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HOW MUCH TAX DO US BILLIONAIRES PAY? EVIDENCE FROM ADMINISTRATIVE DATA

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ABSTRACT

We estimate income and taxes for the wealthiest group of US households by matching Forbes 400 data to the individual, business, estate, and gift tax returns of the corresponding group in 2010–2020. In our benchmark estimate, the total effective tax rate—all taxes paid relative to economic income—of the top 0.0002% (approximately the "top 400") averaged 24% in 2018–2020 compared with 30% for the full population and 45% for top labor income earners. This lower total effective tax rate on the wealthiest is substantially driven by low taxable individual income relative to economic income. First, the C-corporations owned by the wealthiest distributed relatively little in dividends, limiting their individual income tax unless they sell their stocks. Second, top-owned passthrough businesses reported negative taxable income on average in spite of positive book income, further limiting their individual income tax. The top-400 effective tax rate fell from 30% in 2010–2017 to 24% in 2018–2020, explained both by a smaller share of business income being taxed and by that income being subject to lower tax rates. Estate and gift taxes contributed relatively little to their effective tax rate. Top-400 decedents paid 0.8% of their wealth in estate tax when married and 7% when single. Annual charitable contributions equalled 0.6% of wealth and 11% of economic income in 2018–20.

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1 Introduction

A major evolution over the last decades in the United States—and indeed globally—has been the boom in the fortunes of ultra-high-net-worth individuals. According to *Forbes* magazine, the 400 richest Americans owned 0.9% of total U.S. household wealth in 1982, the first year of the *Forbes* 400, and 4.1% in 2025 (Figure 1). Because aggregate wealth has grown faster than aggregate income, this rise is more pronounced when top-end wealth is expressed as a fraction of GDP, a relevant metric for fiscal capacity. While the wealth of the "top 400" amounted to the equivalent of 2% of U.S. GDP in 1982, it reached 20% of GDP by 2025. About 75% of this rise is attributable to the top 100 wealthiest individuals alone.[1]

We study the total effective tax rate faced by the very wealthiest. Do the rich realize their capital gains and pay significant amount of individual income taxes as a result? What are the effective corporate tax rates of the businesses they own and their effective estate and gift tax rates? Official statistics (e.g., IRS 2016) provide information on individual income tax payments, but these statistics capture one tax only and rank taxpayers by reported individual income, not by wealth or full economic income.

To overcome these limitations, this paper uses administrative tax statistics produced in Balkir et al. (2024) and other publicly available information to estimate comprehensive tax rates for the Forbes 400 group. In Balkir et al. (2024), we conducted a match of the *Forbes* 400 group to the individual tax returns filed (including income, estate and gift taxes) and the tax returns of the businesses owned by this group. Building on the pioneering work of Raub et al. (2010) who matched estate tax returns only, this is to our knowledge the first time that such a comprehensive match is done in any country. This new dataset allows us to estimate the total taxes paid by the group of richest Americans between 2010 and 2020. We can compute different economically-relevant tax rates: taxes paid as a fraction of taxable individual income, as a fraction of economic income (labor plus capital income, the latter essentially capturing the share of business profits held by the top 400), as a fraction of Haig-Simons income (i.e., consumption plus the change in wealth), and as a fraction of wealth itself.

Our main findings can be summarized as follows. First, when expressed as a fraction of economic income, the effective tax rate of the top 0.0002% (roughly the top 400) averages to 23.8% in our benchmark series in 2018–2020. Effective tax rates decline as one moves up the

[1]These statistics are adjusted for the growth of population size, i.e., the "top 400" refers to the 0.0002% wealthiest tax units population wide (a tax unit is a nuclear family–a single person or married couple with their children dependents if any–whether it files a tax return or not). The top 0.0002% corresponds to the 384 wealthiest tax units in 2025 and the 221 wealthiest tax units in 1982. Similarly, the "top 100" refers to the top 0.00005%.

distribution—down to 22.0% for the top 0.00005% (roughly the top 100). The comparable tax rate is 30% for the U.S. population as a whole and 45% for top labor income earners. All taxes included, top capital owners pay just over half as much as top workers relative to income.

Second, these low effective rates are due substantially to a low ratio of taxable to economic income at the top of the wealth distribution. For the top 100, taxable individual income adds up to one-third of economic income compared with two-thirds for the overall population and nearly 100% for top labor income earners. Because of this low ratio, the effective individual income tax is relatively small for the top 400, amounting to about 11% of economic income. In addition, annual charitable contributions are 0.6% of wealth and 11% of economic income for the top 400 in 2018–2020.

Third, the top 400 reports a relatively small amount of private business income. Passthrough business income is negative for the top 400 as a whole, even though the corresponding businesses have relatively high economic profits based on book-tax reconciliation forms. Top-owned private C-corporations distribute less than 10% of their profits in dividends, so taxes on dividends received by the top 400 from private C-corporations are limited relative to economic income. These phenomena are particularly pronounced among the top 100.

Fourth, the corporate tax plays an important role at the top. Out of the top 400's effective tax rate of 23.8%, about 9 points comes from the corporate tax. This result highlights that individual income taxes alone are insufficient for measuring the contribution of high-net-worth individuals to government revenues. In our methodology the corporate tax is fully allocated to shareholders; other common approaches would lead to lower top-end tax rates.

Fifth, the tax rate of the top 400 fell significantly at the end of our sample, a period that includes various economic and policy changes including the Tax Cuts and Jobs Act. Between 2010 and 2017 it reached about 30%, similar to the US population average, before falling in the 2018-2020 period. This evolution is due both to a decline in corporate taxes (in line with the decline in the statutory federal corporate tax rate from 35% to 21%) and to a fall in individual income tax payments, in turn due to the fall in reported passthrough business income which turned negative at the end of our sample.

Sixth, other ways to compute effective tax rates deliver broadly consistent results. Variation over the baseline delivers a range of effective rates between 21.7% and 26.4% of economic income for the top 400 in 2018–2020. Relative to Haig-Simons income, the top 400 effective tax rate over 2010–2019 (i.e., the cumulated 2010–2019 taxes of the wealthiest individuals of 2019, divided by their 2010–19 Haig-Simons income defined as change in wealth plus consumption plus taxes) is slightly lower, at 21.2%. This is because taxable individual income only accounts for about

one-third of the 2010–2019 rise in their wealth. Taxes as a percent of wealth (from *Forbes*) and even the raw series (i.e., without dividing taxes by anything) all confirm a large decline in tax payments over the sample period

Last, effective estate and gift tax rates contribute relatively little to the total effective tax rate. In a given year, transfer taxes paid by *Forbes* decedents add up to only 0.03%–0.04% of the total wealth of the *Forbes* 400, with a downward trend over time. This represents only 0.6% of their economic income. These rates are low in part because the mortality rates of the *Forbes* 400 are low, decedents transmit their wealth to surviving spouses tax-free, and whenever taxable transmissions occur, estate values are only about 30% of the *Forbes* wealth estimates on average. For single decedents, the effective estate tax rate equals 7% of wealth.

Our paper relates to a growing body of work estimating effective tax rates at the very top, summarized in Zucman (2024). Based on public sources, Saez and Zucman (2019a, 2019b) estimate a total effective tax rate of 23% for the *Forbes* 400 in 2018. Leiserson and Yagan (2021) and Yagan (2023) estimate a federal individual income tax rate of approximately 10% relative to Haig-Simons-like income while noting that corporate and other taxes are needed to estimate total effective tax rates. Our estimates use detailed administrative data to deliver similar bottom-line results but allow for a much richer understanding of the mechanisms involved.

Interestingly, the top-end effective rates we obtain in the United States are higher than in Europe. In the Netherlands, Bruil et al. (2025) find an effective tax rate of less then 20% of economic income for the top 0.0001%, roughly the population of Dutch billionaires. Ring, Seim and Zucman (2025) obtain similar numbers in Sweden and Norway. In France, Bach et al. (2023) estimate an effective tax rate of 26% for the top 0.0002% in 2016 (vs. 30% for the top 0.0002% in our series pre-Tax Cuts and Jobs Acts). In Europe the individual income tax paid by billionaires is even lower than in the United States. As shown by Ring et al. (2025), this can be explained by the widespread use of personal wealth-holding companies, which allow ultra-high-net-worth individuals in Europe to avoid the individual income tax, a technique heavily penalized in the United States since the 1930s.[2]

Methodologically, we make a number of contributions. First, we are the first to do such a comprehensive match of the wealthiest group to various tax forms, which allows us to study the top wealth population.[3] Second, the richness of the U.S. administrative data allows us to capture all quantitatively relevant taxes at the top, including foreign corporate taxes that are

[2]For other evidence on top-end taxes in Europe, see Blanchet et al. (2022), Advani et al. (2023) in the UK and Guzzardi et al. (2024) in Italy.

[3]Raub et al. (2010) matched the *Forbes* 400 group to estate tax returns, but not individual or business tax returns. Bach et al. (2023) and Bruil et al. (2025) rank people by economic income, not wealth.

often hard to observe but can be key given the size of the international operations of top-owned corporations.[4] Third, we can observe charitable contributions and thus contrast taxes paid to charitable giving, which is quantitatively large at the very top. Fourth, we reconcile fiscal income with economic income by type of business, showing that there can be large gaps depending on the specifics of the tax law. This highlights the limits of the individual income tax in measuring top-end economic income even in developed countries with generally broad individual income taxes.

2 Methodology to Estimate Effective Tax Rates

2.1 Conceptual Framework and Methodology

Data and matching. Our dataset includes lists of the 400 wealthiest Americans published by *Forbes* between 2005 and 2020 with details about their wealth, matched to 2005-2020 individual income tax data, estate and gift tax data, firm-level financial statements for public companies from Compustat, and, for the year 2019, private business tax data including book-tax reconciliation forms. To merge *Forbes* lists to administrative data, we used publicly available date of birth, name, and state. The match rate was 98% for the years 2010-2020, the focus of our analysis. We refer to Balkir et al. (2025) for additional details about the administrative data used and matching procedure.

Benchmark definition of income. Our goal is to compute effective tax rates that are comparable across social groups, over time, and across countries. To do so, we include all taxes at all levels of government, and to compute effective tax rates we use a broad measure of income in our baseline estimates: basic-price national income.[5] This makes it possible to compute tax rates that are comparable to the average macroeconomic tax rate (the ratio of total taxes to total basic-price national income), comparable over time (because national income is not influenced by changes in the tax law that affect the fraction of economic income subject to tax), and comparable across countries (because the measurement of national income follows international guidelines). In what follows, we refer to basic-price national income as "economic income."

Practically, one can think of economic income at the top of the distribution as the income that taxpayers would report on their individual income tax returns if all businesses were taxed as

[4] In both France and the Netherlands, only receipts of dividends from foreign subsidiaries are observed and foreign corporate taxes have to be imputed.

[5] Basic-price national income is equal to net national income minus product taxes. It is equal to the sum of labor and capital income.

passthroughs (with profits flowing directly to individual owners, as in partnerships), and taxable business income equaled economic business income (i.e., was not reduced by any provision of the tax law such as accelerated depreciation).

A key advantage of the notion of economic income is that this income is not affected by the choice of business organizational form. Regardless of the tax form a business files, all of its income is fully allocated to its owners. Moreover, economic income is not affected by base-narrowing provisions such as the expensing of investment, which have been features of contemporary tax reforms.

Allocation of taxes. To allocate taxes to individuals, we follow the distributional current-tax analysis of Saez and Zucman (2023). In particular, we do not shift taxes. Business taxes (whether for S-corporations, C-corporations, or partnerships) are allocated to the corresponding business owners; taxes on wages are allocated to the corresponding workers. We refer to Saez and Zucman (2023) for a detailed description of this methodology.

