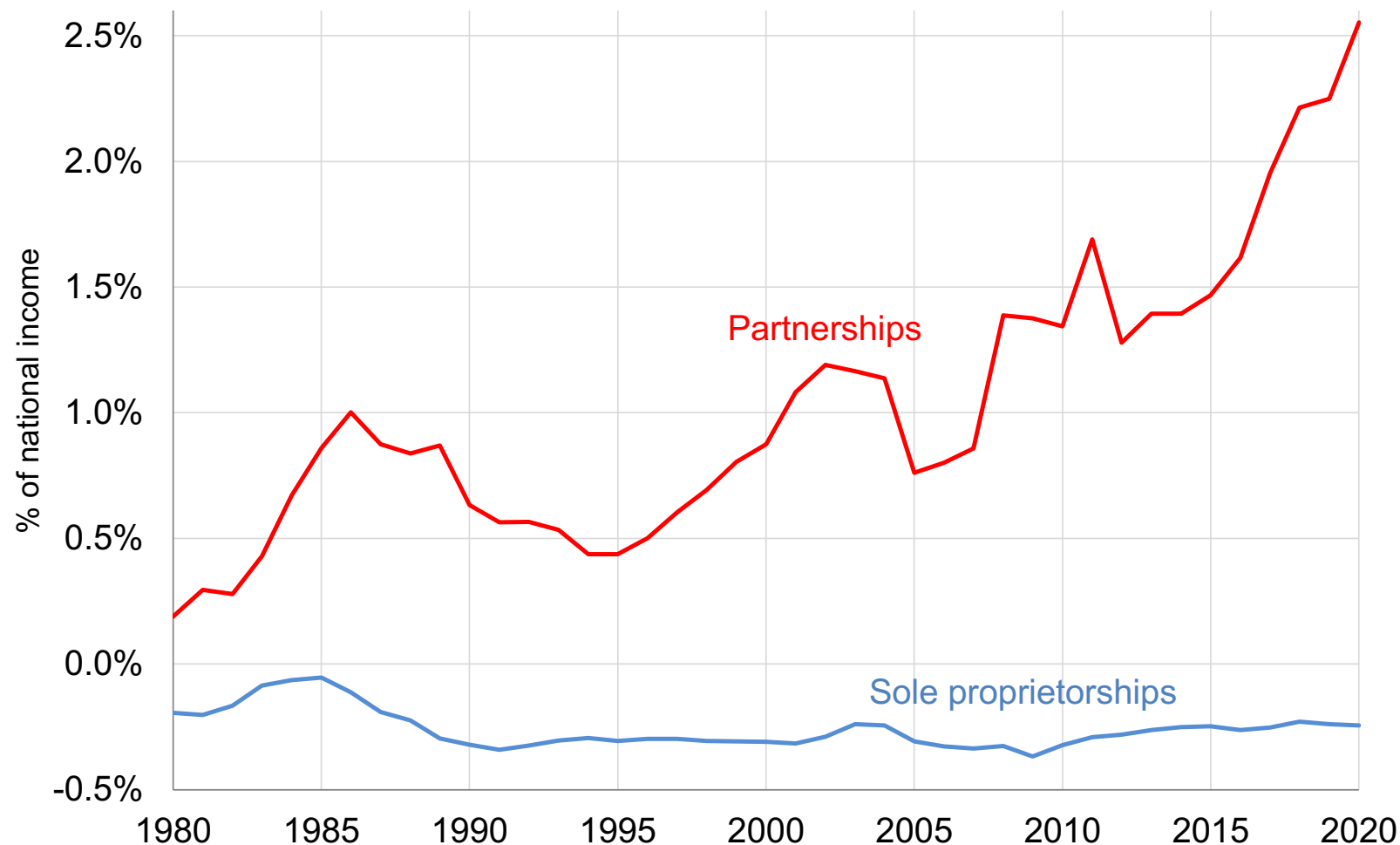
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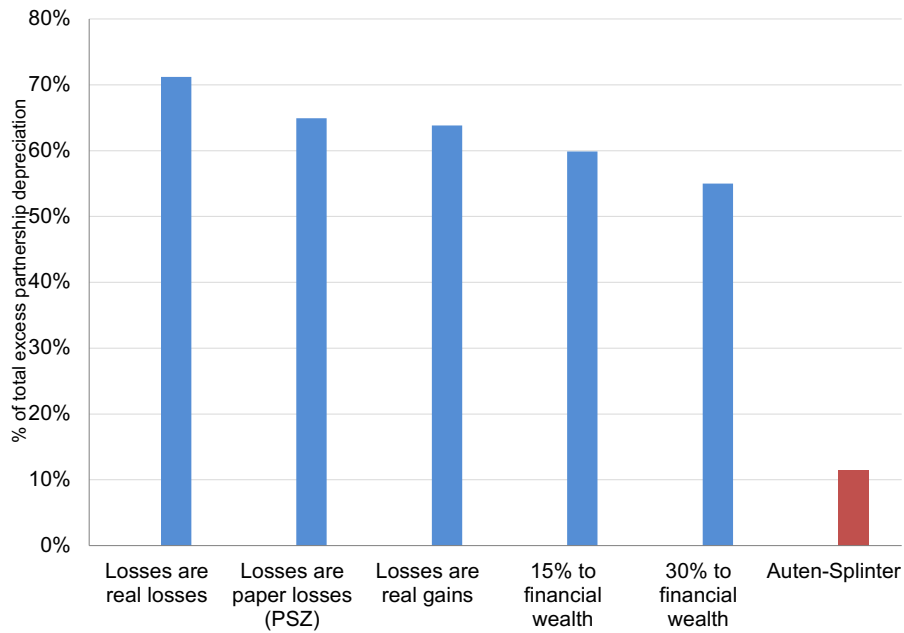
Figure 1: Gap Between Fiscal Depreciation and Economic Depreciation



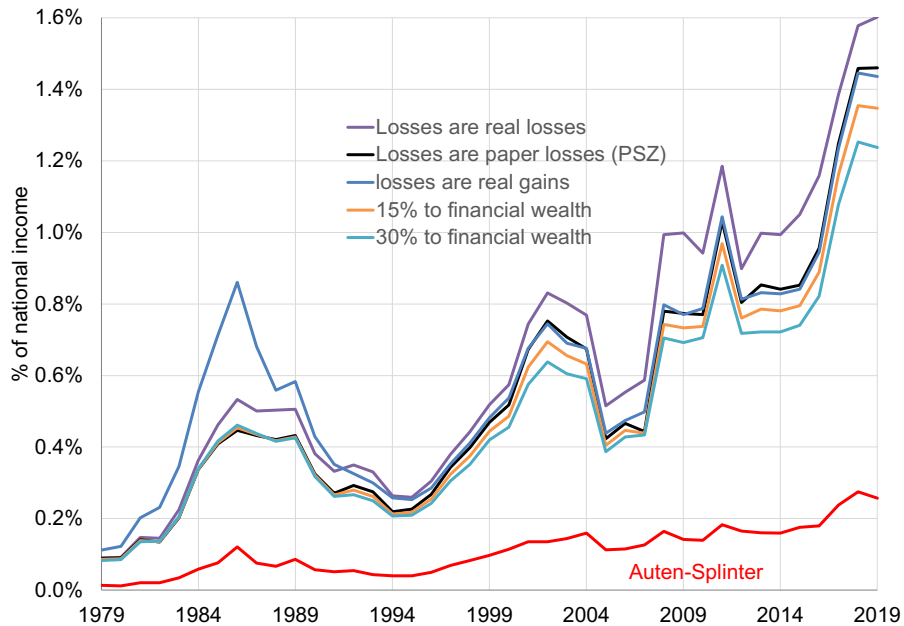
Notes: This figure reports the excess of fiscal depreciation (as reported by businesses in their tax returns) over economic depreciation (as estimated by the Bureau of Economic Analysis for the computation of national income) for non-farm sole proprietorships and partnerships separately, expressed as a fraction of national income from 1980 to 2020. The gap is positive and growing for partnerships because of the rise of partnerships as a type of business entity and the introduction of accelerated depreciation rules for investment. The gap is slightly negative for sole proprietorships because of limitations to the tax deductibility of depreciation on residential real estate used by sole proprietorships (e.g., home offices). Sources: see Appendix A.

Figure 2: Allocation of Excess Partnership Depreciation

(a) Share of Excess Depreciation Going to Top 1% (2019)



