Reply to Iselin and Reck (2024):
Income Inequality in the United States

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Abstract

Auten and Splinter (2024, AS) used tax data to estimate national income distributions. Underreported income amounts in national income are based on IRS random audit studies. AS therefore used detailed distributions from these audit studies to allocate underreported income. Iselin and Reck (2024) commented on AS. But that comment misrepresents the AS audit-study-based underreporting allocation, criticizes an old allocation method that has been replaced, relies on estimates that ignore the audit study findings and how underreporting interacts with reported losses, suggests that national income distributions should deviate from national income, and ignores growing middle-class tax exemptions that explain why national income inequality increased more slowly than tax-reported income inequality.
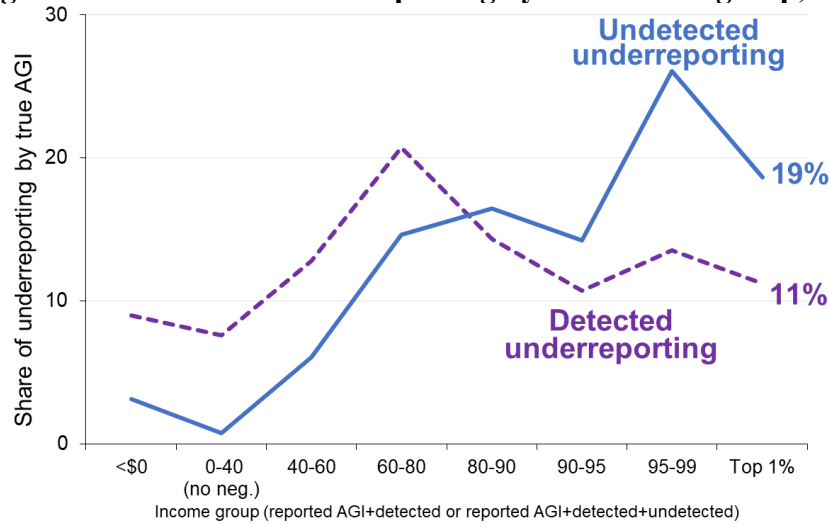
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JEL: D3, E01, H2, H5, J3

Auten and Splinter (2024a, AS) estimated national income distribution trends using tax data. This is our reply to a comment on AS by Iselin and Reck (2024, IR) that criticized our analysis of the distribution of underreported income. Underreported income amounts in national income are based on IRS random audit studies. AS therefore used detailed distributional estimates from those audit studies to allocate underreported income. IR, however, essentially argue that one should ignore the audit studies and allocate underreported income only by reported income.

This response focuses on four limitations of the IR comment. First, IR misrepresent the AS audit-study-based allocation of underreported income—confusing it with a five-year-old method that was replaced. Second, IR rely on an allocation method that ignores the audit study distributions and how underreporting is correlated with negative total incomes in the audit studies. Third, IR argue that national income distributions should deviate from national income totals. They also assert that audit study estimates exclude S corporation and partnership business underreported income, although estimates from Guyton et al. (2021) imply the audit studies include about $120 billion of this income. Finally, IR ignore the AS explanation of why national income inequality increased less than tax-reported income inequality, a finding seen in other studies.

Figure 1: AS shares of underreporting by true income group, 2010

Notes: Underreporting is only audit-based amounts among tax returns. Detected underreporting is ranked by reported AGI + detected underreporting. Undetected underreporting is ranked by reported AGI plus detected and undetected underreporting. The calculation is undetected underrep. share = (total underrep. share • 3 – detected underrep. share.) ÷ (3 – 1). *Source:* Author's calculations and AS Figure B5 data.

1. Misrepresentation of AS undetected underreported income

IRS special audit studies are used to determine the amount of underreported income (underreporting) in national income.[1] These detailed audit studies consist of stratified random samples of tax returns such that totals are representative of all tax returns, while also sampling high-income returns at higher rates. To account for *undetected* under-reporting, the amount of *detected* underreporting in the audit studies is approximately tripled. This accounting for undetected amounts is based on detection controlled estimation (DCE) that, among similar returns, brings smaller auditor income adjustments up to those of the largest auditor adjustments (Government Accountability Office 2024).

IR (p. 3) incorrectly described the current AS method of allocating undetected underreporting as being "distributed similarly to the audit-detected under-reporting." This misrepresents the AS method, as illustrated in Figure 1. The AS *detected* underreporting top one percent share in 2010 is 11%. However, the AS total (detected plus undetected) underreporting top share is larger and implies the AS *undetected* underreporting top share is 19%.[2] Far from being "distributed similarly," as claimed by IR, the AS undetected top share is nearly twice the audit-detected top share.

One reason AS undetected underreporting goes higher in the distribution than detected underreporting is upward re-ranking. The AS method was created to incorporate realistic re-ranking. This was done by allocating detected underreporting using over one hundred cells (grouped by reported income and corrected income ratio groups) that provide the share of returns with income corrections, the average ratio of those corrections to reported

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[1] National accounts explicitly use audit study estimates for non-farm proprietor misreporting. AS shows that gaps between national account totals and audit study underreporting are similar for wages and other sources.

[2] AS total underreporting top 1% share after-reranking in 2010 was 16%. The calculation is [19% • (3 – 1) undetected underrep. +11% detected underrep.]÷3=16% total underreporting share of the top one percent (values from AS Figure B5).