This approach ensures that there is a direct link between what a corporation pays in tax and the effective tax rate of its owners. This is not the case in approaches that shift the corporate tax as done, e.g., by U.S. government agencies. In the Congressional Budget Office estimates, corporate taxes are assumed to be borne 25% by workers economy-wide (proportionally to their reported wages) and 75% by capital owners economy-wide (proportionally to their reported taxable capital income). An owner's effective tax rate bears no relationship with the amount of corporate tax paid by the corporation it owns. Other papers that estimate billionaires' taxes follow the same methodology as the one we use (Bruil et al., 2015; Bach et al., 2023).

Our findings are robust to shifting the corporate tax as in, e.g., the CBO methodology. Allocating part of the corporate tax to workers reduces effective tax rates at the top, increasing the gap between the average rate of the top 400 and that of the rest of the population. Shifting the corporate tax also does not alter the large decline in the effective tax rate at the top following the Tax Cuts and Jobs Act.

2.2 Measurement of Economic Income and Taxes

For the wealthiest tax units, economic income derives from the ownership of publicly-listed corporations, the ownership of private businesses, and other sources. This Section explains how we measure each source of income. All the data used and step-by-step computations are detailed in Appendix A, B, and C respectively; here we focus on presenting the methodology and discussing the main conceptual issues involved.

Profits of public corporations. Estimating the income coming from public corporations is the simplest step, because insiders of listed firms have to disclose their stakes in these firms to the Securities and Exchange Commission.[6] Using these filings, *Forbes* maintains a database of public equity wealth owned by the top 400 at the individual × firm level.

We link these data to Compustat to calculate the amount of public-firm profits accruing to the *Forbes* 400. For each *Forbes* 400 individual i and public corporation j, we compute the ownership share of i in j, α_{ij}, by dividing the value of i's stake in j (as reported by *Forbes*) by j's market value (from Compustat). We then apportion j's annual profits π_j to i by multiplying j's profits by α_{ij}. Corporate profits are equal to global pre-tax book income gross of property taxes paid. Denoting by mv_j the market value of corporation j, the top 400 pretax yield on its public equity wealth is

$$r^e = \frac{\sum_i \sum_j \alpha_{ij} \pi_j}{\sum_i \sum_j \alpha_{ij} mv_j}$$

The amount of profits accruing to the top 0.0002% (which includes 367 tax units in 2018–20) is slightly lower than for the top 400 as a whole (by about 1%) and is computed by applying the yield r^e observed for the *Forbes* 400 to the public equity wealth of the top 0.0002%. We follow this approach for our other groups of interest (top 100, next 300) and for each year.

Profits of private businesses. We estimate the amount of private business book income (using the same accounting standards as for listed firms) that accrues to top-400 individuals in two steps. First, we construct an estimate based solely on administrative data for the year 2019, when we could link the *Forbes* 400 to the business tax returns (including book-tax reconciliation forms) of the private businesses they own.[7] Second, informed by this linking we estimate private-business economic income for the other years based on a simpler methodology.

For the year 2019, we start with the taxable private business income reported by the top 400 in their individual income tax returns, which we upgrade to capture the underlying book income. For private C-corporations we start with the amount of private C-corporations dividends earned by our matched sample of *Forbes* 400 individuals.[8] We then examine all private C-corporations

[6]Company insiders are defined by the SEC as large shareholders (owning 5% or more of the stock), Chief Executive Officers, Chief Financial Officers, chairs of the board, directors, general counsels, and other ocers.

[7]We were able to match 69 private C-corporations (which account for 77% of our estimated amount of private C-corporation book income accruing to the top 400), about 1,200 S-corporations, and nearly 12,000 partnerships to *Forbes* 400 individuals; see Appendix B for complete details.

[8]This is equal to the total amount of dividends reported in their individual income tax returns, minus the dividends they receive from public corporations (i.e., their share α_{ij} of the dividends paid by public corporations, which are observed in Compustat), minus dividends received from investment funds; see Appendix B.

with a 2019 *Forbes* 400 owner that could be identified in administrative data. For these firms, the ratio of pretax book income to dividends paid is 13.5 on average. Therefore we multiply the private C-corporations dividends earned by our *Forbes* 400 individuals by 13.5.

For pass-through businesses (S-corporations and partnerships), we start with the amount of taxable ordinary business income reported by the *Forbes* 400. We then multiply this income by the ratio of book income to ordinary business income observed for linked top-400-owned passthroughs, separately for profit-making and loss-making businesses. Importantly, even though passthroughs cannot retain earnings for tax purposes, their book income turns out to be much higher than the taxable income they generate for their owners, due to provisions in the tax law (e.g., related to depreciation) that reduce taxable income. As detailed in Appendix B, top-400-owned passthroughs with negative taxable ordinary income have positive book income on average: their taxable losses are not real economic losses.

Overall, when adding private C-corporations and passthroughs, private-business book income earned by our matched sample of *Forbes* individuals adds up to about $86 billion. If we compare this to the *Forbes* estimate of private wealth, this implies a yield of 5.0% on private business wealth, very close to the yield r^e observed for the top 400's stakes in listed companies (see Appendix Table A3). Therefore for the other years, we estimate the top 400's private business economic income as r_t^e times private wealth, where r_t^e is the yield of the *Forbes* 400 on public wealth in year t. Naturally, one may imagine that the yield on private and public wealth may differ in other years. The equal yield assumption is a natural benchmark to use in light of the available evidence; Section 3.4 presents sensitivity analysis. Importantly, because both taxes and private business book income come from administrative data, all our 2018–20 results can be derived fully independently of the private business value estimated by *Forbes*.

Other income and capital gains. Other income sources include wage income and a portion of realized capital gains. We include all wages (and "other income" excluding net operating losses[9]) reported on individual income tax returns in our measure of economic income.

How to treat realized capital gains is conceptually the most subtle question. The capital gains realized by the top 400 have multiple sources. Some correspond to compensation earned by private equity and hedge fund managers, known as carried interest. Even though this income is taxed as capital gains, it corresponds to labor income and as such should be included in economic income. Another portion of realized capital gains corresponds to increases in share prices caused by the accumulation of retained earnings within corporations. Since retained earnings are

[9]Such losses are a stock from all past losses which have not yet been credited.

already included in our measure of economic income, these gains need to be discarded. If all corporations were taxed as pass-through entities, these realized gains would disappear. The remaining capital gains stem from pure asset price appreciation, i.e., increases in asset prices that are not caused by the accumulation of retained earnings. If all corporations were taxed as pass-through entities, these gains would remain. They are not double-counted with retained earnings and since people pay tax on them, we include them in our economic income denominator.[10]

Appendix C presents evidence on the size of carried interest, capital gains caused by retained earnings, and pure capital gains at the top. About a quarter of the *Forbes* 400 owns or works in financial firms where the use of carried interest is common. Moreover, retained earnings explain only 14% of the rise in the price of top-400-owned public companies. Based on this evidence, we can construct a lower bound of 49% for the fraction of realized capital gains includible in economic income, and an upper bound of 85%. In our baseline estimates, we conservatively include half of realized capital gains in economic income. In our sensitivity analysis we vary this fraction between 50% and the upper bound of 85%.

Measurement of taxes. Federal, state, local, and foreign individual income taxes, as well as Social Security and Medicare taxes, are taken from individual income tax returns. For public companies, corporate income taxes are equal to the worldwide book tax provisions of top-400-owned firms apportioned by ownership shares. Tax rates for top-400 owned private C-corporations are nearly identical to those observed for public firms in 2019 (17.7% vs. 18.2%, see Appendix A) and assumed to be equal in other years. Transfer taxes are as reported in estate and gift tax returns. Business property taxes are estimated as 1% of global plant, property and equipment for listed firms. This implies a property tax rate of 0.19% as a percent of wealth, which we apply to private wealth. Finally, we disregard sales taxes which are negligible at the top, where saving rates tend towards 100%.

3 Results

3.1 Fiscal Income, Economic Income, and Wealth at the Top

Table 1 reports summary statistics for our sample of *Forbes* 400 individuals matched to administrative tax records for the years 2018–20. Two main results are worth noting.

[10]Their inclusion means that our measure of economic income is slightly broader than basic-price national income. An alternative approach would be to ignore such pure gains at the denominator and to remove the portion of individual income taxes that correspond to taxed paid on "pure" capital gains at the numerator. This leaves effective tax rates virtually unchanged.

First, private businesses play an important role at the top of the wealth distribution (Smith et al., 2019, 2023). Specifically, 42% of the wealth of the top 400 is in publicly listed C-corporations and 58% in private businesses (and listed partnerships). The share of private businesses in wealth rises from 50% for the top 100 to 74% for the next 300. Private economic business income is similarly large. The top 400 derives 34% of its economic income from profits of publicly traded corporations, 49% from private business profits, and 16% from labor income and "pure" capital gains.

Second, fiscal income—i.e., income reported in individual income tax returns, including realized capital gains—adds up to only about 40% of economic income for the top 400, due to two reasons. First, top-400-owned listed firms distribute only 19% of their pretax income in dividends on average in 2018–20 (Appendix Table A2). Second, reported taxable private business income is very low. Reported passthrough business income is negative for the top 400 as a whole. Top-400-owned private C-corporations distribute only 7.4% of their pretax book income in dividends (Balkir et al., 2025, Table 4).

3.2 Top-end Effective Tax Rates in 2018–20

Top-end tax rates. Table 2 presents our results on effective tax rates in 2018–20. For the top 400, the total effective tax rate is 23.8%. It increases as one moves down the distribution: from 22.0% for the top 100 to 26.6% for the next 300. We can compare these rates to the effective tax rate of top labor income earners, which is around 45%.[11] We can also compare them to the total effective tax rate of the US population as a whole (i.e., adding all taxes paid by US residents divided by their total economic income), which is 30.2% in 2018–20.[12] When taking a comprehensive view of taxation and income, ultra-high-net-worth individuals appear less taxed than the average American.

The role of the corporate tax. The corporate tax accounts for 37% of the total tax payments of the top 400. It is particularly significant for the top 100 (46% of total tax payments), less so for the next 300 (27% of total taxes) where passthrough businesses are more common. Business property taxes, which are frequently ignored in distributional tax analysis, are significant. They contribute 3.4 points to the effective tax rate of the top 400 (equivalent to nearly 40% of the corporate taxes paid by the top 400).

[11] Obtained as the sum of the top marginal federal individual income tax rate of 37%, uncapped Medicare taxes of 3.8%, and an effective state income tax rate of around 5%. We disregard sales taxes.

[12] This rate excludes the portion of sales and excise taxes paid on the consumption of transfer income (see Saez and Zucman, 2023 Appendix A.4 for a conceptual discussion).

The bulk of the corporate tax is paid to the United States, even though top-100-owned listed corporations have significant foreign operations. This is because effective foreign tax rates for these firms are low, e.g., due to profit shifting to tax havens (Tørsløv et al., 2023).

Effective estate tax rates. Estate and gift taxes paid annually add up to 0.6% of economic income for the top 400. These effective estate tax rates are low because mortality rates are low,[13] estates are passed tax-free to surviving spouses, and when taxable transmissions occur, the effective estate tax rate is low. Specifically, for single decedents, estate taxes paid equal 6.8% of the value of *Forbes* wealth at death. The value of their gross estate is 39% of the *Forbes* estimate of their wealth. This large gap, already noted in earlier work (Raub et al., 2010), is likely to reflect the various techniques available to high-net-worth individuals to undervalue assets in the context of the estate tax. Taxable estate is then 45% of gross estate (due to deductions primarily gifts to charities) and on that base the tax rate is 39% (Balkir et al., 2025, Table 4 Panel B).

