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US Distributional National Accounts: Updates

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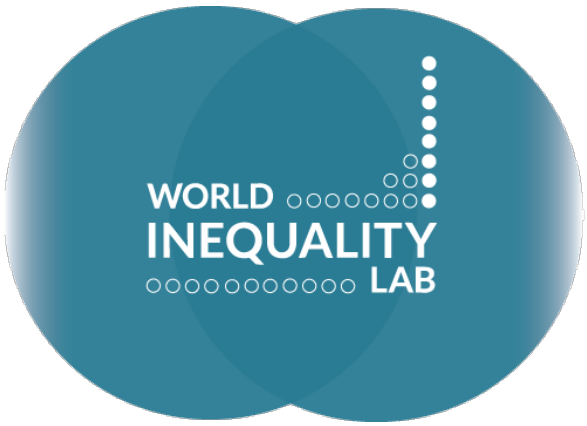

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US Distributional National Accounts: Updates

Last update: September 2020

This document describes the updates of the U.S. wealth inequality statistics of Saez and Zucman (2016) and U.S. income inequality statistics of Piketty, Saez and Zucman (2018) in reverse chronological orders (most recent updates first).

1 September 2020

The series put online at `http://gabriel-zucman.eu/usdina` in September 2020 incorporate the following updates and improvements. First, all macroeconomic series are updated to 2019 using the 2020 Benchmark Revision of the NIPAs and the 2020Q2 release of the Financial Accounts. Second, all distributional series are updated to 2019, as described in Saez and Zucman (2020), "Revising after the Revisionists." The text below is copied from Saez and Zucman (2020), Section 5. Distributional series for 2017, 2018 and 2019 are provisional and subject to revision.

1.1 Wealth

1.1.1 Interest Bearing Assets

We now incorporate an interest rate premium in recent years for the wealthy when estimating interest-bearing assets. Saez and Zucman (2016, p. 550) called for monitoring the evolution of the interest rate differential they observed in matched estates-income tax data for the period 2008–2012 and to adjust the capitalization method accordingly if need be.[1] The evidence from recent years, in particular the extension of the Saez and Zucman (2016) matched estates-income data to the period 2012–2016 by Smith, Zidar and Zwick (2020), have generally confirmed the presence of a small interest rate premium at the top. Over 2008–2016, the interest rate r of estates above \$20 million has been equal to around 1.3–1.4 times the macro interest rate r_m on average. These new data points call for a more moderate adjustment than the one proposed in the Saez and Zucman (2016) appendix series (Table B41c) that used $r/r_m = 1.6$.

We revise our estimation of interest-bearing assets by factoring in the interest rate premium observed in matched estates-income tax data. Consistent with the theory presented in Saez and Zucman (2020, Section 2), we capitalize interest at the top using the observed interest r of the wealthy. Specifically, we capitalize the interest of the top 1% wealthiest tax units using an interest r equal to 1.15 times the average interest rate between 2003 and 2007, and equal to 1.4 times the average interest rate starting in 2008. We apply these heterogeneous interest rates to tax units ranked by wealth, proceeding by iteration. That is, we first construct wealth

[1] See Saez and Zucman (2016, p. 550): "We retain our baseline top 0.1% wealth share estimate because only a few hundred non-married individuals die with estates above \$20 million each year. As a result, there is likely significant noise in the annual series, making it difficult to make a precise and systematic inference of the true interest premium at the top. Looking forward, should new evidence show that taxable returns rise or fall with wealth, then it would become necessary to specifically account for this fact—and similarly when applying the capitalization technique to other countries."

using homogeneous returns, and then reconstruct wealth using heterogeneous returns, ranking tax units by wealth estimated in the first step.

In addition, in our revised series fixed-income claims are now decomposed into assets that generate interest for tax purposes (interest-bearing deposits and taxable bonds and loans held outside of mutual funds) and assets that generate dividends for tax purposes (taxable bonds and loans held through mutual funds, including money market funds). Both types of assets are estimated separately. Dividend-generating fixed-income claims are allocated proportionally to non-qualified dividends starting in 2003 and proportionally to all dividend income before 2003. Interest-generating assets are allocated proportionally to interest income, with the interest rate differential adjustment described above.

The main effect of this revision is to reduce the importance of fixed-income claims at the top of the wealth distribution, especially in the post-2008 period. Interest-bearing assets now account for 27% of the wealth of the top 0.1% in 2016.

