Do Taxes Affect Pre-Tax Income Inequality?

Evidence from 100 Years of U.S. State Tax Policies*

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Abstract

We study how U.S. state taxes have affected pre-tax income inequality during the last century. Our primary analysis focuses on the top marginal personal income and corporate income tax, and their effect on top incomes and top income shares within each state. The long panel nature of our data, from 1917 to 2018, allows us to study the effect of tax adoptions, tax cancellations, and tax changes, and furthermore to assess both immediate and long-term relationships. With event study and synthetic control designs, we generally find no statistically signficant relationship between tax measures and inequality. Some of our point estimates, as well as a simple two-way fixed effects analysis, suggest that higher income taxes may reduce top incomes and income shares.

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Income and wealth inequality have been steadily rising in the U.S. In 1970, just under 10% of pre-tax income accrued to the top 1%, but by 2020, this share had doubled to 20% (Piketty and Saez, 2003).[1] Taxation is often proposed as a solution to rising inequality: the *after-tax* income distribution features lower levels of income inequality than the *pre-tax* income distribution (Cooper et al., 2015). But beyond their redistributive function, taxes may affect pre-tax income inequality directly. For example, higher taxes reduce individuals' incentives to work and innovate, which could reduce pre-tax incomes. Taxes may also have indirect effects, for example, by changing the relative bargaining incentives or power of individuals. Alternatively, individuals may choose to avoid the burden of higher taxes by relocating to a lower tax jurisdiction or engaging in tax avoidance or evasion strategies. However, exactly how taxes affect income inequality is unknown. The U.S. series of pre-tax top income shares feature a striking negative correlation with federal top personal income tax rates (shown in Figure A.1), but to what extent this relationship is causal, if at all, is an open empirical question.

The goal of this paper is to provide evidence on the effects of personal and corporate income taxation on pre-tax income inequality, using U.S. states as a laboratory. U.S. states have great autonomy in their choice of government structures, tax policy, public good provision, and more. As a result of this autonomy, states vary greatly in how they collect taxes and use tax revenue. Our analysis combines data on U.S. state tax policy rules from Robinson and Tazhitdinova (2025) with U.S. state top income shares and other inequality measures from Frank et al. (2015). The resulting dataset allows us to exploit several sources of variation in tax policy (adoptions, cancellations, increases, and decreases) and study their effect on income inequality from 1917 to 2018. Our analysis focuses on the top marginal personal and corporate income tax rates as these are most directly related to inequality.

Estimating a causal empirical relationship between taxation and inequality is difficult because of the omitted variable bias and reverse causality. While our analysis cannot resolve

[1] While the precise magnitude of this increase in inequality is still debated, all studies have found at least a small increase in inequality since the 1970s.

these issues completely, our setting and approach present several advantages over the existing work. First, relative to a time series analysis, state-level analysis allows us to construct a plausible control group for each tax event; and relative to a cross-country analysis, we limit the set of other factors that may influence inequality outcomes and hence the likelihood of omitted variable bias. While U.S. states have discretion over a large range of policies, they are nonetheless bound by many decisions made at the federal level. As a result, many factors that may have a direct effect on inequality – e.g., international trade, political environment, etc. – will be held largely constant across states but would not be held constant in a cross-country study.

Second, our long panel data allows us to study both the immediate and long-term effects of a variety of tax events. In particular, our data allows us to evaluate the effects of tax adoptions and tax cancellations. These events provide an arguably larger shock than typical tax changes, though the shocks that we study are of a magnitude similar to the tax changes that are typically implemented at the federal level. Our data further allows us to study both tax increases and tax decreases, occurring within flat or progressive tax structures, and occurring at different points in time in different geographical regions of the U.S. This variety of tax events allows us to verify the robustness of our findings as well as identify plausible sources of heterogeneity.

Two other features distinguish state-level from federal-level analysis: ease of migration and the availability of income shifting. Since migration within a country is easier than across countries, we should expect stronger migration responses in our setting than in response to a federal tax reform. Practically, this means that our estimates are likely to be larger than for an equivalent federal reform and that our estimates may be biased upward if migration affects control states. Since we generally find null effects, these concerns are less problematic than would have been otherwise. On the other hand, since income shifting opportunities are driven by the sum of federal and state tax rates, and because many states tax capital gains as ordinary income, it is unlikely that state tax changes alone will affect the relative attrac-

tiveness of the personal tax base over the corporate tax base, or vice versa. Consequently, this channel of response is likely to be reduced in the state-level analysis.

Our analysis proceeds as follows. We start by providing descriptive evidence on the relationship between state tax rates and top income shares. We show that top income shares vary dramatically across U.S. states and over time and that they exhibit low degrees of persistence over time. This suggests that inequality is susceptible to change and is not an immutable characteristic of each state (e.g., driven by geography or other features). We also show that states with no personal or corporate income taxes display higher levels of inequality, providing suggestive evidence of the potential influence of taxes on pre-tax income inequality.

Next, we turn to our main approach: event study analysis of tax adoptions, tax changes, and tax cancellations. Tax adoptions predominantly occured in two waves: an earlier cluster in the 1930s, and a later cluster in the 1960s. To evaluate the effect of the later income tax adoptions, we use states that never adopted a personal or corporate income tax as a control group. To evaluate the effect of the earlier tax adoptions , we use both never-adopters and late-adopters as a control group. To account for the possibility of heterogeneous treatment effects and the fact that different states adopted taxes at different times, we follow the methodologies of Callaway and Sant'Anna (2021) and de Chaisemartin and D'Haultfoeuille (2020), in addition to the standard ordinary least squares (OLS) specifications. Since most personal and corporate income taxes were adopted simultaneously or a few years apart, we interpret our results as measuring the joint effect of personal and corporate income tax adoptions on inequality. Irrespective of the period studied, and the type of specification employed, we do not find evidence in support of a strong relationship between personal and corporate income tax adoptions and pre-tax income inequality. Naturally, since our evidence relies on a small set of states, our statistical power is limited. Nonetheless, a "holistic" examination of event studies' coefficients results suggests a similar conclusion.