Effective rates relative to Haig-Simons income. The bottom panel of Table 2 reports tax rates expressed as a fraction of Haig-Simons income. We consider members of the top 400 in 2019 and compute the total taxes they paid over the period 2010–19. We divide this by their pre-tax Haig-Simons income: the 2010–19 increase in their wealth, plus their total 2010–19 taxes. We disregard consumption which is negligible relative to the rise in wealth at the top. The top 400 Haig-Simons total effective tax rate is 21.2% over 2010–19, similar to the Haig-Simons tax rate for the entire population (21.5%).[14]

3.3 Change after the Tax Cuts and Jobs Act

Figure 2 shows the evolution of top 400 taxes over the 2010–2020 period. Panel (a) plots the raw nominal amounts of taxes paid without any adjustment whatsoever. We can see a decline of one-third in the nominal amount of corporate tax paid by the top 400 between 2014–17 and 2018–2020, in line with the decline in the federal corporate tax rate from 35% to 21%. Corporate tax payments also fell between 2010–13 and 2014–17, due to a decline in corporate profits accruing to the top 400. The individual income tax rose between 2010–13 and 2014–17,

[13] Over the 2010–19 period, 55 members of the top 400 died, corresponding to an annual mortality rate of the order of 1% which is very low relative to population and adjusting for age.

[14] For the entire population, the Haig-Simons tax rate is computed by dividing total taxes paid (excluding consumption taxes paid on transfer income) by Haig-Simons income, computed as the 2010–19 change in wealth, plus private consumption expenditures, plus taxes paid (excluding consumption taxes paid on transfer income).

due to the 2013 tax reform that raised top marginal tax rates on capital income by about 9.5 points and on labor income by about 6.5 points. It then fell after 2017, which is when the Tax Cuts and Jobs Act was enacted. The patterns are similar when dividing taxes paid by our benchmark measure of economic income (panel b). Our results on the decline in effective tax rates for the top 400 are thus highly robust: they come from the numerator—absolute amounts of taxes paid fell.

Panel (c) reports our main findings: the evolution of the total effective tax rate of the top 400 as a fraction of economic income. While the top 400 and the top 100 used to have a similar effective tax rate as the US population on average (around 30%), this is no longer the case after the Tax Cuts and Jobs Act. When expressed as a fraction of wealth (panel d), we can see a gradual decline. Total taxes paid by the top 400 amounted to 2.7% of their wealth in 2010–13, down to 2.0% in 2014–17, and 1.3% in 2018–2020. This large decline is a combination of the rise in the wealth-to-income ratio of the top 400 (cf. Figure 3(b) below) and the decrease in taxes relative to income from panel c. Out of this 1.3%, 0.7% come from business property taxes and corporate taxes. Individual income taxes (federal plus state and local) add up to 0.6% of wealth for the top 400 (Appendix Figure A1).

3.4 Mechanisms and Sensitivity Analysis

Base erosion at the top. Why is the individual income falling at the top of the wealth distribution? To better understand the mechanisms, panel (a) of Figure 3 plots the evolution of the ratio of individual taxable income (as reported in individual income tax returns) to economic income for the full population and for the top 400. This ratio reaches 70% for the entire population and is on a slightly rising trend: the individual income tax is, overall, becoming broader. By contrast, the ratio is 40% for the top 400 and declined after the Tax Cuts and Jobs Act: for billionaires, the income tax base became narrower.

This narrowing can be explained by provisions in this Act that reduce taxable business income relative to economic income, most importantly the full expensing of investment. While reported pass-through business income was positive for the top 400 in 2010–13 and 2014–17, it became significantly negative in 2018–2020 (Balkir et al., 2025, Table 2). Full expensing allows capital-intensive businesses with positive book income to report negative taxable income. As long as the owner plays an active role in the business, these losses can be used to offset other income, including wages and dividends, reducing individual income tax payments in proportion.

Sensitivity. One potential concern with our analysis is that we may mis-measure economic income for the top 400 and particularly their business income. To investigate this issue, panel (b) of Figure 3 compares our estimated pretax yields for the top 400 (i.e., economic business income divided by business wealth) to macroeconomic US business yields (i.e., business profits divided by business wealth) using national accounts data. Even though they are based on fully independent data sources, our yields for the top 400 follow the same trend as macro yields. Our yields are always lower than macro yields, suggesting that if anything our income measure may be too low and our top 400 effective tax rates too high.

Panels (c) and (d) report the results of sensitivity analysis. Using macro yields to estimate the income of the top 400 (as their *Forbes* wealth times the macro yield on business wealth) reduces the effective tax rate of the top 400 throughout the period. Including more capital gains in economic income—relative to our conservative baseline assumption—has a modest negative effect on the level of the effective tax rate, without affecting the trends. Last, assuming that top-400-owned private businesses have a 20% lower or 20% higher yield than top-400-owned public corporations has a modest effect on levels without affecting the trends. In all scenarios, the total effective tax rate of the top 400 is between 21.7% and 26.4% of economic income in 2018–2020, below the macroeconomic rate of 30% and way below the total effective tax rate of top labor income earners.

Charitable giving. Panel (e) shows the importance of charitable giving at the top. We include all reported charitable contributions, whether or not they are used to reduce taxable income. The top 400 give 0.6% of their wealth to charities annually. When treating charitable giving as a "voluntary tax," the total tax rate of the top 400 becomes 35.2% of income in 2018-2020, exceeding the average macroeconomic rate.

4 Conclusion

Our paper analyzes the results of a match of the *Forbes* 400 group to administrative data, including individual income, business, estate, and gift tax data. Top 400 individuals have a total effective tax rate of 23.8% in 2018–2020, down from about 30% earlier in the decade. This is lower than the average tax rate for the full US population and substantially lower than the total effective tax rate for top labor income earners.

As shown in Figure 3(f), the United States is not unique in that respect: effective tax rates at the top of the wealth distribution are also lower than the average in other countries. In the

Netherlands, a country where the macroeconomic tax rate is 45% of national income, Bruil et al. (2025) find an effective tax rate of less than 20% for the top 0.0002%. In France, Bach et al. (2023) find that billionaires have very low individual income tax rates, of about 2% of economic income (vs. 11% of economic income for the US top 400). Future work can analyze the effects of various tax reforms on top effective tax rates across countries.

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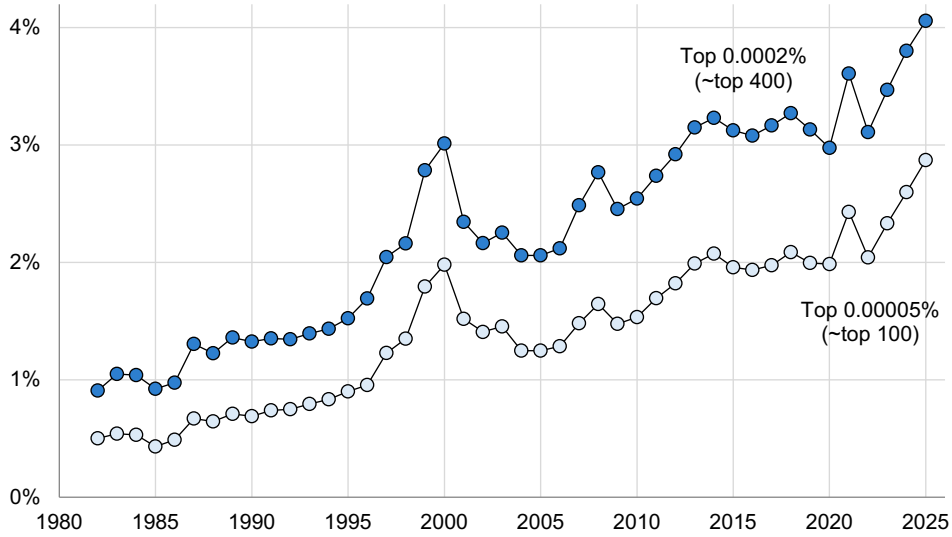
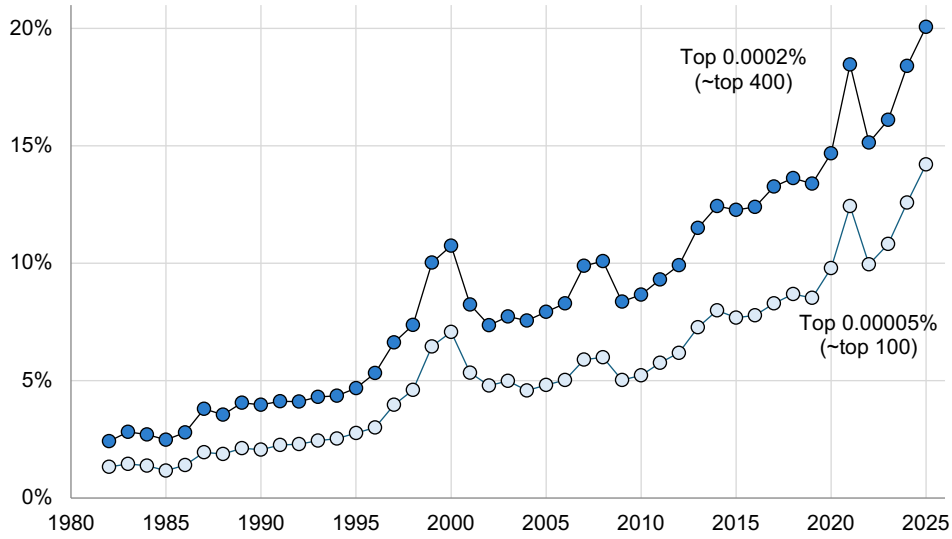
Figure 1: Wealth of the Top 0.0002% Americans

(a) % of Total Household Wealth



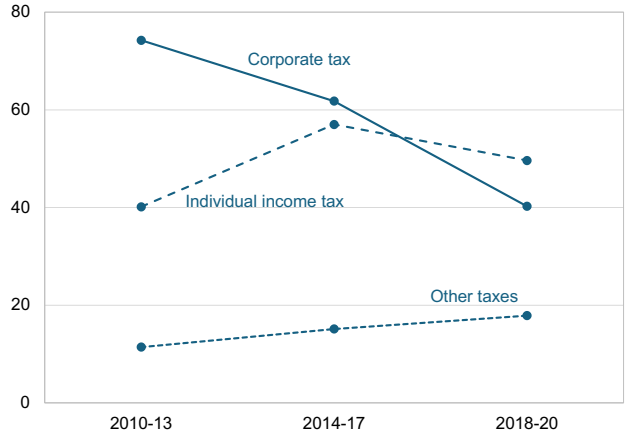
(b) % of GDP



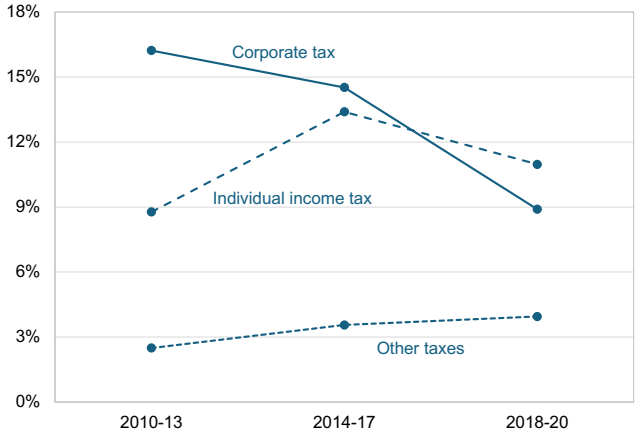
Notes: This figure shows the evolution of the wealth owned by the top 0.0002% wealthiest tax units (which we informally call the ∼top 400 as it corresponds to the 384 wealthiest tax units in 2025 (and the 221 wealthiest tax units in 1982) and top 0.00005% (∼top 100), relative to total U.S. household wealth (panel a) and relative to U.S. GDP (panel b). Source: Saez and Zucman (2020) updated, based on annual *Forbes* 400 data. For 2025, we use the *Forbes* Real-Time Billionaires Database as of June 30, 2025.

