

Comments on Smith, Zidar and Zwick (2021)

Emmanuel Saez and Gabriel Zucman, January 24, 2022.¹

In NBER Working Paper #29374 (October 2021),² Smith, Zidar and Zwick (henceforth SZZ 2021) revise their previously circulated estimates of top wealth shares in the United States, building on Saez and Zucman (2016, 2020; henceforth original and updated Saez-Zucman). The 1978–2016 rise of top wealth shares in these revised SZZ 2021 series is now similar to the one in Saez-Zucman. The main difference is that top wealth shares are lower in SZZ 2021 than in Saez-Zucman throughout the period.³ This note shows that this difference is largely due to a larger total wealth denominator used by SZZ 2021, primarily reflecting the choice to include unfunded pensions in wealth and to exclude some debts. Once the definition of wealth is harmonized, top wealth shares in SZZ 2021 are close to those in Saez and Zucman.

From SZZ 2021’s Table 2 (pasted below), it is apparent that the wealth of the rich in 2016 is nearly identical in SZZ 2021 and original Saez-Zucman. As reported in columns 3 and 4, the top 1% owns \$11.5 million on average in SZZ 2021 (up from \$9.4 trillion in SZZ’s previous draft of April 2020) vs. \$11.6 million in original Saez-Zucman. Zooming into the top 1%, the top 1% to 0.1% (i.e., the group from the 99th to the 99.9th percentile) owns \$6.7 million on average in SZZ 2021 vs. \$6.3 million in original Saez-Zucman. The top 0.1% to 0.01% owns the same amount in both studies, \$32.2 million. The only non-trivial difference is in the average wealth of the top 0.01% (\$255 million vs. \$301 million).

Table 2: Thresholds and Average Wealth in Top Wealth Groups (2016)

Wealth group	Count	Pref. Threshold	Average wealth		Wealth share	
			Preferred	PSZ 2018 Ext.	Preferred	PSZ 2018 Ext.
Panel A. Top wealth groups						
Full population	238,657,000		\$364,000	\$317,000	100.0%	100.0%
Top 10%	23,866,100	\$717,000	\$2,392,000	\$2,259,000	65.7%	71.3%
Top 1%	2,386,700	\$3,730,000	\$11,469,000	\$11,584,000	31.5%	36.6%
Top 0.1%	238,700	\$17,800,000	\$54,491,000	\$59,005,000	15.0%	18.6%
Top 0.01%	23,900	\$84,300,000	\$255,397,000	\$300,580,000	7.0%	9.5%
Panel B. Intermediate wealth groups						
Bottom 90%	214,790,900		\$139,000	\$101,000	34.3%	28.7%
Top 10-1%	21,479,400	\$717,000	\$1,383,000	\$1,223,000	34.2%	34.7%
Top 1-0.1%	2,148,000	\$3,730,000	\$6,688,000	\$6,317,000	16.5%	18.0%
Top 0.1-0.01%	214,800	\$17,800,000	\$32,160,000	\$32,189,000	8.0%	9.2%

Notes: This table provides summary statistics on the distribution of wealth across individuals in 2016. Average wealth and wealth shares are calculated under our preferred specification and following the equal-returns capitalization approach in Saez and Zucman (2016) applied at the individual level using the definitions and aggregates in Piketty, Saez and Zucman (2018).

¹First version: January 7, 2022. We thank Owen Zidar and Eric Zwick for helpful comments and reactions, which are incorporated in this slightly revised version.

²“Top Wealth in America: New Estimates and Implications for Taxing the Rich,” NBER Working Paper #29374, October 2021.