Figure 2: AS underreporting effects and top shares, 1960–2019

A. Change in top 1% pre-tax income shares   B: Top 1% filer share of underreported income
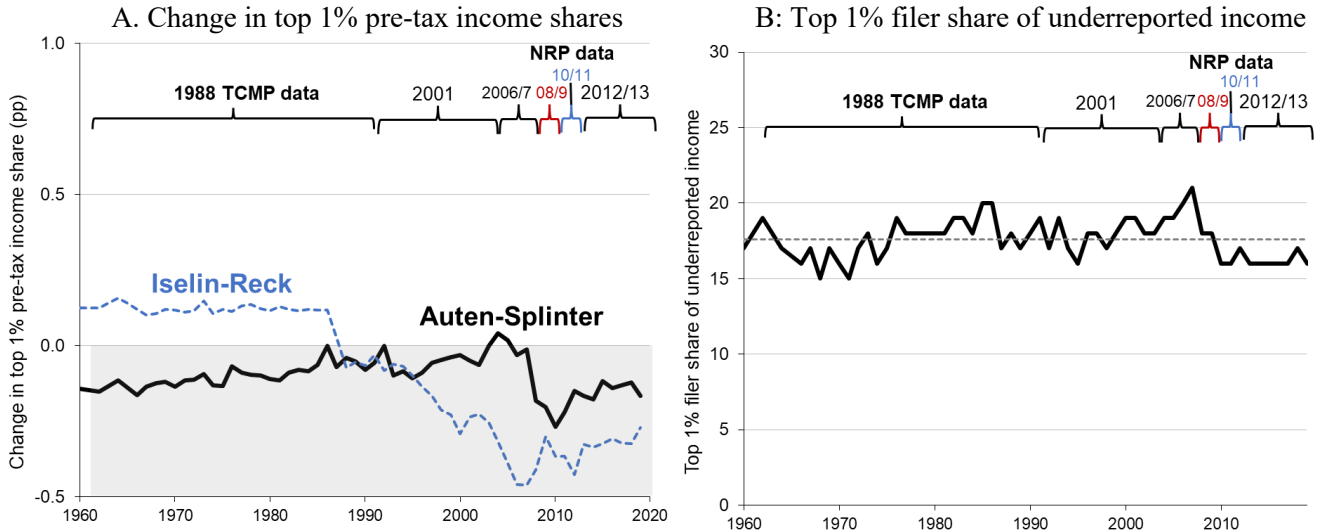
Notes: In Panel A, the Auten-Splinter change is re-ranking inclusive difference before and after adding underreporting and making proprietor income adjustments for capital consumption and residual differences. Panel B shows stable top 1% filer total (detected and undetected) underreporting shares in Auten-Splinter across audit study allocations.
Sources: Figure B6 (panel A) and B5 data from Auten and Splinter (2024a); Figure 1(d) from Iselin and Reck (2024).

income, and the dispersion of those amounts. These detailed audit study distributions were estimated by Auten and Langetieg (2020) for tax years 1988, 2001, 2006–07, 2008–09, 2010–11 and 2012–13 to reflect changing patterns of underreporting over time. Note that there is no structure of re-ranking imposed with the AS method, as incorrectly suggested by IR (p. 14). The old AS method from five years ago had to assume a re-ranking structure— as it used Johns and Slemrod (2010) estimates that lacked this information—and IR may have confused the current AS method with that old method.

AS showed that their distributions of detected and total (detected plus undetected) underreporting are similar to those seen in other studies using audit study data. IR (p. 14) incorrectly claimed that these AS comparisons disregard DCE undetected underreporting. Instead, the AS comparisons with Johns and Slemrod (2010) necessarily include DCE undetected underreporting because that study never broke out the effects of DCE and never showed detected-only underreporting (see Figure A1).

IR also failed to accurately replicate the AS results. Figure 2A shows that the IR assumptions result in a flat effect on top 1% shares of +0.1 pp from 1960 to 1986, a discrete fall to −0.1 pp between 1986 and 1988, and then a U-shape pattern bottoming out at −0.5 pp. The AS effects (previously shown in AS Figure B6) have a very different pattern. AS effects differ from the IR "replication" in three ways: (1) flat long-term trend rather than decline, (2) no discontinuity in 1986 rather than a discrete fall, and (3) an *inverse* U-shape rather than U-shape in the 2000s. Additionally, Figure 2B shows the AS underreporting top 1% filer share has little trend over time, averaging 17% in the 1960s and 16% in the 2010s.[3]

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[3] These Figure 2B shares are only for underreporting ("misreporting") amounts and exclude other adjustments such as for capital consumption. The AS series in Figure 2A includes underreporting and some other allocations, a point raised by IR, but the other amounts have negligible effects in 1986-88 (and thus cannot explain the IR discrepancies) and overall have modest effects on top 1% shares, as implied by Figure 2B.

IR apparently critique an old AS underreporting allocation used in a version of the study from five years ago (e.g., the 2019 version of AS). That old AS method used the most recent underreporting estimates available at the time from Johns and Slemrod (2010). Those estimates only showed the combined effects of detected and undetected underreporting. Both components were combined and therefore allocated the same way in that old method. Moreover, the old method used only one year of audit estimates from 2001 and so re-ranking patterns were assumed to be constant over time. The old method resulted in a similar top 1% pattern as the IR "replication," with a large decline around 1986 and then a larger decline afterwards (see Table 1 of the 2019 version of AS). We were aware of the limitations of that old method. To improve it, we independently estimated new and much more detailed underreporting distributions across many years of audit studies and developed a method to integrate these into the tax return samples (Auten and Langetieg 2020; Auten and Splinter 2021). These new estimates and method mitigated the old method's declines, although they remain in the IR "replication".[4]

In addition to using more detailed audit data across many years, the AS undetected allocation method improves on the prior simple-multiplier method. Simple multipliers deviate from the underlying motivation for the total undetected DCE amounts, which are based on differences in auditor effectiveness, because they increase detected underreporting by the same multiplier regardless of the auditor. In Figure 3, note how simple multipliers allocate the largest amount of undetected underreporting to returns with the largest auditor income adjustments. This overstates underreporting-inclusive incomes for those audited by the top auditors, for whom little or no additional underreporting should be added. This limitation of simple multipliers has been noted by many researchers.[5]

