Taxing California Billionaires[1]

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Abstract

This paper documents the explosive growth of the wealth of California billionaires and the taxes they pay. California billionaires' wealth is over $2 trillion today. It has grown 143% over the last three years 2023-2025, fueled by the AI boom. Over the longer-run from 1982 to 2025, the wealth of the CA billionaire class (top .0002% richest Californians, the top 45 today) has grown 7.2 percentage points faster per year than the California economy. Top .0002% average real wealth was multiplied by 36 from 1982 to 2025 while average family income in California about doubled. In recent years, California billionaires pay only about .2% of their wealth in California income tax and about 1.1% of wealth when including all taxes at all levels of government. Using Securities and Exchange Commission data from Oracle, Alphabet (Google), Meta (Facebook), and Nvidia since 2004, we estimate the trajectory of wealth, income, and taxes paid for the top 5 California billionaires (Ellison, Page, Brin, Zuckerberg, Huang) on their business wealth, which totals over $1 trillion, almost half of the total California billionaire wealth. Explosive wealth and low taxes are even more extreme for this group. The California billionaire tax of 5%, payable over 5 years, is both very small relative to California billionaires' wealth gains and yet large relative to the taxes they currently pay. Using empirical estimates on mobility responses to wealth taxation, a permanent wealth tax on California billionaires can raise substantial additional revenue.

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Key points:

1. California billionaires' wealth has exploded growing 143% in the last 3 years (2023-5) and is over $2 trillion by the end of 2025, more than half of California annual GDP in 2025.
2. Since 1982 and controlling for price inflation, the wealth of California's billionaire class (top .0002% richest families) has grown at 8.7% per year on average while average family income in California has grown only at 1.5% per year. Hence, while Californians income have doubled on average since 1982, billionaire class wealth has been multiplied by 36.
3. In recent years 2019-2025, California billionaires pay only about .2% of their wealth in California individual income tax or about $3 billion total per year which is 2.5% of all California income tax revenue or 1% of total local and state California taxes.
4. The top 5 richest (Page, Brin, Ellison, Zuckerberg, Huang) who now account for almost half to total California billionaire wealth pay even less in California income tax: $.6 billion or only .1% of their wealth each year (average over 2019-2025).
5. Including all taxes at all levels of government, billionaires pay about 1.1% of wealth in taxes each year (2023-2025) which is very small relative to their average annual wealth gains.
6. A 5% one-time wealth tax on California billionaires can raise $100 billion which is large relative to taxes billionaires pay yet small relative to their enormous wealth gains.
7. A permanent wealth tax on California billionaires can raise substantial revenue even taking into account mobility responses estimated from economic studies of regional wealth taxes.

1 California Billionaires Wealth Growth

Short-run wealth explosion

The Forbes real-time billionaire list provides daily data on the wealth of all California billionaires identified by Forbes since 2019. We include both US and non-US citizens California residents (according to Forbes) in our estimates. There are 240 CA billionaires with total wealth of $2,297 billion at the end of 2025.

Table 1 Panel A provides basic statistics on California billionaires in recent years. Figure 1 plots the trajectory of California's billionaires total wealth (in nominal current dollars) at the end of years 2019 to 2025, the longest time series we have for all California billionaires. It also plots the wealth trajectory of the top 5 (Larry Ellison, Larry Page, Sergei Brin, Mark Zuckerberg, and Jensen Huang).[2] The reason for considering this top 5 group specifically is because, although they are only 5 out of 240 CA billionaires identified by Forbes (at the end of 2025), they account for about half of the total CA billionaire wealth (as of the end of 2025). Furthermore, because their wealth is over 90% (96% at the end of 2025 to be precise) from the publicly traded corporations they founded and/or still run (Oracle, Alphabet, Meta, and Nvidia), the Securities and Exchange Commission public disclosures allow us to estimate fairly precisely their wealth, their income, and the taxes they pay on their company wealth. Their example illustrates very well the explosive wealth trajectory and the comparably low taxes they pay. The top 5 are also a big part of the public debate on the California billionaire tax.

[2] Larry Ellison was listed by Forbes as a California resident up to 2019, and again in 2023, 2024, 2025 (end of year). He was listed as a Hawaii resident in 2020, 2021, 2022. After mid-January 2026, Forbes lists Ellison as a Florida resident. For consistency of the series, we always include Larry Ellison in our statistics. Whether he is a California resident for income tax purposes is not public information and Forbes provides its best educated estimation using many different sources (Rauh et al. 2026 choose to exclude Larry Ellison from their estimates).

Figure 1 shows that California billionaire exploded over the last 3 years 2023-2025 growing from $945 billion at the end of 2022 to $2,297 billion at the end of 2025. This is a growth of 142% in just three years. Growth was 30% in 2025, 36.5% in 2024 and 36.5% in 2023 (Table 1, Panel A). By the end of 2025, California billionaire wealth is 54% of the California GDP for 2025, up from 26% in 2022. This means that the 240 California billionaires could buy more than half of what California's economy has produced during year 2025. It is a useful measure of the weight of billionaires relative to the size of the entire economy.

Figure 1 shows that this explosive wealth trajectory is even more extreme for the top 5 whose wealth grows from $312 billion to $1127 billion, a 261% increase, over the same three years (Table 1, Panel A). The top 5 now account for 49% of total CA billionaire wealth and for 60.5% of total CA billionaire wealth growth over the last three years 2023-2025. The explosive growth in recent years is tied to the boom in Artificial Intelligence that drove up the stock prices of the large tech companies owned by the top 5 all of which are heavily involved in the AI boom: Alphabet (gemini AI), Oracle (AI superclusters and databases), Nvidia (chips manufacturing), and Meta (Meta AI and infrastructure).

Longer-run wealth surge

This short-run explosion is the extension of a much deeper and longer phenomenon of billionaires wealth growth. We use the Forbes 400 richest Americans list compiled annually by Forbes magazine since 1982 to document the long-run surge of the wealth of the "billionaire class" US wide and in California in particular. Over such a long-run period from 1982 to 2025, it is important to control for population growth, roughly doubling over this period, and for price inflation, roughly tripling over this period, and economic growth (real incomes per family roughly doubling). To control for population growth, the simplest is to define the "billionaire class" as a fixed fraction of all US or California families, namely the top .0002% richest families.[3] This is about the richest 400 families today US wide and the richest 45 richest families in California. This is the largest group we can capture with the Forbes 400 data that goes back to 1982.

To control for both price inflation and real economic growth, we compare the "billionaire class" wealth to the size of the economy, US annual GDP or the California annual GDP, i.e. the full value of everything produced in the US or California in a year. While wealth is a stock while GDP is a flow, this is the simplest way to measure the weight of the "billionaire class" relative to the size of the economy. Table 1, Panel B reports basic statistics on long-run growth of billionaire class wealth and compares it with the growth of California GDP per family.

Figure 2 illustrates the time series. Panel A depicts the trajectory of top .0002% wealth (top 45 families in California today) in 2025 $ billions vs. the trajectory of California GDP per family (the average economic product of families in California) in 2025 $100,000s. Both series therefore control for price inflation. California GDP per family has doubled (in real terms controlling for price inflation) from about $100,000 in 1982 to $200,000 in 2025. Top .0002% wealth has grown by a factor 36 from slightly less than $1 billion in 1982 to almost $35 billion in 2025 (see Table 2, Panel B for exact values). As a result, California GDP per family looks like a flat time relative to the extraordinary growth of the billionaire class.

Figure 2 Panel B depicts the wealth of the "billionaire" class (the top .0002% families) in the US and in California relative to the size of the economy (US annual GDP and California annual GDP) from 1982 to 2025. It shows an extraordinary and long-run rise of the weight of the top

[3] A family is formally defined as a tax unit, a married couple with its dependent children if any or a single adult with its dependent children if any and also counting families who do not file income tax returns. In 2025, there are 193 million families US wide and 22.3 million families in California.

.0002% billionaire class in the economy. The top .0002% wealth was about 2% of GDP (both in the US and in California) in the early 1980s. By 2025, it is 21% in the US, a ten-fold increase and 36% in the California, an 18-fold increase. While there are peaks due to the stock-market cycle, notably to 2000 dot-com bubble (particularly in California), the 2007 peak just before the Great Recession, the post-COVID rally in 2021, and the AI boom in recent years (particularly strong in California), the underlying trend is strongly upward and hence not tied to the boom and bust of the stock-market or the tech sector.

Another way to read this evidence is to compute the long-run annual growth rates of billionaire class wealth vs. average incomes economy wide as done in Table 1, Panel B. From 1982 to 2025 and controlling for price inflation, the average real wealth of families in the top .0002% increased each year on average by 8.7% in California (6.6% US wide). In contrast, average income per family increased only by 1.5% in California (1.3% US wide). Therefore, California billionaire class wealth has grown 7.2 percentage points faster per year than average family incomes in California (5.3 percentage points US wide). Such large annual differential growth rates cumulated over more than 40 years imply really dramatic differences. While average family incomes less than doubled in real terms from 1982 to 2025 (76% increase US wide and 86% increase in California), average real wealth of the top .0002% was multiplied by 15.6 US wide and by 36.4 in California.[4]

2 Taxes paid by California Billionaires

California Income Taxes. We start with the California income taxes paid by billionaires because this is the key tax directly lost to California if billionaires decide to leave the state. The California corporate tax that businesses pay on their profits is not directly affected by the location of billionaire-owners because it is based on sales to customers in California. For example, if Tesla sells 20% of its US sold cars in California, Tesla pays California corporate income tax on 20% of its US profits, regardless of whether Elon Musk lives in California or Texas. The property taxes paid within California by businesses owned by billionaires (e.g., a data center building in California) or by real estate property owned by billionaires (a mansion in Bel Air) are not affected either by the residence of billionaires. The sales and excise taxes that billionaires pay in California are estimated to be negligible—relative to the California income tax (see below).

Figure 3 depicts the estimated annual California individual income tax paid by all California billionaires and the top 5 (in nominal $billions) each year from 2019 to 2025. The corresponding statistics are reported in Table 2. Table 3 reports statistics for each of the top 5. Appendix Figure A1 displays the same number as percent of California wide state individual income tax revenue.

For all California billionaires, this is estimated using Franchise Tax Board (the California tax administration) tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners: (the income of top wealth holders is only 50% of the income of top income earners based on Balkir et al. (2025), see appendix for details).[5] For the top 5, the tax is estimated using SEC disclosures on stock sales, exercised stock-options, dividends received, and charitable donation of stock of the main public companies they own which accounts for 96% of their wealth in 2025 (see appendix for details).

[4] Those numbers are directly tied to the billionaire class wealth relative to GDP.

[5] Rauh et al. (2026) find higher California income taxes paid by billionaires because they assume (in their central scenario) that top wealth holders have incomes that are 78.4% of top income earners, a value higher than the 50% based on US wide direct evidence from Balkir et al. (2025) or Survey of Consumer Finance data analyzed in Saez and Zucman 2019b, p. 466).

The California income tax paid by billionaires ranges from about $2 billion to $4 billion per year in recent years with an average of $2.8 billion per year during 2019-2025. This represents 2.5% of all California individual income tax revenue (see appendix Figure A1), and about 1% of California state and local tax revenue from all sources (adding sales and excise, property taxes, corporate and income taxes from all levels of governments within California). While (income) millionaires pay a significant fraction of California individual income taxes, billionaires are few--about 200 in recent years--and they manage to keep their realized incomes low in comparison to the enormous wealth gains they have experienced. The California individual income tax paid by billionaires amounts to slightly less than .2% of their wealth per year in the last 3 years 2023-2025 (Table 2). The average across years 2019-2025 is .22% of wealth.

The top 5, which accounts for half of total CA billionaire wealth, pays on average only $.56 billion in California income tax per year (in the period 2019-2025), or only 20% of the total CA billionaires pay (Figure 3 and Table 2). This implies that the top 5 (the centi-billionaires with wealth above $100B as of 2025) are even more successful to avoid the California income tax. The SEC disclosures and Compustat data we have used to make those computations can cast light on this issue. If the centi-billionaires leave the state of California, it's only a modest loss of income tax revenue for the state but it is of course a large loss for the California billionaire tax (if they manage to leave before January 1st, 2026) or any future wealth tax California may enact.

