

Online Appendix: Income Mobility of the Top One Percent

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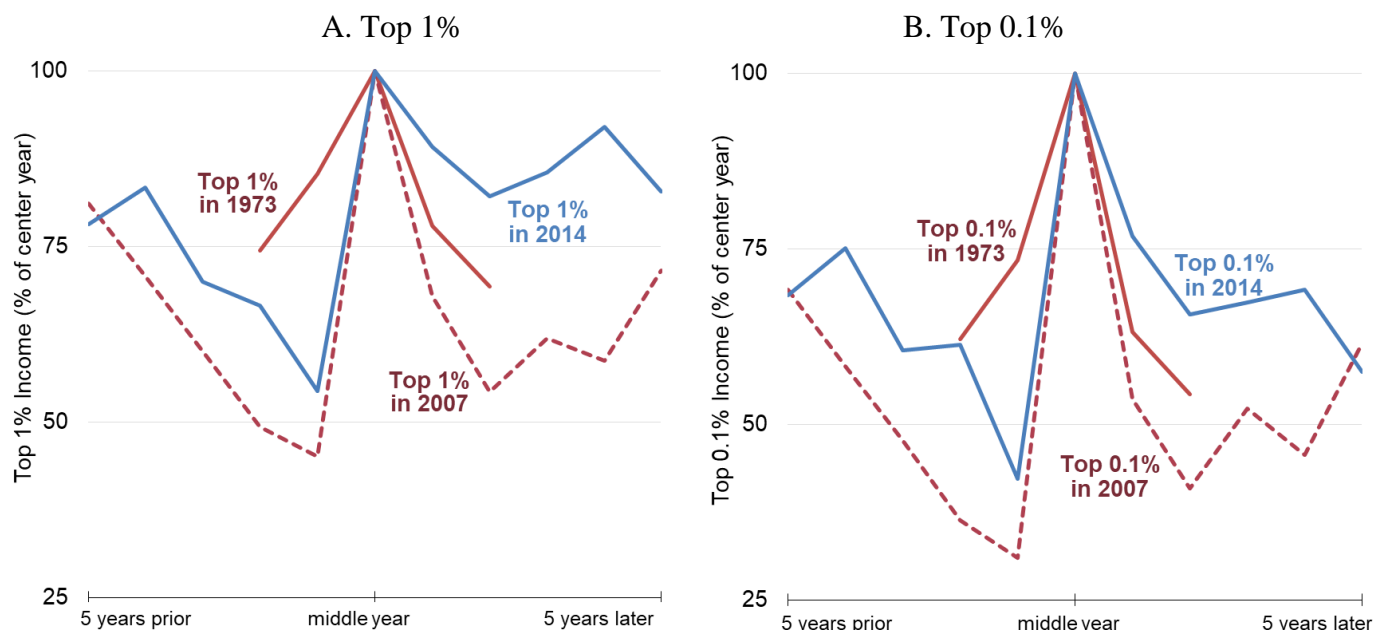
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B.I. Inverted V-shaped rise and fall for top incomes

Figure B1 shows that those at the top of the income distribution in a given year tend to have lower incomes, on average, in surrounding years. These figures rank tax units by the middle year (1973, 2007, and 2014) and then follow the same individuals back five years and forward five years. This shows an inverted V-shaped rise and fall for top incomes and is another way to observe income variability at the top of the distribution. For the top 1% in 2007, their prior-year incomes were half of the next year's income. The top 0.1%'s prior-year income was one-third of the next year's income. Looking back five years or forward five years shows less extreme changes.

The top 0.01% and top 0.001% have an even more accentuated inverse V-shape for 2007 and 2014 (see online spreadsheet). For these top groups, their prior-year incomes were only about one-fifth of the next year's income. Relative to their income in the base year, top 0.01% and top 0.001% real incomes were about half the size when looking back five years or forward five years.