Figure 2: Taxes paid by the top 0.0002%, 2010–2020

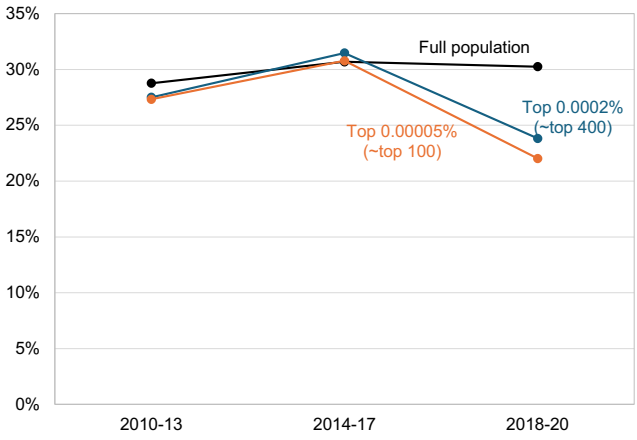
(a) Top .0002%, raw amounts ($m)



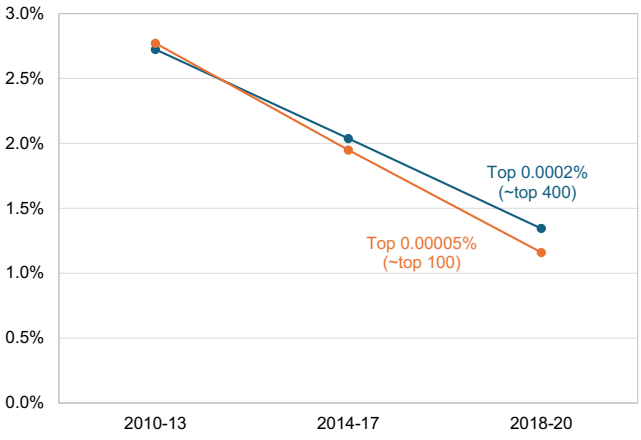
(b) Top .0002%, % of economic income



(c) Top groups, % of economic income



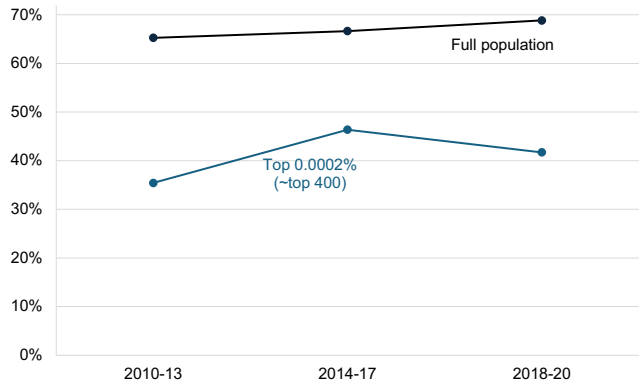
(d) Top groups, % of wealth



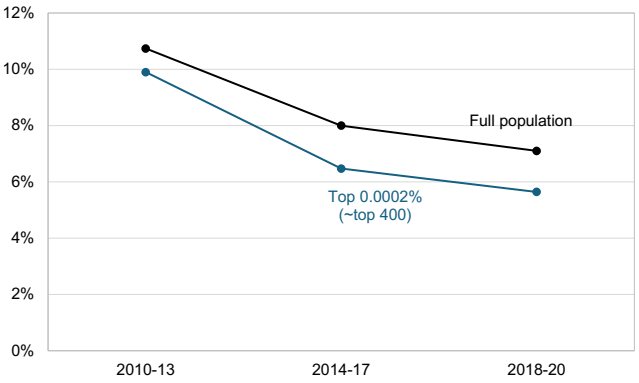
Notes: Panel (a) plots the raw nominal amounts of taxes paid by the top 0.0002%, without any adjustment (not even for inflation). Panel (b) plots these amounts relative to our benchmark measure of economic income. Panels (c) and (d) shows the evolution of the effective tax rate of the top 0.0002% and top 0.00005%, expressed as fraction of economic income and wealth respectively. Panel (c) also reports the average tax rate for the full population (total taxes paid to total economic income of US residents using the same definition). For the construction of economic income, see text. Wealth is as estimated by *Forbes*.

Figure 3: Mechanisms, Robustness & Comparisons

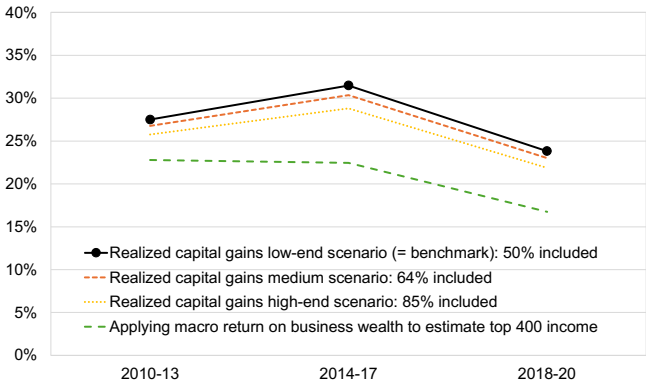
(a) Fiscal income / Economic income



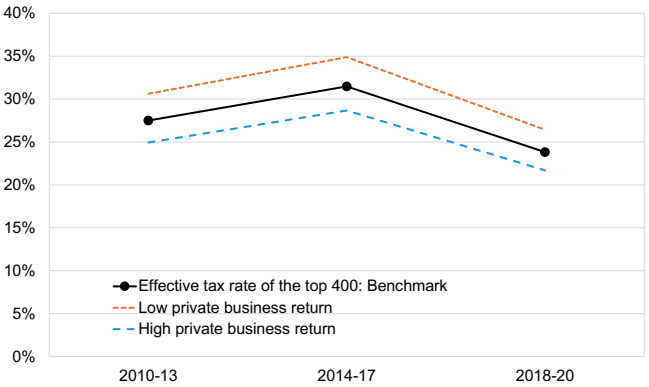
(b) Pretax yields on businesses



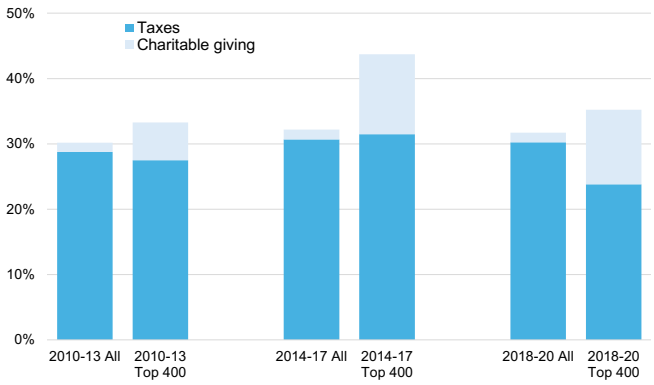
(c) Top 400 tax rate: Sensitivity I



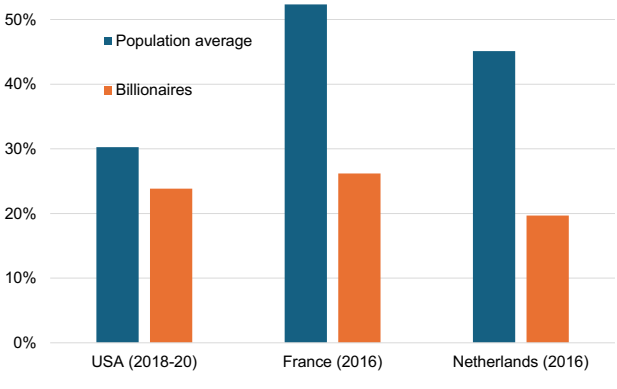
(d) Top 400 tax rate: Sensitivity II



(e) Charitable giving



(f) International comparisons



Notes: In Panel (a) fiscal income includes 100% of realized capital gains. In Panel (b), yields are the economic profit of all businesses (C- and S-corporations and partnerships, but excluding sole proprietorships) divided by the business values. Economic profit exclude any stock price appreciation. Yields for the full population exclude any labor income component and are computed in Appendix B.3. Panels (c), (d) and (e): see text. In Panel (f), the macroeconomic tax rates are constructed as total tax revenue divided by total national income in France and the Netherlands. Data for billionaires are taken from Bach et al. (2023), Figure 1B, dot P99.9998–100 (France) and Bruil et al. (2025), Figure 6, P99.9999–P100, divided by 0.876 to express taxes as a % of basic-price national income.

Table 1: Wealth, fiscal income, and economic income at the top in 2018-2020

	Top .0002% (~top 400)	Top .00005% (~top 100)	Next .00015% (~next 300)	Top .0002% (~top 400)	Top .00005% (~top 100)	Next .00015% (~next 300)
	Amounts ($ million per tax unit)			Composition		
Number of tax units	**367**	**92**	**276**			
Wealth	**8,015**	**20,771**	**3,763**		% of wealth	
Public corporations	3,339	10,455	967	42%	50%	26%
Private businesses	4,676	10,315	2,796	58%	50%	74%
Fiscal income	**188.7**	**363.8**	**130.3**		% of fiscal income	
Realized capital gains	114.9	223.9	78.6	61%	62%	60%
Dividends	41.7	103.0	21.3	22%	28%	16%
Business income	-6.4	-41.5	5.3	-3%	-11%	4%
Interest	17.9	39.2	10.7	9%	11%	8%
Rental, estate, royalties, other	11.2	22.5	7.5	6%	6%	6%
Wages and pensions	9.4	16.7	7.0	5%	5%	5%
Economic income	**452.3**	**1,093.4**	**238.7**		% of economic income	
Profits from public corporations	155.6	477.2	48.4	34%	44%	20%
Profits from private businesses	222.7	470.8	140.0	49%	43%	59%
Other (wages + carried interest + pure gains)	74.0	145.3	50.2	16%	13%	21%
Economic income / wealth	**5.6%**	**5.3%**	**6.3%**			
Profits	4.7%	4.6%	5.0%			
Other	0.9%	0.7%	1.3%			
Fiscal income / economic income	**42%**	**33%**	**55%**			

Notes: This table reports summary statistics for our sample of *Forbes* 400 individuals matched to administrative tax records. All amounts are in current millions of dollars and are averages per tax unit and averaged over years 2018, 2019, and 2020. Wealth is from *Forbes*. Fiscal income is taken from matched individual income tax returns as reported in Balkir et al. (2025, Table 2). Economic income is equal to the pretax profit of the businesses owned by each group (apportioned by ownership stakes), plus wage income, "other income" in individual income tax returns (excluding net operating loss carryforward), and 50% of realized capital gains. See text for the computation of profits from public corporations and profits from private businesses.