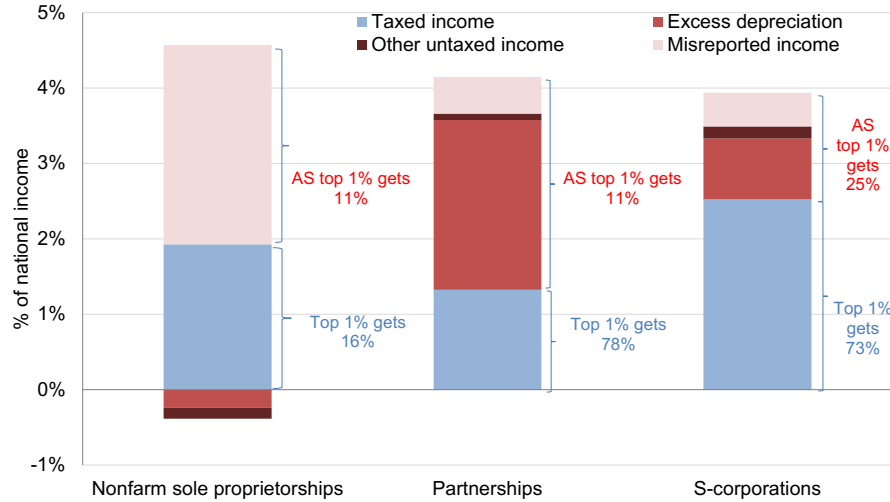
(b) Excess Depreciation Going to Top 1%



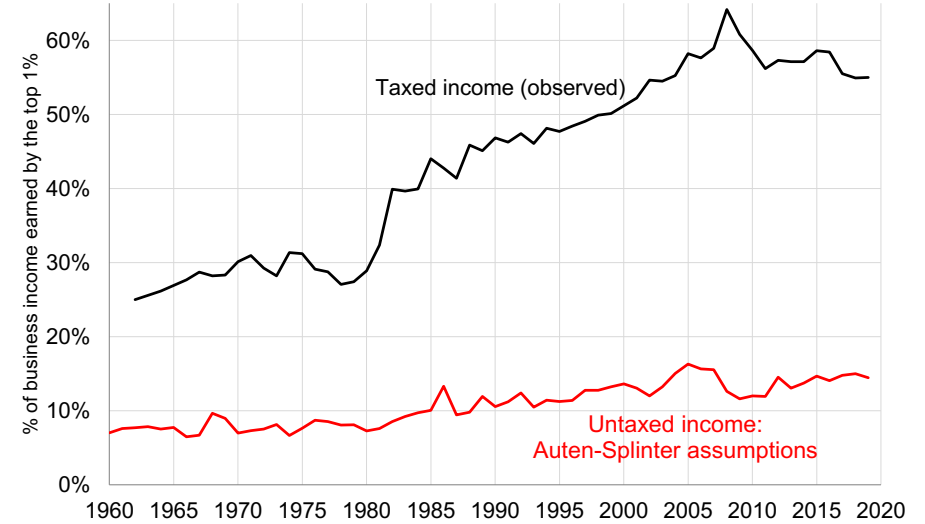
Notes: The top panel shows the fraction of excess partnership depreciation going to the top 1% in AS—who allocate it overwhelmingly to sole proprietorship owners—vs. different scenarios that allocate it to partnership owners. Partnership scenarios differ regarding the treatment of fiscal losses (fiscal losses are real losses; fiscal losses are only paper losses as in PSZ benchmark; fiscal losses are actually real profits) and fraction of excess depreciation going to non-individual partners (using the PSZ benchmark for losses). See text for complete details. The bottom panel shows the excess depreciation going to the top 1% expressed as a fraction of national income over time for the same scenarios. Source: AS (see Appendix D.2) and authors' computations (see text). In all cases, the fraction s_s going to the top 1% is estimated using the conceptual framework developed in Section 3.1. That is, when adding excess depreciation to income, top 1% incomes (after re-ranking) increase by $s_s \cdot S$ where S is aggregate excess depreciation.

Figure 3: Business Income: Taxed vs. Untaxed

(a) Business income by type, 2019



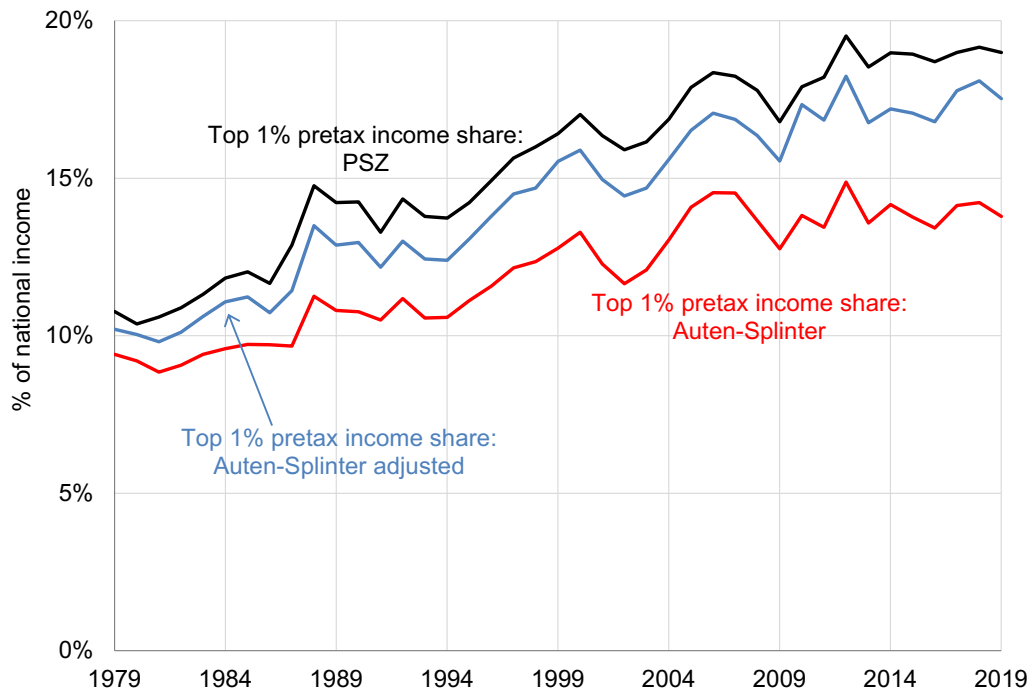
(b) Top 1% share of business income



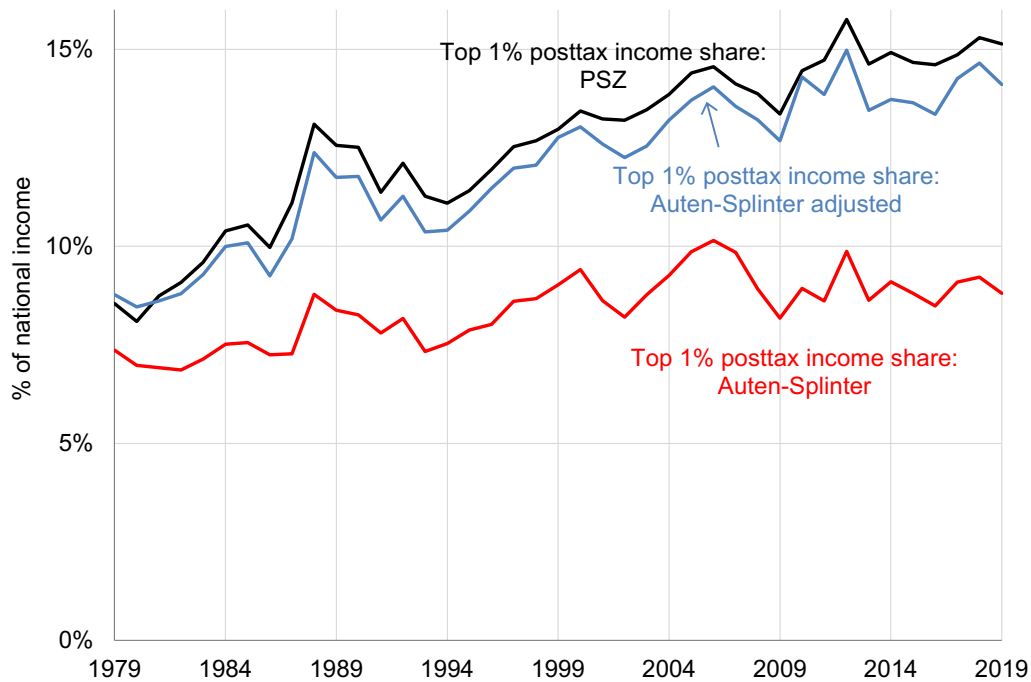
Notes: **Panel (a).** The bars on the figure decompose the macroeconomic income of sole proprietorships, partnerships, and S-corporations in 2019. Taxed income is the net amount reported on individual income tax returns. Excess fiscal depreciation is computed in Appendix A for sole proprietorships and partnerships, and in BEA (2024) for S-corporations. Misreported income and other untaxed income are computed following NIPA methodology (BEA 2023). Total NIPA misreported nonfarm proprietors' income is broken down into sole proprietorships and partnerships to match the misreporting rate of 57% for nonfarm sole proprietorships in 2014–16 reported in the IRS tax gap study for these years (IRS, 2022). Other untaxed income includes, for sole proprietorships: non-deductible meals and entertainment and a small amount of misclassified wages; for partnerships: the residual amount of other untaxed income included in NIPA nonfarm proprietors' income; for S-corporations: other untaxed income in BEA (2024). The figure also reports on the side of the bars the share of each income component going to the top 1%. For taxed income, it is computed using publicly-available individual income tax data, ranking individuals (with income equally split between married spouses) by fiscal income excluding capital gains. The share of untaxed income going to the top 1% is computed using the AS publicly available Excel files and the conceptual framework developed in Section 3.1. That is, when adding untaxed income to income, top 1% incomes (after re-ranking) increase by $s_s \cdot S$ where S is the macroeconomic aggregate of the corresponding untaxed income. See Appendix Section D.2 for details. **Panel (b).** The black line shows the share of taxable net income from sole proprietorships, partnership, and S-corporation earned by the top 1% individuals with the highest fiscal income, where fiscal income is reported individual income excluding capital gains, and the unit of observation is the adult individual with income equally split between married spouses. The computation is done using publicly-available individual income tax data. The red line shows the share of untaxed sole proprietorships, partnership, and S-corporation income earned by the top 1% in AS, computed using the AS publicly available Excel files and the conceptual s_s framework developed in Section 3.1. See Appendix Section D.2 for details.

Figure 4: Top 1% Income Share: PSZ vs. AS

(a) Pre-Tax Income



(b) Post-Tax Income



Notes: The red line shows the top 1% income share in AS. The black line shows the top 1% share in Piketty, Saez and Zucman (2018, updated). The blue line shows the top 1% income share in AS after implementing the adjustments listed in Table 2 each year from 1979 to 2019 (6 adjustment for pretax income plus 2 additional adjustments for posttax income). See notes to Table 2.