This revision brings asset composition in line with the evidence from the Federal Reserve. The share of fixed income claims in the net wealth of the top 1% is almost identical in our series and in the Distributional Financial Accounts since 1989. For instance, in both datasets, the top 1% held 30% of its wealth in fixed-income claims in 1995 and 22%–23% in 2018. (The Distributional Financial Accounts start in 1989 and do not report statistics for groups smaller than the top 1%). More broadly, our revised series are now fully consistent with the Distributional Financial Accounts, the most comparable official statistics; see Saez and Zucman (2020).

1.1.2 Business Wealth

We revise our estimates of business wealth to treat sole proprietorships separately from partnerships. Our original methodology assigned the same capitalization factor to sole proprietorship income and partnership income, because the Financial Accounts do not decompose equity in non-corporate businesses into a partnership component and a sole proprietorship component. We now estimate this breakdown by using the raw sources that the Financial Accounts use to estimate equity in non-corporate business assets.

The Financial Accounts estimate the assets and liabilities of non-corporate businesses using the balance sheets of partnerships reported to the IRS and the Survey of Business Finance for sole proprietorships (as sole proprietorships do not reported balance sheets for tax purposes). Sole proprietorship assets in the latest wave of the Survey of Small Business Finance are extrapolated forward based on income reported by sole proprietorships (e.g., a constant ratio of bank deposits to income is assumed).

Closely following the Federal Reserve, we estimate household equity in partnerships (excluding residential real estate, which is part of housing wealth in our series even when held through partnerships) in five steps (see Appendix Table I-S.B7). First, we start with the official estimate of partnerships' non-residential fixed assets at current cost reported by the Bureau of Economic Analysis. Second, we partially upgrade non-residential fixed assets to market values, following the methodology used by the Federal Reserve to estimate the balance sheet of non-financial non-corporate businesses in the Financial Accounts Table B.104.[2] Third, we add land (not part of

[2]The upgrade factor is equal to the ratio of (i) non-corporate businesses' non-residential real estate at market value, plus equipment at current cost, plus intellectual property product at current cost, plus inventories (all taken from the Financial Accounts Table B.104) minus non-corporate farm land to (ii) non-corporate businesses

fixed assets) as reported in partnership tax returns. Fourth, we estimate partnerships' financial assets and liabilities as the total amount of financial assets and liabilities of non-financial non-corporate businesses reported in the Financial Accounts Table B.104, minus the financial assets and liabilities of non-farm sole proprietorships (from the Survey of Small Business Finance) and farms (from the Financial Accounts).[3] Last we add the small amount of household equity in un-incorported brokers & dealers estimated in the Financial accounts. We find that household partnership equity wealth equaled $3.8 trillion in mid-2016.

We compute sole proprietorship wealth using a similar procedure, isolating farm from non-farm sole proprietorships; see Appendix Table I-S.B7 for complete details and formulas. We find that from 2010 to 2019, partnership equity wealth averaged 21% of national income (with a rising trend) and the wealth of sole proprietorships averaged 11% of national income (with no trend), in both cases excluding residential real estate.[4]

We cross-checked these results with the Survey of Consumer Finances (see Appendix Table I-S.B8). First, sole proprietorship plus farm wealth totals $1.9 trillion in the 2016 SCF, i.e., 12% of national income, very similar to our estimate. Some of the businesses that are recorded as active LLCs in the Survey of Consumer Finances may also be sole proprietorships, since single-owner LLCs file as sole proprietorships by default. However, IRS statistics show that, in 2016, non-farm sole proprietorships registered as LLCs earned the equivalent of only 16% of all non-farm sole proprietorship net income.[5] Sole proprietorship LLCs are thus unlikely to have significant assets. Second, the wealth of partnerships is higher in the SCF (45% of national income in 2016) than in our estimate (24% in 2016). This is due to a number of reason. Our estimate excludes residential real estate partnerships (whose assets are treated as housing wealth in our series, to improve consistency with rental income in the national accounts and in income tax returns). Moreover, following the Federal Reserve, our estimate is only partially at market value: commercial real estate and other structures are at market value (based on real estate market prices) but other assets are at current cost. Last, our estimate excludes hedge funds and private equity funds, which are not part of the non-corporate business sector in the Financial Accounts, but included in the household sector.

