

August 2, 2024

Estimating Tax Burdens by Wealth Groups

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Abstract:

This paper estimates income and tax burdens by wealth groups with a particular focus on top wealth groups. Taxes include individual income taxes (federal and state), payroll taxes, estate and gift taxes (federal and state), and corporate taxes (federal, state, and foreign). In the billionaire class at the very top of the wealth distribution, corporate taxes (paid by businesses owned by the wealthiest) are the largest tax followed by individual income taxes (with over half of reported individual income taking the form of realized capital gains). Other taxes and in particular estate and gift taxes are minor. At the very top of the wealth distribution, charitable contributions are about as large as the sum of all taxes paid.

This paper was developed in the context of the external research contract TIRNO16E00013 with the Department of Treasury, Office of Tax Analysis (OTA). We are grateful to Bob Gillette, Barry Johnson, and Mike Weber for helpful comments and guidance in using the tax data. We also thank the OTA and IRS-SOI team for a stimulating discussion of preliminary results.

1. Research project description

The goal of this project is to estimate tax burdens by wealth groups with a particular focus on top wealth groups. Taxes include individual income taxes (federal and state), estate taxes (federal and state), payroll taxes, property taxes, and corporate taxes (federal and state). This question is of direct tax administration interest in light of various proposals to “tax wealth like work”. Several bills in Congress and state legislatures have also been proposed to condition taxes on high net worth, sometimes focusing specifically on billionaires, as well as reforms to corporate income taxation. Creating statistics on the tax burden by wealth groups all the way up to very top can help illuminate the effects of such proposals on tax burdens by wealth group.

Measuring tax rates by wealth groups requires estimating wealth. There are four strategies that can be used to estimate wealth in tax data. First, estate tax data provide a direct measure of wealth at death for wealthy decedents and can be linked to previous income tax data following a long tradition within the Statistics of Income (SOI) division at IRS (see e.g., Bourne et al. 2018). Second, capital income from income tax data can be capitalized to estimate wealth (as done by Saez and Zucman 2016). Third, business wealth can be estimated using the detailed balance sheets reported on business tax returns (as done recently by Smith, Zidar, and Zwick 2023). Fourth, the top 400 billionaire list created for Forbes magazine since 1982 can be matched to tax data (as done in Raub, Johnson, and Newcomb 2010 who compare Forbes wealth with reported wealth on estates of Forbes decedents).

For each wealth group, we measure wealth, income, and taxes broken down by category of tax. Our key innovation relative to the Piketty, Saez, and Zucman (2018) distributional national income statistics is that we rank by wealth, match individual tax data to estate and gift tax data (to obtain better estimates of estate and gift taxes paid) and (in progress) to business tax data (to obtain better estimates of corporate income taxes paid), and to Forbes 400 data (to obtain better estimates of the tax burden for this

very top group). Our results can inform simulations of how various capital tax proposals would affect total tax burdens by wealth groups.

Methodology

We rank tax units by wealth. Percentiles are defined relative to the full population (tax filers and non-filers). We break down the full population of tax units (including non-filers) by wealth groups using capitalized wealth estimated from Distributional National Accounts (Piketty, Saez, and Zucman 2018 and most recent updates) up to the top .001%, the highest wealth group that can be reliably considered using the capitalization method. For groups above the top .001%, we match the Forbes 400 lists (from 2010 to 2020) to tax data following the methods of Raub, Johnson, and Newcomb (2010).

Matching methodology. The match to tax data is done using the publicly available exact date of birth, first 4 letters of the last name, and state of residence of the Forbes 400 wealthiest from year 2010 to 2020. These variables are matched to the INSOLE individual income tax files for years 2005-2019 restricted to large incomes (AGI in absolute value in excess of \$5m). We start from the finest matches using all variables, and then move to coarser matches that use only the year of birth (as opposed to the exact day of birth). We were able to match about 98% of individuals from the Forbes 400 lists from years 2010 to 2020. Once a match is obtained, we can compute individual income and taxes for years 2010 to 2020 by matching to individual tax data and using in priority the edited SOI INSOLE files and then, if necessary, the unedited full population CDW data to complete the data. For estate and gift taxes, we match to estate and gift tax returns in the CDW database. For corporate taxes (in progress), we match owners to the C-corporations they own using the SOI corporate study file for 2019 along with the CDW data for additional variables, years, and firms. The match of C-corporations is done using two strategies.