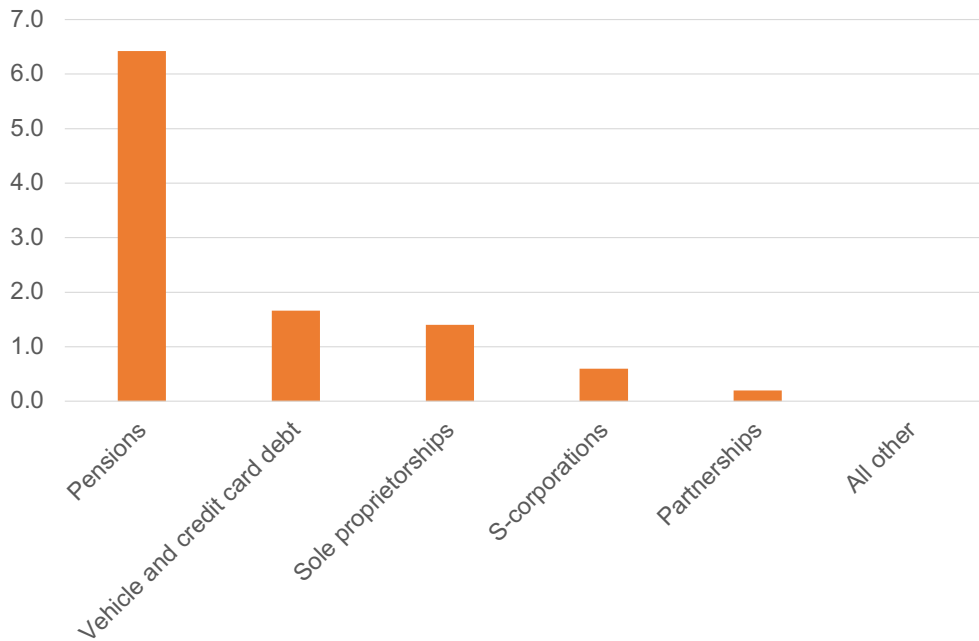
³Between 1978 and 2016, the top 0.1% wealth share (among equal-split adults) rises from 6.5% to 18.6% in original Saez-Zucman, 7.1% to 18.4% in revised Saez-Zucman, and 5.7% to 15.0% in SZZ 2021. Revised Saez-Zucman and SZZ 2021 thus both agree that the top 0.1% wealth share has increased by around 10 points, give or take 1 point, since the 1978 nadir, in both cases a multiplication by a factor of 2.6. The main difference is that the top 0.1% wealth share is lower by 2–3 points in SZZ 2021 throughout the period.

Looking at columns 5 and 6, one can see that despite the similarity of top wealth levels, top wealth *shares* are lower in SZZ 2021 than in original Saez-Zucman. How can this be?

The reason is that the bottom 90% is much wealthier in SZZ 2021 than in Saez-Zucman (average wealth of \$139,000 vs. \$101,000: a difference of 38%). As a result total wealth is larger in SZZ 2021 (\$86.9 trillion, up from \$75.7 trillion in SZZ’s previous draft) than in Saez-Zucman (\$75.6 trillion in original Saez-Zucman, \$76.7 trillion in revised Saez-Zucman). Because the total wealth denominator is larger, top groups have lower shares of total wealth in SZZ 2021 despite having similar absolute amounts.

Why is total wealth larger by about \$10 trillion in SZZ 2021 relative to Saez-Zucman and SZZ’s previous draft? Both SZZ and Saez-Zucman use the Federal Reserve Financial Accounts as source for wealth aggregates. SZZ 2021 and revised Saez-Zucman use the same release of the Financial Accounts. The Figure below shows the difference in wealth aggregates between SZZ 2021 and revised Saez-Zucman, asset class by asset class.

Difference in wealth aggregates in 2016: SZZ 2021 minus Saez-Zucman 2020 (\$ trillion)