Figure B1. Inverted V-shape: Top incomes tend to be lower in surrounding years

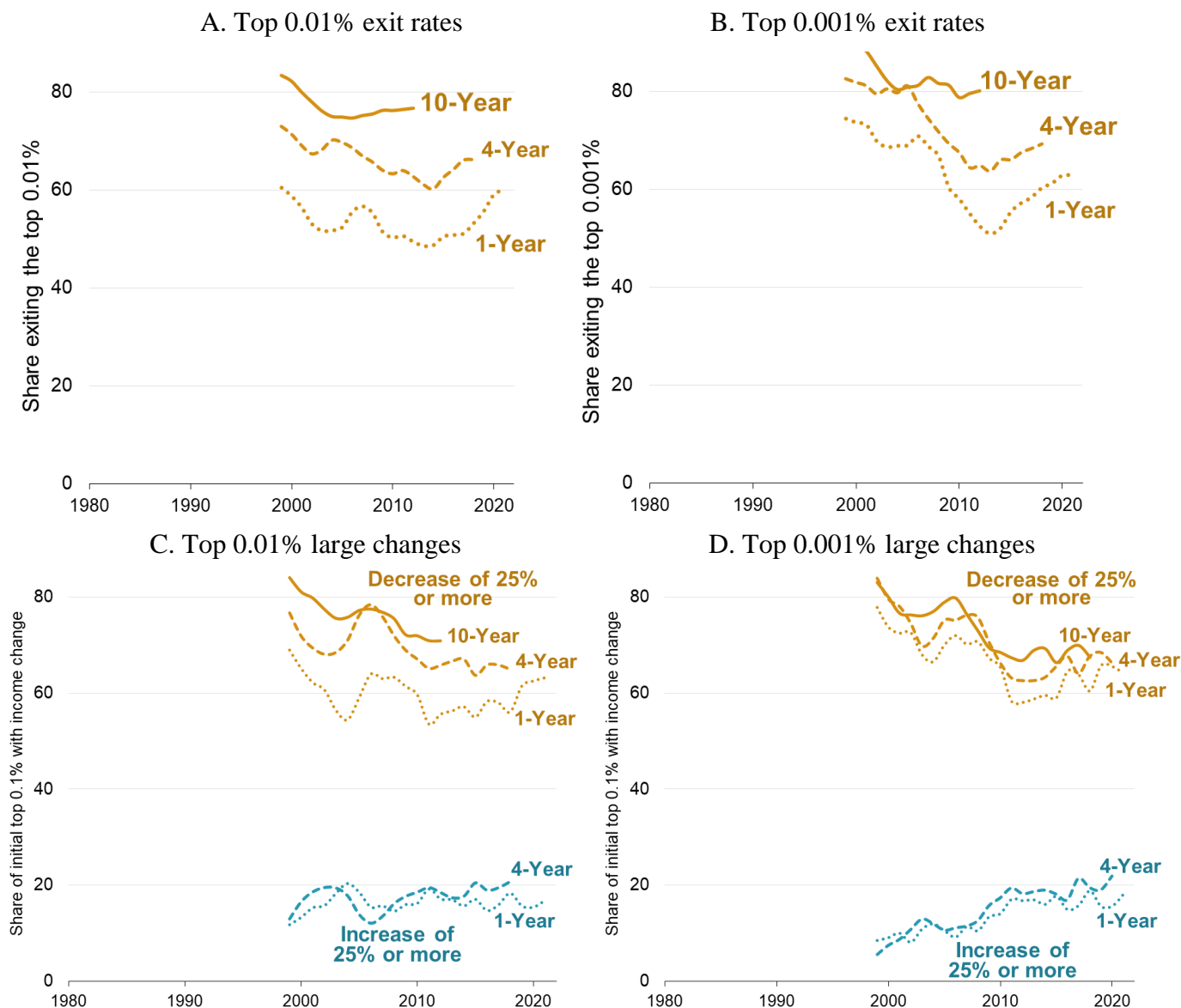


Notes: Incomes are fiscal income including capital gains, indexed with the PCE. Those under age 20 in the initial year are excluded. *Source:* Authors' calculations using tax return panels (1973-centered panel and large panel).

B.II. Top 0.01% and 0.001%

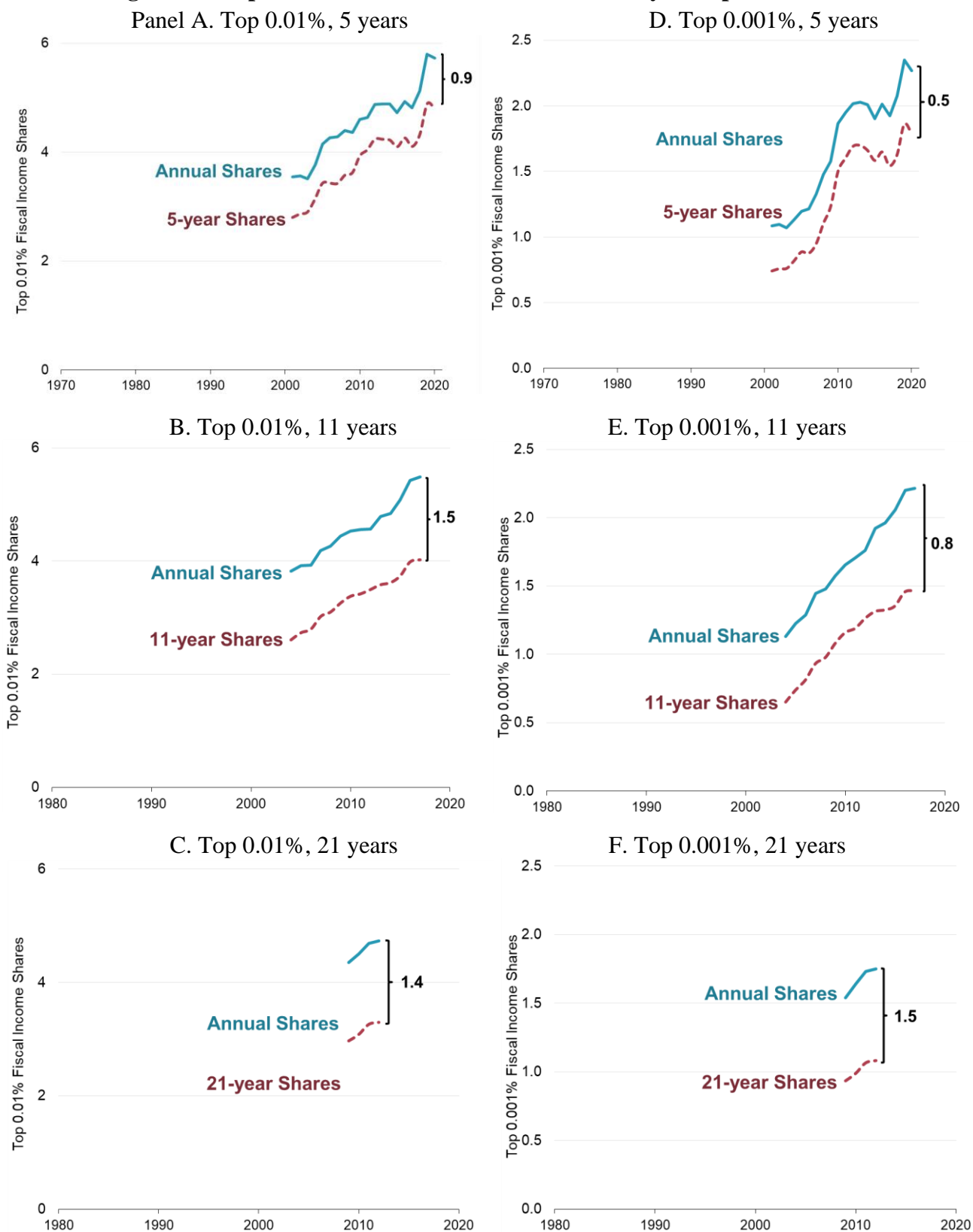
Figure B2 shows exit rates and large changes for the top 0.01% and top 0.0001%. Figure B3 compares annual and multi-year income shares for the top 0.01% and top 0.0001%, where observations used for the annual and multi-year samples as explained in the main text (20 years or older in initial year, etc.) and annual shares are smoothed over the multi-year period. These top groups can only be estimated using the large panel, which begins in 1999.