Accounting separately for sole proprietorship and partnership wealth increase business wealth concentration, in line with what is seen in the Federal Reserve Distributional Financial Accounts. This is because partnerships have more wealth underlying any dollar of income than sole proprietorships in recent decades. Partnerships are more capital intensive: they are much larger than sole proprietorships and operate in more capital intensive sectors. A sizable amount of partnership wealth is in real estate (commercial real estate, land leasing, etc.) and oil-related sectors (e.g., pipeline transportation), highly capital intensive sectors where sole proprietorships

non-residential fixed assets at current cost (from the BEA fixed asset statistics). The ratio fluctuates around 150% over time with no trend. In practice, this correction essentially amounts to upgrading commercial real estate to market values, while other assets (equipment, intellectual property) remain at current cost.

[3]Note that partnerships often own other partnerships. Such holdings are recorded as offsetting financial assets and liabilities in the Financial Accounts Table B.104 and have no impact on households' equity in partnerships (called "net worth" in Table B.104). Corporate holdings of partnerships are a liability which reduce households' equity in partnerships.

[4]By construction, our estimate of partnership equity wealth, plus sole proprietorship wealth, plus rental residential real estate (net of mortgages) adds up to households' equity in non-corporate businesses as recorded in the Financial Accounts Table B.101. See Appendix Table I-S.B6.

[5]See "Sole Proprietorship Returns, Tax Year 2017," SOI Bulletin, available here, Figure K.

are negligible. Our previous methodology which capitalized similarly a dollar of income earned by a sole proprietorship and a partnership over-estimated sole proprietorship wealth and under-estimated partnership wealth. Note that we keep matching the official Financial Accounts totals for household equity in non-corporate businesses, totals which are on the low end since business assets other than real estate is at current cost instead of market values.

Last, as described in Section 4 of Saez and Zucman (2020), we apply heterogenous capital and labor shares to partnership income. In our revised series, and consistent with the available evidence (Saez and Zucman, 2020), the capital share of business income rises with wealth: small partnerships, like sole proprietorships, mostly earn labor income; while in large partnerships, business income is closer to corporate profits, i.e., to capital income. Since labor income is disregarded when estimating business wealth, this heterogeneity leads to more business wealth concentration.

1.1.3 Corporate Equity Wealth

We improve the estimation of equity wealth. In our previous series, we used a "mixed method" to capitalize dividends and capital gains: to rank tax units only dividends were capitalized; to compute equity wealth, both dividends and capital gains were capitalized. We implement three improvements.

First, we now always put a weight of 50% on dividends and 50% on realized capital gains, i.e., we distribute half of directly-held equity wealth proportionally to dividends and half proportionally to realized capital gains (in our previous series, the weight put on capital gains was de facto higher in years with large capital gains realizations). Second, for both rankings and shares, we now capitalize dividends and a smoothed measure of capital gains. This smoothed measure of capital gains is equal to the capital gains realized on average by the tax unit and its closest 20 neighbors in terms of wealth (estimated by capitalizing equity solely with dividends). This procedure allows us to have the same measure of equity wealth (and total wealth) when ranking tax units and when computing their wealth. This greatly simplifies use while reproducing almost exactly the results from our original "mixed method." This micro-level mixed methodology is much superior to capitalizing equity using dividends and capital gains as capital gains are too lumpy at the individual level. Last, we use qualified dividends starting in 2003 instead of all dividend income. Qualified dividends exclude the dividends generated by money market and bond funds (which we use to estimate wealth held in money markets and bond funds, see above).

These changes have relatively modest impacts, as (i) capital gains, qualified dividends, and ordinary dividends are usually distributed similarly, (ii) the "micro mixed method" gives results similar to the "macro mixed method" applied previously.[6]

1.1.4 Matching the Forbes 400

We now adjust equity wealth at the very top to match the amount of billionaire wealth implied by *Forbes* each year. Between 1982 and 2005, we adjust the equity wealth of the top 400 so that total top 400 wealth matches *Forbes* (reducing equity wealth proportionally in the rest of

[6]The only notable exception is in 2009 and 2010, when the new methodology delivers lower equity wealth at the top end. As a result the 2001–2010 and 2010–2016 dynamics of top wealth shares are now more consistent with those seen in the SCF and Distributional Financial Accounts.

the distribution). We make no correction before 1982 (in 1982 the share of wealth owned by the top 400 is small according to Forbes, less than 1% of aggregate wealth vs. more than 3% in recent years). Starting in 2006 we implement the same correction but for a group slightly larger than the top 400, namely billionaires (estimated using the Forbes 400 and Pareto-interpolation techniques).