To address the limitations of simple multipliers, the AS allocation of undetected amounts is based on distributionally consistent gradient multipliers that depend on the ratio of detected underreporting to reported income. That is, tax returns with higher ratios of *detected* underreporting to reported income likely had auditors with the largest detected income adjustments and therefore the AS method assigns them relatively smaller *undetected* underreporting multipliers. Similarly, tax returns with lower ratios of detected underreporting likely had auditors with smaller adjustments and therefore have larger undetected underreporting multipliers. This method does not impose a direct distributional restriction, as argued by IR, because the effects are heterogenous over the income distribution as multipliers only vary across ratio groups. AS call these multipliers "distributionally consistent" because they fit the theoretical mechanism of the underlying DCE methodology that tries to bring all auditor results up to the auditor with the largest adjustments.

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[4] IR perhaps failed to notice the change in the AS pattern of underreporting when shifting from allocating by Johns and Slemrod (2010) estimates in the AS paper from five years ago, to allocating by detailed estimates from various audit studies (since the 2022 version of AS). To draw attention to this change and highlight the many years of audit studies in the updated method, AS made Figure B6 (Figure 2A here), showing updates to a figure made by Reck et al. (2021) that critiqued the old method from the 2019 version of AS.

[5] DeBacker et al. (2020 p. 1106) explained: "Because the published multipliers are applied to all auditors regardless of skill level, the biggest amounts of undetected misreporting will be attributed to the audits with the largest amounts of detected misreporting. This runs counter to the intended application of the adjustments and can exaggerate the true variation in misreporting." Johns and Slemrod (2010); Hemel, Holtzblatt, and Rosenthal (2022); and Government Accountability Office (2024) expressed similar concerns. Also see AS online appendix and Auten and Splinter (2021).

Figure 3: Simple DCE multipliers exaggerate undetected underreported income inequality
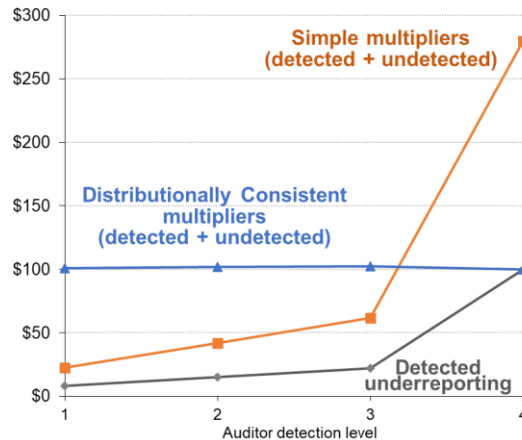
Notes: Actual multipliers require more than four auditors in a group. The same undetected amounts are allocated with the two methods but vary across auditor detection levels. AS use gradient multipliers as discussed in the text because auditor identities are not available. *Source*: Example from authors' calculations.

IR (p. 15) argued that AS ignore estimation uncertainty because "AS do not present any sensitivity analysis around DCE." However, Auten and Splinter (2021) already found that using a wide range of distributionally consistent gradient DCE multipliers have little effect on top income shares. The estimates in Auten and Splinter (2021) were validated by new estimates applying similar multipliers directly to the audit study microdata (Gorman, McGuire, and Splinter 2024).

2. Underreported income allocations: AS audit-study vs. PSZ reported-income

IR arguments are based on comparing the audit-study-based method of AS with a method that ignores the audit studies. The audit studies, however, are the basis for the amounts added to national income and their distributions are the appropriate distributions. Instead, IR compare the appropriate audit-study distributions to the inappropriate scaling up of reported income method of Piketty, Saez, and Zucman (2018, PSZ). The PSZ method allocates underreported income proportional to reported positive income by income source. IR (p. 7) explain that this proportional scaling method effectively increases top underreporting: "this approach imposes that if reported incomes of some type become much more unequally distributed…then unreported income of that type will have the same property." This is an unreasonable assumption given the contradictory audit-study evidence.

The PSZ method is not "distributionally neutral" as stated by IR. Instead, the PSZ method disproportionately scales up the most unequal income sources. In recent years, the PSZ approach implies allocating 44% of underreported income to the top one percent (Auten and Splinter 2024b). However, after re-ranking effects, the 2001 top one percent filer share with audit data and biased simple multipliers was 27% (Johns and Slemrod 2010) and with consistent AS multipliers was 19% (AS Figure B5). These differences show that audit-study distributions are essential for appropriately allocating underreported income. In contrast, the PSZ method and IR's modified-PSZ method ignore all information from the audit studies.[6]

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[6] IR also show that reported income is much more concentrated than detected underreporting. For example, in IR Figure 3(d) the top 0.01% has nearly 5% of reported income but a negligible share of underreporting. This highlights how allocating by reported income gives much more underreporting to the top than the audit studies.