Figure B2. Top 0.01% and 0.001% exit rates and share with large real income changes



Notes: Fiscal income including capital gains, indexed with the PCE. Those under age 20 in the initial year are excluded. Results are by initial year (e.g., 4-year changes are from year t to $t+4$) and then smoothed over three years for exit rates and five years for changes. *Source:* Authors' calculations using the large panel.

Figure B3. Top 0.01% and 0.001% annual and multi-year top fiscal income shares

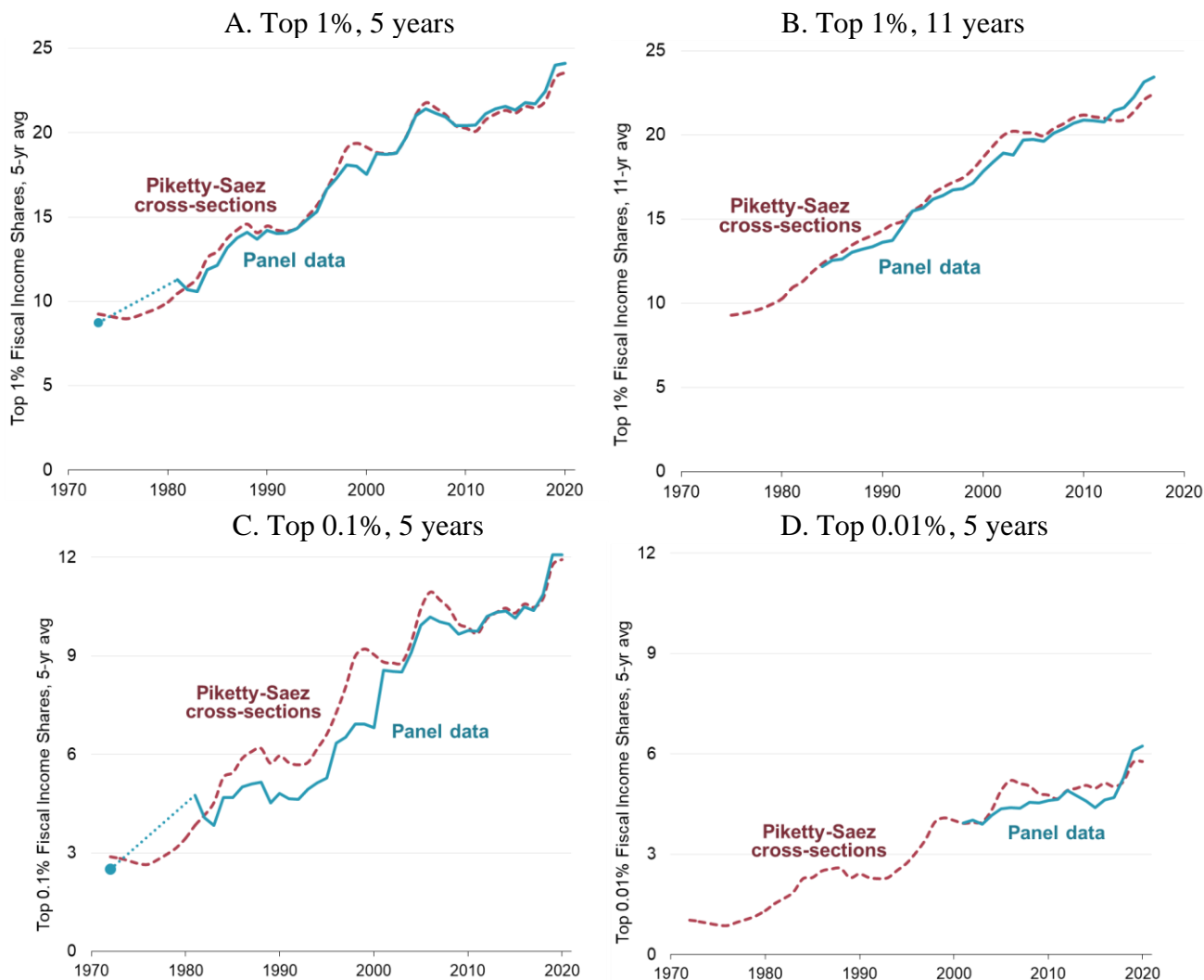


Notes: Results are centered (e.g., 5-year changes are from $t-2$ to $t+2$). *Source:* Authors' calculations using the large panel.