Table 2: Effective tax rates: top groups vs. macroeconomic average

	All	Top .0002% (~top 400)	Top .00005% (~top 100)	Next .00015% (~next 300)
	Panel A: 2018-2020 annual average			
Number of tax units	**183 million**	**367**	**92**	**276**
Total effective tax rate (% of economic income)	**30.2%**	**23.8%**	**22.0%**	**26.6%**
Individual income & payroll taxes	20.5%	11.0%	8.0%	15.6%
Worldwide corporate income taxes	1.7%	8.9%	10.1%	7.1%
Of which: US	1.1%	7.5%	8.5%	5.9%
Of which: foreign	0.7%	1.4%	1.6%	1.1%
Estate, inheritance, and gift taxes	0.1%	0.6%	0.4%	0.9%
Other taxes (property, sales)	7.9%	3.4%	3.6%	3.0%
Memo: Charitable giving	1.5%	11.4%	12.8%	9.2%
Total effective tax rate (% of wealth)	**5.6%**	**1.3%**	**1.2%**	**1.7%**
Memo: charitable giving (% of wealth)	0.3%	0.6%	0.7%	0.6%
Total effective tax rate (% of individual fiscal income)	43.9%	57.1%	66.2%	48.6%
	Panel B: Over the period 2010-2019			
Total effective tax rate (% of Haig-Simons income)	**21.5%**	**21.2%**	**19.4%**	**24.6%**

Notes: For the top 0.0002% and smaller groups, corporate tax is the sum of corporate taxes paid by publicly-listed firms (worldwide cash tax paid apportioned by ownership stakes) plus corporate taxes paid by private C-corporations (computed using the effective corporate tax rate observed on matched top-400-owned C-corporations). Foreign corporate taxes paid are computed as 42% of corporate taxes paid by listed firms (the ratio observed for top-owned listed corporations) plus 11% of corporate taxes paid by top-owned private C-corporations (the ratio observed for top-owned linked C-corporations, Balkir et al., 2025, Table 4). Estate, gift, and inheritance taxes are taken from Balkir et al. (2025, Table 2) and multiplied by 55/49 (where 49 is the number of top 0.0002% matched estate tax returns and 55 is the number of top 0.0002% deaths identifiable in public data). Business property taxes are computed as 1% of plant, property and equipment for publicly-listed firms (apportioned by ownership stakes) and assuming the same ratio of business property tax to wealth for private businesses. Individual fiscal income corresponds to total market income reported in individual income tax returns (including tax exempt interest, excluding net operating losses carried over from prior years). For the full population, corporate taxes paid correspond to the total amount of corporate tax collected by US governments (i.e., this assumes that net foreign corporate taxes are zero, which is broadly accurate in 2018–20; see Saez and Zucman, 2023). Hence gross foreign taxes paid are equal to the gross amount of US corporate taxes paid by foreigners. For the computation of the macroeconomic tax rate we only include sales taxes paid out of consuming non-transfer income (see Saez and Zucman, 2023 Appendix A.4). As transfers (Social Security benefits plus social assistance benefits in cash) account for 13% of personal consumption expenditures on aggregate, we remove 13% of total sales taxes. For all groups, Haig-Simons income is computed as the 2010–19 change in wealth plus private consumption (assumed to be 0 for the top 0.0002%) and taxes cumulated over 2010–19. Tax rates out of Haig Simons income are computed by cumulating all taxes (computed as previously) over 2010–19 and dividing by Haig-Simons income. For the top 0.0002% and smaller groups, cumulated income taxes corresponding to the past 2010-2019 cumulative income of the top 0.0002% of 2019 (taken from Balkir et al., 2025, Table 3, Panel B).

Appendix (for Online Publication)

A Profits from Publicly Listed Corporations

To compute the amount of profits in publicly listed corporations that accrues to top wealth groups, we proceed in three steps. First, we estimate the value of their public equity wealth, W^e. Second, we compute the pre-tax rate of return on this equity wealth (economic profits to public equity value ratio), r^e. Recall that r^e does not include stock price appreciation. Last, we obtain the amount of profits accruing to each group as $r^e W^e$. This Appendix details these three steps, which are illustrated in Appendix Table A1 and A2 for 2018–20.[15]

Step 1: Public equity wealth. To compute W^e we start with *Forbes* 400 estimates of the public equity wealth owned by the wealthiest Americans. These estimates are available in the *Forbes* Real Time Billionaires Database since 2019. The key source used by *Forbes* is mandatory Securities and Exchange Commission filings (Forms 4 and 13) which require company insiders (including all executives and board members regardless of share ownership, and all large shareholders owning more than 5% of the stock) to disclose their stakes (see, e.g., Saez and Zucman, 2022). Because other countries have similar rules, the *Forbes* database also includes stakes in foreign public corporations. *Forbes* also estimates stakes owned in public firms by people not required to report to the SEC (e.g., shareholders who are not on the board and have moved below the 5% threshold). In practice, about 80%–90% of the public equity *Forbes* estimates directly come from SEC filings. We remove stakes in listed partnerships from public wealth as these firms are not subject to the corporate tax and treated separately in our analysis.[16]

The top panel of Appendix Table A1 summarizes the results for the year 2019.[17] The *Forbes* 400 own \$1,258 billion in public wealth in mid-2019. After removing listed partnership, their equity in public corporations adds up to \$1,200 billion. It accounts for a share $s^e = W^e/W = 41\%$ of their total *Forbes* wealth W of \$2.9 trillion. The share of public corporate equity wealth in total wealth falls as one moves down the wealth distribution: from 50% for the top 100 wealthiest individuals on the *Forbes* list to 26% for the next 300.

Based on this evidence, we compute equity in public corporations for each of our top groups of interest (top 0.00005% i.e., ∼top 400, and top 0.0002% to 0.00005% i.e., ∼next 300) as follows. First, we assume that within a group g, the share of corporate public equity wealth in total wealth s^e_g is stable over time: $s^e_{gt} = s^e_g$. There is limited evidence to assess whether these shares vary over time during our period of study, as the *Forbes* Real Time Billionaires database only starts in 2019. Because *Forbes* updates its private business valuations based on

[15] For each step we treat the top 0.00005% (roughly the top 100) and the top 0.0002% to top 0.00005% (roughly the next 300) separately, and compute totals for the top 0.0002% (roughly the top 400) as the sum of the two subgroups.

[16] This removes stakes in the following listed partnerships in 2019: Enterprise Products, Energy Transfer, Icahn Enterprise, Carlyle Group, and two companies that converted to a C-corporation during 2019 (Apollo and Blackstone).

[17] 2019 numbers are computed using the *Forbes* Real-Time Billionaires Database as of August 21, 2019. We focus on mid-year estimates to maximize consistency with the annual *Forbes* 400 ranking (the one we matched to administrative data) which contains wealth estimates for the same period of time. In 2019, for example, the annual *Forbes* ranking used stock prices as of September 6; in 2020, as of July 24.

the evolution of stock prices for public companies, assuming constant s_g^e is meaningful. In the future this assumption will be easy to relax as s_g^e have become observable annually since 2019.

Next, we multiply the total *Forbes* wealth W_{gt} owned by each of these groups g in year t by the share of corporate public equity wealth in total wealth s_g^e of the corresponding *Forbes* group (top 100 and next 300). The bottom panel of Appendix Table A1 reports the results of these computations for the years 2018–20.

Step 2: Rate of returns. In the second step we compute the rate of return, defined as the ratio of economic profits to stock market value, on top-owned U.S. corporate public equity wealth r^e, which is reported in panel A of Appendix Table A2.

Denote α_{ijt} the ownership share of a *Forbes* 400 individual i in a public corporation j in year t, π_{jt} the profits of j in year t, and mv_{jt} its market value. The average return on corporate public equity wealth for the *Forbes* 400 in year t is

$$r_t^e = \frac{\sum_i \sum_j \alpha_{ijt} \pi_{jt}}{\sum_i \sum_j \alpha_{ijt} mv_{jt}}$$

We estimate r_t^e each year over the 2010–2020 period as follows:

- We compute π_{jt} using Compustat data as global pre-tax income (variable *pi*) plus business property taxes paid.[18] Business property taxes are not reported by firms and estimated as 1% of their global tangible capital stock (variable *ppent*).

- We compute market values mv_{jt} as of the end of the second quarter of each calendar year, for comparability with the public corporate equity wealth estimates W^e computed in step 1 which are for the middle of the year. Market values are taken from Compustat quarterly data and computed as the number of shares outstanding (*cshoq*) times the share price (*prccq*).

- Ownership shares α_{ijt} are estimated by dividing the value of the shares owned by an individual i in firm j at the end of 2019 (taken from the *Forbes* Real-Time Billionaires Database) by j's end-of-2019 market value.[19] Because *Forbes* does not provide individual equity stakes before 2019, we fix ownership shares at their 2019 value (i.e., α_{ij} is not time-varying, in contrast to the other variables). Since ownership shares are slow-moving (in contrast to profits and market values), this is unlikely to affect the results.

Step 3: Profits. As reported in panel A of Appendix Table A2, within the top 400, rates of returns do not vary much across the distribution. This suggests applying the same return r_t^e to the corporate public equity wealth W_{gt}^e of the top 0.00005% (top 100) and of the next 0.00015% (next 300). The main exception is that in 2010-13 returns for the top 100 are somewhat higher than for the next 300. This appears to be driven by the 5 largest firms by market value. To

[18]For the computation of returns, we remove unrealized capital gains (Compustat variable *cgui*) from pre-tax income *pi* when these gains are included in *pi*. In practice this is only significant for Berkshire Hathaway.

[19]Taken from Compustat as the number of common shares outstanding at year end (*csho*) times the year-end share price (*prcc_c*). For the company Interactive Brokers, we corrected *csho* (76.75 million shares) to account for Class B shares (338.67 million), using information from Interactive Brokers' 10-K report.

account for the effects of these firms, we proceed as follows. For the for the top 0.00005% we use the return as observed for the top 100 (line 2 of Appendix Table A2). For the group below we use the return observed for the top 400 excluding the stakes in the 5 largest companies by market values (line 4 of Appendix Table A2).

Computation of corporate taxes. The computation of corporate taxes paid on top-owned U.S. public corporate equity (reported in Panel C of Appendix Table A2) follows the same procedure as the computation of profits. Define t_{jt} the corporate tax paid by corporation j in year t. The average effective corporate tax rate τ_t on the profits of public corporations owned by the *Forbes* 400 in year t is computed as

$$\tau_t = \frac{\sum_i \sum_j \alpha_{ij} t_{jt}}{\sum_i \sum_j \alpha_{ij} \pi_{jt}}$$

We measure t_{jt} as global book taxes owed (Compustat variable *txt*). This includes all income taxes owed in a given year, current plus deferred. We restrict the sample to top-400 owned companies that report a breakdown of *txt* into federal taxes, state and local taxes, and foreign taxes.[20] To compute effective tax rates, we divide *txt* by pretax income *pi* gross of imputed business property taxes. Like for the computation of returns, listed partnerships are removed from the sample. Moreover, because Real-Estate Investment Trusts (REITs) are not subject to the corporate tax, for the purpose of computing corporate tax rates we remove stakes in listed REITs. The resulting effective corporate tax rate is 16.1% in 2018–20.

For comparison, in the penultimate row of Appendix Table A2 we report effective tax rates for all U.S. publicly listed corporations. These returns are very close to those of top-400-owned corporations, except in 2018–20 when they are slightly higher.[21] In the last row of Appendix Table A2 we report an effective global corporate tax rate for US companies computing using national account data, which is also very close.

We can also compare these tax rates to those observed in our administrative data for private C-corporations (described in Appendix B.1 below) in 2019. For top-400-owned private C-corporations, the global effective corporate tax rate is 17.7% in our linked data in 2019 (Balkir et al., 2025, Table 4), very close to the global effective tax rate observed for top-400 owned public firms that year (18.2%). Therefore for other years we assume that the effective corporate tax of private corporations is equal to the one observed for top-400 owned public corporations.

B Profits of Private Corporations

This Appendix details the computation of the amount of private business profits accruing to our top groups of interest using 2019 administrative data. The results are summarized in Appendix Table A3 for the period 2018–20.

[20] Effective tax rates are nearly identical when considering all corporations, including those that do not report this breakdown.