The $560 million paid annually by the top 5 (average across years 2019-2025) splits $293m (Ellison as Oracle pays substantial dividends), $95m (Zuckerberg), $76m (Page), $52m (Brin), $45m (Huang). Since the beginning of 2019 to the end of 2025, the wealth of the top 5 has been multiplied by 5. Of these enormous gains, the California income tax they have paid over the 7 years has taken very small bites of 1.18% of gains for Ellison, 0.37% for Zuckerberg, 0.26% for Page, 0.20% from Brin, and 0.20% for Huang. In contrast to a direct wealth tax, the very progressive California income tax is unable to reach their wealth gains for four main reasons with all numbers reported in Table 3.

First, their companies pay low dividends relative to the corporate net profits they make. As a result, only 10% of their after-tax corporate profits are passed on to the top 5 owners as dividends (average over years 2019-2025). Second, they realize modest capital gains relative to the enormous wealth gains they are making. The top 5 collectively realized $11.8 billion over the period 2019-2025 when their wealth increased by $898 billion, i.e. they realized as taxable capital gains of only 1.3% of their gains. Third, their executive compensation, mostly in the form of stock-options, is also modest relative for a grand total of $6.7 billion over the period 2019-2025. Fourth and finally, they give appreciated stock to their foundations or donor advised funds (a total of $17.4 billion over 2019-2025). This allows them to reduce their taxable fiscal income. This is probably the main form of use of funds outside business activity for the top 5, and it benefits from a double deduction: the gains in the appreciated stock given are not part of taxable capital gains but the donations can still be deducted from taxable income (up to a limit of 30% of income that is actually often binding for the top 5, with large carry-overs to future years).

On net, over 2019-2025, the top 5 pay $.56 billion in California income taxes per year which is 2.2% of their full economic income and .11% of their wealth. The full economic income is defined as their individual income plus their share of corporate profits that are not distributed as dividends.

All Taxes paid by Billionaires. While the California individual income taxes billionaires pay are fairly modest, they are only one tax among many other taxes the billionaires pay. The main ones being the federal individual income tax and the corporate taxes (Federal, State, and foreign) on the profits of the businesses they own. Balkir et al. (2025) match tax data and Forbes 400 data to estimate all the taxes that the US billionaire class (top .0002%) are paying. Their main conclusion is that, combining all taxes at all levels of governments, the total annual taxes paid by the US billionaire class in 2018-2020 amount to 1.3% of their wealth or 24% of their total economic

income (which includes not only distributed income but also undistributed corporate profits). This 24% tax rate on economic income is lower than the overall US wide tax rate on economic income which is 30%. This implies that billionaires on average pay less taxes relative to income than the average across all American families.

The main reason is that the effective tax rate on corporate profits, the main source of billionaires' economic income, is relatively low thanks to a much lower Federal statutory corporate tax rate of 21% since 2018 (down from 35%) and generous expensing deductions which reduce taxable profits relative to full economic profits. California billionaires are likely to pay only modestly slightly higher tax rates than US billionaires because the California individual income tax is larger than in other states.

Figure 4 depicts the estimated total annual taxes paid by all California billionaires and the composition by tax type from 2019 to 2025 relative to end of year wealth. Federal and California individual income taxes are estimated using Franchise Tax Board tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners. Corporate and property taxes are estimated with Compustat for all publicly traded corporations owned by California billionaires. Corporate taxes include federal, state, and foreign corporate taxes. We impute corporate taxes for privately held C-corporations, property taxes and sales taxes following the method of Balkir et al. (2025). In the last 3 years 2023-2025, California billionaires' total annual taxes amount to about 1.1% of their wealth (down from 1.5-1.6% in 2019-2022). The largest tax is the corporate tax. The individual income taxes are small relative to wealth because billionaires realize only a fraction of their full economic income, let alone their wealth gains. This illustrates why increasing income tax rates would be succeed in increasing substantially the tax contributions of billionaires.

All Taxes paid by the Top 5. We can also estimate all the income and taxes paid by the top 5 California billionaires on their business wealth using public sources from SEC disclosures and Compustat corporate filings which helps understand why billionaires' taxes are fairly low relative to full economic income and even more so relative to wealth or wealth gains. This allows us to obtain much more precise and detailed estimates that illuminates the key mechanisms of low taxes for billionaires.

Table 4 provides detailed numbers of wealth, income earned, and taxes paid for the top 5 richest Californians (Brin, Page, Ellison, Zuckerberg, and Huang) on their company stakes (Alphabet, Oracle, Meta, Nvidia) over the 2019-2025 period. The bulk of their economic income comes from the corporate profits as only 10% of after corporate tax corporate profits are distributed as dividends. As a result, the most important tax they pay is the corporate tax (federal, state, and foreign) on those profits, equal to 16.5% of the profits. Overall, the top 5 pay total taxes equal to 22.1% of their economic income. This is almost identical to the 22.0% tax rate that Balkir et al. (2025) find for the top .00005% (the top 100 US wide). The California individual income tax (large relative to other states) accounts for 2.2 points of the 22.1% total tax rate for the top 5, i.e. just one tenth of total taxes paid. Relative to wealth gains from 2019 to 2025, the total taxes paid are only 4.5% showing that the economic income of the top 5 captures only a fraction of their gains. Indeed, the explosion in their wealth is driven by expectations of even higher future profits from their companies than the current profits they make. Finally, relative to wealth, annual total taxes are about 1.1% of wealth, of which the California income tax is .11 percentage points.

Table 4 also shows that the amount of shares pledged as collateral for borrowing is relatively modest (only Ellison does it regularly and Zuckerberg did it one year) at $13 billion over the period 2019-2025. This implies that adding borrowing to the income tax base would increase income tax payments by about 1/3 but because the income tax is so small relative to wealth, it would have a minor impact on the overall tax rate. Hence, it cannot be a substitute for a direct wealth tax.

Figure 5 illustrates the statistics from Table 4 on income and taxes of the top 5 richest Californians in the period 2019-2025 on their company wealth (which is 96% of their total wealth at the end of 2025). All amounts are in nominal $ billions. The top panel depicts individual income reported on individual tax returns (first bar), economic income that adds undistributed corporate profits to individual income (second bar), and wealth gain from the beginning of 2019 to the end of 2025 (third bar). The bottom panel depicts taxes (in red) paid on each of these income types and displays the tax rate. For individual income, taxes include California and federal individual income taxes. For economic income and wealth gains, taxes include all taxes at all levels of government. The figure shows that individual taxes are significant (35.3%) relative to individual fiscal income, but individual fiscal income is dwarfed by economic income which is itself dwarfed by wealth gains (due to stock price appreciation). Therefore, total taxes relative to economic income are fairly low (22.1%) and total taxes relative to wealth gains are very low (4.5%).

This shows that the California billionaire tax, set at 1% per year for 5 years, is almost as large as the total taxes they pay and literally one order of magnitude larger than the CA income tax they pay. Yet, the wealth tax is also small relative to the enormous wealth gains they have made as the wealth of the top 5 more than tripled (260% increase) just in the last 3 years 2023-2025 (see Figure 1).

Looking at the longer time series, Figure 6 depicts the estimated taxes paid by the top 5 each year from 2004 to 2025 relative to their wealth (top panel) and relative to their full economic income (bottom panel). Both panels contain a series of California individual income taxes paid by the top 5, which is the tax that is directly lost to the state if the billionaire leaves the state. In the bottom panel, we also add a series of the average effective tax rate for the US population as a whole. To make this computation, we add all taxes paid by US residents and divide by their total economic income using the updated Distributional National Accounts series for the US (for a detailed discussion, see Saez and Zucman, 2023).

The top panel shows that total annual taxes paid, as a fraction of wealth, have been halved from 2.3% before 2017 to 1.2% after on average. Taxes relative to wealth were higher in earlier years because executive compensation in the form of stock-options were much larger and this is an income component that is taxed substantially just like other labor income. The higher values for 2012-3 are due almost entirely to the enormous stock-option exercise profits by Mark Zuckerberg (of $5.6 billion over these two years). The California individual income tax as a fraction of wealth drops even more dramatically from .34% before 2017 to .13% after. This is explained primarily by wealth increasing faster than income as the bottom panel shows more stability of taxes paid relative to economic income which fall much more moderately from 26.0% of income before 2017 to 21.4% after.

In all years, 2004-2025, the top 5 pay lower taxes relative to their economic income than the US population as a whole. For years 2019-2025, the average macroeconomic effective tax rate equals 31.4%, while it stands at 22.1% for the top 5. This shows that the existing taxes, based mostly on income (source income for the corporate tax and the portion of income distributed/realized for the individual income tax), are not successful at taxing the enormous wealth gains of the top 5.

3 The Economics of Taxing California Billionaires' Wealth

In this section, we discuss the economics of billionaires' wealth taxation. We start with the analysis of a one-time wealth tax, as proposed in the California Billionaire Tax ballot initiative, and then turn to the analysis of a permanent wealth tax.

3.1 One-time wealth tax

The California billionaire tax ballot initiative for the November 2026 elections in California proposes a 5% one-time wealth tax on billionaires payable over 5 years. The tax applies to California residents as of January 1st, 2026 whose worldwide net worth as of December 31st 2026 is above $1 billion (excluding real estate directly held which typically already pays property taxes and most pension assets). The 5% tax applies to the entire net taxable worth.[6] This tax has already gathered substantial press and public attention. Galle et al. (2026a) provide economic and scoring analysis, Galle, Gamage, and Shanske (2026) respond to constitutional concerns, Galle et al. (2026b) dispel a misunderstanding about controlling shares, Galle et al. (2026c) respond to the scoring analysis in Rauh et al. (2026).

Based on our analysis in Section 2, a tax of 1% per year for 5 years, is almost as large as the total annual taxes the billionaires currently pay and five times larger than the California income tax they pay each year (Table 2). Yet, the wealth tax is also small relative to the enormous wealth gains of 143% they have made just in the last 3 years 2023-2025 (Table 1 and Figure 1 in Section 1).

A one-time tax could generate a strong behavioral response if announced well in advance giving time for potential taxpayers to leave the State of California. The closest evidence we have is from Moretti and Wilson (2023) who find that state level estate taxes reduces by 35% the number of billionaires from the Forbes 400 who die in the state. A state level estate tax can be seen as a one-time wealth tax at the time of death at a rate of 8.25% on average for billionaires (per Moretti and Wilson (2023) estimation). Hence, extrapolating from this estimate, a 5% one-time wealth tax announced well in advance could reduce the tax base by (5/8.25)*35=21% through mobility responses with two important caveats. First, older and retired billionaires are likely to be more mobile as they are no longer tied to their workplace.[7] Second and most important, the estate tax is known far in advance giving time for billionaires to adjust their mobility decisions.

Precisely to prevent such behavioral responses, the one-time wealth tax in the ballot initiative is based on residency as of January 1st, 2026, only about one month after the final text of the ballot was published on November 26, 2025. As a result, it is difficult if not impossible for billionaires to leave the state, i.e., meet of the stringent rules that the California tax administration uses to determine that a taxpayer has effectively left the state.

There have been many press reports on billionaires signaling they are leaving (most prominently Larry Page and Sergei Brin who are in the top 5 and account for almost 25% of total California billionaire wealth). Because the tax applies to any resident as of January 1, 2026, any efforts to move after January 1 of 2026 would not save the billionaire from paying the tax. Efforts that began before January 1 would have to include uprooting most of the individual's personal and business ties to California, not just the reincorporation or relocation of a few business assets or the purchase of real estate out of state. Successfully changing residence would have been quite difficult in the few weeks between when the California billionaire tax began garnering public attention after the initiative was formally filed on November 26, 2025 and the end of the year. Indeed, attorneys who usually represent wealthy taxpayers and actually practice in this area of law are skeptical that any billionaires have successfully changed their California residency (see

[6] To smooth out the notch, the tax rate ramps up linearly from 0% for a taxpayer with exactly $1 billion in taxable net worth to 5% for a taxpayer with $1.1 billion or more in net worth. E.g., a taxpayer with $1.02 billion in taxable wealth pays a tax rate of 1% on the entire $1.02 billion. As there are extremely few taxpayers in the range $1 billion to $1.1 billion (according to Forbes), we ignore this ramp-up and consider the tax to be a tax of 5% on billionaires' wealth.