B.III. Comparisons with Piketty and Saez (2003) annual estimates

Figure B4 shows that our estimates of annual top 1% shares of fiscal income are consistent with those produced by averaging annual results from Piketty and Saez (2003). This is after adjusting our high-income weights in select years due to outlier effects resulting from changes in CWSH sampling rates over time. The small sampling rate, and hence high weights, for the CWSH means outlier observations can have disproportionate effects on top 0.1% income shares. The other panels avoid this issue: the 1973-centered panel has stratified sampling rates that are much higher for high-income returns and the large panel (since 1999) has a much higher sampling rate. For the intervening period, the CWSH is the only panel available and therefore we make an adjustment to weights for top 0.1% estimates only, increasing observation weights in this top group by 25 percent for 1979–1987 and decreasing them by 30 percent afterwards (the large panel is used starting in 1999). Figure B4, Panels A and B show that this results in top 1% shares that align with those from Piketty and Saez (2003), although Panels C and D show modest deviations for higher income groups.

Figure B4. Comparison with Piketty-Saez: Smoothed annual fiscal incomes



Notes: Tax return panels (using 5-year and 11-year restrictions for minimum filing) and Piketty and Saez (2003) fiscal income including capital gains top shares averaged over the number of years shown and centered. Incomes are fiscal income indexed with the PCE. Those under age 20 are excluded from both data sources. *Source:* Authors' calculations using tax return panels (top 0.01% and 0.001% only from large panel) and Piketty and Saez (2003 and updates).

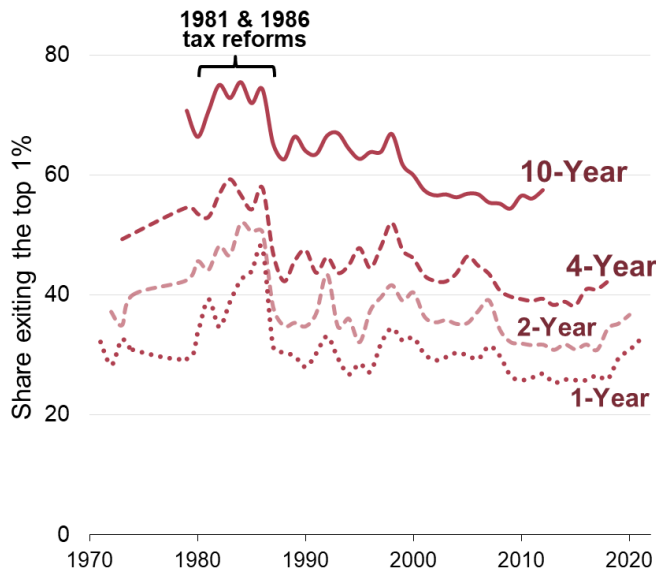
B.IV. Exit rates and large income changes: No smoothing, CWSHS only, and no deceased

Figure 1 in the main paper shows estimates of top-group exit rates and large income changes smoothed over three or five years. Figure B5, however, shows the underlying estimates without smoothing. We make four observations. First, long-run trends can be difficult to discern from these estimates without smoothing, which is why the results in the main paper are smoothed. Second, there is no clear discontinuity when going from the CWSHS panel to the large panel in 1999, as patterns either continue level or continue decreasing for a few years. Third, exit rates in Panels D and B without smoothing are still characterized by large increases around tax reforms in the 1980s. The 1981 reform increased depreciation deductions, lowering reported business income. The 1986 reform caused large capital gains realizations to avoid a tax increase and income shifting from corporate income (not reported on individual tax returns) to passthrough income (reported on individual tax returns) to benefit from lower tax rates (Auten, Splinter, and Nelson 2016). Finally, large income changes in Panels C and D without smoothing are characterized by large volatility, usually corresponding to recessions for large decreases and recoveries for large increases.