In addition to tax adoptions, we also study the effect of large tax changes on pre-

tax income inequality. We estimate four sets of stacked event studies (Wing et al., 2024) around major tax changes: separately for personal and corporate income tax changes, and separately for tax increases and tax decreases. We consider a tax change major if the tax rate change is greater or equal to 1 percentage point in magnitude, and limit our control group to states that experience no tax changes of more than 0.25 percentage points. For both tax increases and tax decreases, we find no statistically significant changes in inequality outcomes, neither for income shares nor for total incomes. For some tax changes (i.e., corporate income tax increases and personal income tax decreases), coefficient estimates are small, thus suggesting both an economically and statistically insignificant response. For other tax changes, coefficients exhibit patterns that may be consistent with the presence of a response. For example, the bottom 90% income share exhibits a 3% increase in response to a personal income tax increase, and a similar (though more noisy) increase in incomes. Similarly, the results for corporate income tax decreases, while not statistically significant, also exhibit patterns that could be consistent with a decrease in the bottom 90% income share and an increase in the top 1% income share.

While tax cancellations are rare, we also analyze those that have taken place. We study the cancellation of the personal income tax in Alaska in 1980 and in West Virginia in 1942; the cancellation of the corporate income tax in Ohio in 2010; and the cancellation of both personal and corporate income taxes in 1943 in South Dakota. Since we have only a few cancellations and several potential control states, we use a synthetic control approach (Abadie and Gardeazabal, 2003; Abadie et al., 2010) to select an appropriate comparison. Our pool of control states is limited to states that maintained the cancelled tax throughout the period of study. To ensure the robustness of our results, we consider various matching approaches. For our main results, we simultaneously match on top 1%, top 0.01%, and bottom 90% income shares and total incomes; in the appendix, we consider alternative matches on the Gini coefficient and/or each outcome variable individually. The results provide conflicting evidence. On the one hand, income inequality appears unresponsive to tax cancellations in

West Virginia and in South Dakota. On the other hand, we see a large increase in the top 1% income share after the cancellation of the personal income tax in 1980 in Alaska and potentially a small increase in the top 1% income share for Ohio. Unfortunately, the tax cancellation in Alaska coincided with the development of the oil industry in Alaska, which makes it difficult to attribute the observed effect to the cancellation of the personal income tax. The results for Ohio are sensitive to the choice of control pool and appear to be driven by poor match quality.

Finally, we implement a two-way fixed effects analysis, analagous to the approach in Piketty et al. (2014) for the overall U.S. tax-inequality time series but using our state-level variation. Our results yield similar qualitative results – the top personal income tax is negatively correlated with top income share. However, we further find that the corporate income taxes appear to play an even more important role than top personal income taxes and that increases in corporate tax increase top income shares at the expense of the bottom 90%. In contrast to federal rates, we find that increases in personal and/or corporate tax rates appear to decrease the total income levels of all percentiles.

To summarize, with the exceptions of the TWFE analysis, we generally find the statistically insignificant relationship between inequality and tax measures. A more holistic analysis (of coefficient patterns alone) suggests that higher income taxes may reduce top income shares and possibly income levels. For bottom incomes, the evidence is further mixed: suggesting that higher taxes may increase or decrease both shares and income levels. Accounting for the presence of spillovers that should bias our estimates upward (in absolute value), our results suggest that the relationship between state-level inequality and state taxes is weak at best. One plausible explanation for our null result is that our analysis is simply underpowered, and we are not able to establish a statistically significant relationship, despite its existence. An alternative explanation is that inequality responds to tax changes but only to sufficiently large and persistent ones.

This paper primarily relates to a small literature that seeks out a link between taxation

and pre-tax income inequality. Some previous work examined such links using time-series data (Piketty et al., 2014; Bargain et al., 2015) or using cross-country data (Duncan and Sabirianova Peter, 2016; Rubolino and Waldenström, 2020). The three studies closest to ours use state (or canton) tax rate variation: Marti et al. (2023) study how top wealth inequality across 26 Swiss cantons responds to changes in cantonal wealth taxes since 1969. Nallareddy et al. (2022) study how corporate tax changes that were implemented between 1991 and 2013 affected pre-tax income inequality in the U.S. Our analysis extends this work by considering a wider set of tax types, and importantly, a wider range of events – not just tax changes, but also tax adoptions and tax cancellations, and over a longer time period (since 1918). Finally, work is complementary to Troiano (2018), who, in addition to personal income tax introductions, studies inequality responses to introductions of income tax withholding and changes to auditing technology.

More broadly, our work contributes to the various literatures that study the consequences of state taxation. These include papers that study economic responses to taxation (e.g., Hanlon et al., 2019; Kennedy et al., 2022), the incidence of personal and corporate taxes (e.g., Suárez Serrato and Zidar, 2016), migration in response to personal income tax progressivity changes and adoptions (e.g., Leigh, 2008; Cassidy et al., 2024), and many more.

1 Data Sources and Descriptive Evidence

1.1 Tax Rate Data

We use data from Robinson and Tazhitdinova (2025) that contains federal and state tax rates from 1910 to 2022 for the following: minimum and top personal income, minimum and top corporate income, sales, cigarette per pack, gasoline per gallon, and alcohol spirit per gallon. We focus primarily on the top marginal personal and corporate income tax rates, which approximate the average tax rate for the highest earners and thus are most closely related to inequality.

Figure 1 provides insight into our tax policy variation. Panel A documents the dramatic increase in state personal and corporate income taxes over our study period. Both taxes were collected by fewer than 10 states in 1917 (the first year inequality data is available); yet by 2018, both taxes had been adopted by more than 40 states. Thus, our time horizon includes many extensive-margin tax "events" – primarily tax adoptions, plus a small number of tax cancellations. In addition, we see variation across states in their choice of whether to implement flat or progressive income taxes; most states have opted for progressive personal income taxes, while only a third of states have opted for progressive corporate taxes.