[7] Consistent with this, Moretti and Wilson (2023) find smaller responses among younger billionaires.

Manes 2026). Therefore, only billionaires who had already started the process of leaving California well before could possibly complete the process in such a tight time frame.

Press reports argue that billionaires are planning to leave for fear of future wealth taxes in California even if they cannot escape the proposed one-time tax. It is undoubtedly true that if the ballot initiative succeeds and California is able to successfully implement a first-of-its-kind billionaire tax, it will likely increase the likelihood of similar initiatives in other states, and the federal level, and in the future in California as well.

California billionaires leaving would have a modest impact on income tax revenue collections. We estimated that California billionaires pay about .2% of their wealth in California income taxes. Therefore, even if some billionaires leave after January 1st, the loss in income tax revenue would be very small relative to the 5% one-time wealth tax. For example, even if one-fourth of all billionaires left, it would take 100 years for the income tax loss to match the revenue from the wealth tax. In the extreme case where all billionaires left, it would take 25 years for the income tax loss to match the revenue from the tax.

Furthermore and most important, a permanent response to a one-time tax does not make economic sense.[8] Symmetrically, it would not make sense to assume that we could repeatedly impose one-time wealth taxes always surprising taxpayers. If we instead use standard rational expectations where behavioral responses are tied to expectations with quick corrections if these expectations are not met, the mobility responses of billionaires should be tied to future expected wealth taxes. If no future wealth taxes happen, the mobility response will fade away, either with leavers returning to California or simply with the California economy creating new billionaire fortunes as older fortunes fade away through normal churning.

3.2 Permanent Billionaire Wealth Tax

Mobility responses only.

As we just discussed, permanent mobility responses to a one-time wealth tax can be justified only if taxpayers expect new wealth taxes in the future. The simplest way to study this is to analyze the economics of a permanent billionaire wealth tax where billionaires can decide to move out of state to avoid the California billionaire tax.

Economists capture mobility responses to a wealth tax using the concept of a semi-elasticity e. With a semi-elasticity of e, a permanent one percentage point additional wealth tax reduces the billionaire tax base by e% through mobility responses. In principle, e could also incorporate other forms of behavioral responses such as undervaluing wealth through tax avoidance or tax evasion, or giving away wealth to others or charitable causes. In the analysis below, we focus on mobility responses as they are the main one discussed in the public debate but the same formal analysis carries over if e also includes other forms of behavioral responses. Such behavioral responses typically arise when there are loopholes making it relatively easy for taxpayers to escape the tax. In the public debate about the California wealth tax, there is consensus that the text of the initiative is written aggressively to minimize tax avoidance and evasion opportunities.

Two countries Spain and Switzerland have sub-national wealth taxes where the parameter e due to mobility responses has been estimated. In Spain, Agrawal, Foremny, and Martínez-Toledano (2026) use the fact that all Spanish regions except the Madrid region introduced regional wealth taxes. They see an increase of 7.5% of wealthy taxpayers in the Madrid region

[8] This is the main flaw in the scoring analysis of Rauh et al. (2026). They assume the wealth tax revenue is one-time but they assume permanent mobility responses as if taxpayers were expecting a recurring 5% per year wealth tax. As a result, the income tax loss is magnified by a factor 67 (using their discount rate 1.5%) and this drives their negative scoring.

relative to others, translating into a semi-elasticity e in the range 8 to 10. Two important differences are worth noting. First, the Spanish wealth tax applies to millionaires (and not solely billionaires) so this population is not directly comparable with US billionaires. Second, in Spain, taxpayers sometimes use second homes to claim falsely residency outside of their true residency with limited policing from tax authorities. In contrast, California has very strong enforcement of residency.

In Switzerland, Brulhart et al. (2022) estimate a semi-elasticity of around 10 due to mobility responses across cantons due to wealth tax differentials, comparable in magnitude with the Spanish study.[9] Switzerland is much smaller than Spain, let alone the United States, making mobility across Swiss cantons comparatively easier. Again, the responses are estimated for millionaires rather than billionaires.

With a semi-elasticity e, the wealth tax rate τ that maximizes tax revenue while taking into account mobility responses is $\tau=1/e$.

The formal logic is the following. Let us denote $T=\tau Z$ tax revenue with τ the tax rate and Z the billionaire wealth tax base. Then when increasing τ slightly by $d\tau$, we get $dT=d\tau\, Z + \tau\, dZ = d\tau\, Z - \tau\, e\, Z\, dt = d\tau\, Z\, [1-\tau e]$. So more revenue is raised by increasing τ up to point where τ reaches 1/e and the term in square brackets becomes negative.
With the assumption e=10 (which is also the assumption in Rauh et al. (2026) calibrated based on Swiss study), a permanent wealth tax raises revenue until it reaches the extraordinarily high level of τ =1/e=10% per year. Because there is a pre-existing California income tax on billionaires that amounts to τ_0=.2% of wealth per year (see Table 2 above), the additional permanent annual wealth tax that can be added is τ=10%-.2%=9.8% before migration responses start reducing total tax revenue from California income and wealth taxes on billionaires.[10]

Figure 7 depicts the revenue collected from billionaires from a permanent annual wealth tax as a function of the tax rate (on the x-axis) in the solid red line. This tax revenue estimate takes into account income and wealth tax revenue lost because of mobility responses calibrated using the empirical literature with a semi-elasticity of the tax base with respect to the wealth tax rate of e=10 (same semi-elasticity calibration as in Rauh et al. 2026). For comparison, the dashed line plots the tax revenue ignoring the mobility response. The current California income tax is about .2% of wealth for billionaires. The graph shows that adding a permanent wealth tax can raise substantial revenue even with mobility responses. Furthermore, up to moderate wealth tax rates of 1% per year, the revenue lost due to behavioral responses is modest (of less than 10%).

Given the low pre-existing income tax relative to wealth of τ_0=.2% for California billionaires that we documented above, adding an additional small wealth tax is revenue raising as long as the semi-elasticity is below the extraordinary high level of e=500 which is at least one order of magnitude larger than any semi-elasticity estimated in empirical work. Indeed, if e=500, then exempting California billionaires from California income tax entirely, would increase the number

[9] Brulhart et al. (2022) find that a 1 percentage point wealth tax differential translated into a 43% reduction in the wealth tax base and that 24% of that reduction comes from mobility responses so that the mobility semi-elasticity is 43*.24=10.3. See Rauh et al. (2026) for a more detailed explanation.

[10] We count only the California income tax as pre-existing tax because it is the only tax that is avoided if the billionaire moves to another state. Other taxes such as corporate taxes, sales taxes, property taxes, and the federal individual taxes remain upon moving. We conservatively assume the billionaire moves to a zero-income tax state such as Florida, Texas, or Nevada. Rauh et al. (2026)'s methodology agrees with this as well.

of California billionaires by a factor 2.7, implying that California would have 2/3 of US billionaire wealth instead of the current ¼ which seems clearly unrealistic.[11]

Therefore, there is no doubt that California can raise more tax revenue from its billionaires. With realistic behavioral responses drawn from the existing empirical literature, such as e=10, a 1% permanent wealth tax reduces the wealth tax base by 10% due to mobility responses. As a result, mobility responses reduce mechanically wealth tax revenue by 10% and an additional 2% is lost due to loss of income tax. On net, a 1% wealth tax collects 88% of the projected revenue absent mobility responses. This efficiency cost of 12 cents on the dollar is fairly modest.

Adding economic responses.

Following Saez and Zucman (2019a), it is possible to incorporate the fact that repeated annual wealth taxes have a mechanical de-concentration effect on top wealth. After facing an annual wealth tax for t years at rate τ, wealth is mechanically reduced by a factor $(1-\tau)^t$. Therefore, the billionaire wealth tax base is progressively eroded overtime. In the long-run, the erosion factor is given by $(1-\tau)^d$ where d is the average number of years that billionaires have been facing the tax (this average is wealth weighted). The parameter d does not become infinite because there is constantly the creation and destruction of billionaires fortunes through normal churning. Using Forbes 400 data US wide, Saez and Zucman (2019a) estimate d=15. The last line on Figure 7 adds this impact on tax revenue assuming d=15 (we could improve this by calculating a California specific d likely to be lower as California is home of many new recent billionaires). This line should be understood as the current tax revenue we would be getting in California from a permanent wealth tax at rate τ had this wealth tax existed for many decades. For larger t, this de-concentration effect becomes large and dominates the mobility response. The revenue maximizing tax rate is $\tau = 1/(1+d+e)=1/26=3.8\%$ with both the de-concentration and mobility responses are incorporated. With a 1% annual permanent wealth tax, the de-concentration effect reduces the wealth tax base by about 15%. I.e., California billionaire wealth would be mechanically 15% lower today if an annual wealth tax at 1% had been place for a long-time. Therefore, the de-concentration effect remains relatively modest for small (i.e. up to 1% annual wealth taxes). Simply put, a 1% wealth tax has small effects when billionaires wealth is growing so fast as we documented in Section 1.

This illustrates one important feature of billionaire taxation. Because California (or the US) are so top heavy, even a modest wealth tax has substantial revenue raising potential but it will not have a very big impact on wealth de-concentration.

[11] Formally, with a constant semi-elasticity, the tax base Z is given by the formula $Z=Z_0*\exp(-\tau\, e)$ where Z_0 is the tax base absent any tax (relative to zero income tax states). With τ =.2% the current California income tax on California billionaires and e=500, $Z=Z_0*\exp(-1)=Z_0/2.7$.

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Table 1. Explosive Wealth Growth of California Billionaires

A. Recent nominal wealth growth of CA billionaires (nominal $ billions)

Year	Number of billionaires	Wealth (end of year)	Annual growth	Top 5 wealth (end of year)	California GDP	Billionaire wealth/CA GDP
2022	176	945		312	3,618	26.1%
2023	187	1,290	36.5%	534	3,827	33.7%
2024	197	1,777	37.7%	834	4,048	43.9%
2025	240	2,297	29.3%	1,127	4,251	54.0%
Growth during 3 years (2023-2025)		143%		262%	17%	

B. Long-term real wealth growth of billionaire class=top .0002% richest (real 2025 $)

Year	# families in top .0002%	Top .0002% wealth (2025 $b)	Top .0002% wealth per family	# CA families (millions)	California GDP (2025 $b)	California GDP per family (2025 $)
1982	23.7	22.4	0.95	11.8	1,209	102,141
2025	44.6	1535.6	34.4	22.3	4,251	190,451
Ratio 2025 to 1982	1.9	68.6	36.4	1.9	3.5	1.9
Annualized growth	1.5%	10.3%	8.7%	1.5%	3.0%	1.5%

Notes: Panel A illustrates the recent explosive growth in California billionaire wealth using the Forbes real-time billionaire data. It reports wealth in nominal $ billions as well as California annual GDP for comparison. The top 5 includes the centi-billionaires Ellison, Page, Brin, Zuckerberg, Huang. Panel B illustrates the long-term real growth of the billionaire class (defined as the richest .0002% families) from 1982 to 2025 using the Forbes 400 annual data. The average real wealth of the billionaire class has grown by a factor 36.4 (8.7% real growth per year on average) while California GDP per family has grown by a factor 1.9 (1.5% real growth per year on average). Appendix Table A1 provides the same statistics at the US level (instead of California).

Table 2. California Income Tax Paid by California Billionaires

All amounts in nominal $ billions

	All California Billionaires from Forbes real-time list			Top 5 (Page, Brin, Ellison, Zuckerberg, Huang and their Alphabet, Oracle, Meta, Nvidia wealth)		
Year	Billionaires Wealth (end of year)	Estimated CA income tax	CA income tax/wealth	Company wealth (end of year)	Estimated CA income tax from company wealth	Top 5 CA income tax/wealth
2019	889	2.2	0.24%	245	0.20	0.08%
2020	1,055	3.0	0.29%	321	0.24	0.07%
2021	1,332	4.3	0.33%	464	1.02	0.22%
2022	945	1.8	0.19%	282	0.50	0.18%
2023	1,290	1.8	0.14%	498	0.37	0.07%
2024	1,777	2.5	0.14%	794	0.63	0.08%
2025	2,297	3.8	0.16%	1,081	0.97	0.09%
2019-2025 average	1,369	2.8	0.22%	526	0.56	0.11%

Notes: This table reports the wealth of all California billionaires, the estimated California income tax they pay, for each year from 2019 to 2025, along with the average across these 7 years in the last row. For all California billionaires, this is estimated using Franchise Tax Board tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners. The right-hand-side columns repeat the same statistics for the top 5 richest Californians (Page, Brin, Ellison, Zuckerberg, Huang) focusing solely on their wealth from their company stakes at Google, Oracle, Meta, and Nvidia. Over 2019-2025, California billionaires pay about $3 billion in annual California income taxes which amount to about .22% of their wealth. The top 5 pays only about .11% of their wealth in California income taxes.