We then use Forbes wealth to rank billionaires into three groups in: top .0002%, top .0001%, and top .00005%. In 2019, the top .0002% corresponds to approximately the richest 360 tax units on the Forbes list, the top .0001% to approximately 180 tax units, and the top .00005% to approximately the richest 90 tax units. This fine division is informative. Most of the increase in the Forbes wealth share is due to the top 100 within the top 400 as shown earlier by Kopczuk and Saez (2004). Moreover, the results below find that there are substantial variations in tax burden relative to income and to wealth across these the very top groups.

We report statistics averaged over groups of years: 2010-3, 2014-7, and 2018-20. These temporal divisions allow us to compare results before the TCJA tax reform (2010-3, and 2014-7) and after the TCJA tax reform (2018-2020).

Computation of taxes.

Individual income taxes. Individual income taxes are directly measured from individual income tax return 1040 information. We directly compute federal Social Security and Medicare taxes on wage income based on that 1040 information. State income taxes are obtained from Schedule A of form 1040 (such taxes are reported without cap even after TCJA capped such deductions). Foreign income tax is derived from the foreign tax credit Form 1116.

Transfer taxes. Transfer taxes include federal estate and gift and analogous state taxes for next year decedents (e.g., members of the 2019 Forbes list who die in 2020). Tax data is obtained from the federal estate tax returns forms 706, as well as gift taxes for gifts made during the year and reported on the federal gift tax form 709. Estate tax return data includes both the federal tax paid as well as state level taxes. Gift tax data includes only the federal gift tax. Because there are relatively few decedents in any given year, to smooth year to year variation, transfer taxes are averaged across all years 2010 to 2020. A large share of the Forbes 400 list make gifts in any given year, so all statistics are based on a large number of returns with non-zero values.

Corporate taxes.

We employ two methodologies to estimate corporate taxes for the very top groups: a simpler methodology based on macroeconomic tax rates, and a refined methodology based on matching the Forbes 400 to public and internal tax data on the businesses they own.

Simpler corporate tax methodology. The simpler methodology is based on an extrapolation entirely using pre-existing public data, based on the Distributional National Account data for the top group .001%. We compute the ratio of corporate taxes paid by this group to wealth owned by this group, and we then apply this ratio to the wealth of the very top groups .0002%, .0001%, and .00005% in order to estimate the corporate taxes paid by each very top group. This procedure amounts to assuming that the ratio of corporate taxes to wealth remains the same within the top .001%. This assumption will hold, for example, when the fraction of corporate equity in wealth remains constant across the very top groups and the corporate tax relative to equity is also constant across the very top groups. Once we have estimate the corporate taxes, we break them into federal, state and local, and foreign based on aggregate data.

Refined corporate tax methodology (in progress).

We create a refined corporate tax computation for 2019-owned-corporations only to assess the assumptions made in the simpler methodology just described. We match the Forbes 400 to public and internal tax data on the businesses they own, based on SEC Schedule 13-D and related filings. For publicly traded businesses, the Forbes 400 data provide the company ticker and stake owned by the person. We merge this information to the publicly available Compustat database that provides information on the book income and corporate taxes paid by these large businesses. The Compustat database is created by compiling the publicly available 10-K forms that all publicly traded companies must file with the Security Exchange Commission. We use Compustat current federal taxes, current state taxes, and current foreign taxes and prorate them according to the ownerships shares.

For private businesses, the Forbes data provide the business name and sometimes information on stakes on many private businesses owned by the Forbes 400. We first obtain EINs for these private businesses from online searches. We then match EINs to internal corporate tax data, both the corporate study (which is a stratified

sample of corporations with many variables and quality checks developed and maintained by SOI at IRS) and the CDW corporate database (the complete raw administrative tax data that includes the universe of US corporations but without additional cleaning of the variables). From these matches, we use book income information from the schedules L and M3 to obtain the comparable information to the Compustat data used for publicly traded corporations. For stakes of private businesses, we use both the information from Forbes supplemented by information from schedule 1125-E of the 1120 tax form, which provides information on stakes owned by officers of the company (as most of the large shareholders of private businesses are also officers of the company).¹

The refined methodology may yield different results from the simpler methodology, or may yield similar results. Key determinates of difference or similarity will be the share of top-owned private business that are C-corporations and thus face the corporate income tax, and the effective tax rates of those top-owned private businesses. The results reported below are based on the simpler method; we will present sensitivity analysis based the refined method in a future updated draft.