Panel B of Figure 1 shows the new tax adoptions by state. We see an early wave of tax adoptions from 1929 to 1937, and a later wave from 1963 to 1972. The two decades between and four decades after these waves are close to dormant: between 1938 and 1962, zero states adopted a personal income tax for the first time, and only three states adopted a corporate income tax. Similarly, since 1973, only two states have adopted a personal income tax and no states have adopted a corporate tax. There is some geographical clustering in adoption tendencies (e.g., most personal income tax adoptions during the 1960s happened in Midwestern and Northeastern states) but we also see considerable heterogeneity. Furthermore, some states choose initial rates that are much lower than the prevailing rates, while other states adopt higher tax rates.

Finally, in Panel C of Figure 1, we see that tax rate levels varied dramatically across states and over time. On average, the top personal income and top corporate income tax rates increased steadily through most of the 20^{th} century, before declining starting in the 1980s and 1990s. However, the average trends mask substantial heterogeneity across states.

1.2 Inequality Data

We use the Frank-Sommeiller-Price Series for Top Income Shares (Frank et al., 2015). This data contains the following inequality measures from 1917 to 2018: top 10%, top 5%, top 1%, top 0.5%, top 0.1%, and top 0.01% pre-tax income shares, as well as pre-tax income

thresholds and pre-tax total income, for each state in every year. The data are constructed using the IRS SOI Tax Stats on the amount of income and number of taxpayers in different income ranges, and interpolated using a Pareto distribution. Using the same methodology as in the national Piketty and Saez (2003) series, incomes are adjusted to account for changes in the IRS definition of income over time, such that the data in all years represent adjusted gross income including capital gains, and further adjusted to include imputed income from non-filers.[2] Analogous data at the national level comes from Piketty and Saez (2003). We inflation-adjust income thresholds and total income to 2020 dollars, and use the income shares to calculate real income accrued to each top share.

Figure 2 provides an overview of the variation in inequality across states and over time, with Panel A showing distribution of state top income shares over the last century. We see a pronounced U-shaped trend, similar to inequality at the national level from Piketty and Saez (2003). Thus, despite states' autonomy in taxation, institutional rules, and more, the dynamics over time for inequality *within* states largely mirrors the overall U.S. Having said that, we see substantial variation within any given year: some states show significantly higher top 1% and top 0.01% shares than the overall U.S. series, while others much lower.[3] This suggests that there is some sorting of individuals across states by income. Such sorting may, for example, reflect cost-of-living adjustments where individuals with the same skill sets experience different incomes based on where they reside (Diamond and Moretti, 2021).

Panel B of Figure 2 explores whether inequality levels within each state persist over time by plotting the range of top income shares for each state (as a percent of the overall U.S. top share, in order to control for the overarching U-shaped trend). These figures order states by the average level of inequality from 1917-2018, and color each state based on its modal

[2]See Piketty and Saez (2003), Sommeiller and Price (2018) Appendix A, and Frank et al. (2015) for further details on the construction of these data.

[3]Appendix Figure A.2 Panel A shows this explicitly by showing equivalent graphs for the top income shares measured as percent of corresponding U.S. shares. Across all years, the average state top shares are lower than the overall U.S. top share. The state average and overall U.S. top share can diverge because an income in the top 1% nationally is not necessarily in the top 1% for a given state. In Appendix Figure A.2 Panel B, we show distributions weighted by the number of tax units in each state – the state average is still above but much closer to the overall U.S., meaning that larger states tend to have higher levels of inequality.

policy during this period. The dots also show the level of inequality in the first five years and in the most recent five years. We see that even controlling for the overall U.S. trend, there remains substantial heterogeneity across states, with most states showing considerable variation across years. Furthermore, it is not the case that states with low levels of inequality in the early 20th century continue to have low levels of inequality today. The ordering of states and the degree of heterogeneity varies depending on whether we study the top 1% share or the top 0.01% share.

These figures also provide related suggestive evidence that lower income taxes may be associated with pre-tax income inequality: among states with high average levels of inequality over the studied time period, we see a large number of states that have neither personal nor corporate income taxes. Having said that, it is also the case that states with progressive individual and corporate income taxes do not appear to be concentrated at the low end of inequality.

2 Potential Mechanisms

We now briefly discuss four key mechanisms through which state taxes may affect pre-tax income inequality. Our first, second, and fourth channels summarize the theoretical models developed by Piketty et al. (2014). We extend to discuss one other channel (out-migration), which is plausibly more relevant to the state taxes we study.

Our discussion focuses primarily on tax changes that disproportionately affect top incomes – this includes changes that are larger (or only) for the top marginal personal rate; flat changes in personal income taxes if high-income individuals are more tax-elastic (as found in Gruber and Saez, 2002); and corporate tax changes when high-income individuals bear a greater share of the tax incidence on wages (as in Kennedy et al., 2022).[4] Naturally, our summary is not exhaustive, nor does it account for possible interactions of the various

[4]Throughout, we assume a non-zero incidence of corporate taxes on workers (e.g., Suárez Serrato and Zidar, 2016; Fuest et al., 2018).

channels or general equilibrium effects. Nonetheless, Panel A of Table 1 illustrates how the key channels may affect income levels and income shares.

First, higher taxes reduce the incentives to work. Thus, tax increases may reduce income levels for individuals at the top of the income distribution, and reduce income levels to a lesser extent at the bottom (with potentially no effect e.g., for an increase only to a top marginal rate). The top income share falls, the bottom income share rises, and overall inequality decreases. Alternatively, in the case of reforms that affect all individuals equally, income levels for both groups would still decrease, but income shares would remain unchanged due to falling income thresholds for top groups.

Second, higher tax rates increase the incentive to avoid or evade taxes. This can be accomplished in various ways, for example by taking advantage of various loopholes, increasing charitable contributions, hiding earnings abroad, or taking illegal measures. These actions would lead to the same effects on observed income levels and shares as reduced work incentives, though without any real changes to overall inequality – i.e., no real changes in economic activity for any individual. Restructuring income flows from one tax base to another has been found to be a large margin of response to changes in *federal* taxes, as individuals can choose between profits being taxed at the personal level (as an S-corporation), or at the corporate level and subsequently as capital gains (as a C-corporation) (Saez, 2004; Saez et al., 2012). However, because states predominately tax capital gains income at the same rates as ordinary income, and because state tax rates are much smaller in magnitude than federal rates, changes in state income taxes are less likely to affect which tax base is more advantageous.