Table 3. California Income Tax Paid by the Top 5 on Company Wealth

All amounts in nominal $ millions

	Larry Page (Alphabet)	Sergei Brin (Alphabet)	Mark Zuckerberg (Meta)	Larry Ellison (Oracle)	Jensen Huang (Nvidia)
CA income tax 2019	0	0	26	169	6
CA income tax 2020	0	0	35	182	20
CA income tax 2021	241	168	299	250	59
CA income tax 2022	120	84	3	231	61
CA income tax 2023	0	0	11	330	28
CA income tax 2024	83	54	166	275	55
CA income tax 2025	87	56	126	615	89
Average CA income tax 2019-25	76	52	95	293	45
Wealth at the beginning of 2019	41,576	40,085	47,768	51,193	2,857
Wealth at end of 2025	244,240	225,401	225,635	225,751	160,228
Total CA income tax/wealth gain	0.26%	0.20%	0.37%	1.18%	0.20%

Notes: This table reports estimates of the California income taxes paid by each the top 5 richest Californians (Brin, Page, Ellison, Zuckerberg, and Huang) on their company stakes (Alphabet, Oracle, Meta, Nvidia) each year from 2019 to 2025. This company wealth is 96% of their total Forbes wealth at the end of 2025. We use SEC disclosures for stock sales, stock donations, and stock-option exercises and Compustat data for dividends (prorated to their stakes) and executive compensation. For this exercise, we assume Ellison is a continuous California resident.
The last rows report the company wealth of each of the top 5 at the beginning of 2019 and the end of 2025. Over this seven-year period, total California income taxes amounted to about .5% of their wealth gain. Ellison stands out as paying more than the other 4 combined because Oracle pays substantial dividends which are taxed by the individual income tax.

Table 4. Wealth, Income, and Taxes of the Top 5, 2019-2025

All amounts in nominal $ billions

	Total 2019-2025	Annual average
	(1)	=(1)/7
Wealth in 2019 (beginning of year)	183,5	
Wealth in 2025 (end of year)	1081,3	
Gain in wealth during 2019-2025	**897,8**	**128,3**
Wealth (average over 2019-2025)		526,4
Fiscal individual income 2019-2025	**33,9**	**4,8**
Stock-options exercises + other comp	6,7	1,0
Dividends	15,1	2,2
Realized capital gains	11,8	1,7
Memo: Appreciated stock donations	17,4	2,5
Memo: Net collateral pledged for borrowing	13,0	1,9
Federal individual income tax	8,0	1,1
California individual income tax	**3,9**	**0,56**
Individual taxes/individual income	35,3%	35,3%
Corporate profits	162,8	23,3
Corporate taxes (federal, state, foreign)	26,9	3,8
Corporate tax rate (effective)	16,5%	16,5%
Other taxes (property, sales taxes)	1,3	0,2
Total taxes paid	**40,2**	**5,7**
Total economic income	**181,6**	**25,9**
Total taxes/economic income	**22,1%**	**22,1%**
Total taxes/Gain in wealth	**4,5%**	
Total taxes/wealth		**1,1%**

Notes: This table reports estimates of wealth, income earned, and taxes paid for the top 5 richest Californians (Brin, Page, Ellison, Zuckerberg, and Huang) on their company stakes (Alphabet, Oracle, Meta, Nvidia) over the 2019-2025 period. This company wealth is 96% of their total Forbes wealth at the end of 2025. We use SEC disclosures for stock sales, stock donations, net value of shares pledged as collateral for borrowing, and stock-option exercises and Compustat data for corporate profits and taxes, and dividends (prorated to their stakes). We assume Ellison is a continuous California resident. Other taxes include property taxes paid (estimated as 1% of the net value of land and buildings in their companies and prorated to their stakes) and estimated sales taxes paid on after-tax individual income (assuming 50% of it is consumed). On net, over 2019-2025, the top 5 pay $.56 billion in California income taxes per year which is 2.2% of their full economic income (fiscal individual income plus undistributed corporate profits) and .11% of their wealth. Figure 6 illustrates the figures in this table showing that individual taxes are significant (35.3%) relative to individual fiscal income, but individual fiscal income is dwarfed by economic income (that adds undistributed corporate profits) which is itself dwarfed by wealth gains (due to stock price appreciation). Therefore, total taxes relative to economic income are fairly low (22.1%) and total taxes relative to wealth gains are very low (4.5%).

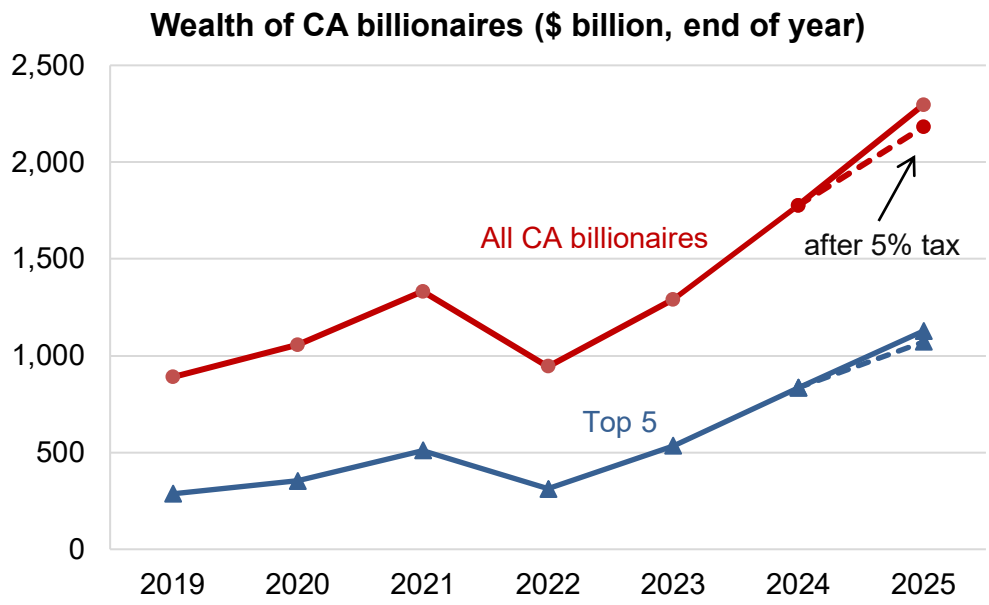


Figure 1: The Explosion of California Billionaires Wealth in Recent Years
This top series depicts the wealth of California billionaires at the end of each year 2019 to 2025 in nominal $billions using Forbes real-time billionaires data. It includes all billionaire CA residents (US citizens and non-citizens). The second series depicts the wealth of the top 5 (Larry Ellison, Larry Page, Sergei Brin, Mark Zuckerberg, Jensen Huang). They account for about half of total CA billionaire wealth by the end of 2025 and for 60% of CA billionaire wealth growth since 2022. We also display in dashed lines the impact of a hypothetical 5% wealth tax in 2025 to illustrate that the tax is small relative to gains in recent years.

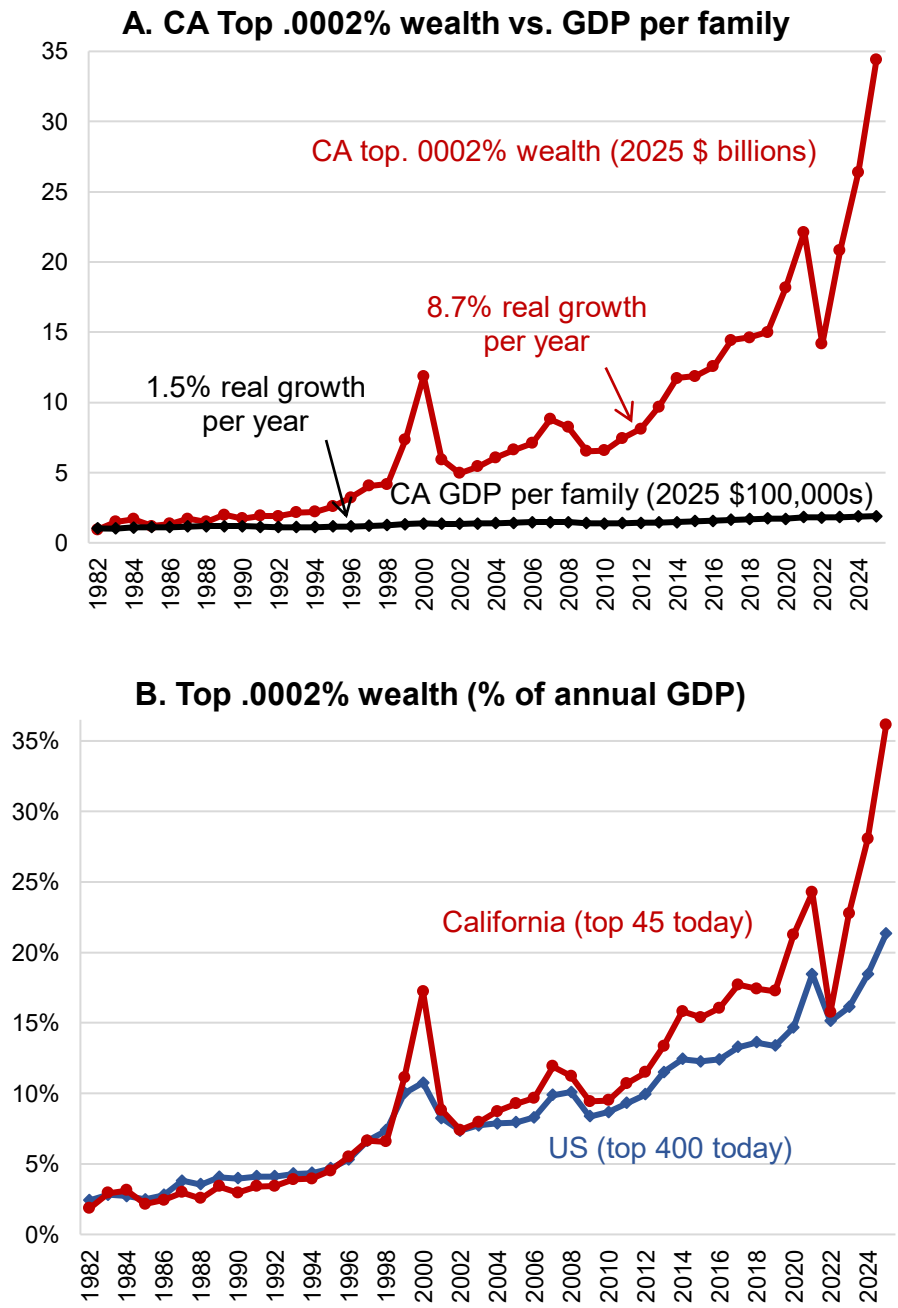


Figure 2: Billionaire Class Wealth Grows Much Faster than the Economy in the Long-Run
Panel A depicts the trajectory of top .0002% wealth (top 45 families in California today) in 2025 $ billions vs. the trajectory of California GDP per family (the average economic product of families in California) in 2025 $100,000s. California GDP per family has doubled (in real terms controlling for price inflation) from about $100,000 in 1982 to $200,000 in 2025. Top .0002% wealth has grown by a factor 36 from slightly less than $1 billion in 1982 to almost $35 billion in 2025. Panel B depicts the wealth of the billionaire class relative to the economy (measured by annual GDP) in the US (blue series) and in California (red series). The billionaire class is defined as the top .0002% richest families (the top 400 richest families for the US and the top 45 richest families for California today).