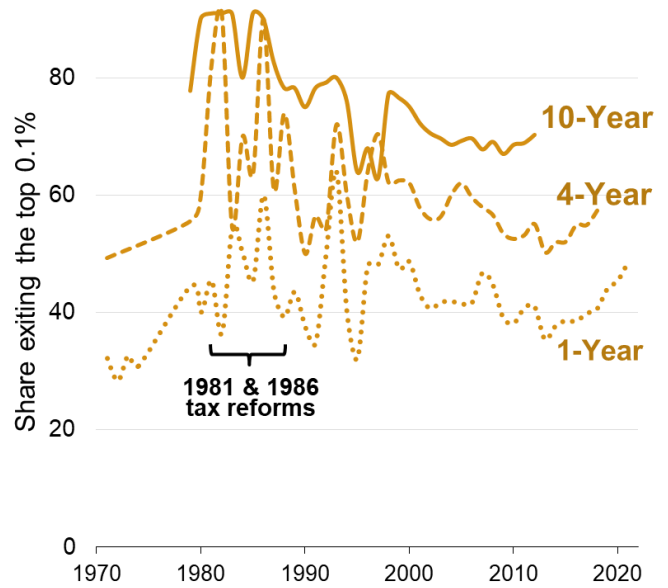
Figure B6, Panels A and B replicate Figure 1 exit rates but do not use the large panel. Instead, they only use the 1973-centered panel and the CWSHS, and replaces the large panel estimates starting in 1999 with the CWSHS estimates. The results are similar to those observed with the large panel. Panels C and D are estimated like Panels A and B (no large panel) but also exclude those dying within the multi-year period. The results are nearly identical when excluding the deceased. For example, the average 1-year exit rate only changes by 0.3 percentage points (32.9 percent to 32.6 percent) and the 10-year exit rate by only 0.2 percentage points (from 66.2 percent to 66.0 percent).

Figure B5. Top 0.01% and 0.001% exit rates and share with large income changes: No smoothing