Table 1: Excess Fiscal Depreciation for Partnerships vs. Sole Proprietorships

	Source	2019 value (\$B)
Panel A: Non-farm sole proprietorships and partnerships		
Depreciation and amortization, IRS ("fiscal depreciation")	BEA NIPA Table 7.13 line 14	641.7
Minus: Consumption of fixed capital, NIPAs ("economic depreciation")	BEA NIPA Table 7.13 line 25	277.9
Equal: Excess fiscal depreciation		363.8
Panel B: Partnerships		
Fiscal depreciation	SOI line items totals of 1065 tax returns	589.2
Of which: Depreciation claimed by partnerships	SOI total of line 22 of form 4562	504.8
Of which: Amortization claimed by partnerships	SOI total of line 44 of form 4562	84.4
Minus: Economic depreciation	BEA Fixed Assets Table 6.4 line 7	178.1
Equal: Excess fiscal depreciation		411.1
Panel C: Non-farm sole proprietorships		
Fiscal depreciation	SOI line item totals of 1040 tax returns	56.6
Of which: Depreciation claimed by non-farm sole proprietorships	SOI total of line 13 of Schedule C	52.0
Of which: Depreciation for business use of home	SOI total of line 42 of form 8829	1.2
Of which: Amortization claimed by non-farm sole proprietorships	SOI total of line 44 of form 4562	3.4
Minus: Economic depreciation	BEA Fixed Assets Table 6.4 line 6, minus BEA NIPA Table 7.5 line 9	100.2
Equal: Excess fiscal depreciation		-43.6
Panel D: Residual (Panel A minus Panels B+C)		
Fiscal depreciation		-4.1
Minus: economic depreciation		-0.4
Equal: excess fiscal depreciation		-3.7

Notes: This table decomposes the fiscal and economic depreciation of non-farm non-corporate businesses into non-farm sole proprietorships vs. partnerships. Panel A reports estimates for non-farm sole proprietorships and partnerships combined, as published by the Bureau of Economic Analysis in NIPA Table 7.13. Panels B and C use publicly available SOI totals for specific line items in partnership and individual tax returns to compute fiscal depreciation separately for non-farm sole proprietorships vs. partnerships. Panel D reports the residual between Panel A and Panels B+C, which is due to the small amount of depreciation attributable to farm partnerships (which cannot be separately identified with public data). Sources and additional discussions: see Appendix A.

Table 2: Key Differences between PSZ and AS: Summary

	Size in 2019 (% of national income)	Methodology to allocate untaxed income		Share going to top 1% in 2019		PSZ minus AS top 1% income share in 2019 (p.p.)	PSZ minus AS top 1% income share increase 1979-2019 (p.p.)
		AS	PSZ	AS	PSZ		
	(1)	(2)	(3)	(4)	(5)	(6)=[(5)-(4)]x(1)	(7)
Memo: raw fiscal income (without capital gains, equal-split adults)	57.7%			17.2%		0.0	0.0
A. Pre-tax income total	100%			13.8%	19.0%	5.2	3.8
Six components of untaxed pre-tax income with large AS vs. PSZ difference							
1. Excess depreciation of partnerships	2.2%	Allocated ~80% to owners of sole proprietorships	Allocated to owners of partnerships	11.4%	64.9%	1.2	1.1
2. Tax-exempt income of S-corporations	1.7%	Allocated to owners of C-corporations (incl. held through pension plans)	Allocated to owners of S-corporations	28.2%	55.8%	0.5	0.5
3. Tax evasion	4.6%	AS custom method	Allocated proportionally to reported income, component by component	11.4%	28.3%	0.8	0.2
4. Tax-exempt capital income generated by funded pension plans	6.7%	Allocated proportionally to funded <i>and unfunded</i> pension wealth	Allocated proportionally to funded pension wealth	6.3%	10.3%	0.3	0.3
5. Corporate retained earnings	3.1%	Allocated without using wealth data and partly to unfunded pension wealth	Allocated proportionally to equity wealth	28.2%	33.2%	0.2	0.4
6. Consumption taxes: moving from basic-price to market-price national income	6.6%	Added to pretax income of consumers	Distributionally neutral (by pretax income)	6.8%	19.0%	0.8	0.5
Six pre-tax income components total	24.9%			12.0%	26.7%	3.7	2.9
Residual: all other pre-tax income differences	17.3%			4.9%	13.8%	1.5	1.0
B. Post-tax income total	100%			8.8%	15.1%	6.3	5.2
Two components of untaxed post-tax income with large AS vs. PSZ difference							
7. Collective consumption expenditures	15.7%	Half per capita, half by aftertax income (sharply reduces inequality and its rise)	Distributionally neutral (by aftertax income)	5.8%	15.1%	1.5	0.8
8. Government deficit	-3.6%	Allocated by federal taxes (reduces inequality and its rise)	Distributionally neutral (by aftertax income)	18.1%	15.1%	0.1	0.2
Eight pre-tax and post-tax components totals	37.1%			8.8%	22.9%	5.2	3.8

Notes: This table lists differences in the allocation of 8 categories of untaxed income between PSZ and AS, 6 for pretax income in Panel A and 2 for posttax income in Panel B. These differences explain about three-quarters of the AS vs. PSZ gap in the top 1% income share in 2019 and its rise over the 1979–2019 period. For each component S (listed in row), we report in columns: (1) its size as a % of total national income in 2019; (2)-(3) the methodologies used by AS and PSZ to allocate the component; (4)-(5) the share of S going to the top 1% in 2019 in AS and PSZ; (6)-(7) its percentage point contribution to the difference in the top 1% income share between PSZ and AS in 2019 and its rise over the 1979-2019 period. For each category of untaxed income s , we compute in column (4) the share s_s^{AS} going to the top 1% using the AS publicly available Excel file (Table C2), following the theory described in the main text. That is, when adding s to income, top 1% incomes (after re-ranking) increase by $s_s \cdot S$ where S is the macroeconomic aggregate of s from column (1). We then compute and report in column (5) the analog s_s^{PSZ} using the PSZ methodology. Column (6) equals $(s_s^{PSZ} - s_s^{AS}) \cdot S$ as a % of total national income. Finally, column (7) equals col. (6) minus col. (6) redone for year 1979 (and reported in Appendix Table A1). The components are listed by the order discussed in the text. There are many other differences in methodology in the allocation of other pretax income components, as well as unit definition, that are included in a residual line in the table. The Excel file available at <https://gabriel-zucman.eu/files/PSZ2026.xlsx> has the complete details. Figure 4 reports the full 1979–2019 time series for the top 1% pretax and posttax income shares in PSZ, AS, and AS adjusted for the factors listed here.

Appendix (for Online Publication)

A Economic Depreciation for Partnerships vs. Sole Proprietorships

A.1 BEA Methodology

To convert the fiscal depreciation reported by proprietorships and partnerships into economic depreciation, BEA uses a holistic approach, where all fiscal depreciation is discarded and replaced by economic depreciation. This is done in three steps.

Step 1. IRS depreciation total. As indicated in NIPA Table 7.13, BEA starts with total depreciation and amortization in tax data (NIPA Table 7.13 line 14), which can be reconstructed using publicly available SOI line item totals³⁰ as the sum of:

- Depreciation of partnerships: Line 22 of form 4562 filed by partnerships (\$505 billion in 2019)
- Amortization of partnerships: Line 44 of form 4562 filed by partnerships (\$84 billion in 2019)
- Depreciation of non-farm sole proprietorships: Line 13 of Schedule C filed by individuals (\$52 billion in 2019)
- Depreciation for business use of home: Line 42 of form 8829 filed by individuals (\$1.2 billion in 2019)
- Amortization of sole proprietorships: Line 44 of form 4562 filed by individuals (\$3.4 billion in 2019)

The total fiscal depreciation reported in NIPA Table 7.13 line 14 (\$642 billion in 2020) differs very slightly from the sum of the five items listed above (\$646 billion), with an absolute value of the difference of less than 1%, because BEA removes an estimate of partnership farm depreciation which cannot be computed with publicly available data.

Step 2. Adjustments to IRS depreciation. BEA then applies a number of adjustments to reported fiscal depreciation to capture a comprehensive tax-based measure of depreciation, which is called “capital consumption allowances, NIPAs” (reported in NIPA Table 7.13 line 23, \$654 billion in 2019). The net effect of these adjustments (i.e., the difference between NIPA 7.13 line 23 and line 14) is small, \$12 billion in 2019.

³⁰Available at <https://www.irs.gov/pub/irs-prior/p5035--2021.pdf> for partnerships and <https://www.irs.gov/pub/irs-prior/p4801--2021.pdf> for individuals

Step 3. Capital consumption adjustment. Last the all-important “Capital consumption adjustment” is implemented, which replaces the comprehensive tax-based measure of depreciation by the economic measure.

To compute the economic measure of depreciation, called “consumption of fixed capital” in the national accounts, BEA starts from its estimates of businesses’ capital stock by type of business and type of asset (equipment, structure, etc.), as reported in its fixed assets statistics. It then applies economic depreciation schedules by asset type. This methodology results in an estimated consumption of fixed capital of \$278 billion for non-farm sole proprietorships and partnerships combined in 2019 (as reported in NIPA Table 7.5 line 10).

The Capital consumption adjustment (reported in NIPA Table 7.13 line 24) is computed as the difference between the comprehensive tax-based measure of depreciation (\$642 billion from step 1 + \$12 billion from step 2) and the consumption of fixed capital (\$278 billion). It is equal to \$376 billion in 2019.

Excess fiscal depreciation is the sum of the adjustments to IRS depreciation (step 2) and the Capital consumption adjustment (step 3). It is also equal to the difference between fiscal depreciation and consumption of fixed capital. Excess fiscal depreciation is equal to \$364 billion for nonfarm sole proprietorships and partnerships combined in 2019, versus \$0 billion in 1980.

A.2 Breaking Down the BEA Aggregate

To decompose this BEA aggregate into partnerships vs. sole proprietorships separately, we follow the BEA methodology using publicly available SOI tabulated data for each type of business separately.

Partnerships. The excess fiscal depreciation of partnerships is computed as:

Fiscal depreciation of partnerships (SOI total of line 22 of form 4562 filed by partnerships)

Plus Fiscal amortization of partnerships (SOI total of line 44 of form 4562 filed by partnerships)

Minus Consumption of fixed capital of partnerships (BEA Fixed Assets Table 6.4 line 7).