Third, a particularly straightforward form of tax avoidance is migration (Feldstein and Wrobel, 1998). Since moving across states is easier than across countries, this channel may be particularly strong in our setting. Such migration responses have been documented for high-income individuals (e.g., Cassidy et al., 2024) but rarely for low-income individuals (e.g., Yagan, 2019) – we thus consider low-income individuals to be less likely to respond along this

margin, even in the case of uniform tax increases. As high-income individuals move out of the state, income levels mechanically fall at the top of the distribution, as do thresholds for top groups and thus income levels at the bottom. As with avoidance and evasion, these changes occur despite no real change to overall inequality. The impact on top and bottom income shares depends on the distribution of incomes overall and for outmigrating individuals – in an extreme case where the entire top 0.01% moves out of the state, and the bottom 99.99% of incomes shares the same distribution as the full population, income shares would remain unchanged.[5]

Fourth, tax policy may affect bargaining positions or incentives to bargain aggressively. For example, if high-income individuals are able to use their wealth to generate a "trickle-up" transfer from bottom to top incomes without any changes in economic activity, then a tax increase that lowered the returns to bargaining would reduce top incomes and shares, and increase bottom incomes and shares. These effects could also arise another channel (e.g., work incentives) reduced top income, and thus top wealth and bargaining power. Another possibility is that low-income earners are able to use political power (e.g., via unions) to generate a "trickle-down" transfer, and tax increases exacerbate this dynamic. So long as the *relative* bargaining power or incentives of top-income earners falls, the expected results will be the same.[6]

As summarized in Table 1 Panel A, all four of these channels predict decreases in top income levels. In addition, they typically predict a decrease in bottom income levels or no change, with the exception of the bargaining mechanism which predicts an increase in bottom income levels. Finally, top income shares are likely to decrease, and bottom income shares are likely to increase (though the effect of out-migration on these outcomes has an ambigous sign).

[5]This feature of the income distribution is true for Pareto distributions, which typically match actual income distributions well (Jones, 2015).

[6]As discussed in Piketty et al. (2014), top-income earners being over-paid relative to their productivity would increase the *optimal* tax, while being under-paid would reduce the optimal tax. While distinguishing between these two cases is important from an efficiency perspective, their implications for inequality are the same.

3 Identification Challenges

The goal of this paper is to establish a plausibly causal relationship between U.S. state taxes and pre-tax income inequality. Here we discuss the overarching identification and interpretation challenges such analysis involves. We defer the discussions of specific econometric issues (heterogeneous treatment effects, synthetic control group selection, etc.) to respective future sections.

Exogeneity of tax rates. State personal and corporate income taxes typically fulfill two roles. First, they generate revenue, together raising nearly 50% of overall state revenues, or 2.5% of U.S. GDP (Robinson and Tazhitdinova, 2025). Second, they are used for income redistribution, with many states featuring progressive tax schedules and means-tested welfare programs. As a result, one potential concern is that income taxes may be adopted or changed not only to affect post-tax income inequality but also to change pre-tax income inequality. While we are not able to test this hypothesis directly, we outline a few arguments against it.[7]

First, income taxes change frequently – on average, 12% of states change their personal and corporate income taxes in a given year (see Panel A of Figure 3). These changes are rarely one-directional, so that the same state sometimes increases and sometimes decreases its rates, and the changes are typically small – 50% of changes are smaller than 1pp, and only 10% of tax changes are higher than 3pp (personal) or 2pp (corporate) (see Appendix Figure A.6). Since inequality levels do not adjust rapidly, it is unlikely that tax changes are motivated by inequality considerations. Nonetheless, one may be worried that tax changes are correlated with other factors that may affect inequality outcomes thus leading to omitted variable bias. Robinson and Tazhitdinova (2022) show that tax changes are hard to predict in general, with economic, political and institutional factors explaining less than 20% of the

[7]Given the large number of state tax reforms, collecting information on each reform's motivation *à la* Romer and Romer (2010) is difficult. Furthermore, even if changing pre-tax income inequality was not the official goal, implementing such a change may be more or less feasible in presence of high/low level of inequality.

timing and magnitude of tax changes. Relatedly, Robinson and Tazhitdinova (2025) focus on economic conditions specifically and show that these do not change neither the timing of tax changes, nor the magnitude of tax rates. Overall, tax changes appear to be rather idiosyncratic.

One may also be worried that tax policy may be correlated with other major factors that may have a direct effect on inequality. By focusing on U.S. states, we limit the set of other factors that may influence inequality outcomes and hence the likelihood of omitted variable bias, relative to a cross-country analysis. While U.S. states have discretion over a large range of policies, they are nonetheless bound by many decisions made at the federal level. Thus, such important considerations as international trade, political environment, etc., will be held largely constant across states but would not be held constant in a cross-country study.

Second, personal and corporate income tax adoptions that we study appear to be driven by revenue pressures from the introduction of the New Deal programs (enacted between 1933 and 1938, coinciding with the second wave of income tax adoptions) and postwar expenditures as well as Medicaid and SNAP program introductions (established in 1965 and 1964 respectively, coinciding with the third wave of adoptions). Panel B of Figure 3 shows the top 1% and top 0.01% income shares as a percent of the U.S.-wide share at the time when a given state adopted its individual or corporate income tax. Indeed, we do not see any evidence that the timing of adoption is systematically correlated with the level of inequality in the state – we see neither an increasing nor decreasing pattern between the tax rate and the prevailing level of inequality in the state. Figure 3 does show that states that adopt flat income and/or corporate taxes tend to have higher levels of inequality than states that adopted progressive tax schedules. This suggests that the prevailing level of inequality may restrict the type of tax the state is able to adopt. Robinson and Tazhitdinova (2025) provide additional evidence showing that the timing, duration and order of tax adoptions do not appear to predict future tax rates and revenues. Their results suggest that the tax adoption process was likely driven by political constraints (Penniman, 1980; Berry and Berry, 1992;

Cassidy et al., 2024), rather than intrinsic state preferences. Indeed, many attempts to adopt income taxes failed or succeeded unexpectedly. For example, income tax legislation in Oregon was passed four times only to be overturned by subsequent referendums.[8] Overall, the tax adoption process appears to be as idiosyncratic as tax changes.