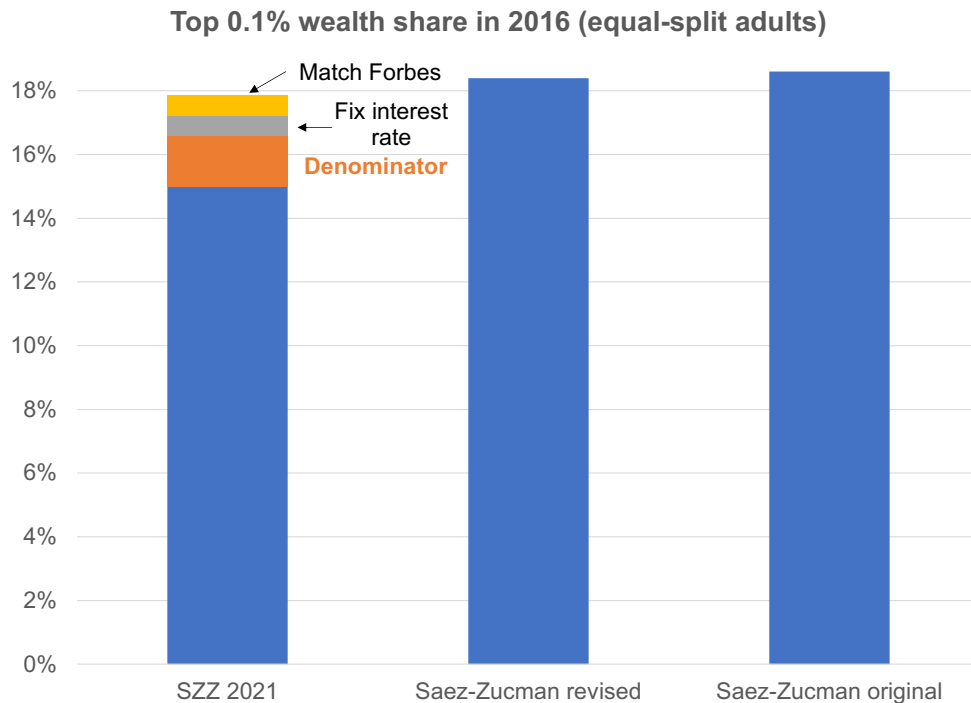
- The most important difference in aggregate wealth is for pension wealth: SZZ 2021 include unfunded defined benefit pensions in wealth (\$6.4 trillion in 2016). This is in contrast to Saez-Zucman and to SZZ’s previous draft which exclude unfunded those. Unfunded defined benefit pensions are promises of future pensions that are not backed by actual wealth. In 2016, 89% of unfunded defined benefit pensions involve government employees (e.g., school teachers), hence primarily go to the bottom of the distribution.
- SZZ 2021 exclude vehicle debt and part of credit card debt. This is also in contrast to Saez-Zucman and to SZZ’s previous draft. These liabilities are negligible at the top.
- SZZ depart from the Financial Accounts aggregate for sole proprietorships. They assume that sole proprietorship wealth is \$3.2 trillion while the Financial Accounts value is around \$1.8 trillion.⁴ Sole proprietorship wealth is negligible in the top 0.1%.

⁴The Financial Accounts do not isolate sole proprietorships from partnerships. Saez and Zucman (2020)

In addition, SZZ depart from the Financial Accounts aggregate for S-corporations and partnerships. This departure is minor (difference of \$0.7 trillion on aggregate, less than 1% of total wealth). For all other asset classes, SZZ and Saez-Zucman have identical aggregates.

In sum: SZZ 2021 choose to treat unfunded defined benefit pensions as assets and exclude some debts. These choices have no impact on the wealth of the rich, but boost the wealth of the bottom and hence reduce top wealth shares. Whether unfunded defined benefit pensions, vehicle loans, and credit card debt should be included in wealth is a matter of perspective. If unfunded pension claims are included, it would seem conceptually logical to also include the present value of Social Security unfunded claims, as in Sabelhaus and Volz (2020) and Catherine, Miller, and Sarin (2020). As they show this would further add \$22-\$33 trillion in wealth to the denominator, dramatically reducing top wealth shares. If the goal is to simulate wealth tax revenues (cf. SZZ’s title: “implications for taxing the rich”), none of this is relevant: including these assets and liabilities does not affect the wealth of the rich, since unfunded pension claims are negligible at the top. Moreover, SZZ inflate the value of sole proprietorships by a factor of around 2. Altogether, these choices boost aggregate wealth by \$9.7 trillion, or 13% of the Saez-Zucman aggregate. Because this added wealth overwhelmingly goes to the bottom 99%, it reduces top 1% and above wealth shares by close to 13%.