Nonfarm sole proprietorships. The excess fiscal depreciation of nonfarm sole proprietorships is computed as:

Fiscal depreciation of non-farm sole proprietorships (SOI total of line 13 of Schedule C filed by individuals)

Plus Fiscal depreciation for business use of home (SOI total of line 42 of form 8829 filed by individuals)

Plus Fiscal amortization of sole proprietorships (SOI total of line 44 of form 4562 filed by individuals)

Minus Consumption of fixed capital of nonfarm sole proprietorships (BEA Fixed Assets Table 6.4 line 6, minus NIPA Table 7.5 line 9).³¹

³¹Fixed Assets Table 6.5 line 6 is the CFC of sole proprietorships, and NIPA Table 7.5 line 9 is the CFC of noncorporate farms. Thus this computation treats all noncorporate farms as sole proprietorships (while some can file as partnerships). Alternatively, one could estimate the excess fiscal depreciation of all (farm plus nonfarm) sole proprietorships by adding the Fiscal depreciation of farm sole proprietorships (Line 14 of Schedule F filed

Reconciliation with BEA aggregate. The excess fiscal depreciation of partnerships (\$411 billion in 2019) and nonfarm sole proprietorships (-\$44 billion in 2019) adds up each year to the official BEA excess fiscal depreciation of nonfarm sole proprietorships and partnerships combined (\$364 billion in 2019), modulo a residual of about 1%.³²

B Sources of Partnership Depreciation

B.1 Partnership Depreciation in Tax Data

In 2019, according to SOI tabulations of partnership tax returns, partnerships deducted \$589.2 billion in depreciation and amortization, which can be decomposed as follows:

- Expensed investment: \$254.8 billion (Form 4562 line 14). This primarily includes tangible property with a recovery period of less than 20 years (e.g., equipment, airplanes, land improvement, pipelines, machines, etc.), which could be fully expensed in 2019.
- Rental real estate depreciation: \$173.8 billion (Form 8825 line 14). Out of this roughly 40% was for residential real estate and half for non-residential real estate.³³
- Depreciation of other assets: \$76.2 billion (Form 4562 line 22 minus Form 4562 line 14 minus Form 8825 line 14)
- Amortization: \$84.4 billion (Form 4562 line 44).

According to the BEA Fixed Accounts statistics, partnerships had \$178.1 billion in economic depreciation and amortization, so there was \$411.1 billion in excess fiscal depreciation. The main sources of excess depreciation were expensed investment (accounting for about 50%–55% of total excess depreciation), residential real estate (about 10%–15%),³⁴ intangibles (about 10%), and other gaps between economic and fiscal depreciation, such as faster depreciation patterns in the tax code (about 20%–30%).³⁵

by individuals) and subtracting the CFC of all sole proprietorships (Fixed Assets Table 6.5 Line 6) instead of only the estimated CFC of nonfarm sole proprietorships. The results are nearly identical (e.g., -\$42 billion in excess fiscal depreciation for all sole proprietorships in 2019 vs. -\$44 for nonfarm sole proprietorships).

³²This residual (of \$3.7 billion in 2019) is due to the excess fiscal depreciation of farm partnerships (and other potential residual discrepancies that cannot be readily addressed with public data).

³³35% of real estate placed in service by partnerships in 2019 was residential (\$93.3 billion, Form 4562 line 19h) and 65% was non-residential (\$173.6 billion, Form 4562 line 19i). In earlier years a slightly higher fraction (around 40%) was residential.

³⁴Office buildings are depreciated over 39 years in the tax code and 34 to 40 years in the national accounts (BEA, 2003) and thus do not appear to be a major source of excess depreciation, in contrast to rental residential real estate which are depreciated faster in the tax code, 27.5 years vs. 65 to 80 years in the national accounts (see case study below).

³⁵Specifically, assuming that 85% of expensed investment is in excess of normal economic depreciation, then expensing accounts for $0.85 \times \$255B / \$411B = 53\%$ of total excess depreciation. Assuming that 40% of fiscal real-estate depreciation is for residential real estate and 65% of that is in excess of economic depreciation, then residential real estate accounts for $\$174B \times 0.4 \times 0.65 / \$411B = 11\%$ of total excess depreciation. Economic amortization by partnership is estimated by BEA to be \$57.1B (BEA Fixed Assets 4.4 line 64), hence excess fiscal amortization is \$27.3 billion, i.e., 7% of total excess fiscal depreciation.

B.2 Case Studies

Pipeline transportation. According to SOI tabulations of partnership tax returns, pipeline transportation is the industry with the highest amount of (non-real-estate related) depreciation.³⁶ Pipelines can be depreciated over 15 years in the tax code, while they have a service life of 40 years in the national accounts (BEA, 2003), thus generating excess fiscal depreciation. Full expensing provisions magnify this gap between economic income and taxable income, as new pipelines can be fully depreciated in just one year.

A number of pipeline partnerships are publicly traded, and known to generate high-cash flows while simultaneously allowing their partners to claim ordinary business losses.³⁷ Our methodology that allocates excess depreciation proportionally first to ordinary business losses (and then to ordinary business profits if some untaxed income remains to be allocated) naturally captures the distribution of such excess fiscal depreciation.

Sports club owners. In 2014, Steve Ballmer bought the Los Angeles Clippers for \$2 billion. Since the American Jobs Creation Act of 2004, sports teams are allowed to amortize nearly all their intangible assets over 15 years, including TV and radio contracts, player contracts, goodwill (the Clippers brand), etc. This amortization is not recognized in the national accounts, thus contributing to excess fiscal depreciation. According to public information, Ballmer reported a total of \$700 million in losses from his amortization of the Clippers over the 2014–2018 period, allowing him to offset taxes on dividend income and capital gains.³⁸ Our methodology that allocates excess depreciation proportionally first to ordinary business losses captures the distribution of such excess fiscal depreciation.

Real estate partnerships. Donald Bren is the owner of Irvine Company, a firm that owns 65,000 housing units spread in Orange County, San Diego, Los Angeles, and Silicon Valley.³⁹ In 2019 *Forbes* estimated his net worth at \$16.4 billion. We do not know whether Irvine Company files as a partnership, but partnerships are known to be the preferred form of business organization in the real estate sector, because they allow their owners to take full depreciation deductions even if the properties are debt-financed, in contrast to corporations.⁴⁰

³⁶In 2019, “transportation and warehousing” accounted for 16.6% of all (non-rental-real estate) depreciation, cf. Appendix Figure A1. In 2014, SOI tabulations are broken down at a more granular level and show that more than 80% of “transportation and warehousing” depreciation comes from pipeline transportation.

³⁷See, e.g., <https://www.investopedia.com/articles/personal-finance/062515/mlps-how-they-are-taxed.asp> for a practitioner’s view. When units are sold the depreciation is “re-captured” and subject to taxation, but this tax itself can be avoided, e.g., by bequeathing assets, generating a step up in basis.

³⁸See <https://www.propublica.org/article/the-billionaire-playbook-how-sports-owners-use-their-teams-to-a>. In principle passive losses can only be offset against passive gains, but losses can be classified as non-passive if the owner is involved in the management of the business.

³⁹<https://www.irvinecompany.com/portfolio/>.

⁴⁰Consider two partners A and B, who contribute \$10 each. The partnership borrows \$80. The debt is allocated \$40 each to A and B, thus A and B each have \$50 of outside basis in the partnership. If the partnership buys depreciable property for \$100, and depreciates it all, each partner can take \$50 of depreciation deductions. In an S-corporation, each owner would be allowed to take only \$10 of depreciation deduction, corresponding to their actual capital contribution. The remaining \$40 in loss would be sus-

Residential rental properties can be depreciated over 27.5 years in the tax code, while they have a service life of 65 years (for 5-or-more units structures) to 80 years (for 1-4 units structures) in the national accounts (BEA, 2003). When a property is fully depreciated after 27.5 years and changes hand, its basis is stepped up, allowing its new owner to depreciate it again for tax purposes and thus generating excess fiscal depreciation economy-wide.⁴¹

Ideally this excess depreciation would be allocated by matching real-estate partnerships to their owners, a task difficult in practice due to the widespread use of holding chains in the real estate sector. As detailed above, available evidence suggests that excess real-estate depreciation accounts for only about 10%–15% of total excess partnership depreciation.

C Treatment of Business Losses

C.1 Relaxing the PSZ Assumptions: Sensitivity Analysis

PSZ assume that a \$1 net loss in passthrough business profit reported on individual tax returns corresponds to \$0 real income. In other words, fiscal business losses are not real business losses but rather paper losses due to generous tax deductions (e.g., for depreciation) or tax evasion. Even discarding fiscal losses, positive fiscal profits are typically substantially smaller than total (net) profits from the NIPAs. PSZ assign this discrepancy proportionally to positive fiscal profits.

It is easy, however, to modify the PSZ treatment of losses and to explore the impact of different assumptions on income concentration. Let us assume that \$1 of net loss reflects \$ a of real losses (and \$ $1 - a$ of paper losses). In PSZ, a is assumed to be 0, i.e., all fiscal losses are paper losses, not real losses.

If $a = 1$, all fiscal losses are actually real losses, in which case the discrepancy between fiscal income and NIPA income is larger and requires multiplying positive profits by a larger number to match NIPA profits.⁴² In this case, income concentration would be even higher than in PSZ (see below).

One can also assume that a fiscal loss corresponds to a real positive profit. For example with $a = -1$, a \$1 loss represents \$1 in true profit (that is, a loss is not only a paper loss but also reflects actual real profits). In this case, income concentration would decrease very slightly relative to PSZ. The effect is muted, because treating losses as disguised profits reduces the multiplier that needs to be applied to match NIPA profits (which lowers concentration), but it also makes large losses become large positives (which adds to concentration).⁴³

The bottom line is that the PSZ treatment of ignoring losses can be seen as a middle-ground

pending until A and B have more basis to take the deductions (e.g., by contributing more capital), cf. loss suspension rules for S-corporations: <https://www.irs.gov/businesses/small-businesses-self-employed/s-corporation-stock-and-debt-basis>. We thank Michael Love for these explanations.

⁴¹In certain transactions, this basis shifting can take place within related parties, thus allowing the same owner to depreciate the same property multiple times over. See <https://home.treasury.gov/news/press-releases/jy2408>

⁴²Only positive profits must be adjusted, since by definition with $a = 1$ all fiscal losses are real (they are not due to tax evasion or excess depreciation).