Reverse causality. When inequality is higher, top-income individuals may have greater financial ability to influence policymakers to lower tax rates. Conversely, when inequality levels are lower, bottom-income individuals may have greater ability to pressure policymakers into raising top-income tax rates. As a result, rather than taxes affecting inequality, it could be that income inequality has an effect on tax rates (Sokoloff and Zolt, 2005; Limberg, 2021). Unfortunately, without a convincing instrumental variable, we cannot precisely establish the direction of causality. However, since neither direction is likely to transpire immediately, the order of events should matter: we would expect tax changes to precede inequality changes if taxes affect inequality, and vice versa if inequality drives tax policy. Our event study analysis allows us to test for the presence of pre-trends, and thus the order of changes.

Spillovers. Tax policy in one state can affect outcomes elsewhere if top-income individuals are mobile and avoid higher tax liabilities by moving to a state with lower tax rates. Evidence of such behavioral responses has been documented by Cassidy et al. (2024), who document how post–World War II income tax adoptions led to significant out-migration to states that did not have the income tax. Naturally, if the state to which high-income individuals move to is included in the control group in difference-in-difference analysis, then our estimates will be biased upward. This is most concerning in our specifications that rely on states without income taxes as the control group, as these states are the most attractive destinations from a tax avoidance perspective. As a result, we conduct a robustness check where we compare states that adopt income taxes to states that introduced income taxes more than three decades ago (and are thus less attractive destinations relative to no-tax states). While this approach violates canonical difference-in-differences assumptions, it is valid as long as

[8] At the 1929 National Tax Conference, it was noted that "Oregon having passed their fourth law are awaiting the referendum. They never seem to get discouraged in Oregon" (Bailey, 1929).

the treatment effects among the already-treated group have stabilized (Tazhitdinova and Vazquez-Bare, 2023).

4 How Do Tax Adoptions Affect Inequality?

In this section, we evaluate how pre-tax income inequality across U.S. states responds to adoptions of personal and corporate income taxes. In contrast to tax changes that typically generate small variation in tax rates, tax adoptions provide larger variation. Since inequality is likely to be affected by multiple factors, large changes in tax rates provide the best opportunity to identify a relationship between inequality and taxes.

4.1 Tax Adoptions: Empirical Approach

We use an event study approach to study the effect of individual and/or corporate income tax adoptions on inequality. Specifically, we estimate the following equation:

$$\ln(Outcome_{st}) = \sum_{k \neq -1} \beta_k \, \mathbb{1}\{t - t^* = k\} + X'_{st}\gamma + \alpha_s + \lambda_t + \varepsilon_{st} \tag{1}$$

where s identifies states and t years, α_s and λ_t are state and year fixed effects, and t^* denotes the year of tax adoption, such that the indicator equals one for observations that are k years post-adoption (and always equals zero for states that do not adopt). We control for a small set of time-varying state characteristics X_{st}: population, the percent of population that is Black, as well as tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes, but results without controls are similar. We cluster standard errors ε_{st} at the state level. While we are primarily interested in post-reform ($k > -1$) estimates of coefficients β_k, the estimates of pre-reform coefficients allow us to evaluate the likely similarity of treatment and control groups, as well as to provide evidence on the direction of causality. As discussed in Section 3, if inequality levels influence tax policy, we would

expect the coefficients for $k < -1$ to be non-zero and statistically significant. In addition to this event study specification, we also use the analagous alternative DID estimators from de Chaisemartin and D'Haultfoeuille (2020) and Callaway and Sant'Anna (2021).[9]

Ideally, we would separately identify responses for the introduction of a personal income tax and for the introduction of a corporate income tax. Unfortunately, most states introduced these taxes concurrently. For this reason, our analysis will focus on states that experienced a *single* tax adoption event, which includes adopting only one tax as well as adopting both taxes in the same or consecutive years. Larger gaps between adoptions events pose challenges for identification, because it is not clear whether changes in inequality after the "second" event should be attributed to the introduction of the second tax versus to a long-term dynamic effect of the first. In addition, we limit our analysis to states for which we can observe a sufficiently long pre-period (at least ten years), in order to assess the likely validity of the parallel trends assumption.[10]

These criteria together exclude 21 states: 16 of them are excluded because they lack a sufficiently long pre-period, while the other 5 states adopted the personal and corporate taxes at different times. Our treatment group consists of 25 states, of which 23 adopted personal and corporate income taxes simultaneously (i.e., within one year), and 2 states that adopted corporate income taxes only. For the states adopting the taxes one year apart, we consider the first year as the year of adoption. Note that our analysis does not distinguish between flat and progressive tax schedules, because the overwhelming majority of states introduced a progressive personal income tax and a flat corporate income tax (recall Figure 1(a)). The remaining 4 states never adopted either personal or corporate taxes.[11]

[9] Recent work by de Chaisemartin and D'Haultfoeuille (2020), Sun and Abraham (2021), Callaway and Sant'Anna (2021), and Goodman-Bacon (2021) has shown that conventional two-way fixed effects specifications can lead to biased estimates when treatment time varies across units, as it does in the case of tax adoptions.

[10] As our data begins in 1917, this excludes states adopting either tax prior to 1927, as well as Alaska and Hawaii which adopted prior to statehood.

[11] States excluded due to lack of pre-period: AK, CT, DE, HI, MA, MO, MS, MT, NC, ND, NY, OK, SC, TN, VA, WI. States excluded due to non-simultaneous adoptions: CA, NJ, PA, RI, WV. Early adopters: AL, AR, AZ, CO, GA, IA, ID, KS, KY, LA, MD, MN, NM, OR, SD, UT, VT. Late adopters: FL (corp. only), IL, IN, ME, MI, NE, NH (corp. only), OH. States that never adopted either tax: NV, TX, WA, WY.