Results

Table 1 reports the main results. The table reports capitalized wealth, adjusted gross income (AGI), and various subcomponents of AGI, as well as various taxes. All amounts are the average per tax unit in the group and expressed in thousands of current dollars.

For wealth percentiles up to the top .001%, the statistics are based entirely on pre-existing data. Wealth estimates and the non-corporate-tax statistics are drawn from (Saez and Zucman 2016). The corporate tax estimates are based on the distributional national account method as in Piketty, Saez, and Zucman (2018, updated). These statistics are reported for year 2019. For very top percentiles .0001% and above, the non-corporate-tax values are based on this paper's matching of the Forbes 400 list to tax data, reporting means over years 2018, 2019, and 2020. For these very top groups'

¹ The definition of officer of a company varies depending on State level corporate laws.

corporate tax estimates, we report values from the simpler method described above based entirely on preexisting public data.

For the very top groups, estimated corporate taxes are the largest category of tax, followed by individual income taxes (with over half of reported individual income taking the form of realized capital gains). Other taxes and in particular estate and gift taxes are relatively minor. At the very top of the wealth distribution, charitable contributions are about as large as the sum of all taxes paid. Note also that current charitable contributions are larger than deducted charitable contributions, due to the 50% AGI limit on charitable deductions (with carry-forward). It is also of note that the tax to wealth ratio declines throughout the wealth distribution, including the very top percentiles within the top 400.

Table 2 follows the data sources of Table 1 and considers the evolution of income and taxes for the very top wealth percentiles over time from 2010 to 2020. We start by computing income and taxes for each percentile and tax year from 2010 to 2020, and then present averages across 3 groups of years: 2010-3, 2014-7, and 2018-2020 (already presented in Table 1). A notable result is that the tax to wealth ratio declines over time, consistent with both the rise in wealth at the very top and the decrease in tax rates after TCJA (period 2018-2020).

In Table 3, we consider cumulative income and taxes paid by the richest in the 10 years after (in the left-panel columns) or the 10 years before (in the right-panel columns). The goal is to compare the income and taxes accrued during a decade compared with the level and change in wealth over the same period. This provides a longer-term perspective that complements the shorter-term evidence presented in Table 1. The statistics are overall consistent with the shorter-term statistics and also similar for the left-panel and right-panel, consistent with a relatively modest turnover at the very top of the US wealth distribution.

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Table 1. Wealth, Income, and Taxes by Groups Ranked by Wealth (all amounts per tax unit in \$'000s)