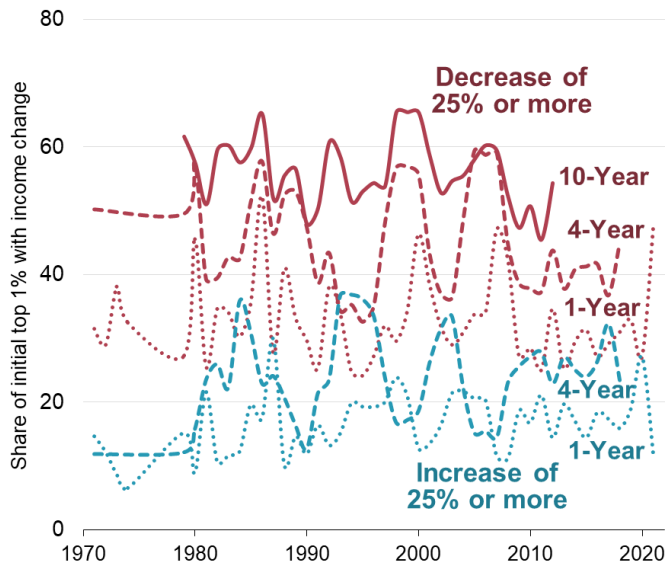
A. Top 1% exit rates



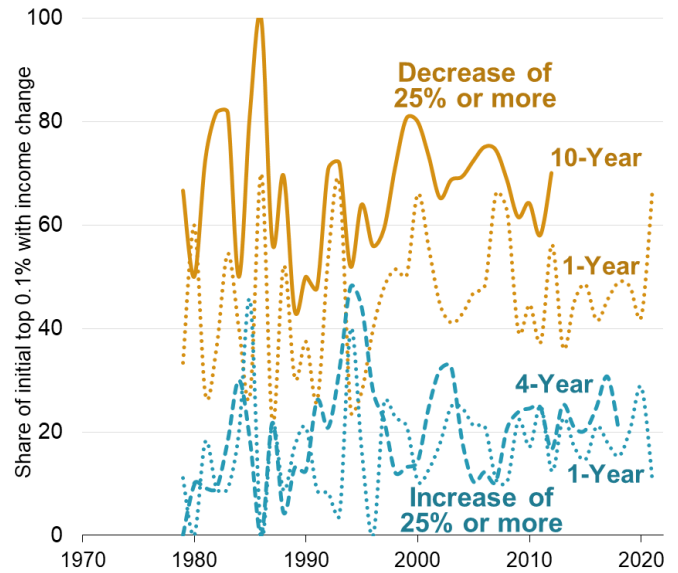
B. Top 0.1% exit rates



C. Top 1% large changes

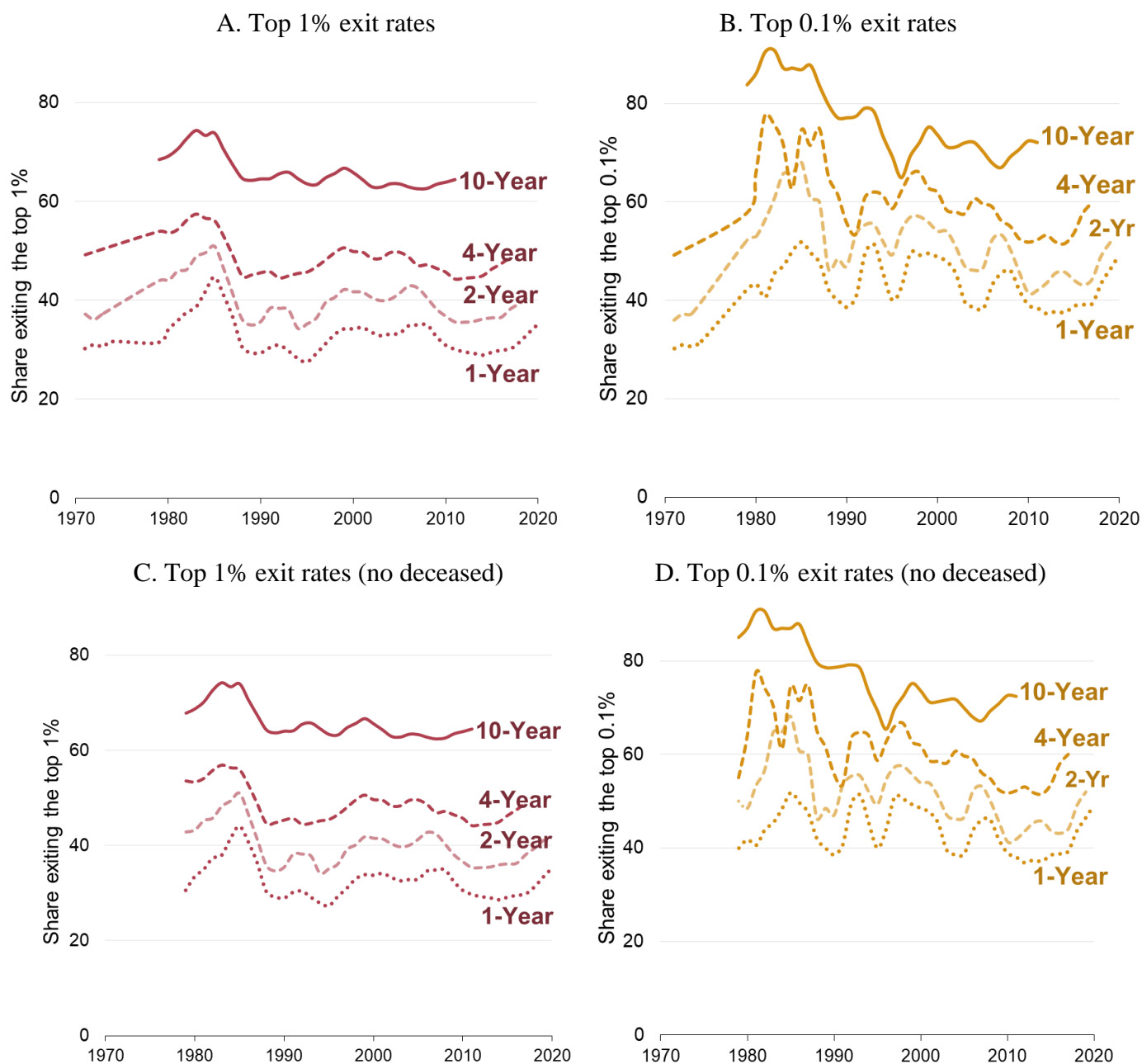


D. Top 0.1% large changes



Notes: Incomes are fiscal income including capital gains, indexed with the PCE. Results are by initial year (e.g., 4-year changes are from year t to $t+4$), no initial years are available for 1975 to 1978 (these years are interpolated). Those under age 20 in the initial year are excluded. *Source:* Authors' calculations using tax return panels.

Figure B6. Top 0.01% and 0.001% exit rates and share with large income changes: No large panel



Notes: Incomes are fiscal income including capital gains, indexed with the PCE. Results are by initial year (e.g., 4-year changes are from year t to $t+4$) and then smoothed over up to three years for exit rates and five years for changes (no initial years are available for 1975 to 1978). Tax units with primary filers under age 20 in the initial year are excluded. *Source:* Authors' calculations using 1973-centered and CWS tax panels.

B.V. Wealth Shares: Capitalizing Incomes Over Multiple Years

Capital income reported on annual tax data can be grossed up, or capitalized, to estimate wealth. However, rates of return are not observed in tax data and capital income for an asset can be volatile from one year to the next. These issues cannot be completely resolved with tax data, but steps are taken in the method described here to account for different rates of return across assets (but not within asset-type heterogeneity) and capital income variability over time. To estimate the distribution of wealth, we capitalize the income reported on tax return by allocating net worth totals from the Federal Reserve’s Distributional Financial Accounts (DFA). The DFA includes 19 asset categories and 5 liability categories (Batty et al. 2019). We combine these into 7 asset categories and 3 liability categories and allocate each as follows:

- (1) Real estate assets: itemizer share by deducted property taxes, non-itemizer share equal
- (2) Home mortgages (liability): itemizer share by mortgage interest deductions,
non-itemizer share equal across observations
- (3) Consumer durables: 75% by income and 25% equal across observations
- (4) Corporate equities & mutual fund shares: 90% by dividends, 10% realized capital gains
- (5) Pension entitlements 75% by taxable retirement distributions and 25% by wages
- (6) Equity in non-corporate business by the absolute value of passthrough business income,
which sums net income from partnerships, S corporations, and sole proprietorships
- (7) Tax-exempt bonds: by tax-exempt interest¹
- (8) Taxable bonds and other assets: by taxable interest
- (9) Consumer credit (liability): equal across observations
- (10) Other liabilities (liability): equal across observations

The sum of these assets and liabilities is net worth, or *wealth*.² However, the tax data wealth distributions differ from the DFA distributions because the number of tax returns exceeds the number of households in the DFA total number of observations. Although we remove filers younger than 20 years old, the DFA removes additional tax units that are part of larger households.