Figure 4: Share of underreported business income by reported AGI group and audit study
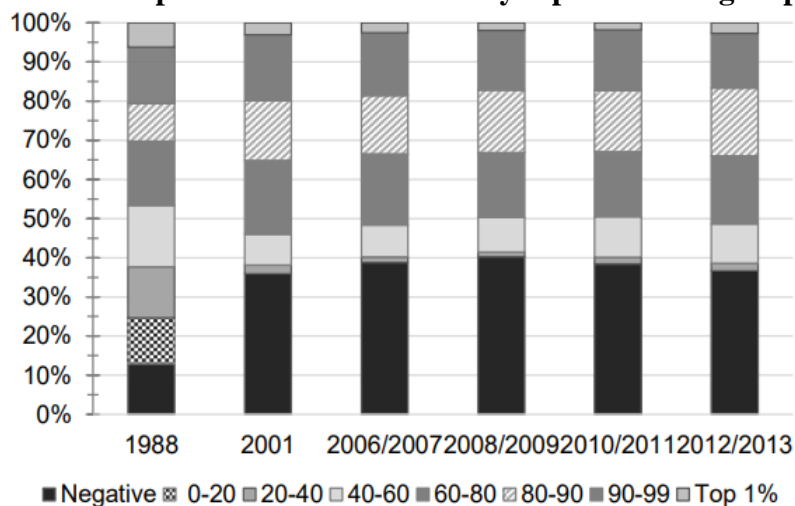
Notes: Business income includes all ordinary income on Schedules C, E and F, including from sole proprietorships, partnerships and S corporations, rent, estates and trusts, and farms. Returns are ranked by reported income. Returns with negative total incomes are a subset of the bottom quintile. For 1988, shortly after the Tax Reform Act of 1986 restricted uses of losses, many of these returns are in the group labeled 0–20. For 2001 to 2013, more than 20 percent of returns have negative business income. *Source:* Figure 3D from Auten Langetieg (2020).

       The IR estimates ignore evidence from the audit studies that is included in the AS allocations. The baseline IR method results in top 1% shares increasing (see IR Figure 3c). But audit studies show top shares decreasing. In part, this results from underreporting offsetting negative incomes at the bottom of the distribution.[7] For example, the 2015 audit study shows that detected underreporting decreases the top 1% share by 0.4 pp and also increases the negative total income group's share by 0.4 pp (Gorman, McGuire, and Splinter 2024). That is, the audit studies show a relative shift of income from the top of the distribution to those at the bottom with negative reported total incomes. But the IR method largely ignores those with negative reported total income amounts, instead reallocating that underreporting toward the top of the distribution. This is because the baseline IR method allocates underreporting by positive amounts of source-specific reported income. In the last two decades, however, nearly 40% of detected business underreporting is among tax returns with negative total reported income. Meanwhile, only about 3% of detected business underreporting is among the reported-income top one percent, as seen in Figure 4.

       IR's attempts to defend the PSZ approach with various adjustments for losses misinterpret the audit study findings. The IR (p. 23) with-negatives estimates result from "leaving negative incomes as is and assigning negative misreporting in proportion to them." That is, IR appear to give additional negative amounts to those with reported losses, which further increases top 1% shares relative to the IR baseline estimates. Instead, the audit data show that reported losses should be offset by adding underreported income (reported losses are not made even larger). This is why the audit studies show the negative total income group's share increasing and the top 1% share decreasing.

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[7] Business underreporting accounts for nearly all underreporting and accounting for it has large impacts on tax returns with negative reported adjusted gross income (AGI). Detected underreporting offsets all losses among over one-third of tax returns with negative reported AGI (Government Accountability Office 2024).

The alternative IR absolute-value method allocates some business underreporting to losses, but only in proportion to their share of overall business income. As losses are small relative to positive income, this allocates less underreporting to losses than suggested by audit studies and thus results in little change to the IR baseline estimates. The modest effect is not only because IR allocate too little under-reporting by losses, but also because IR allocated underreporting by reported source-specific losses (often high in the distribution) instead of by reported overall income losses (at the bottom of the distribution). For example, the top one percent has about one-third of *reported* business losses but only about 3% of detected business underreporting in audits (Figure 4). IR also speculate that nearly all returns with negative reported business losses could move to the top one percent. But only about 0.2% of returns with negative reported total income reach the top one percent when adding detected underreporting (Government Accountability Office 2024).

In summary, IR present variations on the PSZ proportional-to-positive-income allocation that consider losses but still ignore the audit study results. The AS approach, in contrast, carefully accounts for the distributional consequences of adding underreporting to returns with reported losses based on the audit study distributions.[8]

The AS effects of adding underreporting are relatively constant over time. Comparing PSZ and AS top one percent underreporting income share changes from 1962 to 2014, IR claim that half of the difference is from AS decreases in this top underreporting share. But the relatively constant effects in AS estimates (Figure 2B) imply essentially all this difference comes from PSZ increases. PSZ's own back-of-the-envelope estimate shows that their underreporting allocation increases their recent top 1% income shares by 1.2 percentage points (PSZ online appendix p. 35). This is nearly all the gap IR tried to explain.

IR also discussed effects from capital consumption adjustments that adjust for faster tax-based depreciation. However, the estimate cited by IR is based on an inappropriate allocation by reported income rather than the actual distribution of accelerated depreciation. Faster depreciation pushes annual incomes down the distribution, as explained in AS. More appropriately accounting for this faster depreciation by linking partnership depreciation to owner tax returns (Auten and Splinter 2024b) suggests little effect on the AS top 1% shares.[9]

Accounting for re-ranking across the distribution when adding underreporting is an important part of the AS approach. Re-ranking explains the 2010 top one percent underreporting share increasing from 6% when ranked by reported income to 16% when ranked including underreporting, as seen in Figure 5. Thus, AS re-ranking increases top underreporting shares, holding all else constant, but this does not all translate into higher top income shares. Re-ranking causes a mitigating effect on top income shares because each filer rising into the top must also displace the income of another high-income filer.

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[8] AS underreporting allocations use two negative reported income groups, for large losses over $50,000 and for smaller losses. For each group, the audit study data include the share of returns with underreporting, the average ratio of underreported to reported income, and the dispersion of those amounts from Auten and Langetieg (2020).

[9] IR (p. 8) incorrectly claimed that "AS allocate the 'non-farm proprietor income' portion of capital consumption in proportion to the depreciation of sole proprietors, not sole proprietors and partnerships." Instead, Auten and Splinter (2024b p. 4) clarify that in 2019 the AS approach "allocates $15 billion of expensing to partnership owners and $62 billion to S-corporation owners, whose income is distributed similar to partnership income."