This adjustment is motivated by the fact that the capitalization method, which infers equity wealth based on dividends and realized capital gains, does not accurately capture the wealth of billionaires who receive no dividend and barely realize any capital gains. This problem has become more severe in recent years with the rise of giant tech companies that do not distribute dividends yet. Six of the ten wealthiest Americans in July 2020—Jeff Bezos, Mark Zuckerberg, Warren Buffett, Larry Page, Sergei Brin, and Elon Musk—collectively worth around $500 billion in July 2020 (0.5% of total US wealth wealth), are major shareholders of corporations that do not pay dividends.

1.1.5 S-Corporations

Just like for partnerships, we apply heterogeneous capital and labor shares to S-corporation profits. In our revised series, and consistent with the available evidence in Saez and Zucman (2020), the capital share of S-corporations profits rises with wealth: small S-corporations mostly earn labor income; while in large S-corporations, S-corporation profit has a high capital component. Since labor income is disregarded when estimating S-corporation wealth, this heterogeneity leads to more concentration of S-corporation equity wealth.

1.1.6 Housing Wealth

We revise the distribution of owner-occupied housing to better match the Federal Reserve SCF and Distributional Financial Accounts. Our original methodology aimed at matching the share of housing wealth owned by the top 10% of the wealth distribution in the SCF, but it did not attempt to match the share of housing wealth owned by the top 1%. As noted in footnote 22 of Saez and Zucman (2016), according to the SCF, property taxes are regressive at the top, with top 1% and top 0.1% households having substantially lower property tax rates than average. As a result, assuming constant property tax rates as in our benchmark methodology under-estimates housing wealth at the top relative to the SCF. We now incorporate the observed property tax rate differential seen between the top 1% and the rest of the population in the SCF.[7] This translates into a small increase in housing wealth in the top 1% and reconciles our estimate of owner-occupied housing wealth in the top 1% with the Distributional Financial Accounts.

We also fix a classification error in the estimation of aggregate mortgage debt. In our previous series, mortgages on commercial real estates were included under tenant-occupied-housing mortgage debt. In our revised series, commercial real estate mortgages are correctly subtracted from business equity wealth (not housing wealth). This translates into an increase in housing wealth net of mortgages.

[7] SZZ develop a more sophisticated method to infer housing wealth with property taxes using state-level information available solely in the internal tax data, paving the way to produce state-level wealth distribution estimates. Our proposed change is a coarse way to achieve the same result for the US as a whole.

1.1.7 Pension Wealth

Last, we improve the treatment of pension wealth. Our previous methodology aimed at matching the amount of wealth found in the SCF for the top 10%, but did not specifically target the top 1%. We now match the amount of pension wealth owned by the top 1%. To do so we reduced the weight put on non-taxable pension distributions (vs. taxable pensions). Specifically, we now allocate 60% of pension wealth proportionally to taxable pension distributions, 30% proportionally to wages and 10% proportionally to non-taxable pension distributions (e.g., Roth IRA distributions). This allows us to match the amount of pension wealth seen in the SCF supplemented by the Sabelhaus and Henriques-Volz (2019) estimates of defined benefit pensions. This revision reduces the top 1% wealth share by 1–1.5 points in recent years. The share of pension wealth in the total wealth of the top 1% in now the same as in the Distributional Financial Accounts.

1.2 Updated Income Inequality Estimates

We revise our income inequality estimates comprehensively, income component by income component. Two key changes need to be highlighted. First, we improve the estimation of pension income going to the top 1% in recent decades. Second, we now deal with business income more granularly.

1.2.1 Pension Income

Our revision of pension income parallels the changes to pension wealth described just above. Just like 60% of pension wealth is now allocated proportionally to taxable pension distributions, 30% proportionally to wages and 10% proportionally to non-taxable pension distributions (e.g., Roth IRA distributions), the same weights are used to allocate private pension distributions. Our earlier treatment used a weight on non-taxable pension income that varied over years and could be higher than 10%, especially in recent years. This revision reduces the top 1% pre-tax income share by about 0.6 point in 2016 compared to the estimates reported in Piketty, Saez and Zucman (2016).