	Ranking by Wealth								
	Capitalization method (Distributional National Accounts) for 2019						Matched sample (2018-2020 average)		
	All	top 10%	top 1%	top .1%	top .01%	top .001%	top .0002%	top .0001%	top .00005%
Number of tax units	183,700,000	18,370,000	1,837,000	183,700	18,370	1,837	367	184	92
Wealth per tax unit (\$'000s)	503.491	3,804.8	18,793	93,902	485,268	2,318,864	8,014,621	12,915,870	20,770,599
Adjusted Gross Income per tax unit (\$'000s)	65.444	273.4	1,093	4,963	21,314	98,851	172,669	244,632	344,917
Total income	66.234	277.4	1,106	4,990	21,376	99,020	172,941	245,088	345,738
Total adjustments	-0.789	-4.0	-13	-27	-62	-169	-84	-78	-66
Wages and pensions	57.251	170.5	376	1,011	2,505	8,475	9,405	12,068	16,694
Realized capital gains	4.844	42.1	299	1,840	9,143	45,174	114,923	161,524	223,886
Capital income	3.442	32.7	225	1,233	6,134	26,639	63,670	95,986	148,044
Dividends	1.813	16.4	108	597	3,062	14,723	41,704	67,966	102,995
Interest	0.837	7.6	52	314	1,785	7,557	15,592	22,929	34,966
Tax exempt interest (not in AGI)	0.342	3.3	23	120	424	974	2,260	2,674	4,226
Rental income	0.130	2.4	17	53	110	228	-89	-433	-728
Positive rental income	0.467	4.0	22	68	154	248	944	1,317	2,537
Negative rental income	0.339	1.6	5	15	44	20	-1,028	-1,730	-3,228
Estate and trust income	0.178	1.7	15	95	555	2,700	1,538	-1,528	-1,185
Royalties	0.141	1.3	10	54	197	458	2,666	4,378	7,771
Business Income	5.471	43.1	264	1,189	4,478	16,873	-6,405	-17,957	-41,466
Positive business income	6.668	49.3	300	1,389	5,456	16,498	26,056	32,406	31,456
Negative business income	-1.197	-6.2	-36	-201	-1,006	-567	-32,462	-50,364	-72,923
Partnership income	1.522	15.0	106	427	1,313	5,085	-19,820	-33,198	-49,943
Positive partnership income	1.905	18.1	128	562	2,039	5,724	7,065	8,189	7,092
Negative partnership income	0.383	3.1	22	135	726	639	-26,357	-40,507	-55,661
S-corporation income	2.151	19.8	140	731	3,152	11,065	14,611	17,047	11,498
Positive S-corporation income	2.416	21.6	151	785	3,404	11,222	20,750	26,295	26,263
Negative S-corporation income	0.265	1.8	11	54	252	158	-5,991	-8,982	-14,349
Other income (excl. nols)	-4.431	-7.8	-35	-163	-460	2,835	7,112	11,008	16,630
Net operating losses (from earlier years)							-13,504	-14,868	-13,823
Current charitable contributions							51,531	84,275	140,141
Charitable contributions deducted	1.382	8.8	52	348	2,120	11,190	41,768	66,192	105,291
Total individual income and FICA taxes	17.440	82.6	389	1,887	8,064	30,597	49,623	66,864	87,043
Federal indiv. income tax and FICA tax	14.724	68.1	316	1,496	6,411	27,640	36,894	49,005	62,154
State and local indiv. Income tax	2.716	14.5	72	391	1,653	2,956	10,807	15,013	20,873
Foreign indiv. Income tax							1,922	2,846	4,015
Estate, inheritance, and gift taxes	0.117	1.2	12	112	578	2,681	2,354	3,368	3,477
Total corporate income taxes	1.627	12.0	62	352	2,088	12,790	44,204	71,237	114,559
Federal corporate tax	0.732	5.4	28	159	940	5,755	19,892	32,057	51,552
State corporate tax	0.244	1.8	9	53	313	1,918	6,631	10,686	17,184
Foreign corporate tax	0.651	4.8	25	141	835	5,116	17,682	28,495	45,824

Notes: All amounts are in current thousands of dollars and are averages per tax unit. Tax units include all tax units had everybody filed an income tax return as in Piketty, Saez, and Zucman (2018). The table defines groups up to top .001% by wealth using the capitalized method of distributional national accounts from Piketty, Saez, Zucman (2018), most recent update. The very top groups top .0002% and above are defined by wealth matching the Forbes 400 billionaire list to their tax data, with the following details. Income and income tax statistics are based on individual income tax data and are averages over years 2018, 2019, and 2020. Corporate tax is based on the simple distributional national account method described in the text. Estate, gift, and inheritance taxes include federal and state level taxes. For very top groups, they are estimated by matching Forbes 400 billionaire to federal estate and gift tax forms; these transfer tax statistics are based on the average from 2010 to 2020 to smooth out large annual variations. Current charitable contributions are the sum of cash and non-cash contributions made during the tax year. Charitable contributions deducted are contributions deducted from AGI (limited to 50% of AGI and including carry forwards from past years contributions in excess of the limit). In the underlying data, charitable contributions are available only reported for itemizers and are set to zero for non-itemizers. Table 2 provides information over time averaged for years 2010-2013 and 2014-2017 and 2018-2020 for the very top percentiles.

Table 2. Wealth, Income, and Taxes of Top Wealth Groups Over Years (all amounts per tax unit in \$'000s)