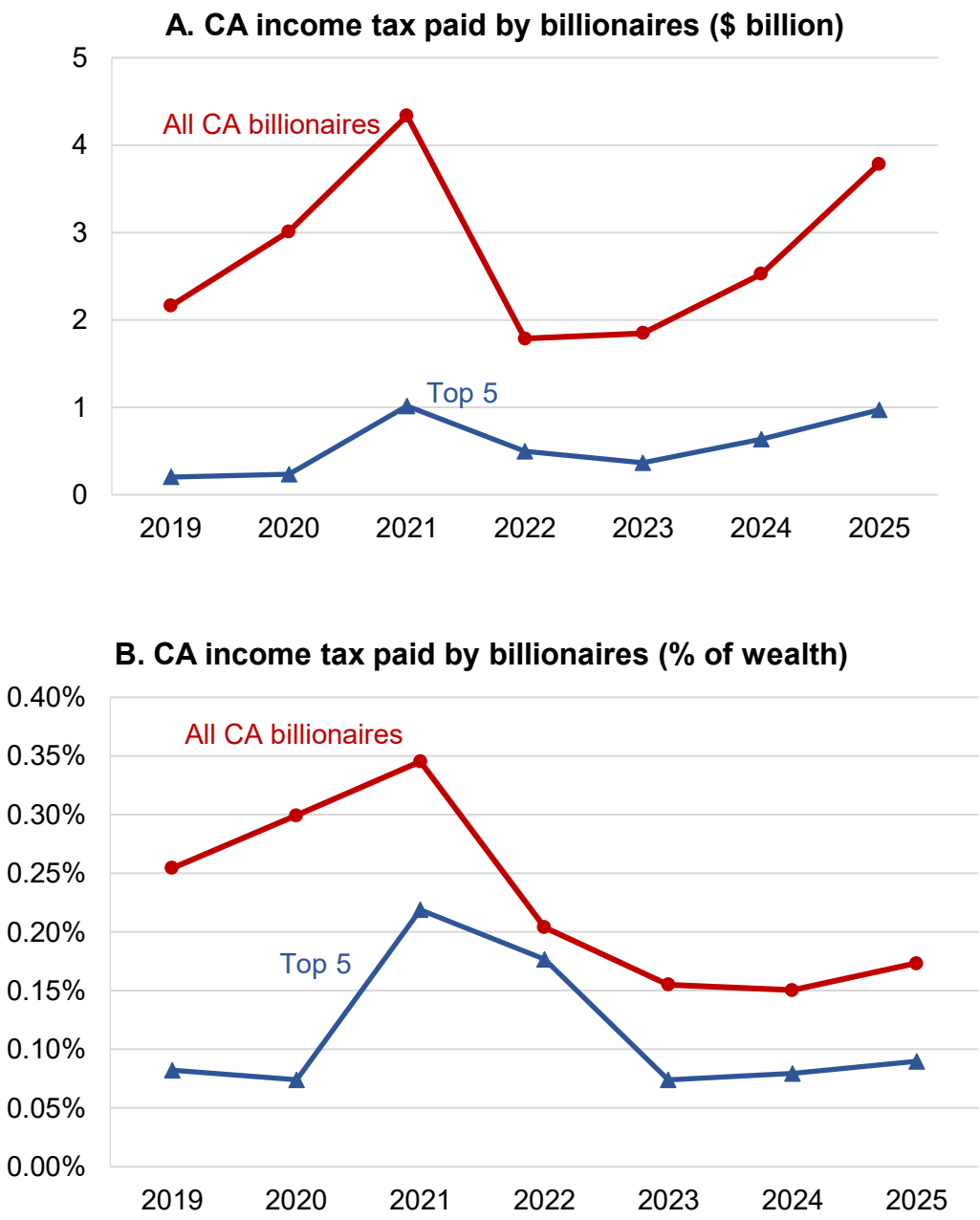


Figure 3: The California Income Tax Paid by Billionaires
This figure depicts the estimated annual California individual income tax paid by all California billionaires and the top 5 each year from 2019 to 2025. Panel A displays amounts in nominal $ billions. Panel B displays amounts as percent of end of year wealth. For all California billionaires, this is estimated using Franchise Tax Board tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners. For the top 5, the tax is estimated using SEC disclosures on stock sales, exercised stock-options, dividends received, and charitable donation of stock for the public companies they own (which accounts for 96% of their wealth at the end of 2025).

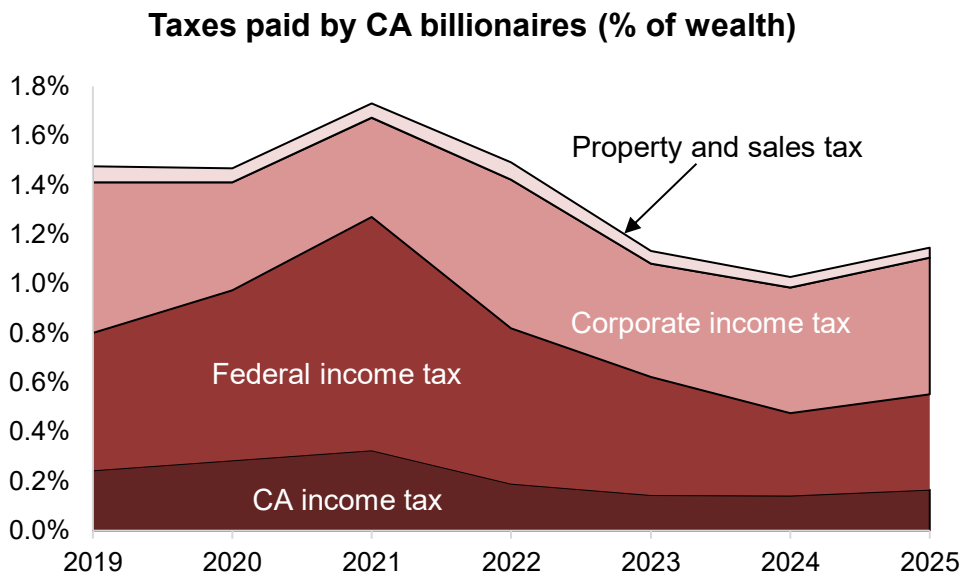


Figure 4: Total taxes Paid by California Billionaires relative to Wealth
This figure depicts the estimated total annual taxes paid by all California billionaires and the composition by tax type from 2019 to 2025 relative to end of year wealth. Federal and California individual income taxes are estimated using Franchise Tax Board tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners. Corporate and property taxes are estimated with Compustat for all publicly traded corporations owned by California billionaires. Corporate taxes include federal, state, and foreign corporate taxes. We impute corporate taxes for privately held C-corporations, property taxes and sales taxes following the method of Balkir et al. (2025). In the last 3 years 2023-2025, California billionaires' total annual taxes amount to about 1.1% of their wealth (down from 1.5-1.6% in 2019-2022). The largest tax is the corporate tax. The individual income taxes are small relative to wealth because billionaires realize only a fraction of their full economic income, let alone their wealth gains.

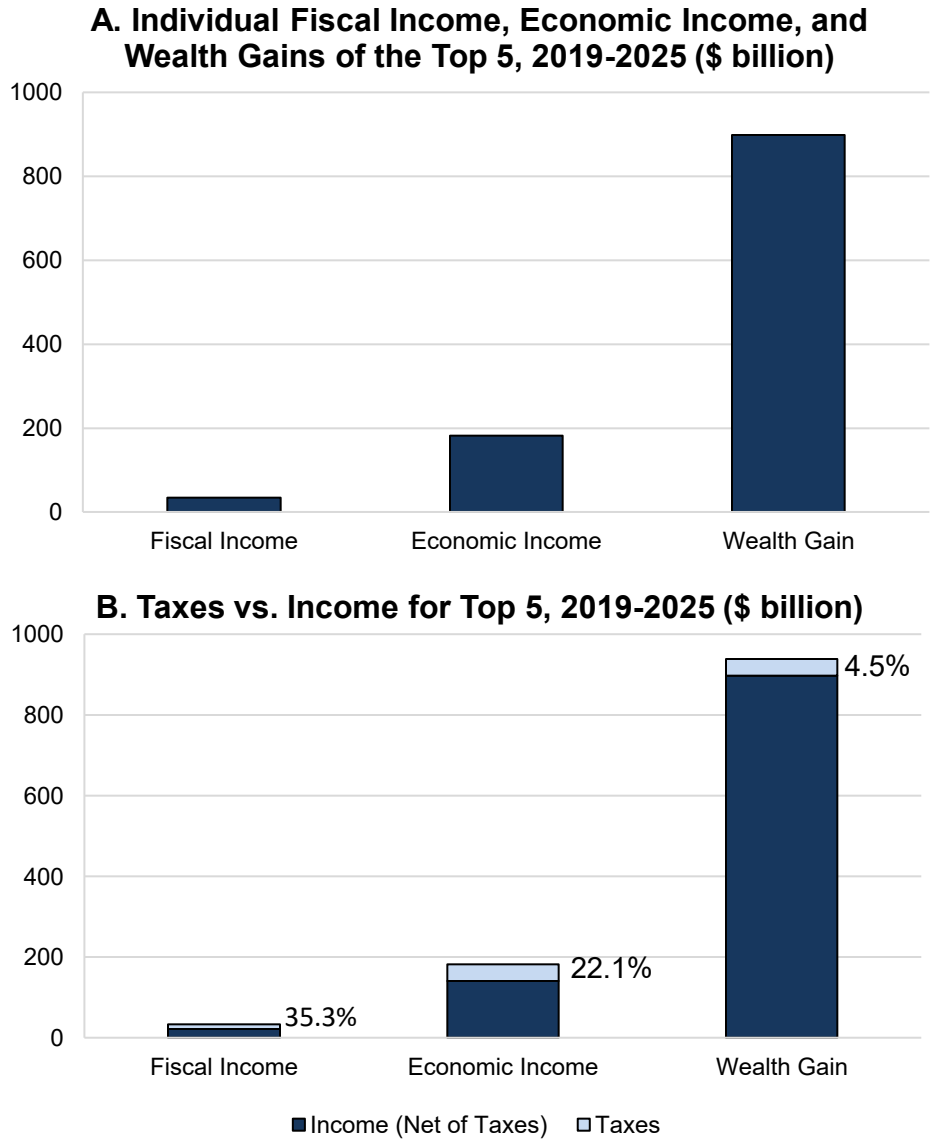


Figure 5: Income and Taxes for the Top 5 in 2019-2025
This figure illustrates the statistics from Table 4 on income and taxes of the top 5 richest Californians in the period 2019-2025 on their company wealth (which is 96% of their total wealth at the end of 2025). All amounts are in nominal $ billions. The top panel depicts individual income reported on individual tax returns (first bar), economic income that adds undistributed corporate profits to individual income (second bar), and wealth gain from the beginning of 2019 to the end of 2025 (third bar). The bottom panel depicts taxes (in red) paid on each of these income types and displays the tax rate. For individual fiscal income, taxes include California and federal individual income taxes only. For economic income and wealth gains, taxes include all taxes at all levels of government. The figure shows that individual taxes are significant (35.3%) relative to individual fiscal income, but individual fiscal income is dwarfed by economic income which is itself dwarfed by wealth gains (due to stock price appreciation). Therefore, total taxes relative to economic income are fairly low (22.1%) and total taxes relative to wealth gains are very low (4.5%).