1.2.2 Mixed Business Income

Paralleling our revision of business wealth, the estimation of business income is improved by treating partnerships and sole proprietorships separately. We decompose mixed business income into a partnership and sole proprietorship component using the same raw data sources as those used by BEA to estimate mixed income (i.e., tax returns, corrections for depreciation based on the balance sheets of businesses reported to the IRS, corrections for other differences between economic income and taxable income, correction for tax evasion based on random audits, etc.). Consistent with our analysis of the wealth of sole proprietorships vs. partnerships and the results in Saez and Zucman (2020), we allocate 50% of partnership mixed income to capital (vs. 50% to labor) and 20% of sole proprietorship income to capital (vs. 80%). This averages to an overall capital share of mixed income of close to 30%, which was the assumption retained in our original series, but allows for a finer analysis of factor shares by income group.

In a similar vein, we now treat S-corporation equity as a separate asset class, distinct from other corporations. Our earlier estimates treated S- and C-corporations together, as the NIPAs do not decompose corporate profits into S-corporations vs. C-corporations profits. The NIPAs only estimate S-corporation dividends separately. We now compute a specific equity income flow for S-corporations vs. other corporations. The equity income of S-corporations is equal to dividends paid by S-corporations (as estimated in the NIPAs) plus the share of business property taxes paid by S-corporations; we assume that S-corporations have no retained earnings.[8] We allocate business property taxes to S-corporations proportionally to the share of S-corporation equity in total corporate equity. We do no allocate any corporate tax to S-corporations. Treating S-corporations as a separate asset class has small effects on the distribution of income, but it allows for a more precise analysis of income sources.

2 October 2019

The series put online at `http://gabriel-zucman.eu/usdina` in October 2019 incorporate the following updates and improvements.[9]

2.1 Allocation of Taxes

2.1.1 Sales Taxes

Our treatment of consumption taxes is improved compared to Piketty, Saez and Zucman (2018). PSZ (2018) allocated consumption taxes (sales taxes, excises, and other indirect taxes such as business licenses, motor vehicle licenses, etc.) proportionally to factor income minus saving. One limitation of the original PSZ approach is that it fails to take into account that a large fraction of the consumption basket of the wealthy is not subject to sales taxes (namely, most services).

We now allocate consumption taxes as follows. First, we assume that 70% of consumption taxes are paid by consumers and 30% are paid by factors of production (labor and capital).

For the fraction of consumption taxes paid by consumers, we allocate these taxes following the estimates of ITEP based on a state-by-state distributional analysis of sales and excise taxes (see `https://itep.org/whopays/` October 2018). We apply the estimated ITEP State tax rates by bins of disposable cash income plus individual income taxes (federal plus state) minus food stamps (as groceries are generally exempt) and scale the implied amount of sales taxes paid to match 70% times the total amount of indirect taxes recorded in the NIPA for all levels of government (including federal excise taxes and local sales taxes).

We allocate the fraction of consumption taxes paid by factors of production (30% of the total) proportionally to factor income. By construction, this means that in our series a non-trivial amount of sales taxes is allocated to the wealthiest households (even if their consumption is a very small fraction of their income).

[8] In reality S-corporations may have slightly negative retained earnings, as corporations that make losses do not distribute negative dividends. This will be taken into account once the BEA releases official decompositions of corporate profits into S-corporation profits vs. other corporate profits.

[9] These updates and improvements are also described in the appendix of Saez and Zucman (2019), available here. The text rest of this section is a slightly edited copy of the text from this Appendix.

Total consumption taxes at all levels of government add up to about $850 billion in 2018 (4.8% of national income), which can be decomposed as follows:

- $400b for State & local government sales taxes ($300b for states, $100b for local governments);
- $200b for State & local government excise taxes ($160b for states, $40b for local governments);
- $100b for other state & local government indirect taxes (motor vehicle licenses, other license taxes, severance taxes, etc.);
- $100b for federal excise taxes (gasoline, diesel fuel, tobacco, air transport, etc.);
- $50b for federal custom duties

The $850 billion total can also be decomposed roughly as follows:

- $500b of State and local sales and excise taxes captured by the ITEP analysis;
- $100b of federal excise taxes;
- $250b of other taxes (such as motor vehicle licenses, business licenses, other indirect taxes not captured by the ITEP analysis).

Our assumptions are equivalent to following ITEP for the $500bn in state and local sales and excise taxes captured by the ITEP analysis, applying the ITEP distributions to the $100bn in federal excise taxes, and allocating the $250b residual (30% of $850bn) proportionally to factor income.