We estimate Equation (1) separately for the two waves of tax adoptions i.e., for the 17 early adoptions occuring between 1929-1937, and for the 8 late adoptions occuring between 1963-1972.[12] We estimate our results separately for each adoption wave because Cassidy et al. (2024) find differential revenue and migration responses to tax adoptions that occurred before and after the World War II. Furthermore, this separate approach allows greater precision in terms of selecting our control group. When analyzing the early wave, our control group consists of states that eventually adopt taxes but not over the time horizon studied, as well as the 4 states that never adopted personal or corporate taxes. When analyzing the later wave, we exclude all early adopters so that our control states only include the never-adopting states. We exclude the early adopters from this analysis out of concern that the large number of already-treated states would bias our estimates (de Chaisemartin and D'Haultfoeuille, 2020; Sun and Abraham, 2021; Callaway et al., 2021; Goodman-Bacon, 2021). However, as a robustness check, for late adopters we also consider a control group that consists only of states that adopted personal/corporate income taxes prior to 1927 and had no adoptions since then. Since these states also have a personal and/or corporate income tax, they are less attractive destinations from a tax avoidance perspective compared to the no-tax states; consequently, this comparison reduces concerns about bias due to cross-state migration.

Appendix Figure B.7 shows the magnitude of the tax reforms: on average, the newly introduced income taxes were between 3.5% and 5%. In case of early adoptions, the average rates remained roughly constant over time. In contrast, the late adoptions saw a gradual rate increase, starting from just below 4% for corporate taxes, and reaching 6% approximately 20 years later. The rise in personal income taxes was much smaller.[13]

[12] After our exclusion criteria described above, no states adopted taxes between or after these waves.

[13] Corresponding revenue changes are available in Figure B.8 for late adoptions. Revenue data is not available for early adoptions.

4.2 Tax Adoptions: Results

The effect on the top 1% income share is shown in Figures 4(a) and 5(a), for early and late tax adoptions respectively. While the patterns are different, neither provides strong support in favor of a robust relationship between income tax adoptions and top income shares. In both figures, most of the pre-reform and post-reform coefficients are not statistically significant and thus indistinguishable from zero. An interpretation based solely on statistical significance would suggest that our treatment and control group are decent comparisons and that tax adoptions do not affect top income shares. As our analysis relies on fewer than 30 observations per year, the lack of statistical significance is likely to be at least in part driven by the lack of power. Nonetheless, if we allow for a more holistic analysis and focus on the coefficient pattern, we are likely to re-enforce the conclusion from statistical significance alone. The decrease in the top 1% income share seen in Figure 4(a) and Figure 5(a) appears to be driven by pre-trends, at least to some extent. In case of early adoptions, this decreasing trend appears to reverse 7 years after tax adoption. For late adoptions, the trend stabilizes and then restarts again 15 years later. It seems unlikely that these changes in trend are driven by the tax adoptions studied. In Figures 4(b) and 5(b), we show the effect on the top 1% income level. The results are similarly inconclusive, where the post-reform estimates appear to be driven by differential pre-trends.

Next, we show the corresponding changes in the bottom 90% income share, in Figures 4–5(c), and bottom 90% income level, in 4–5(d). In addition, Appendix Figures B.9–B.10 provide results for top 0.01% and top 10%-1% shares and incomes. Once again, the coefficient pattern suggests that some of these effects may be driven by differential pre-trends, and does not provide much evidence in favor of a robust relationship between income shares and tax rate adoptions. For the early adoptions, if anything, the bottom 90% income share *decreased* with the implementation of the taxes; only the top 10%-1% share appears to have increased. For the late adoptions, to the extent that the top 1% income share decreases, it does not correspond to an increase in the bottom 90% share – rather, it appears to be compensated

with an increase in the top 10%-1% income share.

We also report pooled difference-in-difference estimates for shorter, medium, and longer-term effects After ten years of income and corporate taxes, each with average rates of 4-5 percentage points, the results in Figure 4 suggest a 1.6% decrease in the bottom 90% income shares and a 3% decrease in top 1% income shares, while the results in Figure 5 suggest no change in the bottom 90% share and a 5.5% decrease in the top 1% income share.

Alternative DID estimators. In Appendix Figures B.11–B.14, we show that our simple OLS event studies are robust to the econometric issues highlighted by de Chaisemartin and D'Haultfoeuille (2020) and Callaway and Sant'Anna (2021). Using their estimators, we reach similar conclusions. These estimators typically yield similar coefficients and standard errors as with OLS; in cases when the results differ, the alternative estimators yield coefficients closer to zero.

Gini Index. Figure B.15 explores the effect of tax adoptions on the overall level of income inequality, using each state's Gini index as the outcome variable. For the earlier wave of tax adoptions, we see a zero or a net *increase* in inequality. For the later wave of adoptions, we see a small decrease in the Gini index, starting 5 years after tax adoption, though the effect is small (less than 3%).

Extended time horizon. Figure B.16 extends the time horizon of study to 40 years after the tax adoption, with each coefficient corresponding to a 5-year period and with the 1-year estimates from Figure 5 shown in the background for comparison. Note, that such analysis is only possible for the late adopters, since the control group in the early adopter event study becomes treated itself.

Using states with taxes as control group. Figure B.17 uses a different control group for late adopters – states that adopted personal/corporate income taxes prior to 1927 and had no adoptions since then. Since these states also have a personal and/or corporate income tax, they are less attractive destinations for achieving the goal of reducing one's tax burden, relative to no-tax states. Consequently, this comparison reduces concerns about the

bias stemming from cross-state migration.[14] We see no notable changes (neither in statistical significance sense nor in terms of coefficient patterns) for bottom 90% and top 1% income shares. There is some evidence of potential income level decreases. Overall, the differences between Figure 5 and Figure B.17 point to the presence of cross-state mobility, in line with the findings of Cassidy et al. (2024).

5 How Do Large Tax Changes Affect Inequality?

In this section, we study the effect of individual and/or corporate income tax rate changes on pre-tax income inequality. Studying the effect of tax changes is difficult because tax changes are numerous and occur in different states in different years. Furthermore, many of the tax changes are relatively small. On the plus side, personal and corporate income tax changes do not always go hand in hand (though frequently they do, see Robinson and Tazhitdinova, 2025), and this allows us to estimate the effects of personal and corporate income tax changes separately.