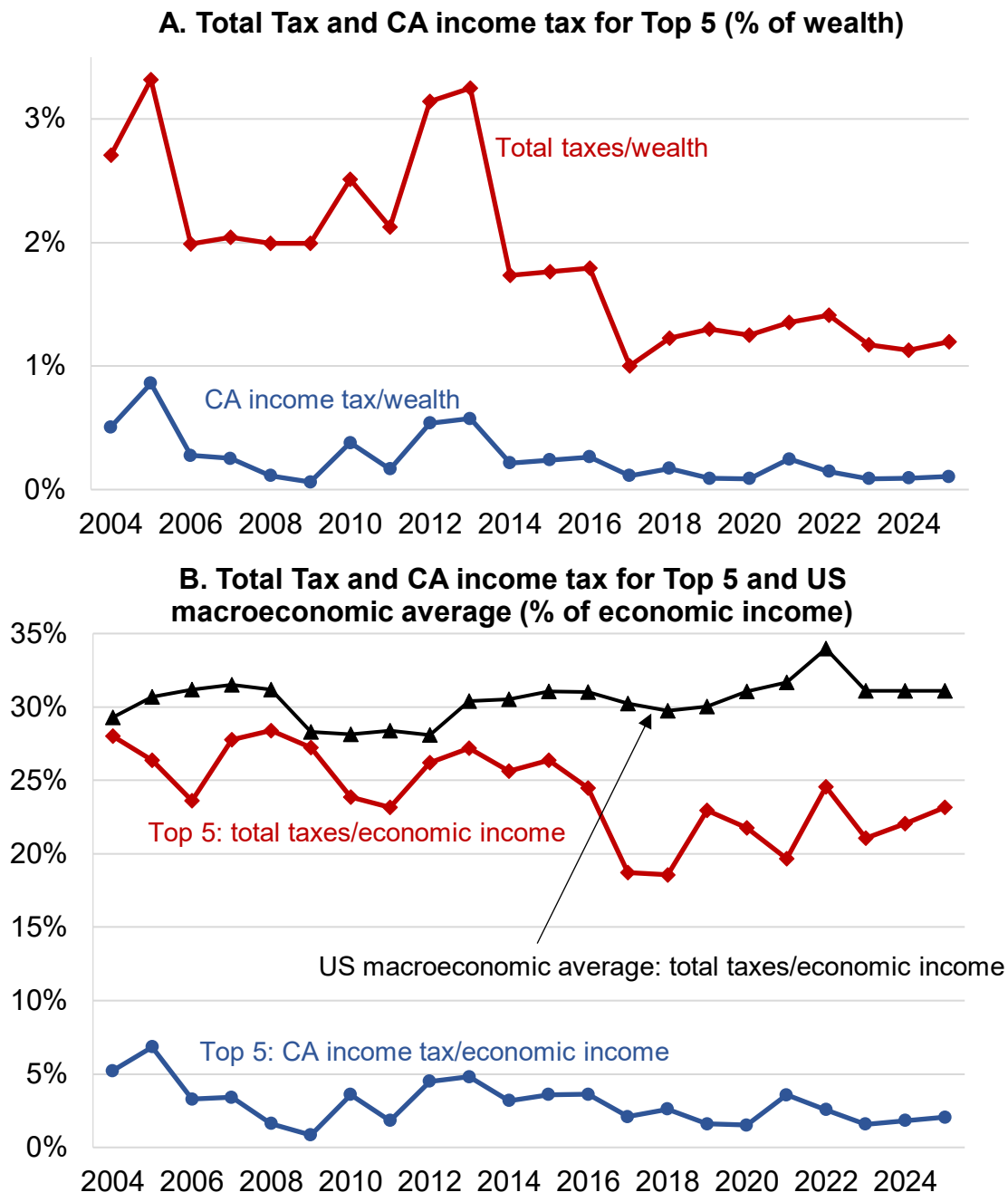


Figure 6: Taxes paid by the Top 5 Relative to Wealth and Economic Income
This figure depicts the estimated taxes paid by the top 5 each year from 2004 to 2025 relative to their wealth (top panel) and relative to their full economic income (bottom panel). Each panel also reports the California individual income tax paid specifically. Wealth and taxes are estimated for their wealth from their main company stakes (96% of their total Forbes wealth in 2025) using SEC disclosures and Compustat data. Wealth is measured as the average over each calendar year. The macroeconomic average effective tax rate for the US population is computed using the updated Distributional National Accounts series (for a detailed discussion, see Saez and Zucman, 2023).

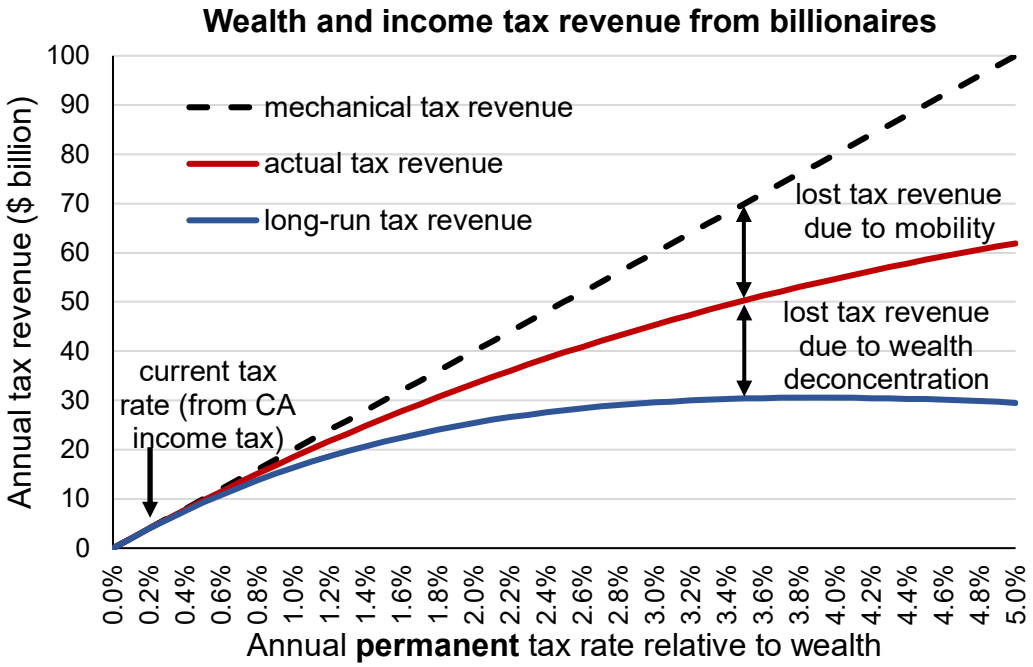


Figure 7: Does a Permanent Annual Wealth Tax on Billionaires Raise Revenue?
This figure depicts the revenue collected from billionaires (in $ billions on the y-axis) from a permanent annual wealth tax as a function of the tax rate (on the x-axis) in the solid red line. This tax revenue estimate takes into account income and wealth tax revenue lost because of mobility responses calibrated using the empirical literature with a semi-elasticity of the tax base with respect to the wealth tax rate of e=10 (same semi-elasticity calibration as in Rauh et al. 2026). For comparison, the dashed line plots the tax revenue ignoring the mobility response. The last line in green estimates wealth tax revenue in the long-run taking into account that annual wealth taxation mechanically erodes billionaire wealth over time. It plots the expected revenue if the billionaire wealth tax had been in place for decades and had already eroded billionaire wealth (assuming current California billionaires have been billionaires for an average of d=15 years when weighting for wealth). The current California income tax is about .2% of wealth for billionaires. The graph shows that adding a permanent wealth tax beyond the existing tax of .2% can raise substantial revenue even taking into account mobility responses. The effect of wealth de-concentration is also modest for moderate wealth tax rates. Furthermore, for moderate wealth tax rates of up to 1% per year, the revenue lost due to behavioral responses is modest (of less than 10% for mobility and an additional 15% in the long-run due to de-concentration). In the companion excel file posted here, readers can change the elasticity parameters e and d.

Table A1. Explosive Wealth Growth of US Billionaires

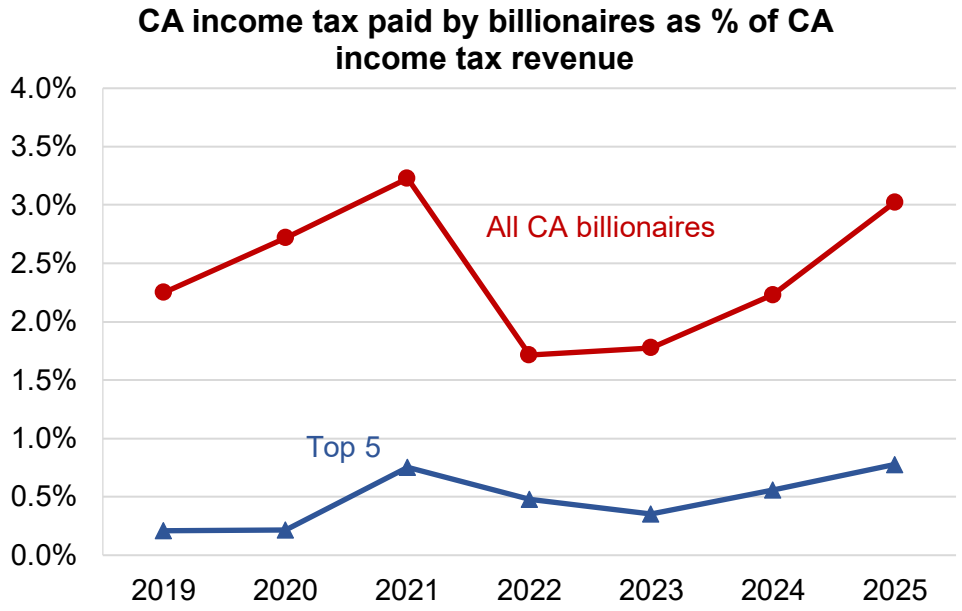
A. Recent nominal wealth growth of US billionaires (nominal $ billions)

Year	Number of US citizen billionaires	Wealth (end of year)	Annual growth
2022	717	4358	
2023	746	5247	20.4%
2024	813	6723	28.1%
2025	938	8189	21.8%
Growth during 3 years (2023-2025)		88%	

B. Long-term real wealth growth of US billionaire class=top .0002% richest (real 2025 $)

Year	# families in top .0002%	Top .0002% wealth (2025 $b)	Top .0002% wealth per family	# US families (millions)	US GDP (2025 $b)	US GDP per family (2025 $)
1982	221	240.2	1.09	110.5	9,946	89,995
2025	386	6537.4	16.9	193.1	30,644	158,726
Ratio 2025 to 1982	1.7	27.2	15.6	1.7	3.1	1.8
Annualized growth	1.3%	8.0%	6.6%	1.3%	2.7%	1.3%

Notes: This table repeats Table 1 for all US citizens billionaires regardless of residence instead of only California resident billionaires. Panel A illustrates the recent explosive growth in US billionaire wealth using the Forbes real-time billionaire data. It reports wealth in nominal $ billions as well as US annual GDP for comparison. Panel B illustrates the long-term real growth of the US billionaire class (defined as the richest .0002% families) from 1982 to 2025 using the Forbes 400 annual data. The average real wealth of the US billionaire class has grown by a factor 27.2 (6.6% real growth per year on average) while US GDP per family has grown by a factor 1.8 (1.3% real growth per year on average).



Appendix Figure A1: California Income Tax paid by Billionaires (as % of California Income Tax Revenue)

This figure depicts the estimated annual California individual income tax paid by all California billionaires and the top 5 each year from 2019 to 2025 as a percent all total California individual income taxes paid in the state. For all California billionaires, this is estimated using Franchise Tax Board tabulated statistics, a simple Pareto extrapolation, and an adjustment based on Federal tax data reflecting that top wealth holders are not top income earners. For the top 5, the tax is estimated using SEC disclosures on stock sales, exercised stock-options, dividends received, and charitable donation of stock for the public companies they own (which accounts for 96% of their wealth at the end of 2025).

Methodological Appendix

Estimating California billionaire wealth

We use the Forbes magazine billionaire data. For all California billionaires from 2019 to 2025, we use the real-time Forbes billionaire data as of the end of the year. We include both US and non-US citizens listed as California residents by Forbes (non-citizens account for about 5-7% of total billionaire wealth in California).[12] Larry Ellison was listed as a California resident in 2019 and before, and 2023, 2024, 2025 (end of year) but as a Hawaii resident in 2020, 2021, 2022. After mid-January 2026, Forbes lists Ellison as a Florida resident.

For consistency of the series, we always include Larry Ellison in our statistics. His wealth represents a bit less than 10% of the California total. Whether he is a California resident for income tax purposes is not publicly known. It is possible that he was California resident up to 2024 or 2025 given the stringent tests the California tax administration uses but it is also certainly possible that he changed state residency before January 1st, 2026 and hence will not be liable for the California wealth tax.

Estimating Taxes paid by California Billionaires

Using California income tax statistics (Table B4a) for the highest income bracket ($10m+ in 2021-3 and $5m+ up to 2020) and a simple Pareto interpolation, we can estimate the income of the top N California taxpayers (ranked by income) where N is the corresponding number of CA billionaires in the Forbes real-time list (at the end of the year). E.g. N=187 at the end of year 2023. N includes both US citizens and non-US citizens who are residents of California.