Figure 5: Share of underreporting when ranking tax returns by reported and true AGI, 2010
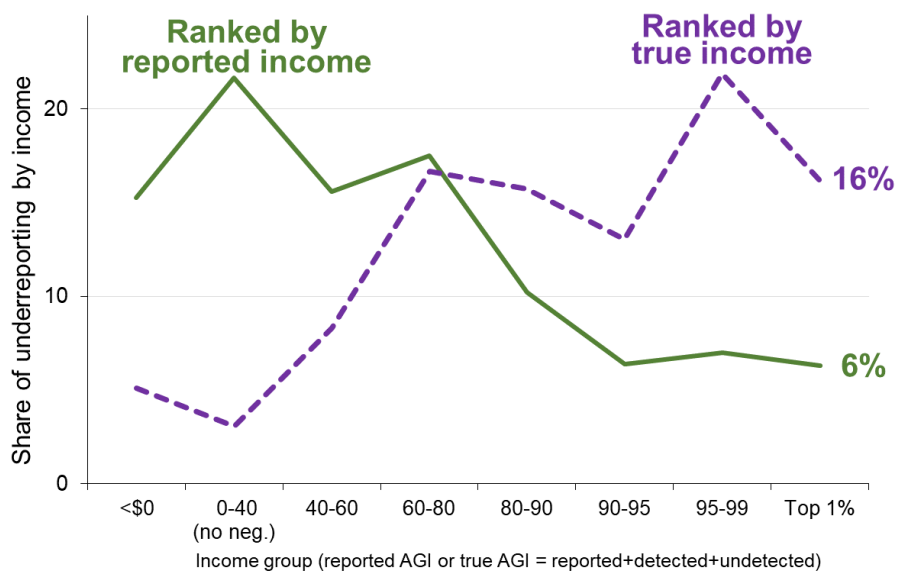
Notes: Amounts are audit-based underreporting amounts only (no capital consumption adjustments) among tax returns (no non-filers). Moving from ranking by reported income to true income (AGI plus detected and undetected underreporting) causes upward re-ranking of underreported income. *Source:* Figure B5 of Auten and Splinter (2024).

Issues with the PSZ proportional scaling, of which the IR allocation is a variation, were already discussed in Splinter (2020) and the AS supplementary appendix (p. 4):

> The AS approach conforms with IRS special audit studies, while the PSZ approach is inconsistent with them. First, AS allocated a portion of underreported income to filers with negative reported income discovered in the special audit studies, while PSZ allocated no underreported income to negative incomes from overstated business losses. Second, AS average ratios of underreported to reported income decrease for higher reported incomes to conform to audit study patterns, but these ratios are assumed to be constant with respect to positive income for PSZ. Third, the AS [method] accounts for the variation in underreporting rates in each reported income class, while the PSZ approach has no allowance for this variation. As a result of their problematic allocation approach, PSZ results are inconsistent with the special audit studies. The PSZ approach overstates underreporting at the top of the distribution, thereby significantly increasing top income shares while the AS allocation has only a small effect on top income shares.

3. Distributions of national income should match national income totals

IR suggested the AS estimates should have more underreported income than in national income and that this added income should go to the top of the distribution. This ignores that national income distributions should target national income totals, not some other assumed amount. Moreover, AS already addressed similar arguments by showing that offshore income has only modest effects on inequality and discussing evidence that sufficient underreported business income is already included in national income. IR also ignored reasons why, in certain cases, *too much* underreported income may be in national income.

AS noted that unreported offshore income would likely increase top 1% shares in all decades studied. This offshore income, however, was generally not captured by the audit studies used to add underreported income to national income. Therefore, unreported offshore income should not be part of the main AS or PSZ estimates that target national income. Using assumptions from Saez and Zucman, AS estimated unreported offshore income in 2013 would increase top 1% national income shares by only one-third of a percentage point. AS also discussed why the effect of unreported offshore income has likely decreased in recent years with new compliance efforts and information reporting, a point also raised in IR.[10]

The IR critique of national income totals is one-sided because it only considers the possibility of understating underreporting. This ignores potential sources of too much under-reporting in national income. DCE-based estimates of undetected underreporting triple the detected underreporting amounts. This DCE tripling of underreporting exaggerates total underreporting when the benchmark auditors have made excessive income adjustments. This appears to occur is some cases because auditor tax adjustments are often reduced with abatements, appeals, or judicial review. Abatements alone reduced about one-third of auditor tax adjustments in 2015 (Gorman, McGuire, and Splinter 2024). This concern has been raised by others.[11]

Outliers are also a concern in the IRS random audit studies because there are a limited number of observations per auditor and detected underreporting is concentrated among few filers. These outliers could cause DCE to exaggerate total underreporting when they affect the benchmark auditor results. For example, detected underreporting was over three times reported income among about one percent of returns. In contrast, detected underreporting was within one percent of reported income for over half of returns with underreporting (Auten and Langetieg 2020).

The available evidence suggests sufficient underreported income from S-corporations and partnerships may already be included in national income. First, estimates imply there was $120 billion of S-corporation and partnership passthrough underreporting in the audit studies.[12] Therefore, the IR (p. 1) claim that "pass-through income is unexamined in random audits" is clearly incorrect. Second, over half of these passthrough business underreporting amounts from the audit studies are from the business entity level. Reck's prior work in Guyton et al. (2021) suggests about $70 billion of S corporation and partnership entity-level underreporting was included in the audit-study based estimates.[13] Despite these prior results by Reck and coauthors showing large amounts of entity-level underreporting, Iselin and Reck (p. 11) claim the "detection of entity-level under-reporting

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[10] Johannesen et al. (2024) estimated *reported* offshore wealth of all U.S. taxpayers increased to about $4 trillion by 2018, following offshore reporting expansions. That paper, however, does not estimate the amount of *newly* reported offshore income, which should have increased top income shares of reported income in recent years.