	2010-2013			2014-2017			2018-2020		
	top .0002%	top .0001%	top .00005%	top .0002%	top .0001%	top .00005%	top .0002%	top .0001%	top .00005%
Number of tax units	342	171	85	357	178	89	367	184	92
Wealth per tax unit (\$'000s)	4,619,866	7,334,796	11,467,698	6,572,716	10,455,036	16,555,778	8,014,621	12,915,870	20,770,599
Adjusted Gross Income per tax unit (\$'000s)	153,917	223,623	332,123	185,374	267,594	417,666	172,669	244,632	344,917
Total income	154,839	225,099	334,662	186,312	268,919	419,527	172,941	245,088	345,738
Total adjustments	-921	-1,476	-2,539	-938	-1,324	-1,861	-84	-78	-66
Wages and pensions	10,155	14,492	24,584	9,148	13,429	19,524	9,405	12,068	16,694
Realized capital gains	88,234	127,856	172,158	112,616	159,810	230,143	114,923	161,524	223,886
Capital income	48,950	73,037	108,798	54,619	82,284	133,622	63,670	95,986	148,044
Dividends	31,296	49,996	75,866	38,377	61,285	100,753	41,704	67,966	102,995
Interest	13,984	19,293	25,686	13,761	20,317	28,123	15,592	22,929	34,966
Tax exempt interest (not in AGI)	2,304	2,923	3,555	1,935	2,156	3,324	2,260	2,674	4,226
Rental income	80	49	10	-80	-295	-142	-89	-433	-728
Positive rental income	284	255	208	321	159	187	944	1,317	2,537
Negative rental income	-205	-207	-200	-400	-452	-326	-1,028	-1,730	-3,228
Estate and trust income	286	-274	3,401	-448	-2,997	-327	1,538	-1,528	-1,185
Royalties	1,001	1,051	281	1,073	1,819	1,891	2,666	4,378	7,771
Business Income	12,941	16,298	33,127	15,948	20,360	37,412	-6,405	-17,957	-41,466
Positive business income	27,748	36,295	53,388	36,109	49,777	73,617	26,056	32,406	31,456
Negative business income	-14,807	-19,997	-20,260	-20,161	-29,416	-36,205	-32,462	-50,364	-72,923
Partnership income	-2,059	-1,687	5,103	-2,708	-3,764	13,068	-19,820	-33,198	-49,943
Positive partnership income	8,467	11,626	15,374	14,367	21,328	39,510	7,065	8,189	7,092
Negative partnership income	-10,433	-13,193	-10,146	-16,886	-24,900	-26,342	-26,357	-40,507	-55,661
S-corporation income	15,569	19,225	29,169	19,676	25,321	24,902	14,611	17,047	11,498
Positive S-corporation income	20,838	27,460	41,838	24,662	32,537	36,145	20,750	26,295	26,263
Negative S-corporation income	-5,222	-8,150	-12,478	-4,927	-7,157	-11,210	-5,991	-8,982	-14,349
Other income (excl. nols)	1,824	2,389	3,143	5,019	7,806	12,071	7,112	11,008	16,630
Net operating losses (from earlier years)	-4,960	-6,050	-3,593	-9,103	-12,614	-9,921	-13,504	-14,868	-13,823
Current charitable contributions	26,447	41,919	63,013	52,070	84,164	143,781	51,531	84,275	140,141
Charitable contributions deducted	23,082	36,473	54,192	39,169	62,243	103,289	41,768	66,192	105,291
Total individual income and FICA taxes	40,150	56,479	81,130	57,000	80,328	115,907	49,623	66,864	87,043
Federal indiv. income tax and FICA tax	28,406	39,259	56,884	40,973	56,941	81,258	36,894	49,005	62,154
State and local indiv. Income tax	9,997	14,561	20,581	13,889	20,099	29,570	10,807	15,013	20,873
Foreign indiv. Income tax	1,748	2,658	3,666	2,138	3,289	5,079	1,922	2,846	4,015
Estate, inheritance, and gift taxes	2,354	3,368	3,477	2,354	3,368	3,477	2,354	3,368	3,477
Total corporate income taxes	48,377	77,962	125,374	57,651	92,907	149,408	44,204	71,237	114,559
Federal corporate tax	24,673	39,761	63,941	29,402	47,383	76,198	19,892	32,057	51,552
State corporate tax	4,354	7,017	11,284	5,189	8,362	13,447	6,631	10,686	17,184
Foreign corporate tax	19,351	31,185	50,150	23,060	37,163	59,763	17,682	28,495	45,824

Notes: All amounts are in current thousands of dollars and are averages per tax unit. This table provides the same statistics as in Table 1 for the very top wealth groups for various groups of years: 2010-3, 2014-7, 2018-20. See the notes to Table 1 for details.