5.1 Large Tax Changes: Empirical Approach

We employ an event study approach around major tax rate changes, i.e., tax rate changes that are greater than 1 percentage point in magnitude. These represent the largest 50% of tax changes for both personal and corporate income taxes (see Figure A.6). We estimate these event studies separately for tax increases and tax decreases, and separately for top personal and top corporate income tax rates using a stacked difference-in-differences (DID) specification.

Stacked DID approaches (used in Callison and Kaestner, 2014; Cengiz et al., 2019;

[14] Our baseline approach does not include these states in the control group because in the baseline periods, the control states are already treated while treated states are not. In presence of dynamic treatment effects, such analysis will be biased (Tazhitdinova and Vazquez-Bare, 2023). Therefore, Figure B.17 provides unbiased estimates only if the dynamic effects (if any) have concluded by the beginning of the baseline period in Figure B.17. This assumption is likely to hold in our setting: the control states have adopted income taxes by 1927 at the latest. The earliest included year in Figure B.17 is 1953, i.e., 26 years after tax adoption.

Deshpande and Li, 2019; Butters et al., 2022) avoid the well-known issue of including already-treated units as an implicit part of the control group, while also allowing us to use multiple tax changes per state as identifying variation.[15] We use the specification including sample weights proposed by Wing et al. (2024), who show that the resulting estimator identifies an aggregate average treatment effect on the treated.

The basic idea in a stacked DID approach is to individually identify "sub-experiments," which include units treated in the same year, plus clean control units that are not treated in the years shortly before and after the treatment year. In our setting, each sub-experiment contains one or more treatment states that experience a large tax change (greater than 1pp), plus one or more control states that do not experience any tax changes greater than 0.25pp during the 5 years before the event and 5 years after the tax change event. We also ensure that the pre-treatment years are not part of a post-treatment period for an earlier tax change, thus effectively requiring no tax changes in the 10 years preceding the tax change studied.[16] As long as the above conditions are satisfied, states may be included in multiple sub-experiments. To avoid the compositional bias discussed by Wing et al. (2024), we require a balanced panel in event time. Because each sub-experiment requires a balanced control group over 10 years, allowing this group to make small tax changes (up to 0.25pp) substantially increases the number of possible sub-experiments, even though such changes are only about 10% of all tax changes (see Figure A.6).

These sub-experiments are then "stacked" together by event time, such that all treated units are treated in period 0 and all control units are not treated within the event window.

[15] Much of the literature on alternative DID estimators, including the alternative estimators used above in Section 4, has focused on settings where units are treated a maximum of once (e.g., state adoptions of a policy), whereas states frequently change their tax rates.

[16] For example, in our preferred specification with five pre-periods and five post-periods, to be included in the "2000 sub-experiment" treatment group, states must experience a large tax change (greater than 1pp) in 2000, and not have experienced any tax changes (greater than 0.25pp) from 1990-1999. A previous large tax change ending in 1989 is the latest possible because 1990-1994 would be included in the post-period for that episode, leaving 1995-1999 as a clean pre-period for the 2000 tax change. The control group includes all states that did not experience any tax changes (greater than 0.25pp) in 1990-2004. For this sub-experiment, the year 2000 (year of treatment for the treated states) will correspond to period 0 for both treated and control states.

We create such stacks separately for personal income tax increases and decreases, and for corporate income tax increases and decreases. For each stack, the treated units only experience a respective tax change (i.e., personal *or* corporate income tax change) while the control units experience no tax changes (neither personal nor corporate) larger than 0.25pp. Then, DID and event study specifications can be estimated on this stacked dataset, without raising the staggered treatment timing issue referenced above, using the equation:

$$\ln(Outcome_{sta}) = \sum_{\substack{k=-5 \\ k\neq -1}}^{4} \beta_k \; \mathbb{1}\{t = k\} \; Treat_{sa} + X'_{st}\gamma + \theta \; Treat_{sa} + \eta_t + \varepsilon_{sta} \tag{2}$$

where $Outcome_{sta}$ represents the outcome in state s, at event time t of sub-experiment a. $Treat_{sa}$ is equal to one if state s experiences a large tax change in sub-experiment a and zero otherwise. As above for tax adoptions, we control for a small set of time-varying state characteristics X_{st}: population, the percent of population that is Black, as well as tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. The coeffecient θ controls for cross-sectional differences in income inequality between treated and control states, and η_t are event time fixed effects, which control for idiosyncratic time trends. The coefficients of interest, β_k, capture the effect of treatment on income inequality in event time k, relative to excluded period –1. We use sample weights

$$Q_{sa} = \begin{cases} 1 & \text{if } \; Treat_{sa} = 1 \\ \frac{N_a^T / N^T}{N_a^C / N^C} & \text{if } \; Treat_{sa} = 0 \end{cases} \tag{3}$$

where N_a^T is the number of states that are treated in sub-experiment a, N^T is the total number of states that are treated across all sub-experiments, and N_a^C and N^C give similar counts for the control groups. Wing et al. (2024) show that this weighted regression is equivalent to estimating an event study for each sub-experiment separately, then averaging the estimates where each sub-experiment is weighted by its share of the treated sample

(N_a^T/N^T).[17] We cluster standard errors at the state level, thus allowing for dependence within states, even across sub-experiments.

Our main analysis uses an event window from time –5 to 4, where a tax change begins in period 0. The choice of window involves a simple tradeoff – the longer the window, the "cleaner" are the control and treatment units and the better is our ability to pick up medium-run dynamic effects. At the same time, longer windows restrict the sample of "qualified" treatment and control units, thus narrowing the scope of our analysis and reducing power. For this reason, our main results employ a relatively short 5-year post-event window, and we consider a 10-year post-event window in Appendix C.

Appendix Figure C.18 summarizes the first stage by showing how tax rates change during the event window. Our event studies measure inequality responses to approximately 2pp personal and corporate income tax increases, and 2.3pp personal and 1.3pp corporate income tax decreases. Thus the tax changes we study are two to three times smaller than tax adoptions and cancellations we studied in Section 4.

5.2 Large Tax Changes: Results

Main results are presented in Figures 6–7 for tax increases and in Figures 8–9 for tax decreases. For both tax increases and tax decreases, Figures 6–9 show no statistically significant changes in inequality outcomes, neither for income shares nor for total incomes.