⁴³Intermediate cases such as $a = -.5$ or $a = .5$ can also be considered and lead to smaller adjustments.

scenario, if anything conservative. Taking losses at face value would produce more concentration. Taking losses as disguised gains would produce only slightly less concentration. The common intuition that disregarding fiscal losses must bias top income shares upwards is generally not correct.

This can be illustrated simply using 2019 individual income tax data. In Adjusted Gross Income (fiscal income reported on individual income tax returns), S-corporation profits are \$530.4B (positive profits) minus \$69.5B (losses) and partnership profits are \$348.8B (positive profits) minus \$132.5B (losses).⁴⁴ In the national accounts, S-corporation net profits are \$716B and partnership net profits are \$852B.⁴⁵

The top 1% of tax filers have 20.43% of total AGI. We can recompute the top 1% income share by making various assumptions on a , and allocating the remaining gap between corrected fiscal profits and national account profits proportionally to corrected fiscal profits as in PSZ.

- If $a = 1$ (fiscal losses are real losses), the top 1% income share grows to 24.10%.
- If $a = .5$ (fiscal losses are 50% real): the top 1% income share grows to 23.80%
- If $a = 0$ (fiscal losses are all paper losses, PSZ benchmark): the top 1% income share grows to 23.58%.
- If $a = -.5$ (fiscal losses are 50% profit): the top 1% income share grows to 23.45%
- If $a = -1$ (fiscal losses are in reality disguised profit): the top 1% income share grows to 23.38%.

The bottom line is that the treatment of losses has only a second-order effect relative to the first-order effect of blowing up fiscal profits to match NIPA profits, which is necessary to account for the large amount of excess fiscal depreciation, other legally exempt income, and tax evasion.

C.2 What Fraction of Partnership Profits and Losses Can be Seen on Individual Income Tax Returns?

As noted in the main text, about 70% of both total partnership profit and total partnership losses are directly observable on individual income tax returns. We detail this computation here for the year 2019.

According to publicly available SOI tabulations of partnership tax returns (form 1065), partnerships overall made \$557 billion in ordinary business profit. Total profits (and total losses) made by partnerships can be computed using public SOI tabulated data because partnerships must separately report profits and losses flowing from other partnerships, making it possible to avoid double counting. Specifically,

⁴⁴These numbers are obtained when aggregating profits and losses within each tax return for the partnerships category and the S-corporation category respectively.

⁴⁵These numbers are taken from the PSZ breakdowns of NIPA profits into S vs. C corporation profits and NIPA proprietors' income into partnership vs. sole proprietorship income used for the 2022 update of PSZ.

- Partnerships in total reported \$732.7 billion in positive ordinary income
- Partnerships in total received \$175.6 billion in “Ordinary income from other partnerships and fiduciaries”
- Hence they made $\$732.7 - \$175.6 = \$557.1$ billion in positive profit, net of double counting.⁴⁶

According to SOI line items totals for Form 1040, individuals reported \$407 billion in positive partnership profit, i.e., 73% of the \$557B in total positive partnership profit.

A similarly high fraction of total partnership losses went to individuals after accounting for loss limitation rules. Specifically, partnerships in total made \$306 billion in losses (net of double counting). Individuals had \$185 billion in allowed partnership losses and more than \$25 billion in disallowed losses due to passive loss limitation rules, hence at least 69% of partnership losses flew to individuals.⁴⁷

D Allocating Untaxed Income

D.1 Theory

Suppose that y is fiscal income and $y + s$ is a broader definition of income, with s being income not included in fiscal income (s could for instance be unreported income, or untaxed income such as excess depreciation in fiscal profits). How does adding s affect the top 1% income share?

Let Y, S be the macroeconomic aggregates of y, s . Let $sh(y)$ be the share of y going to the top 1% y -income earners and $sh(y + s)$ be the share of $y + s$ going to the top 1% $y + s$ -income earners. Let s_y be the share of s income going to the top 1% y -income earners, and s_{y+s} be the share of s income going to the top 1% $y + s$ -income earners. We have the following inequalities:

$$sh(y) \cdot Y / (Y + S) + s_y \cdot S / (Y + S) \leq sh(y + s) \leq sh(y) \cdot Y / (Y + S) + s_{y+s} \cdot S / (Y + S)$$

The first inequality is because the top 1% in $y + s$ must have at least the income of the top 1% in y plus the s income going to the top 1% in y , so that $sh(y + s) \cdot (Y + S)$ is at least $sh(y) \cdot Y + s_y \cdot S$. The second inequality is because the top 1% in $y + s$ has less y income than the top 1% in y and hence their total income $sh(y + s) \cdot (Y + S)$ cannot exceed $sh(y) \cdot Y$ plus their s income $s_{y+s} \cdot S$. In both cases, there is equality if and only if the top 1% in y and the top 1% in $y + s$ are the same group of people (also equivalent to $s_{y+s} = s_y$). It also follows from the inequalities that $s_{y+s} \geq s_y$: top $y + s$ -earners must have more s -income than top y -earners.

⁴⁶Profit received from fiduciaries is neglected.

⁴⁷Losses and deductions made by a partnership that can be claimed by individual partners are limited by basis rules (losses cannot be deducted if a partner has no basis), at-risk rules (partners cannot deduct losses in excess of the amounts of money they have “at risk” in the business), and passive loss rules (passive losses can only be offset against passive gains). Disallowed passive losses can be estimated as follows: \$70 billion in passive losses from non-rental activities were reported on line 3b of Form 8582, but only \$45 billion in passive losses were allowed on Schedule E, hence about \$25 billion in losses were disallowed. Disallowed losses from basis and at-risk rules cannot be identified with public data.

There is often a debate on whether s_{y+s} or s_y is the most meaningful statistic for understanding how s affects the concentration of income. It turns out that neither is. The relevant statistics is s_s which we defined in the main text as:

$$sh(y + s) = sh(y) \cdot Y/(Y + S) + s_s \cdot S/(Y + S)$$

In words, when moving from y -income to the broader $y + s$ -income measure, top 1% incomes increase by $s_s \cdot S$, so s_s is effectively the share of the extra income S that goes to the top 1%. Importantly, it is not the same top 1% people (if there is re-ranking when moving from y to $y + s$) but it is the relevant concept for our purposes. Note that s income increases concentration—i.e. $sh(y + s) > sh(y)$ —if and only if $s_s > sh(y)$.⁴⁸ The parameter s_s is theoretically in between s_y and s_{y+s} .

D.2 Recovering the Distribution of Untaxed Income in AS

Using this conceptual framework, we can use the AS online Excel files to clarify the assumptions made by AS about the distribution of untaxed income.⁴⁹ Using their Table C1, one can compute the fraction of untaxed income assigned to the top 1% (the share s_s discussed above) for the various components of untaxed income S .⁵⁰ Here we provide details about these computations, organizing the discussion around two buckets: untaxed business income and untaxed capital income.

Distribution of untaxed business income. Untaxed business income includes untaxed noncorporate business income (sole proprietorships plus partnerships) and untaxed S-corporation income.

The distribution of untaxed noncorporate business income is inferred from AS’s Table C1, cols. EB to ET. In a first step one can compute the total of what AS call “underreported income,” as col. EL minus col. EB (\$1,084 billion in 2019). This total includes both legally-exempt income (e.g., excess fiscal depreciation) and tax evasion (unreported taxable income). This total also includes unreported taxable wage income, which is lumped with unreported business income and distributed identically by AS. The top 1% gets \$124 billion of AS’s total “underreported income” in 2019 (col. EQ minus col. EG), i.e., a share $s_s^{nc} = 11\%$ of this additional income goes to the top 1%, the number reported in Figure 3 for sole proprietorships and partnerships. By applying this share to the total amount of untaxed noncorporate business income (\$1,084 billion in 2019 minus \$159 billion in unreported wage income), we obtain that the top 1% is assigned \$106 billion (in 2019) of untaxed noncorporate business income by AS.

The distribution of untaxed S-corporation income is also inferred from AS’s Table C1. First, tax evasion on S-corporation income is included in AS’s “underreported income” aggregate.

⁴⁸The s_s concept has been used to distribute growth of income to percentiles where y is income in some year and $y + s$ is income in a later year (where s denotes income growth).

⁴⁹<https://davidsplinter.com/AutenSplinter-IncomeIneq.xlsx> downloaded on December 1st, 2023.

⁵⁰When there are various income components, the order could in principle matter. Table C1 from AS is the only source we can use for such computations so we have to follow their specific ordering. Computations based on public micro-data suggests that re-ordering effects are small.

Thus a fraction s_s^{nc} (11% in 2019) of unreported S-corporation income (\$54 billion in total in AS in 2019) is assigned to the top 1%; this amount is already included in untaxed noncorporate business income above. Second, legally-exempt S-corporation income is distributed by AS as C-corporation retained earnings. The distribution of C-corporation retained earnings is computed using AS’s Table C1 cols. CN to CX, e.g., the top 1% gets a share $s_s^{ret} = 28\%$ of total retained earnings (and hence of S-corporation legally-exempt income) in 2019. Overall, the top 1% is assigned 25% of untaxed S-corporation income in 2019 (as reported in Figure 3).

Distribution of untaxed capital income. Untaxed capital income includes corporate retained earnings, investment income earned on tax-exempt pension accounts, untaxed rents, tax-exempt interest, and income retained in trusts. We compute the distribution of untaxed capital income using AS’s Table C1 using the same method as done above for business income. For each component of untaxed capital we can compute the share s_s of untaxed income assigned by the AS to the top 1%. This share for all untaxed capital income components taken together is reported in Appendix Figure A2.⁵¹

Taxed capital income—taxable interest, dividends, rents, and trust and estate income reported on individual income tax returns—is highly and increasingly concentrated. The 1% adult individuals at the top of the fiscal income distribution earn 45% of taxed capital income in 2019 vs. 22% in 1979. According to AS, however, there has been an equalization of untaxed capital income: the top 1% earns $s_s = 21.1\%$ untaxed capital income in 1979 but only $s_s = 16.4\%$ in 2019 (Appendix Figure A2). Because the bulk of capital income is untaxed (about 70%-75% in the 1960s-1970s, rising to 85% in the 2010s), and because, with AS’s assumptions, untaxed capital income is increasingly equally distributed, there has been, according to AS, a significant equalization of capital income since the 1960s. The top 1% earns only about 20% of total capital income in 2019 vs. close to 30% in the 1960s. This pattern is at odds with the sharp increase in the concentration of wealth seen in all available data sources (Appendix Figure A3).