First, using US wide IRS data comparing Pareto extrapolations based on the income bracket $10m+ and the top .001%, we find that extrapolating from the $10m+ over-estimates the top .001% incomes by about 10%. The top .001% is about the same size (relative to population) as N, the number of billionaires in California. Hence, we apply for each year a year specific correction based on the overshooting from US wide IRS extrapolations.[13]

Second and most important, the top N wealth holders have by definition less income than the top N income earners. Fortunately, both the US wide data from the IRS reported in Balkir et al. (2025) and Survey of Consumer Finance statistics (reported in Saez and Zucman 2019b, p. 466) both shows that top wealth holders have about 50% of the income of top income holders and this number is stable across years. Therefore, we apply this 50% uniformly.

Once the income of the top N wealthiest is estimated, we assume that they pay an average tax rate on this income which is the same as the average tax rate for the $10m+ taxpayers. This is a slightly conservative assumption as top wealth holders are likely to have larger charitable giving deductions (relative to income).

Comparing these estimated taxes to total California income taxes collected (on residents and non/part-time residents shows that billionaires pay on average 2.4% of all CA income taxes

[12] Forbes identifies 237 billionaires as California residents as of January 1, 2026. Of these, 25 billionaires are non-US citizens. Further, we include Daniela Amodei, Kim Kardashian, and Laurene Powell Jobs in our estimates as Forbes changes their state of residence from California to missing in December 2025. By mid-January 2026, Kardashian and Powell Jobs are again indicated as California residents. There is no information on Amodei having left California, hence we keep Amodei as California resident after December 2025.

[13] Similarly, extrapolating the $10m+ incomes from the $5m+ incomes generates a moderate over-estimation. Hence, we correct for this as well in years before 2021 when the top bracket available is $5m+ in California income tax statistics.

in 2018-2023 with variations across years with a high of 3.2% in 2021 (a year of very high capital gains realizations) to lows of 1.7% in 2022 and 1.8% in 2023. As tabulations by income are not yet available for 2024 and 2025, we project estimates of the fraction of income taxes paid for these two years using the average of 2018-2023 of 2.5% for 2024 and the 2021 high of 3.2% for 2025 as 2025 is shaping up to be a year of high capital gains realizations (based on higher than expected California income tax revenue collections in early 2026).

As a robustness check, we can also use Balkir et al. (2025) statistics on income reported by the Forbes top 400 billionaires in 2018-2020 which includes about the top 100 California wealthiest, a quarter of the US total. We estimate that these top 100 wealthiest Californians pay about 2% of all CA income taxes. Extrapolating to the top N (instead of top 100) produces a number close to 2.5% as well (slightly lower). To shed further light on this hotly debated issue, these estimates could be further refined by a direct study using Franchise Tax Board data matched to lists of California billionaires replicating what Balkir et al. (2025) did US wide using internal IRS statistics.

A. Estimating the Trajectory of Wealth, Income, and Taxes for the Top 5

We provide estimates for wealth, income, and income taxes paid by the top 5 wealthiest Californians according to Forbes (Sergey Brin, Larry Page, Larry Ellison, Mark Zuckerberg, and Jensen Huang). As of 2026/01/01, Forbes reports that the top 5 hold a combined net worth of $1127 billion, of which we estimate $1081 billion (95.9% of total wealth) to be in the form of publicly traded stock of Alphabet (Page and Brin), Meta (Zuckerberg), Oracle (Ellison) and Nvidia (Huang). For the portion of wealth that reflects public equity wealth in these firms, we estimate income, and associated income taxes paid over the 2004-2025 period, by using publicly accessible Securities and Exchange Commission (SEC) disclosures. Section A.1 presents the raw data sources (Forbes, SEC, and Compustat) used to estimate wealth, income, and income taxes paid for the top 5. Section A.2 describes the computation of wealth, public equity wealth, and firm-level ownership shares of the top 5 in Alphabet, Meta, Oracle, and Nvidia. Section A.3 documents the construction of all fiscal and economic income variables. Section A.4 describes the computation of all tax variables. The main results are provided in the accompanying excel file posted here. Variable names in square brackets refer to the variables as coded in the accompanying excel file.

A.1. Raw data: Forbes, SEC, Compustat

We use three main data sources: Forbes (Forbes 400 and Forbes Real-Time Billionaires List), SEC filings (forms 4, 13D/G, 10-Q, 10-K, and 14A), and Compustat (Daily Securities Data, Quarterly and Fundamentals Data, and Execucomp).

Forbes. Since 1982, the annual Forbes 400 lists the 400 wealthiest Americans. Forbes draws on various sources to estimate the wealth of the top 400. For purposes of estimating wealth in the form of publicly traded stock, Forbes mainly relies on SEC filings which detail the ownership shares of major shareholders, executives and chairs of board of listed C-corporations. Since 2019, the Forbes Real-Time Billionaires list provides daily updated estimates of billionaire wealth, with a break-down of wealth into wealth in the form publicly traded stock and wealth in the form of other, non-publicly traded assets.

SEC filings. We use SEC filings form 10-K, 10-Q, and 14A reported at the firm level and SEC filings form 4 and 13D/G reported at the individual level. As Alphabet, Meta, Nvidia, and Oracle are US-listed C-corporations, they disclose their annual and quarterly income statements and

balance sheets publicly on forms 10-K and forms 10-Q respectively. Annual proxy statements, including information on executive compensation and beneficial ownership of chairs of board and executives, are disclosed through forms 14A.
At the individual level, shareholders owning more than 5% of the outstanding stock of a US-listed C-corporation, must disclose their beneficial ownership of the respective firm (detailing the number of shares owned with break-down by ownership nature) on a form 13D/G. Finally, any chair of the board, executive, or major shareholder owning more than 10% of the outstanding stock of a US-listed C-corporation must disclose any trades of the firm's stock with the SEC through a filing form 4. SEC filings form 4, a key input to our analysis, are disclosed in electronic filing format only since 2004, hence we restrict our analysis to 2004-2025. Page, Brin, Zuckerberg, Ellison, and Huang are subject to these reporting requirements for their Alphabet, Meta, Oracle, and Nvidia stock.

Compustat. We access SEC filings form 10-Q and 10-K through Compustat Quarterly and Compustat North America Fundamentals database respectively. SEC forms 14A are retrieved through Compustat Execucomp. Further, we use Compustat North America Daily Securities database to obtain the daily stock prices, outstanding shares, and stock-split correction factors for Alphabet, Meta, Nvidia and Oracle.

A.2. Wealth, public equity wealth, and ownership shares.

Provided with the raw data sources described above, firm-level ownership shares, public equity wealth, and wealth are constructed as follows.

a. **Ownership shares.** We use SEC filings form 4, 13D/G, and 14A to obtain the number of shares owned, as well as the ownership shares, of the top 5 in their main publicly traded holdings. While the primary source of information are forms 13D/G, for Jensen Huang it is necessary to resort to forms 14A as Huang is below the 5% ownership share filing threshold to file forms 13D/G, while Nvidia is required to indicate Huang's ownership share on their forms 14A as Huang is CEO of the firm. Further, we resort to forms 4 to obtain the number of Alphabet Class C shares owned by Brin and Page, as these are non-voting shares and hence not reported on forms 13D/G. We verify and replicate Forbes' estimates for number of shares owned, confirming that Forbes correctly draws on SEC filings to estimate public equity wealth of the top 5. In line with Forbes' computations, we include shares held via pass-through entities (trusts and LLCs whose income flows through the income tax returns of the top 5), but we do not include shares held by 501(c)(3) charitable organizations controlled by the top 5 (as those are tax-exempt and not part of the top 5 income tax returns). Further, we exclude shares held by other individuals, except for spouses. Firm-level ownership shares are computed as the number of shares owned across all share classes divided by total shares outstanding across all share classes, including non-publicly traded shares, at year-end. Triangulating across the SEC filings, we obtain a panel for 2004-2025 of the number of shares owned as well as the ownership shares of the top 5 in their main holdings. This is a necessary input for computations of dividend income and pro-rated corporate income.[14]

[14] Forbes applies a discount to Ellison's Oracle shares which are pledged as collateral for acquisitions. Our study measures the income generated and taxes paid on the Oracle shares owned by Ellison and hence we do not apply any discount.

b. **Public equity wealth [public_worth and public_worth_avg].** We compute public equity wealth as the product of the number of shares owned, as computed above, and price per share at year-end. Separately, average public equity wealth over the calendar-year is computed using the calendar-year average price per share. Share prices are obtained through Compustat Daily Securities data. As of 31/12/2025, the ratio of public equity wealth to total wealth is equal to 95.1% for both Sergey Brin and Larry Page, 99.7% for Mark Zuckerberg, 92.1% for Larry Ellison, and 98.9% for Jensen Huang. We exclude Larry Ellison's public equity stakes in Tesla and Paramount, as we do not observe SEC filings form 4 for trades of Ellison's stakes in these firms (i.e., we only observe Larry Ellison's insider trades of Tesla stock until he parted from the board of Tesla in August 2022).

c. **Wealth [forbes_worth].** We obtain wealth estimates from the Forbes 400 list for 2004-2018, and from the Forbes Real-Time Billionaires list for 2019-2025. For years 2019-2025, we use the Forbes Real-Time Billionaires list as it allows us to directly compare our estimates for public equity wealth in the main holdings of the top 5 to total wealth as estimated by Forbes.

A.3. Fiscal and economic income variables.

We estimate fiscal income derived by the top 5 from their main holdings as the sum of ordinary income from executive compensation and short-term capital gains, qualified dividend income and long-term capital gains income. For the top 5, the overwhelming majority of executive compensation comes in the form of exercised stock-options. In a next step, we estimate economic income as the sum of fiscal income and prorated pre-tax corporate income, excluding dividend income to avoid double-counting with distributed pre-tax corporate income (see Balkir et al., (2025) for a discussion of this income concept). To estimate fiscal and economic income we construct the following variables:

a. **Sales of listed stock (SEC form 4) [sale].** The dollar value of sales of listed stock is computed as the product of the number of shares traded and the price per share traded for all transactions marked as open market sales of stock (transaction code *S* for sale; type *D* for disposition). We include all sales of listed stock filed by the top 5 on their main publicly traded stock including sales filed by pass-through entities (trusts and LLCs) of which the top 5 are controlling individuals. We exclude sales filed by 501(c)(3) organizations controlled by the top 5, as sales of listed stock by these entities are tax-exempt. In practice, this restriction is only necessary for sales of Meta stock reported by the Chan Zuckerberg Foundation.

b. **Purchases of listed stock (SEC form 4) [purchase].** The dollar value of purchases of listed stock is computed as the product of the number of shares traded and the price per share traded for all transactions marked as open market purchases of listed stock (transaction code *P* for purchase; type *A* for acquisition).

c. **Value realized on exercises of stock options and vestings of restricted stock units (SEC form 4 and Compustat) [option_profit].** We estimate the dollar value of exercised stock options and vested restricted stock units as the product of the number of shares traded and the difference between the daily closing price at date of exercise and the exercise price (i.e. price per share indicated on form 4) for all acquisitions marked as conversions of derivative securities (transaction code *M* for conversion of

derivative security; type *A* for acquisition). To make this computation, we match the forms 4 data to daily securities data (as obtained through Compustat Daily Securities Data).

d. **Gifts of listed stock (SEC form 4 and Compustat) [donation].** We estimate the dollar value of gifts of listed stock, relevant for income tax deductions, as the product of the number of shares traded and the daily closing price at date of transaction for all dispositions marked as bona-fide gift (transaction code *G* for bona-fide gift; type *D* for disposition). In most cases, these bona-fide gifts represent tax deductible donations of listed stock to tax-exempt 501(c)(3) organizations controlled by the top 5.