[21] Foreign taxes paid drop more for top-400-owned companies, due to assets transfers (in particular by tech companies with *Forbes* 400 owners) to low-tax countries in 2018–19. This explains the negative foreign tax rate

B.1 Private C-Corporations

We estimate private C-corporation profits by multiplying private C-corporations dividends d_p received by our matched sample of *Forbes* 400 individuals by the ratio of pretax book income to dividends distributed observed for top-400-owned private C-corporations. We discuss the estimation of d_p and of the book income/dividend ratio in turn.

Step 1. We estimate d_p separately for the top 100 and the next 300. For each group we start with the total amount of dividends d reported by matched individuals in their 1040s individual income tax returns (Table A3, col. 5, lines "total").

We subtract from d the dividends earned by these individuals from listed C-corporations, d_{listed}, which we compute as their public equity wealth W^e (col. 1 Table A3, taken from line 7 of Appendix Table A1) times their dividend yield on listed stock r^d from:

$$r^d = \frac{\sum_i \sum_j \alpha_{ij} div_j}{\sum_i \sum_j \alpha_{ij} mv_j},$$

where div_j is the dividend paid by a listed corporation j, mv_j its mid-year market value, and α_{ij} the ownership stake of *Forbes* 400 individual i in that firm. These yields r^d are reported in Panel B of Appendix Table A2, for the top 100 and next 300 separately.

We also subtract from d dividends earned on diversified stock portfolios d_{fund} held in investment funds, which are not included in W^e and included in passthrough business income below. We estime d_{fund} as 0.1% of the amount of *Forbes* private wealth.[22] Our final estimate of dividends received from private C-corporations is $d_p = d - d_{listed} - d_{fund}$.

Step 2. To compute the ratio of pretax book income to dividends distributed by top-400-owned private C-corporations, we use data from private C-corporations linked to *Forbes*-400 owners, reported in Table 4 of our companion paper Balkir et al. (2025). Specifically, we consider all non-publicly traded, non-foreign, non-subsidiary C-corporations in the Statistics of Income Corporate Study File with Schedule M-3 (Reconciliation of Income (Loss) per Books With Income per Return) data for which a 2019 *Forbes* 400 owner could be identified.[23] There are 69 such private C-corporations with average pretax book income of $404.9 million. For these corporations as a whole, the ratio of pretax book income to dividends distributed is 13.5. Hence, we multiply d_p by 13.5.[24]

Last, we add business property taxes paid (which are not included in book income) and

of -0.5% reported in Table A2 for 2019.

[22]This estimation is based on the following data. As detailed in Section B.2 below, we observe the dividends earned by *Forbes* 400 individuals via passthrough businesses in linked Schedules K-1. Dividends earned via partnerships and S-corporations that have zero ordinary business income (a proxy for investment funds) add up to $1.8 billion (see Balkir et al., 2025, Table 5, middle rows of the top parts of Panels B and C), i.e., 0.1% of the private wealth of the *Forbes* 400.

[23]*Forbes* ownership means either that the tax unit's primary TIN or secondary TIN matched to the corporation's Form 1120 Schedule G Part II in the Corporate Study File or to the corporation's e-filed Form 1125-E, or that the corporation's EIN matched to a list of over 150 publicly available EINs of firms publicly identified as having a *Forbes* 400 person as an owner (Balkir et al., 2025, notes to Table 4).

[24]See Balkir et al. (2025), Table 4, (cols 5+6+7+9) divided by (col. 11). Note that that the total amount of private C-corporation book income accruing to the top 400 cannot be directly estimated from the sample of

which are estimated as 0.19% of the value of private C-corporations (see Section B.3 below for the computation of these values).

B.2 Pass-Through Businesses

We similarly estimate passthrough economic profits by adjusting the amount of taxable pass-through business income (reported in the individual income tax returns of our matched sample of *Forbes* 400 individuals) by the ratio of book income to taxable income of the corresponding businesses observed in matched administrative data in 2019. The adjustment is done separately for S-corporations and partnerships and in both cases separately for profit-making vs. loss-making businesses.

S-corporations. Consider first the case of S-corporations. Because S-corporations have simple structures they can be linked relatively easily to their owners. Our matched sample of top-400-owned S-corporations, identified using 1120-S Schedule K-1 forms, accounts for about 90% of the total S-corporation ordinary business income reported by the top 400 in its 1040s individual income tax returns.[25] The estimation of book S-corporation income earned by our matched sample of *Forbes* 400 individuals proceeds in three steps.

First, we compute the amount of S-corporation ordinary income reported by this sample from profit-making S-corporations (s^{pos}) and loss-making S-corporations (s^{neg}) separately. This is done using Table 1 of Balkir et al. (2025), which reports S-corporation income averages for matched top-400 taxpayers with positive vs. negative S-corporation income separately, combined with a small restatement to capture averages across profit-making vs. loss-making S-corporations owned by these same taxpayers.[26]

Second, we use our linked 2019 data to compute the ratio of book income to ordinary income for S-corporations separately for profit-making (m^{pos}) and loss-making (m^{neg}) top-400-owned S-corporations. These ratios are computed by dividing the total book income of S-corporations accruing to the *Forbes* 400 (i.e., book income apportioned by top-400 ownership shares) by their total apportioned ordinary business income:

$$m = \frac{\sum_i \sum_j \alpha_{ij} book_j}{\sum_i \sum_j \alpha_{ij} ord_j},$$

where $book_j$ is the book income of S-corporation j, ord_j its ordinary business income, and α_{ij} the ownership share of *Forbes* individual i in firm j (computed by dividing the ordinary S-

matched private C-corporations, first because some private C-corporations cannot be linked and thus are not in the sample, and second because *Forbes* 400 ownership stakes in these linked firms are not known when they are identified by EIN (as opposed to through a form 1125-E or 1120 Schedule G). In total our estimate of total private C-corporation accruing to the top 400 ($36.1 billion on average over 2018–20) is somewhat higher than the total pre-tax book income of linked private C-corporations ($27.9 billion in 2019).

[25]To be part of the sample, the payer TIN on the K-1 must match by payer TIN both to a Form 1120-S return in the CDW database of business returns (which provides ordinary business income and document locator number) and by document locator number to a 2019 Form 1120-S in the CDW database of e-filed returns (which provides book income), which 98% of these payer TINs do (Balkir et al., 2025, Table 5).

[26]To do this restatement, we use Panel A of Table 5 of Balkir et al. (2025), which reports averages of S-corporation income if total S-corporation income is positive (resp. negative) at the taxpayer level (as in Balkir et al.'s Table 1), vs. S-corporation income across S-corporations with positive (resp. negative) income owned

corporation income accruing to i from its Schedule K-1 by the total ordinary business income ord_j of the firm). In 2019, $m^{pos} = 1.06$ and $m^{neg} = -0.72$.[27] That is, for \$1 of reported ordinary business loss, top-400-owned loss-making S-corporations have \$0.72 of book income on average. For \$1 of reported ordinary business income, top-400-owned profit-making S-corporations have \$1.06 of book income on average. In other words, the taxable losses reported by top-owned S-corporations are paper losses—not real economic losses—and the corresponding economic profits are 72% of the absolute value of the reported tax losses. For top-owned profit-making S-corporations, economic profits are 6% higher than taxable profits.

Finally we multiply s^{pos} by m^{pos} and s^{neg} by m^{neg} to obtain the total book S-corporation income of our matched sample of *Forbes* 400 individuals.[28] The results imply that total S-corporation economic income earned by the top 0.0002% is 2.0 times larger than its reported net taxable S-corporation income. This is in line with the ratio of book income to net taxable S-corporation income observed in administrative data for large S-corporations, defined as S-corporations with gross receipts above \$250 million, or an absolute value of Schedule M-3 worldwide book income above \$250 million or book assets above \$2.5 billion and non-zero Schedule M-3 book income. As shown by Balkir et al. (2025, Table 4, Panel A line 3), for these large S-corporations book income is equal to 1.9 times net ordinary business income. For comparison, the ratio of total economic income for all S-corporations (estimated by the Bureau of Economic Analysis) to S-corporation net taxable income was 1.6 in 2019. This somewhat lower ratio can be explained by the fact that smaller S-corporations (where a high fraction of profits correspond to labor income) have less untaxed income than large, capital-intensive S-corporations that benefit from generous depreciation rules.[29]

Partnerships. We use the same methodology for partnerships. Our sample of partnerships matched to *Forbes* 400 owners includes about 12,000 partnerships (Balkir et al., 2025, Table 5, panel B). Because complex holding chains can make it difficult to trace the ownership of partnerships even with comprehensive administrative data (see, e.g., Cooper et al. 2016), our coverage is less comprehensive than for S-corporations.[30]

In our matched sample, the book/tax ratio of apportioned book income to apportioned

by the same taxpayers. The net amounts are by definition the same. There are two possible ways to adjust the gross amounts reported in Table 1 of Balkir et al. (2025): one can adjust profits and compute losses as a residual, or adjust losses and compute profits as a residual. Both methods give nearly identical results and we take the average of the two.

[27] Balkir et al. (2025), Table 5, Panel C, top half, col. 3 divided by col. 2. Using non-apportioned firm-level book/tax ratios (bottom half of panel C), which is what we did for private C-corporations for lack of comprehensive ownership share data, delivers similar results.

[28] Like for C-corporations, we add business property taxes paid, using the same 0.19% of wealth assumption.

[29] BEA estimates that total S-corporation economic income is \$719.7 billion in 2019 (line 11 of Table 4 of the BEA prototype S-corporation accounts available here). This is 1.56 times the total amount of S-corporation income reported in individual income tax returns that year, \$461 billion (see Piketty et al., 2024, for a detail reconciliation).

[30] As for S-corporations, the matching procedure for partnerships is based on Schedule K-1 forms. Coverage is good for profit-making partnerships: about 75% of profits reported in 1040s can be traced back to K-1s. For loss-making partnerships, our matched sample has -\$4.1 billion in total of ordinary business income accruing to top-400 partners (Balkir et al., 2025, Table 5, top half of Panel B, col. 1 time col. 4), while the top 0.0002% has reported negative partnership ordinary business income which is about twice as large. Hence, coverage is only about 50% for partnership losses.

ordinary income is equal to $m^{neg} = -1.1$ for loss-making partnerships and $m^{pos} = 2.4$ for profit-making partnerships.[31] This is in line with a body of evidence showing that taxable income is only a fraction of economic income for partnerships, especially at the top, due to rules governing fiscal amortization (e.g., for sports clubs), depreciation (e.g., in real estate and oil), and the full expensing of investment (with large impacts in capital-intensive sectors such as energy and pipeline transportation where partnership structures are common); see Piketty et al. (2024) for case studies. Indeed, it is notable that the top 0.0002% always reports negative net taxable partnership income during our period of study, with a worsening after the Tax Cuts and Jobs Act which introduced full expensing provisions.[32]

Income from investment funds. Finally, some private economic income is earned through investment funds (stakes in diversified equity portfolios held through pass-through businesses, typically partnerships). To estimate it, we start from the amount of diversified stock dividends d_{fund} received from passthroughs, estimated in Section B.1. To capture the underlying book income corresponding to such stock, we multiply these dividends by the ratio of pretax book income to dividends observed for top-owned public corporations, i.e., r^e/r^d from Appendix Table A2. Note that the resulting economic income is not double-counted with the apportioned passthrough income constructed in the previous step, because the book income of investment funds is ignored when constructing m^{pos} and m^{neg}.