Once the total wealth denominator is harmonized by using the same definition of wealth and the Financial Accounts aggregate for sole proprietorships, the SZZ top shares are close to Saez-Zucman. The Figure below illustrates this fact for the top 0.1%, the focus of SZZ.



In SZZ, the top 0.1% wealth share is 15.0% in 2016. Most of the difference with Saez-Zucman (both original and revised) is due to the different total wealth denominator. Excluding

go back to the raw sources used by the Financial Accounts and show that the underlying Financial Accounts aggregate for sole proprietorships is around \$1.8 trillion. SZZ use the updated Saez and Zucman (2020) aggregate for their study, except for sole proprietorship wealth (no justification is provided).

unfunded defined benefit pensions, adding back vehicle and non-revolving credit card debt, and matching the Financial Accounts aggregates for sole proprietorship wealth, the SZZ top 0.1% wealth share is 16.6%, close to the revised Saez-Zucman share of 18.4%.⁵

The residual gap is only within the top 0.01% (as we saw the top 0.1%-to-0.01% is identical in SZZ 2021 and Saez-Zucman) and is due to two reasons. First, SZZ 2021 benchmark the very top using the Forbes 400 but not all the way, so that they under-shoot the Forbes 400 wealth by about 20%. This is in contrast to other studies, including original Saez-Zucman (which matched close to 100% of Forbes wealth) and revised Saez-Zucman (which by construction captures 100% of it). The fact that SZZ 2021 under-shoot Forbes is not supported by evidence that Forbes estimates are too high. Rather, it is an artifact of their methodology to match Forbes, as detailed in Appendix A of this note.

Second, SZZ assume that the top 0.01% earns a very high interest rate of about 6% on their interest-bearing assets owned via partnerships and S-corporations. As detailed in Appendix B of this note, this interest rate is inconsistent with the interest rate earned by S-corporations (which is no higher than 3.6%), with the asset composition of hedge funds (as reported in SEC-PF forms, suggestive of a rate of 2%–3%), and with matched estates-income tax data (Saez and Zucman, 2020). It is also inconsistent with evidence provided in SZZ 2021 (Appendix Table B1) that partnerships that only pay interest have an interest rate of about 3.25%. The heterogenous interest rates assumed by SZZ only affect the top 0.01%; they have no effect on the rest of the top 1%.⁶

If one uses the actual Forbes estimate for the top 400 and a more reasonable rate of 3% to capitalize interest earned via pass-through businesses, then the SZZ methodology delivers almost the same top 0.1% wealth share as Saez-Zucman.

The important point is that even if the pass-through interest rate of the rich really is 6% and Forbes really over-shoots by 20%, the implications for the top 0.1% wealth are small. The very many deviations that SZZ implement end up having small net effects on top wealth levels, showing that the Saez-Zucman capitalization methodology and results are robust.