E Additional Item-by-Item Discussion

E.1 Tax Evasion

This Appendix compares the distribution of tax evasion in AS, PSZ, and Johns and Slemrod (2010), the canonical IRS study of the distribution of tax evasion in the United States.

Johns and Slemrod (2010) find that the share of fiscal income (adjusted gross income including realized capital gains) earned by the top 1% tax units was the same before and after evasion in 2001, namely 17.8% (Johns and Slemrod, 2010, Table 5). This implies an $s_s = 17.8\%$ in 2001 compared to $s_s = 12.5\%$ in the same year in AS. Therefore, in AS tax evasion is less concentrated than in Johns and Slemrod (2010). This difference is obscured in AS, who write (p. 2199) that their “... method produces results similar to NRP-based estimates of the distribution

⁵¹AS lump untaxed rents (other than imputed rents for owner-occupied housing) along with tax evasion and legally-exempt income, so we allocate these untaxed rents following the distribution of this aggregate.

of underreporting in Johns and Slemrod (2010)...”.⁵²

By contrast evasion is more concentrated in PSZ than in Johns and Slemrod (2010), with $s_s = 26.3\%$ in PSZ in 2001. This is due to higher amounts allocated to partnerships (and correspondingly lower amounts allocated to sole proprietors) than implicit in Johns and Slemrod (2010). This approach seems appropriate to us for the following reason. In contrast to sole proprietorships which are comprehensively examined in IRS random audits, partnerships are barely examined in the context of such audits. If a partnership reports \$100 in income of which \$70 is allocated to a given partner, the auditors check that the partner has duly reported \$70 on his individual income tax return, but typically not whether the \$100 earned by the partnership—and hence the \$70 attributable to the partner—are accurate (Guyton et al., 2025).

To account for undetected tax evasion, the IRS multiplies detected evasion by a factor of about 3. But because partnerships are barely examined in the first place, this procedure is unlikely to capture the full amount of underreported partnership income (while it may overestimate the true amount of underreported sole proprietorship income). The PSZ methodology attempts to account for this feature of the data generating process while staying consistent with the BEA underreported business income aggregate (sole proprietorships plus partnerships). Naturally, as new evidence emerges on the distribution of undetected tax evasion, the PSZ approach could be refined. In the meantime, the key point is that the differences in the AS vs. PSZ treatments of tax evasion explain very little of the difference in the *trends* of the top 1% income share; see also Iselin and Reck (2025).

E.2 Pensions

First, AS under-estimate the share of pension income earned by the top 1% in 2019 and its rise since the 1980s by about 0.3 points, because investment income earned in retirement accounts is allocated by AS proportionally to funded and *unfunded* pension wealth.

Unfunded pensions are promises of future retirement benefits that are not backed by actual wealth. 93% of those promises are in pensions of government workers at the end of 2019, according to the Financial Accounts of the Federal Reserve.⁵³ AS’s methodology allocates dividends, interest, a portion of corporate retained earnings, business property taxes, etc., to the beneficiaries of these unfunded pensions—even though these pensions have no assets attached to them. Concretely the public school teachers of Illinois get allocated a fraction of Alphabet’s, Amazon’s etc. profit even if the Illinois state pension system does not own any equity wealth.

AS note that their allocation of pension wealth allows them to match the DFA distribution of “pension entitlements.” Because the DFA (and the underlying Survey of Consumer Finances) is the only comprehensive source on the distribution of pension wealth in the United States, matching this source is key. However, because “pension entitlements” in the DFA includes unfunded defined benefit pensions, it is not the correct aggregate to target.⁵⁴ After subtracting

⁵²Auten and Splinter (2019) used to rely on Johns and Slemrod (2010) to allocate unreported income but switched to their new method in AS.

⁵³Unfunded DB pensions amounted to \$414 billion for private sector employees (FL573073005); ; \$1,652 billion for federal government employees (FL343073045); and \$4,168 State and local government employees (FL223073045).

⁵⁴Moreover, “pension entitlements” excludes individual retirement accounts, which are slightly more concen-

unfunded pensions, the top 1% by income owns 7.0% of funded pension wealth in the DFA in 1989 and 8.3% in 2019. In AS, the top 1% is assigned 7.0% of retirement account income in 1989 but only 6.3% in 2019. There is a trend bias.

Saez and Zucman (2020) noted that Auten and Splinter (2019)’s tax-exempt retirement income distribution were not consistent with existing evidence. In response, AS improved their allocation by using administrative data on the distribution of individual retirement accounts. This, however, did not address the problem, as most pension and insurance assets are not in IRAs. The issue pointed here—that investment income is allocated to beneficiaries of unfunded pensions—had not been noted before.

E.3 Retained Earnings

AS underestimate the rise in the concentration of retained earnings, due to two issues.

First, for equities directly held, AS allocate three-quarters of retained earnings proportionally to dividends and only one quarter proportionally to realized capital gains. This assumption is logically inconsistent: owners of firms with relatively high retained earnings receive relatively little dividends—the opposite of what AS assume. Because the concentration of dividends has increased less than that of capital gains, the AS assumptions is likely to lead to biased trends.⁵⁵ AS do not justify their approach, which is at odds with the literature and does not appear to have a particular empirical basis. They simply note (p. 2197): “We favor using dividends received as the primary indicator of corporate ownership (Smith et al., 2023).” This, however, reflects a confusion between the distribution of corporate profits and the distribution of retained earnings.⁵⁶ This issue had not been noted before: in Auten and Splinter (2019), half of retained earnings were allocated proportionally to dividends.

Second, for equities held through pension funds, AS allocate a portion of retained earnings to beneficiaries of unfunded pension plans, which by definition have no assets (see above).

Altogether, these two issues reduce the AS rise in the top 1% pre-tax income by 0.4 points over the 1979–2019 period relative to PSZ.

trated than funded DB plus DC pensions.

⁵⁵The share of dividends earned by the top 1% tax units (ranked by fiscal income excluding capital gains) is about the same in 2019 and 1962 (45%–46%) but the share of capital gains is much higher in 2019 (46%) than in 1962 (33%), even though the rich had incentives in the 1960s to report income as capital gains to avoid the high dividend tax rates. The relatively low concentration of capital gains in the 1960s is consistent with other evidence pointing to a relatively low concentration of wealth at the time, such as the 1957 *Fortune* magazine rich list (see, e.g., Piketty et al., 2022b, Figure 3) or the low levels of wealth inequality in the 1960s estimated using estate tax returns.

⁵⁶Smith et al. (2023) allocate about 3/4 of directly-held equity wealth in recent years proportionally to dividends, which would call for allocating 3/4 of the corresponding corporate profits proportionally to dividends. But AS allocate much more than 3/4 of directly-held corporate profits to dividends (specifically, 3/4 of retained earnings plus 100% of distributed profits).

Additional References

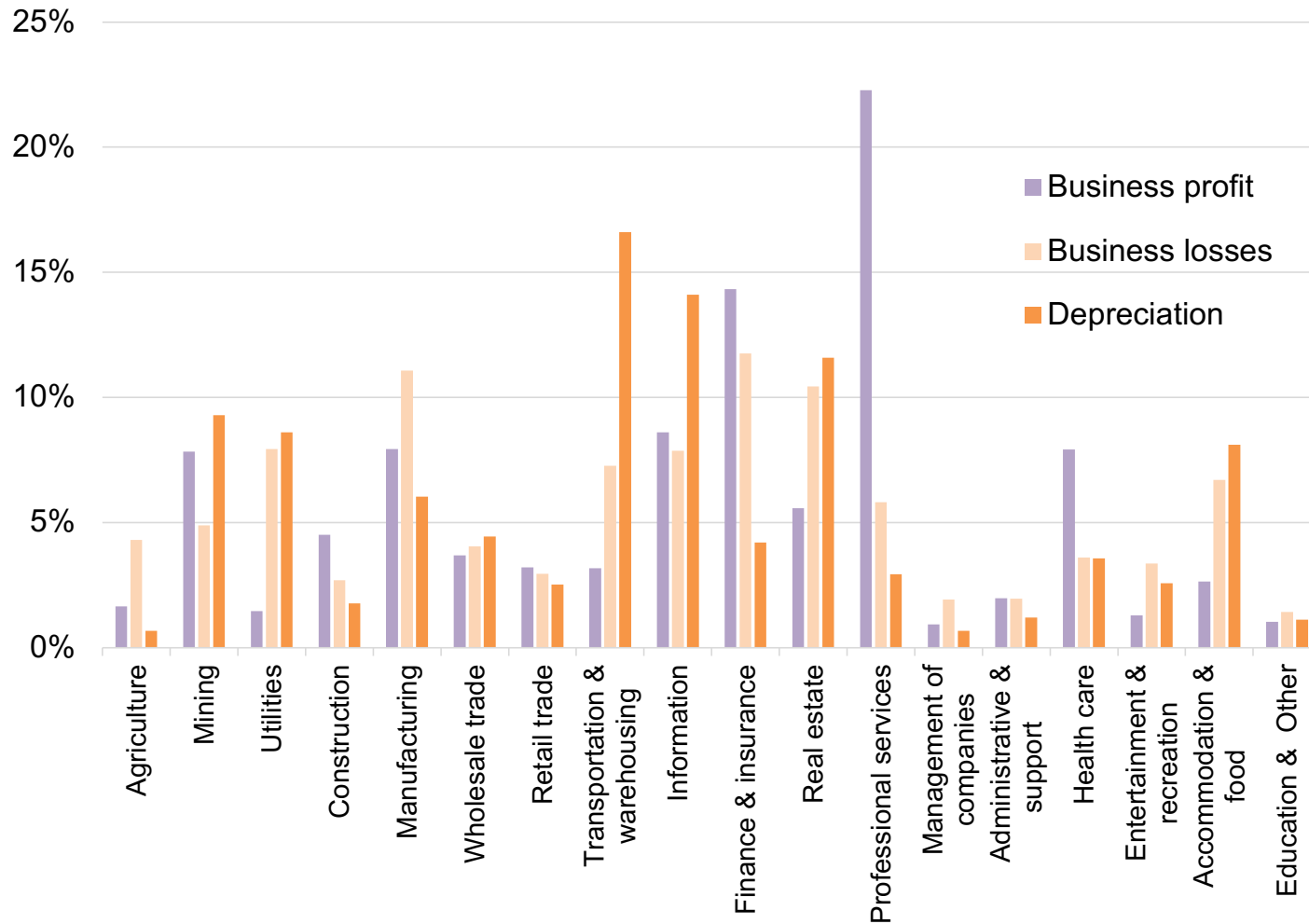
Internal Revenue Service. (2022), “Federal Tax Compliance Research: Estimates for Tax Years 2014–2016”, available at <https://www.irs.gov/pub/irs-pdf/p1415.pdf>

Iselin, John and Daniel Reck (2025), “ Misreported Income and the Dynamics of Income Inequality”, working paper.