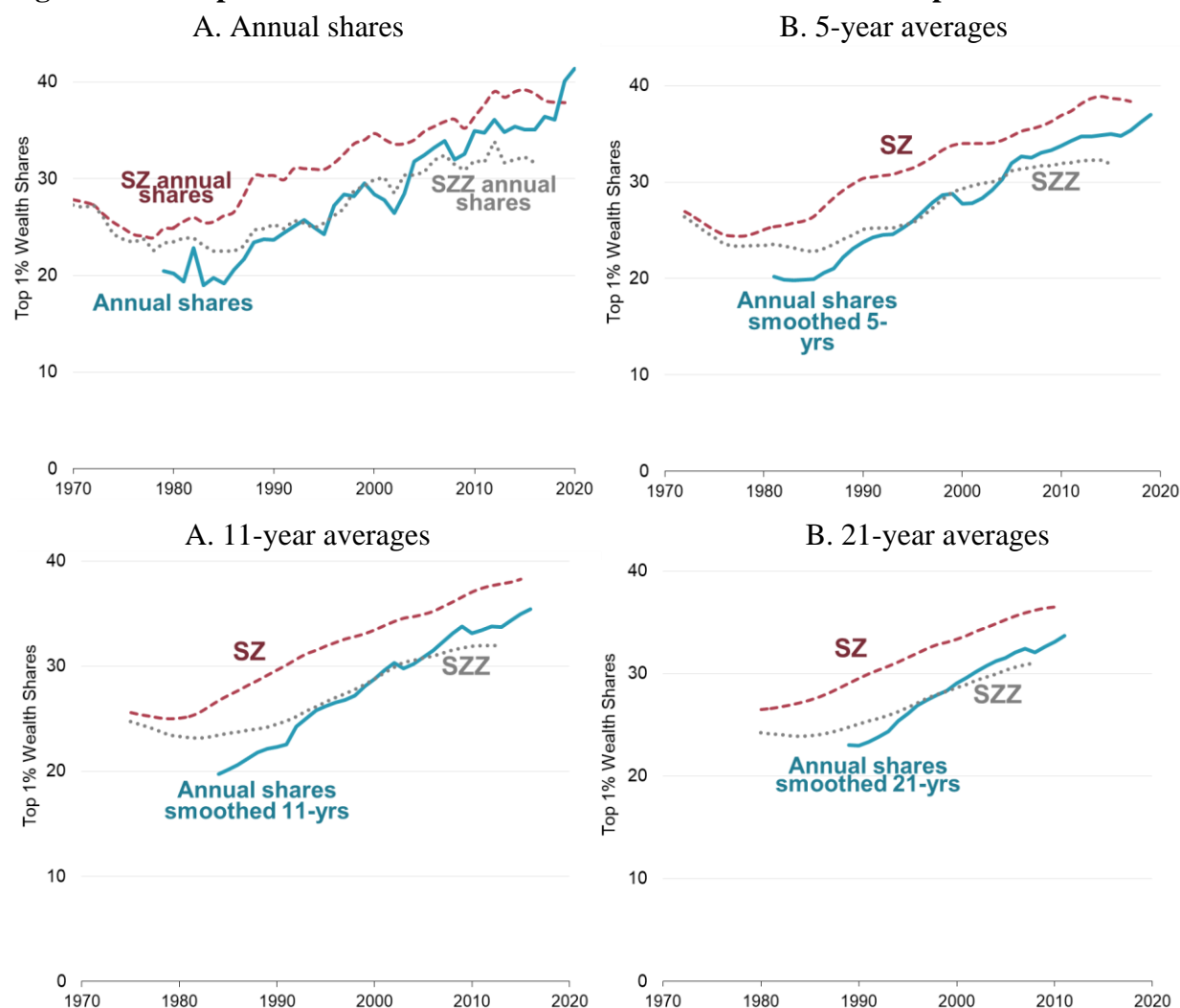
Our estimates could be affected by including heterogeneous returns—especially for taxable interest, non-taxable interest Smith, Zidar, and Zwick (2021)—but the point of the exercise in this paper is to isolate the effect of considering multi-year capital income and wealth, not heterogeneity of returns within a given year. For the same reason, we do not impute Forbes 400 wealth, which would deviate from capitalizing capital income and miss the effects of capital income variability that we seek to capture. To estimate multi-year wealth shares, we first sum real wealth of each DFA component over the multi-year period (indexing with the PCE). Over the same period, we sum real capital incomes for each component and each filer. Then, for each component, we allocate this multi-year wealth using the multi-year capital incomes. Finally, we sum all components.

¹ Tax-exempt interest is missing from tax returns before 1987 and we impute it with approach of Auten and Splinter (2024 online appendix, p. 7): “Between 1982 and 1986, the fraction of tax-exempt interest going to each income group is based on shares from the 1983 Survey of Consumer Finances...The shares are assumed to decrease linearly for years between 1962 [using shares from the Survey of Financial Characteristic of Consumers] and 1982.”

² These wealth measures are not tax neutral because some wealth has no or little deferred tax liability (e.g., Roth retirement accounts and most owner-occupied housing), while other wealth includes a large amount of deferred tax liability (e.g., IRAs). This means DFA net worth exceeds after-tax net worth (Wolff 2020; Looney and Moore 2015).

Figure B7 compares our estimates of annual top 1% shares of capitalized wealth with those from Saez and Zucman (2016) and Smith, Zidar, and Zwick (2021). Our results approximate those from the latter approach, which incorporates heterogeneous returns for fixed-income assets, but also includes unfunded pension wealth that lowers top wealth shares (and is also in the DFA wealth totals we use).³ Note that we adjust our high-income weights in select years due to outlier effects resulting from low CWS sampling rates in early years. For 1979–1986, we increase top 0.1% observation weights by 50 percent and decrease weights for other groups by 2.5 percent to maintain total net worth targets.