Total private economic income. Our estimate of private economic income (col. 2 of Table A3) is equal to the apportioned book income of top-owned private C-corporations, partnerships, S-corporations, and investment funds. For pass-through businesses, apportioned book income captures all forms of payments to owners: not only ordinary business income, but also rental income, interest, estate and trust income, dividends, returns of capital, etc. Accordingly, in our estimation of private economic income, we disregard 1040-reported rental income, interest, and estate and trust income.[33] This amounts to conservatively assuming that all this 1040-reported income derives from pass-through businesses and is already captured in apportioned book income.[34]

Col. 4 of Table A3 shows the amount of individual taxable business income reported by matched *Forbes* 400 individuals.[35] This allows us to contrast taxable individual income with economic income by type of business. The ratio of taxable to economic income (col. 6, obtained as col. 4 divided by col. 2) is the lowest for top-400-owned private C-corporations, at 7%

[31] Balkir et al., 2025, Table 5, top half of Panel B, col. 3 divided by col. 2. Using non-apportioned firm-level book/tax ratios (bottom half of panel B) delivers larger m ratios in absolute terms. Our book/tax ratios exclude investment funds (partnerships with zero ordinary income but non-zero investment income hence non-zero book income) which are treated separately below.

[32] See Balkir et al. (2025, Table 1): total net partnership taxable income for the top 0.0002% was -$0.7 billion annually over 2010–13, -$1.0 billion over 2014–17, and -$7.3 billion over 2018–20.

[33] Capital gains are dealt with separately in Appendix C below.

[34] For all the computations in this paper we also ignore accumulated past business losses ("net operating losses" carried over from previous years).

[35] For C-corporations this is reported dividend income; for passthroughs this is the sum of reported S-corporation income, partnership income, interest income (including tax-exempt), rental income, estate and trust income, royalties, and d_{fund}.

(i.e., these firms distribute only 7% of their pretax book income in dividends). It is higher for passthroughs (15%) and listed corporations (19%), but overall low across the board. Ratios are particularly low for the top 100. Most business income escapes individual income taxation at the top.

Overall, the 2019 linked data show that 42% of private economic business income originates from C-corporations (subject to the corporate tax) and 58% from passthroughs (not subject to the corporate tax). We assume this split is constant over time.

B.3 Rates of Returns on Private Wealth

We can compute returns on private business wealth for our top groups by dividing private business economic income (derived from administrative data) by private wealth (from *Forbes*). Private business wealth is computed as total *Forbes* wealth minus public corporate equity wealth W^e from Appendix A. The results are reported in col. 3 of Appendix Table A3. The return on private business wealth appears similar to the return on public wealth.

We also provide a tentative breakdown of private business wealth by type of private business (C-corporation vs. pass-through). This breakdown—which requires assumptions, detailed below—does not play a role in our estimation of economic income, but allows us to further investigate the consistency between our administrative-data-based economic income estimates and the *Forbes* private wealth estimates.

To provide this breakdown, we rely on public information (collected in Saez and Zucman, 2022) on the organizational form of private businesses owned by the top 120 wealthiest Americans in 2016, reported in Appendix Table A4. For many of the largest private businesses, information about their filing status exists in the public domain (e.g., from public disclosures by the owners, court documents, and prospectus issued in the context of bond issuances); see Saez and Zucman (2022, Appendix Table A.2). To estimate the composition of the private wealth of the *Forbes* 400 we make three assumptions. First, private financial businesses (e.g., hedge funds, private equity funds) and private real-estate businesses are assumed to operate as passthrough entities (they are known to be typically organized as partnerships). Second, we assume that half of the private wealth that cannot be assigned to either C-corporations or passthroughs corresponds to C-corporations (which is roughly the breakdown observed for identifiable private business wealth). Last, we assume that the private wealth breakdown observed for the top 120 (which accounts for about 70% of the wealth of the top 400) is representative of the *Forbes* 400 as a whole. Overall, economic returns appear similar for private C-corporations vs. pass-throughs.

Comparison with macro returns. As an additional consistency check, Appendix Table A5 reports macroeconomic estimates of rates of returns by type of business. These returns are computed by dividing business profits (as recorded in the national accounts) by the corresponding business values (as recorded by the Federal Reserve in its Financial Accounts). Business income is divided by 2 for S-corporations and partnerships to account for the 50% labor component of pass-through business income, following Saez and Zucman (2020).

The main result is that our top-400 private business returns are lower than macroeconomic returns. This can be explained in several ways. First, there are differences in the valuation of

private businesses: *Forbes* discounts private business values by 10% to account for illiquidity, while the Federal Reserve discounts S-corporation equity values by 25%. If one uses the *Forbes* 10% valuation discount instead, then the macro S-corporation return becomes 6.0% in 2018–2020, erasing most of the gap with the top-400 pass-through return. A similar issue occurs for partnerships: the Federal Reserve uses a mixture of book and market values to estimate partnership wealth, which likely leads to substantially under-estimated partnership values in the Financial Accounts (hence returns that are too high).

Second, top-400-owned businesses may have particularly high valuation. This could explain part of the returns gap observed for C-corporations.

Third, *Forbes* estimates of private business values may be too high. Importantly, this would have no impact on our estimate of the *Forbes* 400 economic income and tax rates, because our measure of the top-400 economic income is based on administrative tax data. If *Forbes* private business wealth values were to be revised down, our return would go up, leaving economic income and hence our effective tax rates, unchanged.

Last, our estimates of private business economic income for the *Forbes* 400 may be too low (e.g., due to tax evasion, or other mis-measurement in administrative data leading us to under-estimate the actual economic income of our matched sample). In that case we would overestimate the true effective tax rate of the top 400.

C Realized Capital Gains

This Appendix discusses available evidence on the source of the realized capital gains made by the top 400. The results are summarized in Appendix Table A6.

Carried interest. Carried interest is a form of compensation of hedge funds and private equity funds managers. This compensation takes the form of a share of the gains generated by the managers on the funds they supervise and is realized when managers sell their "compensation". About 10% of the individuals in the top 400 are listed by *Forbes* as deriving their wealth explicitly from hedge funds or private equity funds, where the use of carried interest is prevalent. An additional 18% derives its wealth from other financial industries ("finance and investments," "leveraged buyout," "money management," etc.) where some compensation may take the form of carried interest too. This suggests that carried interest could be a significant source of realized capital gains at the top.

The recent work by Love (2024) attempts to estimate the size and distribution of carried interest. His preferred measure of tax-preferred carried interest is $74 billion on average annually over 2018–20 (Love 2024, Figure 8), of which 89% corresponds to long-term capital gains (p. 29). The top 0.01% of the fiscal income distribution is estimated to earn 33% of carried interest (Table A.2), or about $22 billion on average annually over 2018–20. The total amount of realized capital gains reported by the top 0.01% (ranked by fiscal income excluding capital gains) averaged $174 billion per year over the 2018–20 period. Carried interest accounts for 12% of that total. In the first column of Appendix Table A6 we use this fraction to estimate the amount of capital gains reported by the top 0.0002% corresponding to carried interest. This should be seen as a conservative assumption, as the share of carried interest may well rise within

the top 0.01%.

To provide a sense of the uncertainty involved, in the second and column we provide a low-end and high-end estimate (based on the low-end and high-end estimates of the total amount of carried interest in Love 2024, Figure 8).

Realized capital gains from sales of public stock. Using SEC forms 4, it is possible to track transactions in listed stock made by *Forbes* 400 insiders. Using these data, Boll (2025) estimates that Forbes billionaires made $20.8 billion in realized capital gains on SEC-reported sales of public stock on average over 2018–20. This corresponds to half of the total amount of tax-reported realized capital gains of the top 0.0002% in those years.

For these capital gains, we can compute the fraction that reflects past retained earnings and the fraction that reflects pure price effects. Specifically, we use Compustat data on the stock of retained earnings in listed firms in 2019 (variable *re*) and compute the share s^{re} of the value of top-400-owned public firms that reflects retained earnings:

$$s^{re} = \frac{\sum_i \sum_j \alpha_{ij} re_j}{\sum_i \sum_j \alpha_{ij} mv_j}$$

In 2019, 14% of the (ownership-share weighted) value of listed firms owned by *Forbes* 400 individuals reflects past retained earnings (with significant heterogeneity across firms, from 0% for Nike to 73% for Berkshire Hathaway). Therefore 14% of 50% of the realized capital gains of the top 400 must be excluded from economic income as they correspond to past economic income and including them would be double counting. These capital gains would indeed disappear if listed companies were taxed as passthrough entity (e.g., like listed partnerships).[36]

Other realized capital gains. These other realized capital gains include: (i) gains on the sales of private businesses, (ii) gains on the sales of diversified portfolios of public stock (not captured by the SEC), (iii) profits of passthrough businesses that are taxable as realized gains, (iv) trading gains (from buying and selling stocks and bonds).

A portion of (i) and (ii) reflect past retained earnings and a portion reflects pure asset price gains, in unknown proportions. Realized gains corresponding to profits made by passthrough businesses are conceptually included in our measure of passthrough book income and thus need to be discarded (e.g., a real estate business that benefits from generous depreciation allowances and has little ordinary taxable business income but large book income and part of the difference is in realized capital gains from real estate sales). Finally trading gains, even though they do not generate economic income for the economy as a whole (and thus are excluded from national income), are economic income for the people who make gains (i.e., on the right side of the trades) and thus should conceptually be included in our measure of economic income. However there is too limited data to provide a breakdown of residual gains into these various sources.

To illustrate the role of these other gains, in the first column of Appendix Table A6 we include 1/4 of these other gains in economic income, in the second column we fully remove

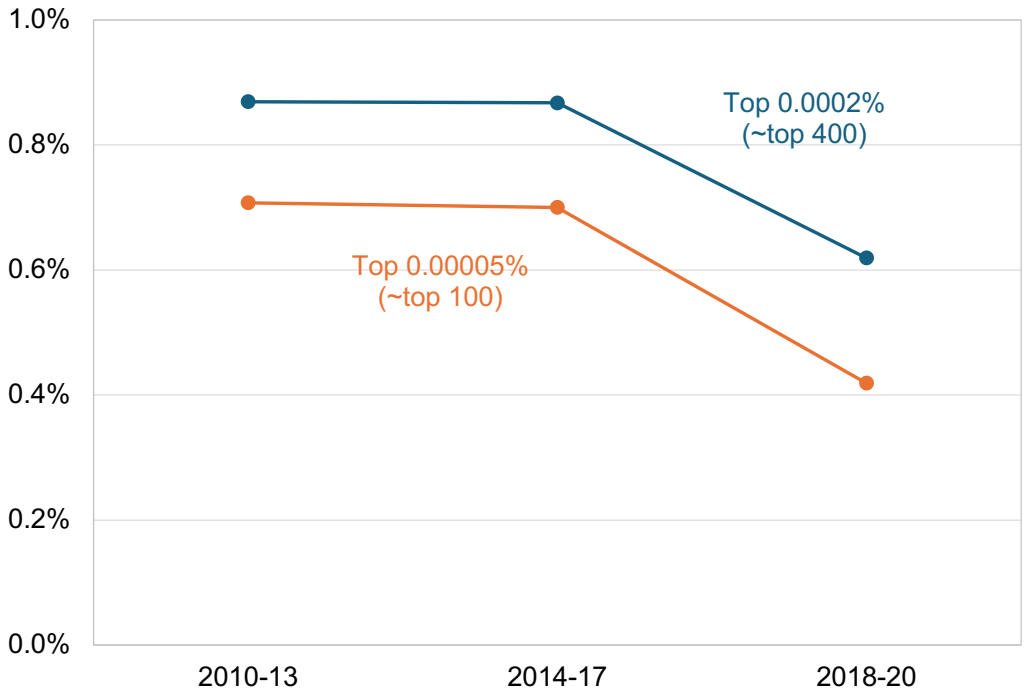
[36]In that case, any undistributed amount of profit made by the firm would add to the basis of the firm's owners annually; upon sales shares, taxable realized gains would be reduced by the cumulated increase in the basis. For people owning shares since the creation of the business (the typical case, on a dollar-weighted basis,

them, and in the third column we include 3/4 of these other gains. Combining this with the different scenarios on carried interest yields a share of includible capital gains ranging from 49% (low-end scenario) to 85% (high-end scenario). We use the low-end scenario (rounded to 50%) for our benchmark estimates. It should be stressed that this low-end scenario is by construction highly conservative, hence our benchmark measure of economic income for the top 0.0002% is conservative and our benchmark effective tax rates correspondingly conservatively high.

for the *Forbes* 400) the increase in basis caused by retained earnings is equal to *re*.