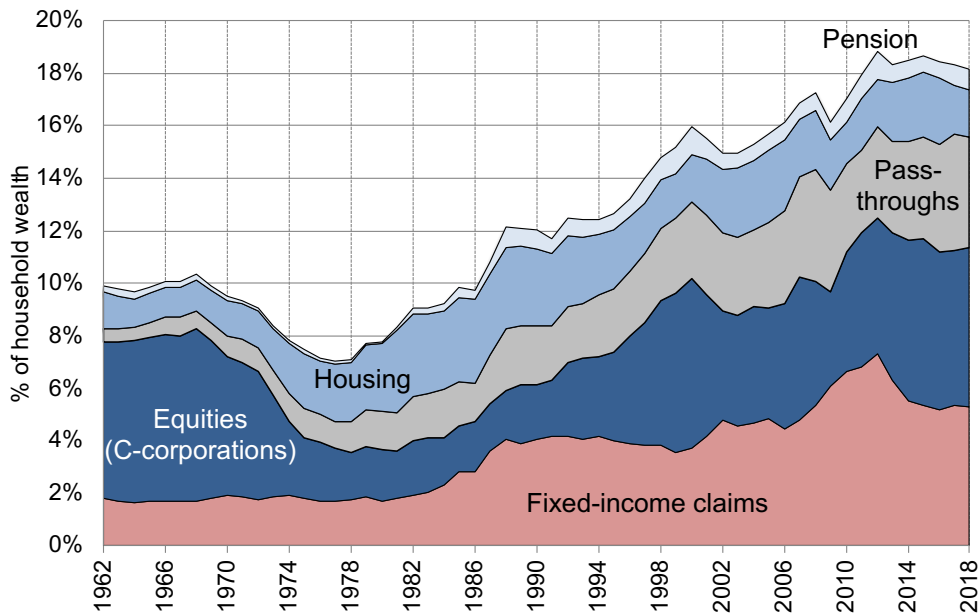
To conclude: In Saez and Zucman (2020), we identified two key issues with previous estimates of wealth inequality by Smith, Zidar and Zwick (2020): the use of a too high interest rate to capitalize interest income of the rich (the interest of top-interest earners, when the interest of top wealth-holders should be used), and a large under-estimation of billionaire wealth. We wrote: “Once the conceptually correct interest rate is used to capitalize interest and the SZZ estimates are fixed to match the estimates of billionaire wealth from Forbes, the SZZ estimates are very close to the benchmark Saez and Zucman (2016) series.” SZZ 2021 implements valuable revisions to Smith Zidar and Zwick (2020) along the lines we suggested, for which the authors are to be commended. As predicted, these revisions bring SZZ close to Saez and Zucman (2016). However, at the same time they implemented these corrections, SZZ also enlarged

⁵Based on communication with the authors, SZZ allocate about \$200 billion in unfunded defined benefit pensions to the top 0.1%. We take this feature of the SZZ series that into account in our reconciliation (i.e., we remove \$200 billion in wealth to SZZ’s top 0.1% in addition to removing \$6.4 trillion at the denominator). There is no empirical support for the notion that the top 0.1% owns \$200 billion in unfunded defined benefit pensions (about 90% of which are for government workers).

⁶See SZZ 2021 Appendix Table B.10 Panel A: the top 0.01% wealth share rises by 1.4 point when moving from SZZ to equal returns; the top 1% wealth share also rises by 1.4 point, hence the top 1% excluding the top 0.01% wealth share does not change. The quantitative effect of equal vs. heterogeneous returns is large in Table B.10 because the top 400 is not kept constant. This quantitative effect is much smaller when the top 400 is benchmarked to the Forbes 400.

their total wealth denominator by more than \$8 trillion in 2016 by including unfunded defined benefit pensions, removing vehicle loans and some credit card debt. This explains why their new headline top wealth shares remain below Saez-Zucman. But this should not obscure the key fact that SZZ now pretty much agree with original Saez-Zucman on the wealth level of the rich (hence on potential wealth tax revenue), and on the dramatic increase in US wealth concentration. SZZ and updated Saez-Zucman also largely agree regarding asset composition: In both series the top 0.1% owns about a quarter of its net wealth in fixed-income claims in 2016.⁷ Thus there is now broad agreement on all the key features of the graph below (copied from Saez and Zucman 2020, Figure 24): the level, trend, and composition of the wealth of the top 0.1%.

The Top 0.1% Wealth Share (Among Equal-Split Adults)



⁷In SZZ (Figure 15), the share of fixed-income claims in the net wealth of the top 0.1% is 23.3% in 2016. The corresponding figure in revised Saez-Zucman is 26.6%. The slightly lower value in SZZ comes from the top 0.01% (the top 0.1%-to-0.01% have almost the same fixed-income share in SZZ and revised Saez-Zucman), and in turn comes from the fact that SZZ assume pass-through businesses (a key source of interest in the top 0.01%) have a 6% interest rate—an assumed interest rate which is too high by a factor of 2 (see Appendix B below). Original Saez-Zucman had too high a share of fixed-income claims in the net wealth of the rich, and too low a share of business assets; see Saez and Zucman (2020) for a detailed discussion and construction of updated series. All the SZ and PSZ series disseminated since September 2020 (including on WID.world) incorporate these updated asset composition.