2.1.2 Treatment of Corporate Taxes

We allocate the corporate tax to corporate equity owners (excluding S-corporations), which in our view is the only meaningful way to allocate existing corporate taxes. Of course, should the corporate tax rate change in the future, pre-tax incomes might change (e.g., wages might increase)—but that's a different question than the question of who pays existing taxes. See Saez and Zucman (2019b). Note that in the 1950s and 1960s, the corporate tax generated a large amount of tax revenue (almost as much as the individual income tax in the early 1950s), and equity ownership was concentrated. This explains why effective tax rates at the very top are now higher than in PSZ (2018) in the 1950s-1960s. PSZ in effect allocated part of the corporate tax to bond-holders and owners of non-corporate businesses further down the wealth ladder, while our revised treatment allocates all the corporate tax to the persons who effectively paid these taxes (namely, shareholders).

2.1.3 Top 400

Although PSZ did not provide estimates for the top 400, the micro-files created by Piketty, Saez and Zucman (2018) can be used to analyze the top 400. By construction however, in PSZ the top 400 highest pre-tax income earners are tax units with large amounts of fiscal

income. They include individuals with particularly large realized capital gains who may not have commensurately large economic annual incomes (for example, a business owner who sells his business which represents income earned over decades rather than just one year of income). PSZ (2018) did not attempt to address the re-ranking issue involved in moving from the distribution of fiscal income to the distribution of pre-tax income.

In Saez and Zucman (2019c), we attempt to address that issue. We estimate the fiscal income of the top 400 by triangulating across publicly available sources. Using three different sources and methodologies, we estimate that the top 400 have a fiscal income that is about 45% of their true economic pre-tax income (defined as wealth times the average macroeconomic return to wealth) vs. 70% economy-wide; see Saez and Zucman (2019c) Section 3.1 and Table 3 for complete details. This implies that the effective tax rate of the top 400 (out of pre-tax income) is lower than the effective tax rate of the group just below and the effective tax rate of the top 400 in the original PSZ (2018) data.

Therefore, we reduce the fiscal income of the top 400 such that the top 400 tax units collectively have a fiscal income /pre-tax income ratio of 45% at most each year on average (see program top400.do). Note that in some years, especially in the 1960s, 1970s, and 1980s this ratio was already below 45% in which case we do not adjust the data. After having made this adjustment for fiscal income, we adjust the amount of income taxes paid proportionally (see program top400.do).

Our 45% estimate of fiscal income relative to full economic income for the top 400 is based on triangulating publicly available sources and it could be refined in future work. This triangulation is the best approximation we could create using public sources. Given the importance of the question–how much do billionaires really pay in taxes?–it would be desirable to mobilize internal data to provide better estimates in the future. For example, linking the Forbes 400 to income tax data would allow for a direct estimation of the fiscal income of the 400 richest. Linking the Forbes 400 to corporate tax data would allow to directly estimate how much they pay in corporate taxes. Of course, a well-enforced wealth tax would be an even better source to study this question in depth (and cross-check the Forbes 400 estimates). We hope that our estimates, imperfect as they may be, will generate more and better research, and we will adjust our numbers when better estimates become available.

2.1.4 Denominator Used to Compute Tax Rates: Treatment of Capital Gains

In Piketty, Saez and Zucman (2018), effective tax rates were computed by dividing taxes paid by pre-tax national income. This raises the problem that when people realize a lot of capital gains such as in 2000 or 2007, peak years for the stock-market, effective tax rates mechanically rise (because realized capital gains trigger taxation but capital gains are excluded from pre-tax national income), making it hard to interpret year-to-year changes in effective tax rates.

We improve the computation of effective tax rates compared to PSZ (2018) by adding pure capital gains to our income denominator when computing tax rates. The challenge is to include only the pure component of capital gains (due to pure asset price increases), as capital gains generated by the accumulation of retained earnings are already included in pre-tax national income via the inclusion of corporate retained earnings in pre-tax income.

What fraction of realized capital gains should be included in the denominator of effective tax rates? One possibility is to remove from realized capital gains the average flow of corporate

retained earnings. On average over 1962-2018, corporate retained earnings (domestic + foreign) have amounted to 3.8% of national income; realized capital gains to 3.6% of national income; realized taxable capital gains (i.e., included in AGI) to 2.8% of national income (50% or more of realized capital gains were exempt before 1987). The fact that retained earnings are slightly higher than realized capital gains on average can be due to several factors, such as the fact that some retained earnings are in corporations owned by tax-exempt shareholders (pensions), and permanent deferral (e.g., due to basis step-up at death).