e. **Capital gains on sales of listed stock (SEC form 4 and Compustat) [kg, kg_long, kg_short, and kg_taxable].** To compute taxable capital gains on sales of listed stock, we subtract the relevant cost basis for each sale of stock. Provided with the history of acquisitions (purchases, option exercises, and RSU vestings) and sales of listed stock, we estimate capital gains under the assumption that billionaires sell in priority their stock with the highest cost basis in order to minimize their taxable capital gains. More specifically, we compute capital gains for the period 2004-2025 by arranging the sales of listed stock of each filer-issuer combination from the filing most distant in time to the filing closest in time. For the earliest sale that is filed, we track the inventory of all previous acquisitions up until, and including, the transaction date of the sale and arrange these acquisitions from highest-to-lowest cost basis per share. For purchases of listed stock, the relevant cost basis per share is the price per share indicated on the forms 4, while for option exercises and RSU vestings the relevant cost basis per share is the market price at exercise obtained through daily securities data. Then, the cost basis for the capital gain on the earliest sale is computed by iterating through the ordered inventory, up until the point where the number of shares used to compute the cost basis is equal to the number of shares sold. If a stock-split occurs between the transaction date of the sale and the transaction date of the relevant purchase used to compute the capital gain on that sale, we adjust the cost basis per share by the relevant stock-split correction factor. Following the computation of the capital gain, the inventory is updated by discarding all shares used to compute the cost basis. This computation is repeated until the last recorded sale. As we observe the transaction date of the filing that is used to compute the cost basis for a given capital gain, this allows us to separate capital gains into long-term capital gains if the holding period exceeds 365 days and short-term capital gains if the holding period is less than, or equal to, 365 days. We also account for loss offsets, by deducting any current-year capital losses from current-year capital gains and by carrying forward unused capital losses from previous years, without time-limit, to deduct current-year capital gains. Otherwise, we discard capital losses as capital losses cannot be deducted against other income (except for capital gains income), in excess of $3000. For 2004-2025, the ratio of total capital gains (long-term and short-term) to total sales of listed stock recorded by the top 5 on their main holdings is equal to 77.2% (i.e. capital gains sum to $36.27 billion and sales of listed stock sum to $46.99 billion).

f. **Non-equity compensation (Execucomp) [noneq_comp].** This variable reflects the dollar value of non-equity compensation. The underlying forms 14A data Execucomp uses to report executive compensation is in fiscal-year format. For a given calendar year, we use the forms 14A data of the respective fiscal year. Forms 14A are yet to be filed for fiscal year 2025, hence we temporarily impute values from 2024 until the forms

14A for 2025 become available. As non-equity executive compensation among the top 5 is small (2.88% of total ordinary income including short-term capital gains income and income from exercises of stock options and vestings of restricted-stock units), the imputation is unlikely to bias our results. Non-equity compensation is composed of the following variables:

a. Base salary earned (Execucomp variable *salary*)
b. Bonuses earned (Execucomp variable *bonus*)
c. Compensation related to non-equity incentive plans (Execucomp variable *noneq_incent*)
d. Preferential earnings from deferred compensation plans (Execucomp variable *pension_chg*)
e. Other compensation received for personal benefits (Execucomp variable *othcomp*). Other compensation is mainly relevant for Mark Zuckerberg (equal to $27 million in fiscal year 2024) due to security-related costs and costs related to Zuckerberg's personal usage of private aircrafts. Beyond, other compensation also includes contributions to defined contribution plans and life insurance premiums.

g. **Qualified dividend Income (Compustat) [dividend].** We match the 2004-2025 panel of the top 5's ownership shares in Alphabet, Meta, Oracle, and Nvidia, to daily securities data obtained through Compustat. Annual dividend income is computed as the product of the number of shares owned at end-of-year and dividends per share (variable *dvi*) at end-of-year.

h. **Ordinary income [ordinary_income].** Ordinary income is computed as the sum of non-negative short-term realized capital gains income, the value realized on stock option exercises and vestings of restricted stock units as well as other executive compensation in the form of salary, bonuses, non-equity incentives, earnings from deferred compensation plans, and other compensation.

i. **Total fiscal income [fiscal_income].** Total fiscal income adds dividend income and long-term realized capital gains income to ordinary income. Total fiscal income reflects adjusted gross income as reported on IRS forms 1040. One general method to verify our estimates for total fiscal income of the top 5 is by comparison to total fiscal income as documented in the leaked tax returns reported by ProPublica for the period 2013-2018.[15] For Larry Ellison our estimate of average fiscal income over 2013-2018 is equal to 74% of average fiscal income reported by Propublica over that period (i.e., $790.68 million versus $1070 million in Propublica). For Sergey Brin this ratio equals 78% (i.e., $812.09 million versus $1040 million in Propublica). For Larry Page this ratio equals 82% (i.e., $813.63 million versus $990 million in Propublica). For Mark Zuckerberg this ratio equals 161% (i.e., $1055.55 million versus $652 million in Propublica). It is possible that Propublica missed one year of very high income (such as 2013) for Mark Zuckerberg explaining why their number is lower than the one we estimate using public filings. The residual between our income estimates and income reported in the Propublica leaks reflects income from diversified holdings that the top 5 have acquired through past realized income from their main holdings.

[15] See https://projects.propublica.org/americas-highest-incomes-and-taxes-revealed/#table-jump-link.

j. **Corporate pre-tax income (Compustat) [w_pi].** We compute corporate pre-tax income as global pre-tax income (variable *pi*). The fraction of corporate pre-tax income accruing to the top 5 is computed as the product of the firm-level ownership share and total pre-tax income. Alphabet, Meta, Nvidia and Oracle report their global pre-tax income for fiscal quarters (forms 10-Q) and fiscal years (forms 10-K). In order to bring the data to calendar year format, we construct global pre-tax income for a given calendar year using quarterly pre-tax income (variable *piq*) of the fiscal quarters closest to the calendar quarters. In practice, this alignment only matters for Oracle, as Oracle is on a mid-year schedule with fiscal years ending on 05/31 of a given year. For instance, for calendar year 2025 we compute Oracle's pre-tax income as the sum of quarterly pre-tax income from 2024/12/01-2025/11/30. Hence, we make no imputations for corporate pre-tax income in calendar year 2025, as all relevant fiscal quarters are readily observed.

k. **Economic income [economic_income].** Economic income is computed as the sum of total fiscal income, and prorated corporate pre-tax income, excluding dividend income to avoid double-counting with distributed corporate pre-tax income.

A.4. Tax variables.

We estimate taxes paid by the top 5 on fiscal income and economic income as estimated above. For computations of fiscal income taxes paid, we first compute taxable fiscal income [income_taxable] by deducting donations observed in SEC filings form 4 to the deductible amount [donation_deductible] (i.e., up to 30% of adjusted gross-income, with a 5-year carryforward for unused deductions that are deducted using a first-in-first-out rule). Further, up until and including 2017, we deduct California state income taxes paid from taxable income for federal income tax purposes, to account for the SALT deduction in place until 2017. Both for donation deductions and SALT deductions, we deduct ordinary income in priority. Then, we compute taxes paid as follows:

a. **California state income taxes [ca_income_tax].** California state taxes paid are computed by applying the year-specific top marginal state income tax rates to taxable fiscal income, including qualified dividend income and long-term capital gains income and before the SALT deduction (i.e., tax rates are 10.3% for 2004-2011, 13.3% for 2012-2025).

b. **Federal ordinary income taxes [fed_ordinary_tax].** Federal ordinary income taxes paid on taxable ordinary income are computed by applying year-specific top marginal federal ordinary income tax rates and adding the net investment income tax (NIIT) starting 2013 (i.e., tax rates are 35% for 2004-2012, 43.4% for 2013-2017, 40.8% for 2018-2025).

c. **Federal income taxes on qualified dividend income and long-term capital gains income [fed_preferential_tax].** As qualified dividend and capital gains income is taxed at preferential rates, we apply year-specific top marginal federal preferential income tax rates to qualified dividend and capital gains income, adding the net investment income tax (NIIT) starting 2013 (i.e., tax rates are 15% for 2004-2012, 23.8% for 2013-2025).

d. **Fiscal income taxes [fiscal_income_tax].** Total taxes paid on fiscal income are equal to the sum of California state taxes, federal ordinary income taxes, and federal preferential income taxes paid on qualified dividend income and long-term capital gains income.

e. **Sales taxes [sales_tax].** We estimate sales taxes to be equal to 3% of 50% of net-of-tax individual income. As in Piketty et al. (2018) this assumes a 50% saving rate and a tax rate on consumption of 3%, which is half of the macro tax rate on consumption of 6% as billionaire consumption is heavily tilted toward untaxed services (as our estimate for total sales taxes paid is one order of magnitude smaller than our estimate for California income taxes paid, other assumptions for computations of sales taxes would have almost no impact on our estimates).

f. **Corporate income taxes (Compustat) [w_txt].** We compute corporate income taxes as total global book taxes owed, including current plus deferred taxes (variable *txt*). As for corporate pre-tax income, we compute pro-rated income taxes as the product of the billionaire's firm-level ownership share and global book taxes owed. Further, we align the corporate income tax data to calendar year format as we do for corporate pre-tax income. We perform the following two adjustments. First, in fiscal year 2017, Oracle, Meta, and Alphabet report a large spike in global book taxes owed due to the one-time mandatory transition tax resulting from the deemed repatriation of foreign profits set forth in the Tax Cuts and Jobs Act (TCJA). On their forms 10-K for fiscal year 2017, Oracle reports $7.8 billion of income tax expense related to the deemed repatriation of the TCJA, Meta reports $2.9 billion, Alphabet reports $10.2 billion. All three firms specify that they intend to pay the one-time transition tax over an eight-year payment schedule as laid out in the TCJA. We adjust global book taxes owed by subtracting the one-time transition tax from global book taxes owed in the year it is recorded, and then we add back the transition tax in the subsequent years 2018-2025 using the year-specific rates for the fraction of profits deemed repatriated for tax purposes in each year (8% for 2018-2022, 15% for 2023, 20% for 2024, and 25% for 2025; see Wright and Zucman (2018)). Second, in fiscal year 2025, Meta reports a one-off valuation allowance of $14.03 billion against US federal deferred tax assets resulting from the One Big Beautiful Bill Act (OBBBA). As this valuation allowance affects future tax obligations beyond 2025, we subtract it from Meta's reported global book taxes owed in 2025. Compustat also includes a variable *txpd* which corresponds to taxes effectively paid. Using *txpd* generates an average income tax rate of 17.19% which is almost identical to the 16.96% tax rate we obtain in our computation using *txt*.

g. **Property taxes (Compustat and SEC form 10-K) [w_tax_ppent].** Business property taxes paid are not reported in SEC filings form 10-K. Balkir et al. (2025) estimate business property taxes as 1% of the global tangible capital stock pro-rated by firm-level ownership shares. In fiscal years 2023-2025, Alphabet, Meta, Nvidia and Oracle, report significant investments in data and network infrastructure, irrelevant for purposes of property taxation which applies only to land and buildings. Therefore, we only include the net value of land and buildings in our computations of property taxes. This break-down is provided in the SEC filings form 10-K of Alphabet, Meta, Nvidia and Oracle, for all years 2004-2025. As Oracle's SEC form 10-K for fiscal year 2025 is yet to be filed, we impute the net value of land and buildings reported for fiscal year 2024.

h. **Total taxes [total_tax].** Total taxes are computed as the sum of sales taxes, fiscal income taxes (federal and state), and pro-rated corporate income taxes (global book taxes owed and property taxes). That is, total taxes are computed as the sum of all tax variables documented above.

Separately from the main analysis, we also retrieve the number of shares that the top 5 pledge as collateral for secured borrowing [shares_collateral]. Since 2007, US-listed C-corporations must disclose the number of shares that their insiders pledge as collateral on SEC filings form 14A. We estimate the total dollar value of shares pledged as collateral as the product of the number of shares pledged as collateral and the average price per share over the respective calendar year [value_collateral]. The value of shares pledged as collateral mechanically increases with rising stock prices, even if the number of shares pledged as collateral remains constant. Hence, we estimate the dollar value of annual net shares pledged as collateral as the difference in the number of shares pledged as collateral, corrected for stock-splits, multiplied by the average price per share over the calendar year [value_net_collateral]. As Meta's form 14A for 2025 is yet to be filed, we temporarily assume that the number of Meta shares Zuckerberg pledges as collateral has remained constant between 2024 and 2025. The companion excel files provide details for wealth, income, and income taxes paid of each of the top 5, and the top 5 as a group for each year from 2004 to 2025.