A Matching the Forbes 400

SZZ undershoot the Forbes 400 by about 18% in 2016 with no good substantive reason. SZZ use the Forbes 400 to estimate the wealth of the very top as revised Saez-Zucman do (SZZ’s initial series captured only a bit more than half of the Forbes 400 wealth). But to match the Forbes 400, SZZ apply a methodology that Bricker-Hansen-Volz (2019) use to blend the Survey of Consumer Finances with the Forbes 400—a methodology that makes sense in the context of the SCF but does not make sense in the tax data context.

In the SCF context, the Bricker-Hansen-Volz blending is needed due to the specific way that top households are sampled in this survey. To identify very wealthy households for inclusion in the survey, the SCF uses tax data. For confidentiality reasons, the SCF chooses to exclude members of the Forbes 400. Whenever the SCF samples somebody from the Forbes 400 (based on tax data), this person is assumed to be a non-response, and another person is immediately drawn. Because of that peculiarity of SCF sampling, the SCF ends up oversampling billionaires that Forbes misses or that are very close to the Forbes threshold—hence, the need for a correction in the SCF context. No such correction need arises with the tax data which are not a survey but include the entire population, including the Forbes 400.

The end result of the SCF blending is that the wealth of the top 400 in the SCF+blended Forbes 400 is nearly identical to the wealth of the Forbes 400. In 2016 the top 400 in the SCF+Forbes is \$2.382 trillion and the total Forbes 400 wealth is \$2.397 trillion. In 2013 the SCF+Forbes top 400 has total wealth of \$2.01 trillion and Forbes has a total of \$2.02 trillion. In 1989 the totals are both about \$269 billion.

By contrast SZZ undershoot the Forbes 400 by about 18% in 2016. As they report, if they matched the Forbes 400, they would get \$0.43 trillion in additional wealth at the top in 2016. This would close 40% of the top 0.1% wealth gap of \$1.1 trillion between SZZ and Saez-Zucman.

B Interest rate earned via pass-through businesses

SZZ assume that interest-bearing assets owned via pass-through businesses have an interest rate of about 6% in 2016. A large body of evidence suggests that this interest rate is too high by a factor of two.

First, the 6% assumption is inconsistent with SZZ’s own data. To obtain this 6 % rate, SZZ compute the interest rate of partnerships that only earn interest, and thus only have interest-bearing assets. These are the only partnerships for which an interest rate can be computed in the US tax data, because interest-bearing assets are not isolated from other assets in partnerships’ balance sheets.⁸ SZZ find that the average interest rate in this sample of partnerships is about 3.25%: see SZZ Appendix Table B1. However when they match it to individuals, the average interest rate of this sample of partnerships becomes much higher, around 6%: see SZZ Figure 4A. No reconciliation or explanation is provided for this discrepancy. Strikingly, 67 out of the 73 types of interest-paying partnerships for which SZZ compute an interest rate in Appendix Table B1 (“venture”, “CDE”, “sub-CDE” etc.) have an interest rate lower than 6%. How can this be reconciled with the notion that households get a 6% interest rate on average in their investments in interest-paying partnerships?

⁸This sample of partnerships contains 18,758 partnerships, less than 5% of all financial partnerships in 2016. It thus accounts for a very small fraction of the pass-through interest of the rich. SZZ assume these partnerships are representative of all pass-through businesses.

Second, the 6% rate assumed by SZZ is inconsistent with the interest rate earned by hedge funds, key pass-through owners of interest-bearing assets (Saez and Zucman, 2020). From the Financial Accounts Table B.101.f, US domestic hedge funds held about \$1 trillion in fixed-income claims in 2016, most of which were low-yield. Additional details about the types of assets owned by hedge funds are provided in tabulations of SEC-PF (“private funds”) forms, which are the raw source for the Financial Accounts Table B.101.f. Our analysis of these data shows that the average interest rate of qualifying hedge funds was 2%–3% in 2016.⁹ Given the high share of cash, cash equivalents, US Treasury securities, and high-income countries’ sovereign bonds in the interest-bearing assets of these hedge funds, it is impossible to realistically obtain a 6% interest rate. One would need to assume that MBS, corporate bonds, other bonds, ABS, and convertible bonds owned by hedge funds had a roughly 18% average interest rate in 2016. SZZ do not analyze SEC-PF statistics, a critical source of information on the yield of private funds.