Appendix Figures and Tables

Figure A1: Individual income tax rates as % of wealth



Notes: This figure plots individual income taxes paid (federal plus state and local) as a fraction of wealth (estimated by *Forbes*). In 2018–20, the top 100 wealthiest Americans pay the equivalent of 0.4% of their wealth in individual income taxes annually.

Table A1: Public equity wealth, returns, and profits
(All amounts in $ billion)

	Panel A:* Forbes *400, mid-2019	**top 400**	**top 100**	**Top 400 - top 100**
[1]	Total wealth	2,905	1,842	1,063
[2]	Public wealth	1,258	973	285
[3]	Of which: listed partnerships	57.6	45.6	12.0
[4]	Of which: equity in public C-corporations	1,200	927	273
[5]	Share of public C-corporation equity in total wealth	41.3%	50.3%	25.7%
	Panel B: matched sample, 2018-2020 average	**top .0002%**	**top .00005%**	**Top .0002% - .00005%**
[6]	Total wealth	2,945	1,908	1,037
[7]	Equity in public C-corporations (= [5] x [6])	1,227	960	266
[8]	Rate of return on public C-corporations equity	4.7%	4.6%	5.0%
[9]	Profits from public C-corporations (= [7] x [8])	57.2	43.8	13.3
[10]	Effective corporate tax rate on public C-corporations	16.1%	16.1%	16.1%
[11]	Corporate tax paid	9.2	7.1	2.1

Notes: For the top panel, wealth data (lines 1 and 2) are taken from the *Forbes* Real Time Database as of August 21, 2019. For the bottom panel, wealth data (line 6) are taken from the 2018, 2019 and 2020 annual Forbes 400 rankings (which uses stock prices as of July or September), merged to administrative data. See text for complete details.

Table A2: Rates of returns and corporate tax rates on public equity wealth
(Public C-corporations owned by *Forbes* 400 individuals)

	2010-13	2014-17	2018-20	Memo: 2019
Panel A: Rates of return				
Top 400	8.9%	5.5%	4.5%	5.3%
Top 100	9.1%	5.4%	4.6%	5.4%
Next 300	7.8%	5.6%	4.4%	5.2%
Top 400, removing stakes in 5 most valuable firms	7.9%	5.3%	5.0%	6.1%
Top 400, removing stakes in 10 most valuable firms	7.6%	5.3%	4.7%	6.0%
Top 400, removing stakes in 50 most valuable firms	7.7%	4.5%	4.8%	6.5%
Panel B: Dividend yields				
Top 400	1.6%	1.3%	0.9%	0.9%
Top 100	1.6%	1.2%	0.8%	0.8%
Next 300	1.9%	1.5%	1.4%	1.4%
Panel C: Effective corporate tax rates				
Top 400, total tax provisions (*txt*)	27.8%	26.3%	16.1%	18.2%
Of which: federal	18.9%	17.4%	11.6%	16.7%
Of which: state and local	2.4%	2.1%	2.0%	2.0%
Of which: foreign	6.5%	6.8%	2.6%	-0.5%
Memo: All publicly listed corporations (*txt)*	26.3%	26.7%	18.9%	19.1%
Memo: US corporations (national accounts)	28.0%	26.4%	22.2%	20.8%

Notes: Returns are computed annually by dividing public corporations' annual pretax global profits (Compustat variable *pi*) gross of business property taxes paid (estimated as 1% of *ppent*) by market values as of the end of the 2nd quarter of each year. The sample includes all U.S. publicly-listed corporations owned by *Forbes* 400 individuals in 2019. Profits and market values are weighted by the ownership shares of the *Forbes* 400 fixed at their end of 2019 values. Publicly listed partnerships and firms whose shares are traded over-the-counter are excluded from all panels. REITs are included in Panel A and Panel B but excluded from Panel C (as they are not subject to the corporate tax). For the last row, the tax rate is the global effective tax rate of US nonfinancial C-corporations, computed as follows. Total tax payments equal US income taxes paid by US nonfinancial corporations, plus foreign income taxes paid by majority-owned affiliates abroad, minus US income taxes paid by majority-owned US affiliates of foreign multinationals. Profits are computed as corporate profits after capital consumption and inventory valuation adjustments of US nonfinancial corporations, multiplied by the share of C-corporations profits in total corporate profits (from the BEA prototype S-corporation accounts), plus profit-type return of majority-owned affiliates abroad, minus profit-type return of majority-owned US affiliates of foreign multinationals.

Table A3: Pre-tax returns on top-owned private businesses in 2018–20
(All amounts in $ billion)

	Wealth (mid-year)	Pretax book income	Pretax yield (= [2] / [1])	Taxable individual business income	Of which: Dividends	Ratio of taxable to book income (= [4] / [2])
	[1]	[2]	[3]	[4]	[5]	[6]
Panel A: top 0.0002%						
Listed C-corporations	1,227	57.2	4.7%	11.0	11.0	19%
Private businesses	1,718	85.6	5.0%	10.0	4.3	12%
of which: C-corporations	782	36.1	4.6%	2.6	2.6	7%
of which: passthrough businesses	935	49.5	5.3%	7.4	1.7	15%
Total	**2,945**	**142.8**	**4.8%**	**21.0**	**15.3**	**15%**
Panel B: top 0.00005%						
Listed C-corporations	960	43.8	4.6%	7.3	7.3	17%
Private businesses	947	39.7	4.2%	2.5	2.2	6%
of which: C-corporations	432	17.6	4.1%	1.2	1.2	7%
of which: passthrough businesses	516	22.1	4.3%	1.3	0.9	6%
Total	**1,908**	**83.5**	**4.4%**	**9.8**	**9.5**	**12%**
Panel C: top 0.0002% to 0.00005%						
Listed C-corporations	266	13.3	5.0%	3.8	3.8	28%
Private businesses	770	45.9	6.0%	7.5	2.1	16%
of which: C-corporations	351	18.5	5.3%	1.3	1.3	7%
of which: passthrough businesses	420	27.4	6.5%	6.2	0.8	22%
Total	**1,037**	**59.2**	**5.7%**	**11.3**	**5.9**	**19%**

Notes: Col. 1 reports wealth estimates from *Forbes*, "total" and "listed corporations" are taken from Appendix Table A1, "private business" is the residual, and the method to split private business wealth between C-corporations and passthroughs is described in the text of Appendix B. Col. 2 reports estimates of pretax book income; for listed corporations the numbers come from Appendix Table A1; for private businesses they are derived using 2019 administrative data (ratio of book income to dividends or book income to ordinary business income for top-400-owned private businesses, plus an allowance for business property taxes), see text of Appendix B. Col. 3 computes pretax returns as the ratio of col. 2 to col. 1. Col. 4 shows the amount of taxable individual business income reported by our matched sample in their individual income tax returns. For the lines listed and private C-corporations, this corresponds to reported dividends (col. 5). For private passthroughs, this corresponds to the sum of reported S-corporation income, partnership income, interest income (including tax-exempt), rental income, estate and trust income, royalties, and dividends from investment funds (estimated as 0.1% of *Forbes* private wealth).

Table A4: Composition of *Forbes* 400 wealth, 2016

	$ billion	Private wealth breakdown
Total net wealth of *Forbes* 400	2,400	
Wealth of the top 120	**1,621**	
Public wealth	**727**	
Of which: public C-corporations in SEC	663	
Of which: other public C-corporations	43	
Of which: listed partnerships	21	
Private wealth	**894**	**100%**
Of which: private C-corporations	224	45.5%
Of which: private finance	152	17.0%
Of which: private real estate	50	5.5%
Of which: other passthroughs	102	31.9%
Of which: unknown/diversified	368	

Notes: This table shows the composition of the wealth of the top 120 wealthiest Americans in the 2016 *Forbes* ranking using data from *Forbes* on the businesses owned by these individuals and public information (collected in Saez and Zucman, 2022) on the organizational form of the corresponding business. The private wealth breakdown in col. 2 is computed by assuming that half of the "unknown/diversified" wealth corresponds to stakes in private C-corporations and the other half to stakes in passthrough businesses. Private finance and real-estate businesses are generally passthroughs.

Table A5: Business wealth and returns: macroeconomic estimates
(All amounts in billion $)

	2010-13	2014-17	2018-20
Panel A: Business wealth	**20,261**	**30,628**	**39,674**
C-corporations	16,060	23,670	30,282
S-corporations	1,827	3,220	4,556
Partnerships	2,374	3,738	4,837
Panel B: Pre-Tax Profits	**2,176**	**2,450**	**2,818**
C-corporations	1,657	1,790	1,976
S-corporations	232	321	378
Partnerships	287	338	464
Panel C: Returns	**10.7%**	**8.0%**	**7.1%**
C-corporations	10.3%	7.6%	6.5%
S-corporations	12.7%	10.0%	8.3%
Partnerships	12.1%	9.1%	9.6%
Memo: top 0.00002% benchmark	**9.9%**	**6.5%**	**5.6%**

Notes: Wealth and profits are taken from the Distributional National Accounts of Piketty, Saez and Zucman (2018, updated). In Panel A, wealth is computed at the arithmetic average of mid-year wealth values (in nominal $ billions), taken from the Federal Reserve Financial Accounts. In Panel B profits are the arithmetic averages of annual pretax profits (gross of property taxes paid). We take 50% of S-corporation income as estimated in the national accounts to account for the 50% labor component of S-corporation income (see Saez and Zucman, 2020). Similarly, partnership profits only include the estimated capital component of partnership income (estimated to be 56% of partnership income in 2018–20, see Saez and Zucman, 2020). In Panel C, returns are computed by dividing Panel B profits by Panel A wealth. Because the Federal Reserve estimates partnership values using a mixture of book and market values, partnership business wealth in Panel A is likely to be too low and hence partnership returns likely too high. The return reported for the top 0.0002% ($\sim$top 400) in the bottom row corresponds to their total economic income as estimated in Table 1, which includes a very small labor component.

Table A6: Source of realized capital gains for the top 0.0002% in 2018-20
(All amounts in billion $)

	Medium	Lower bound (our benchmark)	Upper bound
Total realized capital gains	**42.2**	**42.2**	**42.2**
Carried interest	5.3	2.8	8.1
Sales of listed stock	20.8	20.8	20.8
Gains arising from past retained earnings	2.9	2.9	2.9
Pure capital gains	17.8	17.8	17.8
Other	16.2	18.7	13.3
Fraction of realized capital gains includible in economic income	**64%**	**49%**	**85%**

Notes: In the central scenario, carried interest is computed using the preferred estimate of Love (2024, Figure 8), and 1/4 of other capital gains are deemed includible in economic income. In the low-end scenario, carried interest is computed using the narrow measure of Love (2024, Figure 8), and other capital gains are fully excluded. In the high-end scenario, carried interest is estimated using the high-end measure of Love (2024, Figure 8), and 3/4 of other capital gains are deemed includible in economic income. In our benchmark estimates, we include 50% of realized capital gains in the economic income of billionaires, which is a conservative assumption corresponding (almost) to the lower bound column of 49% in this table.