In our series, we consider that realized taxable capital gains amounting to 3.0% of national income reflect retained earnings. 3% of national income corresponds to 80% of the average flow of retained earnings, thus taking into account that part of retained earnings accrue to non-taxable investors (pensions, foreigners, etc.). We consider that any realized taxable capital gains above 3.0% of national income reflects pure price effects. We add these pure-price capital gains to our income denominator. In 1986 we add 50% of realized taxable capital gains to the denominator to account for the shifting of capital gains in 1986 (before the abolition of the 60% capital gains exemption in 1987).

In practice, this correction makes a difference for the years 1925, 1927, 1928, 1929, 1986, 1987, 1988, 1996, 1997, 1998, 1999, 2000, 2001, 2004, 2005, 2006, 2007, 2008, 2012, 2013, 2014, 2015, 2016, 2017, and 2018 (as in other years realized taxable capital gains are less than 3.0% of national income); see Appendix Figure 1.11 in Saez and Zucman (2019). In 2018 for example, the amount of realized taxable capital gains is around 5.0% of national income (about $900 billion out of a total national income of $17,600 billion). This is 2 points in excess of 3.0%, so we include 40% of realized taxable capital gains (2.0%/5.0%) in our pre-tax income denominator for the purpose of computing effective tax rates.

2.2 Taxes Before 1962

We slightly update the treatment of taxes before 1962 compared to Piketty, Saez and Zucman (2018). First, we adjust all our pre-1962 computations to be consistent with our new post-1962 assumptions on the incidence of sales and excise taxes (see above). Moreover, we now ensure continuity in 1962 for the individual income tax. In PSZ (2018) we applied the raw distribution of federal income taxes to the pre-1962 years. But in 1962, the distribution of income taxes across adults ranked by pre-tax income in DINA is slightly less concentrated than the distribution of federal income taxes across tax units ranked by fiscal income (due to re-ranking when moving from fiscal to pre-tax income). We now explicitly deal with this discontinuity, which slightly reduces the effective tax rates at the top before 1962.

2.3 Preliminary distributional series for most recent years

We developed a procedure to project the distribution of income to the latest year with available macroeconomic statistics. The procedure is the following. First, we age the fiscal income files using the most recent available data. Second, we apply the distributional national account methodology to the aged fiscal income files using current aggregate national account data and projections for future years.

The aging of the fiscal income files is done as follows. For years 2013, ..., 2016, we use the aging technique described in Saez and Zucman (2018) based on the 2012 public use file (the

latest year available) and tabulations based on the internal files for years 2013, ..., 2016. The tabulations provide detailed statistics by income groups and demographic groups for each fiscal income component. We update the 2012 public use file to match the tabulated statistics from internal data. Saez and Zucman (2018) show that this aging methodology produces distributional statistics very close to the statistics obtained using directly the internal data.

For 2017, we start from the 2012 public use file. We inflate weights uniformly to match the total adult population (aged 20 and above). We then inflate each fiscal income component to match the aggregate levels for 2017 for each fiscal income component published by the IRS Statistics of Income. This strategy works well because the 2017 distribution of fiscal income is very similar to the 2012 distribution of fiscal as shown by the Piketty and Saez (2003) series for 2017.

For 2018 and after, we start from the 2017 aged fiscal income file and assume that adult population growth is 0.9% per year. We then inflate each income component assuming that each aggregate fiscal income component grows at the same rate as nominal GDP: 5.3% from 2017 to 2018, 4.5% from 2018 to 2019. These projections for nominal GDP growth are from the Federal Reserve open market committee, 26 Sept. 2018. This again amounts to assuming that the distribution of fiscal income in 2017 and after remains stable. Preliminary fiscal income statistics for year 2018 (updated Piketty-Saez series) show indeed that the fiscal income distribution and its composition are very stable from 2017 to 2018. This stability assumption is the most natural benchmark to use for the 2019 projection (year for which there is no data yet available). Naturally, all these assumptions will be revisited as more data become available in order to produce even more accurate statistics. Because of the large 2018 tax reform, we recomputed individual income taxes for 2018 and after using the NBER TAXSIM simulator (Feenberg and Coutts, 1993).