[11] "The tax gap also includes upward adjustments that are recommended by frontline examiners but reversed on administrative appeal or judicial review." (Hemel, Holtzblatt, and Rosenthal 2022 p. 1) Similarly, an IRS official explained that "if examiners incorrectly identify noncompliance, DCE may adjust examiners' results to align with the incorrectly identified noncompliance." (Government Accountability Office 2024 p. 20)

[12] Using Tables A2 and A5 of Guyton et al. (2021), which averages across 2006−2013 with 2012 dollars: 9.3% underreporting with DCE from partnerships and S corporations • ($9,300 billion DCE-corrected – $7,997 billion reported income) = $120 billion underreporting from partnerships and S corporations.

[13] Guyton et al. (2021 p. 28) wrote, "57.6% of partnership and S-corporation income evasion detected in the NRP is associated with an entity pick up (i.e., an audit of the corresponding business)."

in NRP random audit data is extremely rare." Third, when large partnerships are audited, this results in a decrease in income—meaning operational audits suggest large partnerships tend to *over*-report income.[14] Finally, a focused audit study concluded that more than enough S corporation underreporting is likely already included in the audit study amounts used for national income. AS supplementary appendix (p. 5) discussed this and addressed a prior misunderstanding about partnership underreporting.

> A special audit study of S corporations, the IRS (2008, p. 14) concluded that the underreported income amounts we use (i.e., after scaling up to account for undetected underreporting) from the standard audit data "likely account for more misreporting of S-Corporation income than was detected in the S-Corporation study."

> PSZ argued that audit studies miss underreported partnership income because "30% of partnership income (which is highly concentrated) is not traceable on individual tax returns (Cooper et al., 2016)." (PSZ online appendix, p. 36). But Love (2022) was able to identify the ultimate owners receiving 99% of reported partnership income, leaving only 1% not traceable. The previously "missing" amounts in Cooper et al. (2016) were from failed matches of Taxpayer Identification Numbers, such as Social Security numbers. Therefore, the previous partnership income gap was from incomplete matches—not evasion, as claimed by PSZ.

IR also suggest that business complexity is correlated with noncompliance and simplicity with compliance. However, simplicity can facilitate noncompliance, especially when a business owner can simultaneously prepare their business and personal tax forms. This is the case for Schedule C self-employed and Schedule F farmers, the two groups with the highest non-compliance rates (Johns and Slemrod 2010 and Auten and Langetieg 2020). In contrast, complexity and large business size means more people would be involved or possibly knowledgeable of any underreporting, creating hurdles to noncompliance. IR note that more people are likely involved in complex tax returns, but then dismiss this difference. Instead of clearly being correlated with underreporting, complexity can also cause mistakes—sometimes decreasing and sometimes increasing reporting. As discussed above, audits of some of the most complex businesses (large partnerships) show that on average income is overreported, not underreported. Nevertheless, IR rely on an unsubstantiated and vague line of suggestions regarding correlations of complexity and "grey" areas of taxation and auditors and underreporting and income levels. Meanwhile, IR ignore offsetting effects like problems of coordinating noncompliance among more people for complex businesses, larger businesses being more likely to use professional accountants and tax preparers, undetected underreporting among "simple" businesses, and that about half of high-income operational audit tax adjustments are unagreed.[15] Moreover, the IR complexity-based argument assumes more underreporting than is in national income. Therefore, this is irrelevant for national income distributions that target national income totals, not some other assumed amount.

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[14] "When field audits of large partnerships resulted in changes to the return, from tax year 2010 to 2018, the average audit adjustment to income was negative $264,000." (Government Accountability Office 2023 p. 30)

[15] IRS Data Book (2020) shows that among individual tax returns with at least $1 million, there were $1,135 million of auditor tax adjustments in operational audits, of which $562 million was unagreed. Estimates suggest that much of these unagreed amounts are later abated (Gorman, McGuire, and Splinter 2024).

4. Tax-reported fiscal income overstates inequality

An important goal of AS is to account for income sources that are in national income but missing from tax returns. These missing income sources partially offset the growth in top income shares. This is because a growing share of missing income has been going outside the top of the distribution, largely from non-taxable employee compensation from health insurance and retirement benefits. Adding this missing employee compensation reduces top 1% shares in both PSZ and AS. However, PSZ offset these inequality declines with an underreporting allocation that increases top income shares (Auten and Splinter 2020). In contrast, the AS audit-study-based method has little impact on top income shares, preserving the inequality decreasing effects of missing income.

IR incorrectly claim that AS do not show the disproportionate increase of non-taxable income outside the top of the distribution.[16] In fact, AS Figure B16 (here as Figure A2) showed exactly this and was discussed in the main AS paper (p. 2188): "Between 1962 and 2019, the top one percent share of capital income not included in fiscal income decreased from 4 to 2 percent of national income, due primarily to declining corporate retained earnings. Meanwhile, the bottom 90 percent share of labor income not included in fiscal income increased from 4 to 12 percent of national income. Without these corrections, top income shares would be understated in the 1960s and overstated in recent decades."

The AS results are consistent with other studies using broad income measures while the PSZ estimates are outliers, as seen in Figure 6. AS cited relevant studies using broad measures of income, unlike the wage-only studies cited by IR to argue that the PSZ results are part of a "consensus." Wages miss the middle-income compensation growth from health insurance and retirement benefits.[17] Similar to AS, other studies using broad income measures find lower pre-tax top income shares and a modest increase in these shares.