Johns, Andrew and Joel Slemrod (2010), “The Distribution of Income Tax Noncompliance,” National Tax Journal, 63 (3), 397–418.

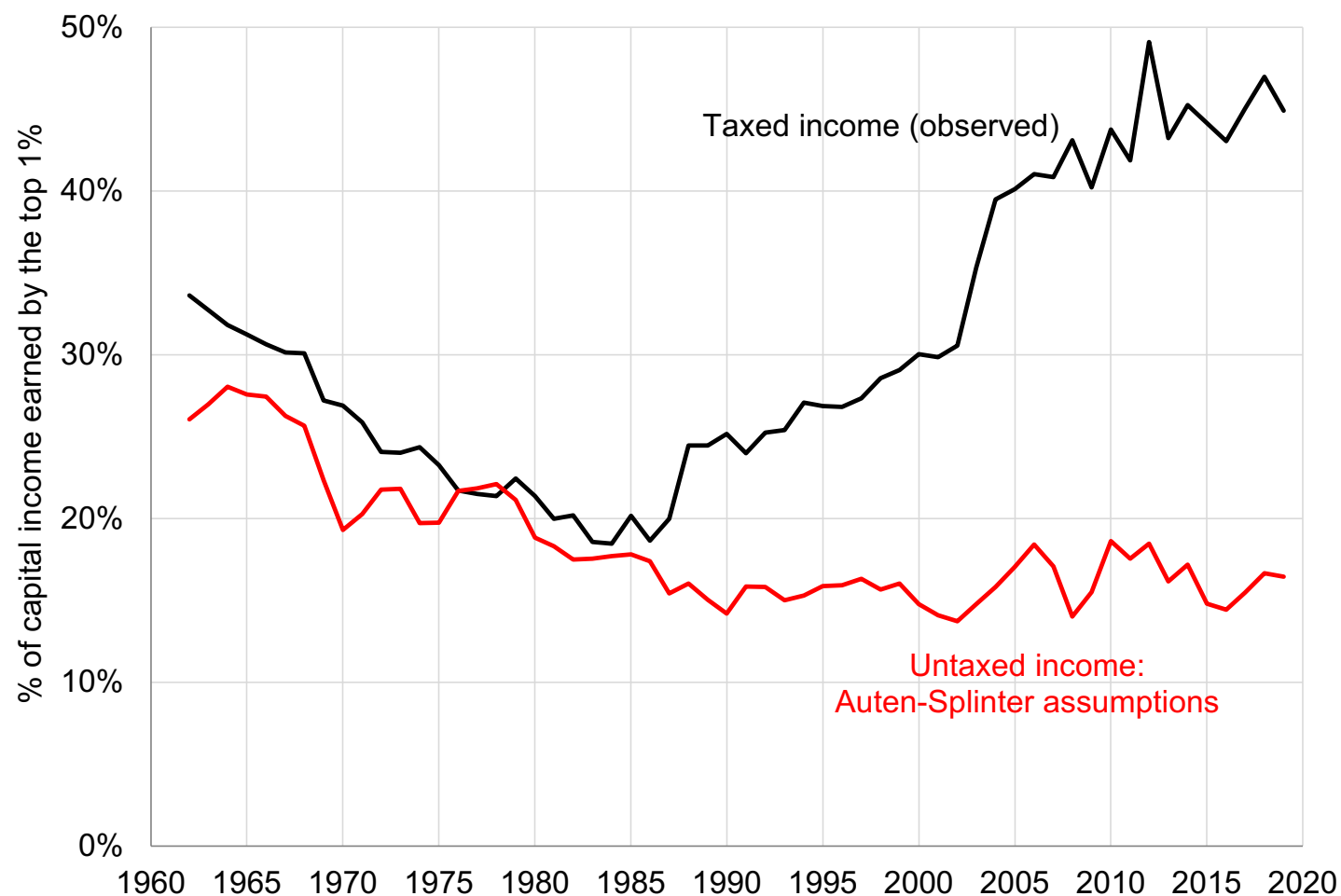
Smith, Matthew, Owen Zidar and Eric Zwick (2023), “Top Wealth in America: New Estimates Under Heterogenous Returns”, Quarterly Journal of Economics, 138(1): 515-573.

Figure A1: Share of Partnership Profit, Loss & Depreciation (% of All Industries)



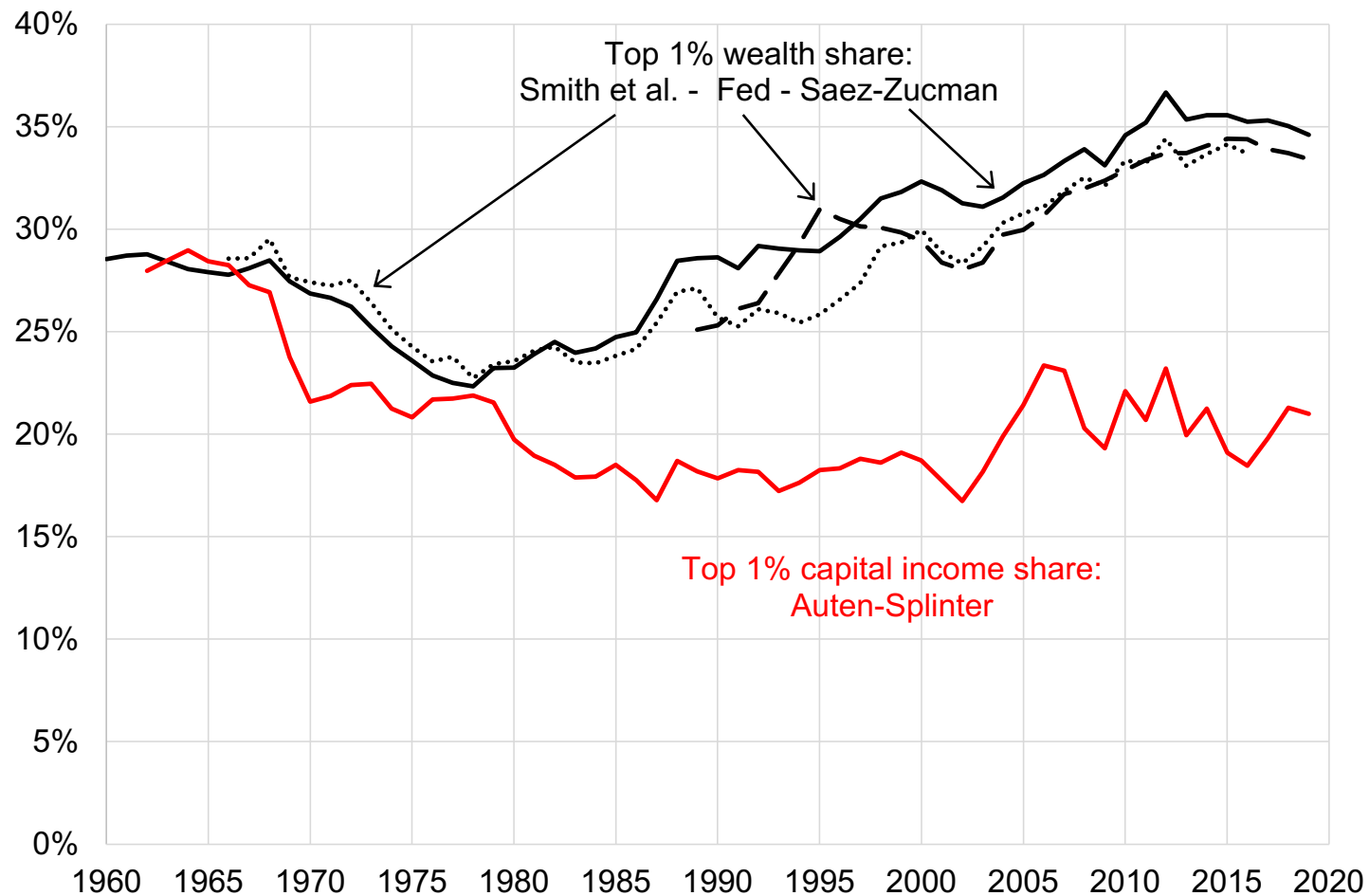
Notes: For each sector, partnership business profit is computed as “Ordinary business income” minus “Ordinary income from other partnerships and fiduciaries” (thus removing any double counting of profit due to holding chains), partnership business losses are computed as “Ordinary business loss” minus “Ordinary loss from other partnerships and fiduciaries” (thus removing any double counting of losses), and depreciation is as reported on the first page of IRS Form 1065. Sources: SOI partnership statistics for tax year 2019.