Table 3. Past and Future 10-year 2010-2019 Cumulative Income and Taxes by Top Wealth Groups
(all amounts per tax unit in \$ '000s)

	A. Future Cumulative Income 2010-2019 of the Wealthiest in 2010			B. Past Cumulative Income 2010-2019 of the Wealthiest in 2019		
	top .0002%	top .0001%	top .00005%	top .0002%	top .0001%	top .00005%
	Number of tax units	335.8	167.9	83.9	367.0	183.5
Wealth per tax unit in 2019 (\$'000s)	7,343,270	11,616,081	18,776,773	3,117,439	4,749,864	7,276,294
Wealth per tax unit in 2010 (\$'000s)	3,674,390	5,721,501	8,695,950	7,798,093	12,463,760	19,903,815
Adjusted Gross Income per tax unit (\$'000s)	1,278,389	1,863,113	2,700,779	1,494,040	2,125,153	3,126,508
Total income	1,285,243	1,873,361	2,717,072	1,502,332	2,135,617	3,143,024
Total adjustments	-6,854	-10,247	-16,292	-8,291	-10,464	-16,515
Wages and pensions	55,885	75,996	106,383	84,530	103,743	137,565
Realized capital gains	762,988	1,086,061	1,371,549	872,188	1,243,586	1,794,490
Capital income	479,956	750,709	1,064,287	489,644	719,756	1,131,273
Dividends	315,357	515,764	773,485	330,263	532,346	844,616
Interest	136,751	193,159	244,767	125,127	180,606	289,990
Tax exempt interest (not in AGI)	20,277	27,367	29,428	19,105	21,505	32,358
Rental income	-694	-610	188	-441	-1,237	-1,355
Positive rental income	1,557	2,071	884	2,982	2,171	2,439
Negative rental income	-2,251	-2,682	-696	-3,423	-3,408	-3,794
Estate and trust income	-1,372	8,320	12,435	7,019	-17,173	-39,763
Royalties	9,637	6,710	3,984	8,570	3,710	5,427
Business Income	30,873	27,597	183,818	109,297	114,044	137,730
Positive business income	225,437	313,602	447,959	278,447	359,760	481,760
Negative business income	-194,564	-286,005	-264,141	-169,150	-245,715	-344,030
Partnership income	-80,175	-127,194	-53,406	-70,576	-115,043	-166,374
Positive partnership income	68,728	86,247	106,961	68,392	81,562	94,473
Negative partnership income	-148,903	-213,441	-160,367	-138,968	-196,605	-260,848
S-corporation income	118,701	166,884	249,475	187,562	242,604	325,362
Positive S-corporation income	172,393	252,334	373,050	232,134	310,687	437,221
Negative S-corporation income	-53,692	-85,449	-123,574	-44,572	-68,083	-111,858
Other income (excl. nols)	44,460	56,143	78,086	46,106	69,605	107,801
Net operating losses (from earlier years)	-68,643	-95,779	-57,624	-80,328	-93,613	-133,478
Current charitable contributions	332,901	526,300	827,547	385,917	606,540	1,017,914
Charitable contributions deducted	259,856	409,994	636,824	288,607	435,349	706,917
Total individual income and FICA taxes	361,490	510,443	691,695	436,673	607,873	847,570
Federal indiv. income tax and FICA tax	251,668	348,345	460,476	310,336	425,850	585,880
State and local indiv. Income tax	91,518	134,031	190,934	109,321	157,274	220,696
Foreign indiv. Income tax	18,305	28,067	40,285	17,016	24,750	40,994
Estate, inheritance, and gift taxes	22,804	26,281	36,495	9,939	16,064	11,438
Total corporate income taxes						
Federal corporate tax						
State corporate tax						
Foreign corporate tax						

Notes: All amounts are in current thousands of dollars and are averaged per tax unit. The left-panel considers the richest in 2010 according to Forbes and provides statistics on their cumulative income and taxes over the next 10 years from 2010 to 2019, summing nominal dollars with no adjustment (if a person dies in the 2010-2019 window, there are no further income taxes but any estate or state inheritance tax are counted in the line estate, inheritance, and gift taxes). The right-panel considers the richest in 2019 according to Forbes and provides statistics on their 10-year prior cumulative income and taxes from 2010 to 2019, summing nominal dollars with no adjustment. Wealth in 2010 for this group is the wealth reported by Forbes in 2010 for the same person and conservatively using the lower threshold for inclusion in the Forbes 2010 if the person was not listed in the top 400 in 2010. See the notes to Table 1 for additional details.