> Fixler, Gindelsky, and Johnson (2019) estimated a top one percent share of personal income in 2012 of 13 percent, identical to our estimate for pre-tax plus transfers income…Bricker et al. (2016a) found that the top one percent share increased 3 percentage points between 1988 and 2012, compared to our estimated increase of 4 percentage points…Congressional Budget Office (2022) estimated that the top one percent share of before-tax income increased from 9 to 16 percent between 1979 and 2019, compared to our pre-tax income share increase from 9 to 14 percent over this period…Burkhauser et al. (2012) estimated that the top one percent pre-tax income share increased only 4 percentage points from 10 to 14 percent between 1967 and 2006, similar to our estimates of 11 to 15 percent over this period. (AS p. 5–6)

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[16] The incorrect IR (p. 5) claim is that "if income inequality did not actually increase very much over this period, as AS claim, there must be some countervailing component of income, which grows more rapidly in the bottom 99% than in the top 1%. AS do not directly show that unreported income in the bottom 99% has this property…"

[17] AS (p. 6) noted that "estimates of earnings inequality, even using administrative data (e.g., Guvenen and Kaplan, 2017), account for only about half of national income. Our estimates of wage inequality changes are broadly similar to prior estimates using administrative data." Studies using various datasets conclude that wage inequality stopped increasing in 2012 (Aeppli and Wilmers 2022), started decreasing in 2021 (Larrimore, Mortenson, and Splinter 2023), and has continued to decrease (Autor, Dube, and McGrew 2024).

Figure 6: Pre-tax top 1% income shares: PSZ estimates are outliers
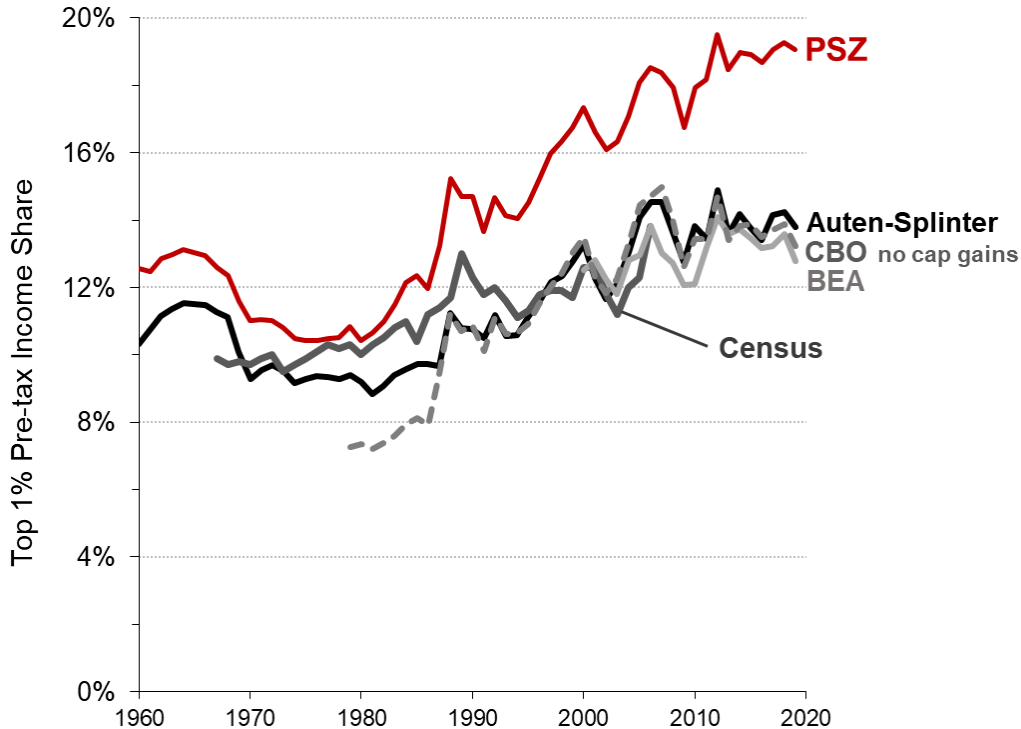
Notes: All estimates exclude capital gains realizations. *Sources:* Piketty, Saez, and Zucman (2018, PSZ, with updated methods, accessed from Zucman's website on March 14, 2023); Auten and Splinter (2024a); Burkhauser et al. (2012, Census), Bureau of Economic Analysis (2024, BEA); Congressional Budget Office (2022, CBO) with capital gains removed as described in Auten and Splinter (2024b).

5. Conclusion

This note responds to a comment on Auten and Splinter (2024a) by Iselin and Reck that has four limitations. First, IR misrepresented the AS audit-study-based allocation of underreported income by assuming that it imposes distributional patterns that it does not. IR appear to have confused the current AS approach with a five-year-old method that has been replaced. Second, IR relied on an alternative underreporting allocation method that completely ignores the special audit studies that are the basis for underreporting amounts in national income. Ignoring the audit studies results in too little underreporting among tax returns with negative reported total income (and too much among top incomes). Third, IR incorrectly claim that audit studies miss S corporation and partnership underreporting. Finally, IR failed to note the reasons why national income inequality increased less than tax-reported income inequality, primarily from the growth in tax-exempt employee compensation. This inequality-moderating effect is seen not only in AS, but other studies showing relatively modest changes in top income shares.