Figure A2: Top 1% Share of Taxed vs. Untaxed Capital Income



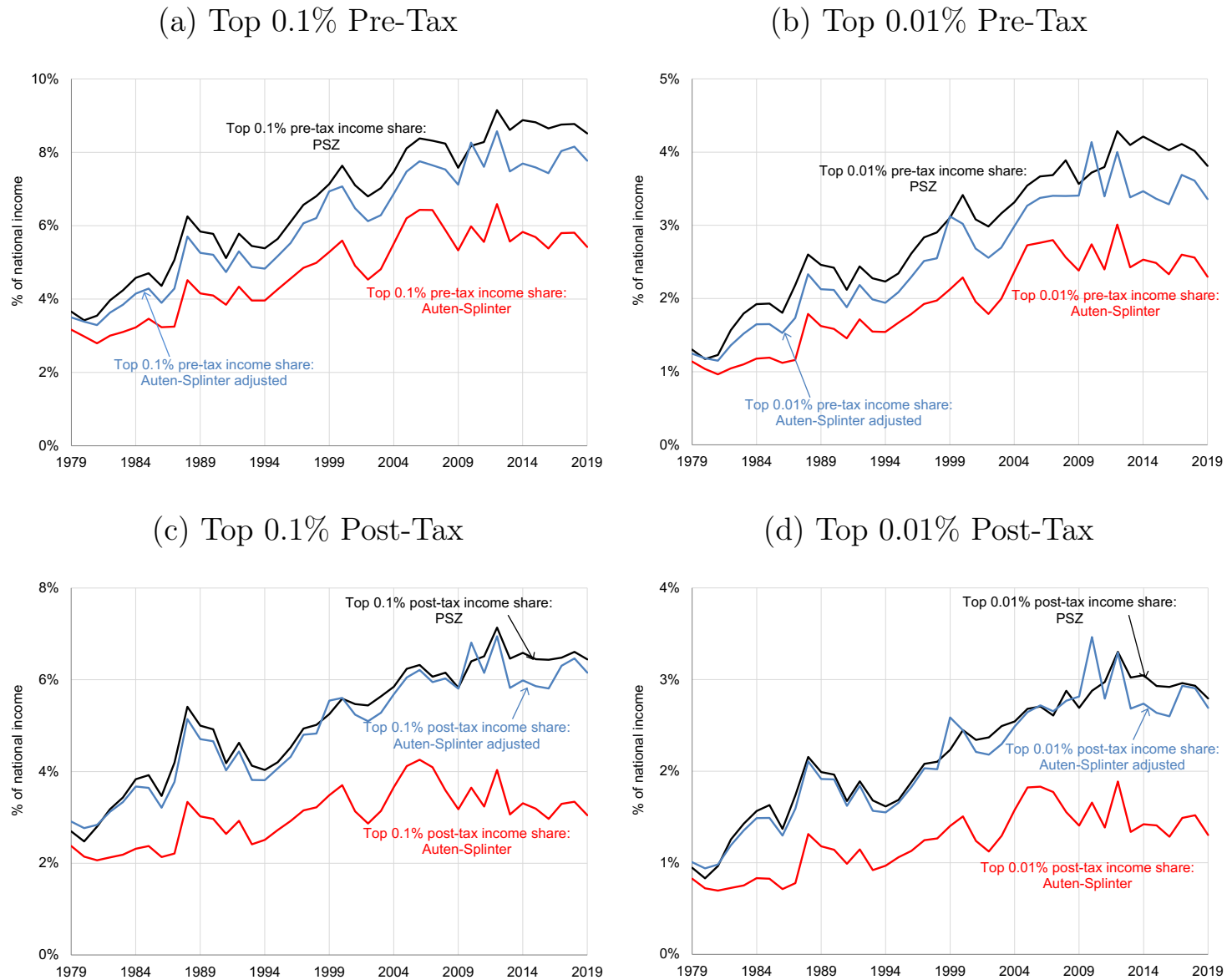
Notes: The black line shows the share of taxed capital income (the sum of taxable dividends, interest, rents, and estate and trust income) earned by the top 1% individuals with the highest fiscal income, where fiscal income is taxable market income excluding capital gains, and the unit of observation is the adult individual with income equally split between married spouses. The computation is done using publicly-available individual income tax data. The red line shows the share of untaxed capital income (corporate retained earnings, investment income earned on tax-exempt pension accounts, untaxed rents, tax-exempt interest, and income retained in trusts) earned by the top 1% size-adjusted tax units in AS, computed using the AS publicly available Excel files and using the conceptual framework developed in Section 3.1. That is, when adding untaxed income to income, top 1% incomes (after re-ranking) increase by $s_s \cdot S$ where S is the macroeconomic aggregate of the corresponding untaxed income. See Appendix Section D.2 for details.see Appendix Section D.2.

Figure A3: Top 1% Share of Wealth vs. Capital Income



Notes: The red line shows the share of capital income (taxed plus untaxed) earned by the top 1% according to AS. Taxed capital income includes taxable dividends, interest, rents, and estates and trust income; its distribution is computed using publicly-available samples of income tax returns, ranking adult individuals (with income equally split between spouses) by fiscal income excluding capital gains. Untaxed capital income includes corporate retained earnings, investment income earned on tax-exempt pension accounts, untaxed rents, tax-exempt interest, and income retained in trusts; the share going to the top 1% in AS is computed using the AS publicly available Excel files, see Appendix Section D.2. The dark lines show the share of wealth owned by the top 1% wealthiest in Saez and Zucman (2016, updated), Smith et al. (2023) and the Federal Reserve Distributional Financial Accounts. The unit of observation is the adult individual with wealth equally split between spouses in Saez-Zucman and Smith et al., and the household in the DFA. For comparability with the other series, the DFA series excludes consumer durables and unfunded pensions (which are excluded in Smith et al. and Saez and Zucman, and do not generate investment income).

Figure A4: Top 0.1% and 0.01% Income Shares: PSZ vs. AS



Notes: The red lines shows the top 0.1% and top 0.01% income shares in AS. The black lines shows the corresponding series in Piketty, Saez and Zucman (2018, updated). The blue line shows the top 0.1% and top 0.01% income shares in AS after implementing the adjustments listed in Table 2 each year from 1979 to 2019. See notes to Table 2.

Table A1: Key Differences between PSZ and AS in 1979, 2014, and 2019

	Panel A: 1979				Panel B: 2014				Panel C: 2019				Panel D: differences since '79	
	Size in 1979 (% of national income)	Share going to top 1% in 1979		Difference in top 1% income share in 1979 (p.p.)	Size in 2014 (% of national income)	Share going to top 1% in 2014		Difference in top 1% income share in 2014 (p.p.)	Size in 2019 (% of national income)	Share going to top 1% in 2019		Difference in top 1% income share in 2019 (p.p.)	Difference in top 1% income share increase 1979- 2014	Difference in top 1% income share increase 1979- 2019
		AS	PSZ			AS	PSZ			AS	PSZ			
Memo: raw fiscal income (without capital gains, equal-split adults)	66.1%		7.4%	0.0	59.5%		17.2%	0.0	57.7%		17.2%	0.0	0.0	0.0
A. Pre-tax income total	100%	9.4%	10.8%	1.4	100%	14.2%	19.0%	4.8	100%	13.8%	19.0%	5.2	3.4	3.8
Six components of untaxed pre-tax income with large AS vs. PSZ difference														
1. Excess depreciation of partnerships	0.2%	7.3%	48.6%	0.1	1.4%	11.4%	60.3%	0.7	2.2%	11.4%	64.9%	1.2	0.6	1.1
2. Tax-exempt income of S-corporations	0.1%	37.0%	37.7%	0.0	1.2%	26.6%	55.1%	0.4	1.7%	28.2%	55.8%	0.5	0.4	0.5
3. Tax evasion	3.4%	7.3%	24.6%	0.6	5.5%	11.4%	30.0%	1.0	4.6%	11.4%	28.3%	0.8	0.4	0.2
4. Tax-exempt capital income generated by funded pension plans	4.8%	5.9%	6.0%	0.0	6.8%	11.0%	9.4%	-0.1	6.7%	6.3%	10.3%	0.3	-0.1	0.3
5. Corporate retained earnings	5.1%	37.0%	32.5%	-0.2	3.5%	26.6%	32.4%	0.2	3.1%	28.2%	33.2%	0.2	0.4	0.4
6. Consumption taxes: moving from basic-price to market-price national income	6.1%	5.1%	10.8%	0.3	6.7%	7.1%	19.0%	0.8	6.6%	6.8%	19.0%	0.8	0.4	0.5
Six pre-tax income components total	19.6%	14.0%	18.0%	0.8	25.2%	13.0%	24.7%	3.0	24.9%	12.0%	26.7%	3.7	2.2	2.9
Residual: all other pre-tax income differences	14.4%	12.2%	16.2%	0.6	15.4%	4.4%	16.6%	1.9	17.3%	4.9%	13.8%	1.5	1.3	1.0
B. Post-tax income total	100%	7.4%	8.5%	1.2	100%	9.1%	14.9%	5.8	100%	8.8%	15.1%	6.3	4.6	5.2
Two components of untaxed post-tax income with large AS vs. PSZ difference														
7. Collective consumption expenditures	17.2%	4.7%	8.5%	0.7	16.2%	6.0%	14.9%	1.5	15.7%	5.8%	15.1%	1.5	0.8	0.8
8. Government deficit	1.9%	11.3%	8.5%	-0.1	-3.7%	18.6%	14.9%	0.1	-3.6%	18.1%	15.1%	0.1	0.2	0.2
Eight pre-tax and post-tax components totals	38.7%	9.7%	13.3%	1.4	37.6%	9.4%	21.5%	4.5	37.1%	8.8%	22.9%	5.2	3.2	3.8

Notes: This table repeats main text Table 2 for years 1979 (panel 1) and 2014 (panel 2) in addition to year 2019 (panel 3) already reported in Table 2. Finally, panel 4 reports the contribution to the difference PSZ-AS in the top 1% income share rise over the 1979–2014 and 1979–2019 periods. Online Excel file contains the complete details.