Figure B7. Comparisons with Saez-Zucman and Smith-Zidar-Zwick top 1% wealth shares



Notes: Estimates are centered (e.g., 11-year changes are from year $t-5$ to $t+5$). *Source:* Authors' calculations using tax return panels and estimates from Saez and Zucman (2016 and updates) and Smith, Zidar, and Zwick (2021).

³ Alternative estimates exclude unfunded pensions, resulting in less total wealth and hence higher top shares, see Saez and Zucman (2020). Social Security wealth is typically excluded from definitions of net worth. Including this wealth would have little effect on amounts of top wealth or estimated wealth tax revenues, although including Social Security wealth results in lower top wealth shares. See Smith, Zidar, and Zwick (2021); Sylvain, Max, and Sarin (2025); and Sabelhaus and Henriques Volz (2020).

B.VI. Circulation of Elites: Quotes

We translated two quotes in French. The first was Pareto (1909, p. 9) “Elites do not last, but continually change: a phenomenon that can be called the circulation of elites.” The French text: “Ces aristocraties ne durent pas, mais elles se renouvellent continuellement ; nous avons ainsi un phénomène qu’on pourrait appeler *la circulation des élites*.”

The second was from Pareto (1909, p. 386): “The annual picture changes little, but the internal structure is in perpetual motion: at the same time that some individuals reach the top, others fall out.” The French text: “La forme extérieure varie peu, la partie intérieure est, au contraire, en perpétuel mouvement; tandis que certains individus montent dans les régions supérieures, d’autres en descendent.”

Table B1. Top income share increases from variability

	Variability (pp)			Annual top share	Annual top share
	initial	final	change	increase (pp)	increase from variability
<i>Panel A: Top 1%</i>					
11-years: 1989–2017	1.5	2.9	1.4	9.1	16%
11-years: 1997–2017	1.7	2.9	1.2	5.7	21%
21-years: 1997–2012	1.9	2.5	0.6	3.6	16%
21-years: 2000–2012	2.0	2.5	0.5	2.7	17%
<i>Panel B: Top 0.1%</i>					
11-years: 1989–2017	0.9	2.2	1.3	5.4	24%
11-years: 1997–2017	1.7	2.2	0.5	3.8	14%
21-years: 1997–2012	1.5	2.2	0.7	2.2	33%
21-years: 2000–2012	1.5	2.2	0.7	1.6	45%
<i>Panel C: Top 0.01%</i>					
11-years: 2007–2017	1.2	1.5	0.3	1.3	23%
<i>Panel D: Top 0.001%</i>					
11-years: 2007–2017	0.5	0.8	0.2	0.8	31%

Notes: Years are centered, e.g., 11-year variability for 2017 is between 2002 and 2022. To account for the switch from the CWSH to the large panel, estimates of variability’s contribution adjust initial-year values for annual and multi-year top shares by the first-year difference between the two datasets. These are usually small and offsetting.

Source: Authors’ calculations using tax return panels.

REFERENCES

- Auten, Gerald, David Splinter, and Susan Nelson. 2016. “[Reactions of High-Income Taxpayers to Major Tax Reforms](#).” *National Tax Journal* 69(4): 935–964.
- Batty, Michael, Jesse Bricker, Joseph Briggs, Elizabeth Holmquist, Susan McIntosh, Kevin Moore, Eric Nielsen, Sarah Reber, Molly Shatto, Kamila Sommer, Tom Sweeney, and Alice Henriques Volz. 2019. “[Introducing the Distributional Financial Accounts of the United States](#).” Federal Reserve Board of Governors.
- Catherine, Sylvain, Max Miller, and Natasha Sarin. 2025. “[Social Security and Trends in Wealth Inequality](#).” *Journal of Finance* 80 (3): 1497-1531.
- Looney, Adam, and Kevin B. Moore. 2015. “[Changes in the Distribution of After-Tax Wealth: Has Income Tax Policy Increased Wealth Inequality?](#)” Federal Reserve Board of Governors.
- Pareto, Vilfredo. 1909. *Manuel d'economie politique*. Paris.
- Piketty, Thomas, and Emmanuel Saez. 2003. “Income Inequality in the United States, 1913–1998.” *Quarterly Journal of Economics* 118(1): 1–39.
- Sabelhaus, John and Alice Henriques Volz. 2020. “[Social Security Wealth, Inequality, and Lifecycle Saving](#).” NBER Working Paper No. 27110.
- Saez, Emmanuel, and Gabriel Zucman. 2016. “Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data.” *Quarterly Journal of Economics* 131(2): 519–578.
- Saez, Emmanuel, and Gabriel Zucman. 2020. “Trends in US Income and Wealth Inequality: Revising After the Revisionists.” NBER Working Paper No. 27921.
- Smith, Matthew, Owen Zidar, and Eric Zwick. 2021. “[Top Wealth in the United States: New Estimates and Implications for Taxing the Rich](#).” NBER Working Paper No. 29374.
- Wolff, Edward N. 2020. “[Taxes and the Revaluation of Household Wealth](#).” NBER Working Paper No. 27328.