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Appendix

Figure A1: Share of misreporting when ranking tax returns by reported and true AGI

Panel A: 2001 total underreporting by reported AGI

Panel B: 2010 detected underreporting by true AGI
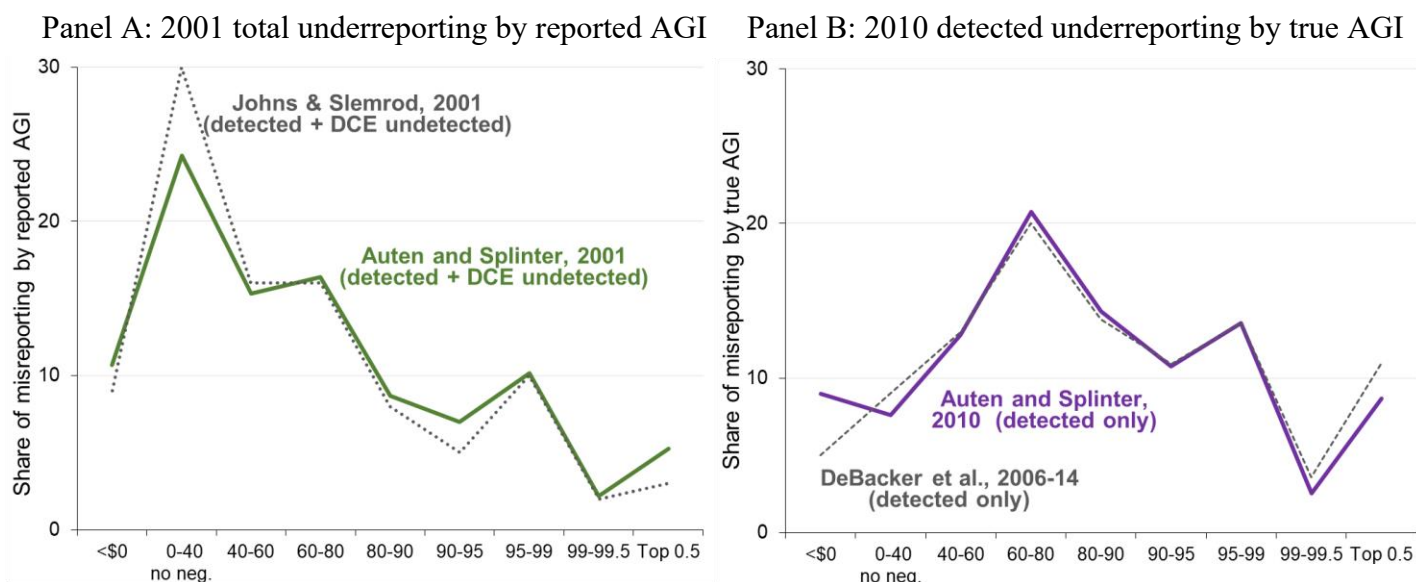
Notes: Panel A ranks tax returns by reported AGI and shows the filer share of underreporting (detected and undetected) is similar when using the AS method for 2001 tax data or estimates in Johns and Slemrod using the 2001 NRP. Panel B ranks tax returns by "true" AGI (AGI plus detected misreporting) and shows filer shares of detected underreporting. *Source:* Figure B5 from Auten and Splinter (2024a).

Figure A2: Distribution of income sources excluded from fiscal income, 1960–2019
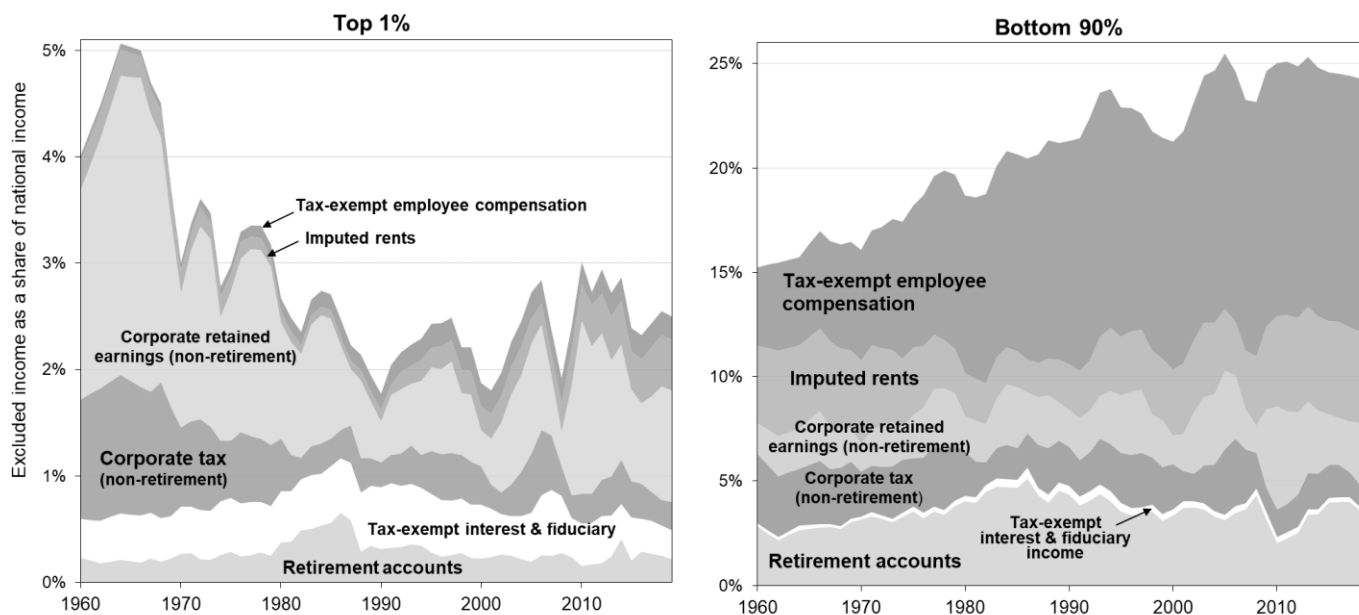
Notes: Includes certain income sources excluded from fiscal income but included in pre-tax national income: imputed rents, tax-exempt interest, undistributed fiduciary income, retirement investment income, corporate retained earnings and taxes, and tax-exempt employee compensation (FSA contributions and employer-paid health insurance and taxes). Excludes adjustments and other income effects. *Source:* Figure B16 from Auten and Splinter (2024a).