Third, the 6% rate assumed by SZZ is inconsistent with the interest rate earned by S-corporations, which is no higher than 3.6%. S-corporations account for about 15% of interest earned at the top (SZZ Figure 3C). Based on public tabulations of S-corporation tax returns (see Saez and Zucman, 2020), one can compute an upper bound for the interest rate paid by S-corporations as interest / (US government obligations + loans to shareholders + mortgage and real estate loans). This upper bound is 3.6% in 2016. This is an upper bound since it excludes cash, notes receivable, and other current assets at the denominator, all of which include some interest-bearing assets (which cannot be isolated from non-interest-bearing assets). A reasonable set of assumption is that 10% of “trade notes and accounts receivable,” 30% of “other current assets” (which includes bonds) and 30% of “cash assets” (which include interest-bearing deposits) are interest-bearing. Under these assumptions the interest rate of S-corporations is 1.4%—including for S-corporations with more than \$100 million in assets whose ownership is concentrated in the top 0.01%. 6% simply does not work for S-corporations.

Fourth, the 6% interest rate assumed by SZZ is inconsistent with evidence from linked income and estate tax returns (first analyzed in original Saez-Zucman). Matched estates-income data are the only administrative data source where the interest rate of the rich can be observed in the United States. The interest rate for large estates tracks the economy-wide interest very well overtime and shows only a modest premium for very large estates, much lower than the one implied by SZZ’s 6% assumption; see Saez and Zucman (2020) for a detailed discussion.

Last, the 6% rate assumed by SZZ delivers a share of fixed-income assets in the net wealth of the top 0.01% which is inconsistent with estates tax data. Specifically, SZZ (Figure 15) estimate that the share of fixed-income claims in the net wealth of the top 0.01% (adults with more than \$84 million in wealth) was 18.8% in 2016. In estates tax data, the share of fixed-income claims in the net wealth of individuals with more than \$50 million was 26.2% in 2016; see public SOI tabulations of estate tax returns filed in 2017 (typically for deaths that occurred in 2016).¹⁰

⁹Combining SEC-PF Table 40 (which capture both US domestic and offshore hedge funds, hence has higher totals than the Financial Accounts Table B.101.f which includes only US domestic hedge funds) with benchmark bond yield indices, we estimate the average interest rate earned by qualifying hedge funds at 2.5% in 2016Q3. This is the asset-weighted interest rate of 1% on cash and cash equivalents (\$692 billion in assets), 1.8% on Treasuries (\$1,115 billion), 2.5% on sovereign bonds issued by G10 countries other than the US (\$796 billion), 3.5% on MBS (\$258 billion), 4.5% on corporate bonds (\$251 billion), and 5.0% on other bonds, ABS, and convertible bonds (\$359 billion).

¹⁰Fixed-income claims are the sum of state and local bonds, federal bonds, corporate and foreign bonds, bond funds, cash assets, mortgages and notes, and 30% of private equity and hedge funds (since in the Financial Accounts about half of hedge funds’ assets are invested in fixed-income claims and these assets are counted as fixed-income assets in our series and SZZ). Net wealth is gross assets, minus durables & valuables (“other

Capitalizing passthrough interest at 3% (a reasonable upper bound in light of the above evidence) instead of 6% adds around \$0.5 trillion to the wealth of the top 0.1% in 2016. This closes the residual gap between SZZ and the original Saez-Zucman series—while reconciling SZZ with evidence from partnership tax returns, hedge funds SEC reports, S-corporation tax returns, and estates tax returns.

assets,” not included in SZZ or our wealth definition), minus art (not included in SZZ or our wealth definition), minus debts. A conceptually exact comparison would add the non-taxable portion of decedents’ defined benefit pensions to their net wealth (reducing the fixed-income share in their net wealth by less than 1pp) and add a portion of “unclassifiable mutual funds” and “other limited partnerships” to their fixed-income assets (increasing the fixed-income share by 0-2pp) .