For some tax changes, the coefficients exhibit patterns that may be consistent with tax increases reducing (or tax cuts exacerbating) inequality. For example, Figure 6(c) shows a 2% increase in the bottom 90% income share after a personal income tax increase, though the pooled DID coefficient is only statistically significant at the 12% level. The bottom 90% income level in Figure 6(d) has a similar pattern, though noisier. Similarly, the results in Figure 9 for corporate income tax decreases, while not statistically significant, also exhibit

[17] Furthermore, they show that estimating Equation (2) without the weights in (3) does not in general identify any convex combination of the sub-experiment effects. The same is true for adding *sub-experiment* × *state* and *sub-experiment* × *event time* fixed effects.

patterns that could be consistent with a rising top 1% income and income share, as well as a reduction in the bottom 90% income share. However, other results such as Figure 6(a) show coefficient patterns with strong pre-trends, complicating inference. For the remaining tax changes, i.e., corporate income tax increases (Figure 7) and personal income tax decreases (Figure 8), coefficient estimates are small, thus suggesting both an economically and statistically insignificant response.

In Appendix Figures C.19-C.22, we show the corresponding results for the top 0.01% and top 10%-1% incomes and income shares. The only results with a pooled DID coefficient statistically significant at conventional levels are a rising top 0.01% income and income share in response to corporate tax cuts in Figures C.22(a) and (b); however, the event studies show strong pre-trends and a roughly linear increase before and after the reform.

Appendix Figures C.23-C.26 use a less stringent cutoff for the control states – allowing control states to experience tax changes of up to 0.5pp during the event window. Appendix Figures C.27-C.29, on the other hand, consider a longer post-event time window of 10 years. The results are qualitatively similar.

6 How Do Tax Cancellations Affect Inequality?

Next, we study the effect of personal and/or corporate income tax cancellations on inequality. Similar to tax adoptions, these events provide large changes in tax incentives and therefore provide evidence on the effects of taxes on income inequality. While these cancellations occur on occasion, they are relatively rare. Personal income taxes have been cancelled in Alaska in 1980 (while keeping the corporate income tax) and in West Virginia in 1942 (the tax was re-introduced in 1961); the corporate income tax was cancelled by Ohio in 2010 (while keeping the personal income tax); and South Dakota cancelled both of its personal and corporate income taxes in 1943. Since we have only four cancellations and several potential control states, we use a synthetic control approach (Abadie and Gardeazabal, 2003; Abadie et al.,

2010) to separately study the effect of each tax cancellation on inequality.[18]

6.1 Tax Cancellations: Empirical Approach

The counterfactual we wish to estimate is what would have happened if each state had continued to collect, rather than cancelling, that particular tax. Thus, for each cancellation, we restrict the synthetic control donor pool to states that were collecting the cancelled tax type throughout the period of study.[19] To the extent possible, we use a 20-year pre-period and a 20-year post-period, though this is not always feasible; in particular, WV and SD adopted the personal income tax less than a decade prior to the cancellation.

The synthetic control is then chosen using the procedure outlined in Abadie and Gardeazabal (2003); Abadie et al. (2010) by identifying a set of weights for the donor pool that minimizes the discrepancy between the treated state matching variables and the corresponding weighted average variables in the pre-cancellation years. Our matching variables are the top 0.01%, top 1%, and bottom 90% incomes and income shares in each year; these outcomes are normalized to the last year of the matching period, so that our synthetic control approach matches on trends rather than levels. By matching on all six inequality measures, we ensure that the results for each of our outcomes is derived using the same composition of donor states (i.e., the same synthetic control state).

In order to test how well the synthetic control performs, we exclude the last several pre-treatment years from this matching process: five years for AK and OH, and three years for SD and WV as they have shorter available pre-periods. If the treated state and synthetic control continue to evolve similarly in the years after the matching period but before the cancellation, it provides supportive evidence that the two would have continued to evolve similarly in the absence of a cancellation, i.e., that the synthetic control represents a valid counterfactual.

[18] We exclude from our analysis one additional cancellation, where South Carolina cancelled its personal income tax in 1919. Our inequality data begins in 1917, and with only 2 pre-periods we cannot both identify and verify a good synthetic control; furthermore, the state readopted the tax in 1922.

[19] This is similar to including an indicator for collecting that type of tax as a matching variable, except we also are ensuring that the *post*-match synthetic control does not include any cancellations (e.g., ensuring that West Virgina is not part of South Dakota's synethic control).

Our approach limits the extent of overfitting, since we match on several measures, not just the outcome studied. Our results are similar when, in addition to inequality measures, we also match on other state-level variables – e.g., minimum personal and corporate, sales tax and gasoline tax rate levels.

6.2 Tax Cancellations: Results

Figure 10 shows the results for the top 1% shares and incomes. Each figure plots the normalized top 1% income share or the total income for the treated state, the synthetic state and the average in the overall donor pool. Similar figures for top 0.01%, top 1%-10% and bottom 90% are available in Appendix Figures D.30–D.33.

The results for Ohio are inconclusive. On the one hand, we see no effect on top 1% shares and incomes (or even a small decrease in top 1% income share) as a result of corporate income tax cancellation. On the other hand, we see a small decrease in top 0.01% share but increase in bottom 90% and top 10%-1% income shares. The results for incomes also vary and often are of the opposite sign – a decrease in top 0.01% income, 90% income and top 10%-1% income. Overall, the results appear to be driven by poor fit rather than actual effects of tax cancellation.

For West Virginia, we see no effect on top 1% and bottom 90% income shares. We see a decrease in top 10%-1% and top 0.01% income shares and a decrease in total incomes for all percentiles. However, these decreases appear prior to income tax cancellation, suggesting that the results again are likely to be driven by poor fit rather than reflect true effects of tax cancellation.

For South Dakota, we see no effect on top 1%, top 0.01%, top 10%-1% and bottom 90% income shares and total incomes. Consistently, the cancellation of personal and corporate income taxes in South Dakota appears to result in no change in inequality.

Finally, for Alaska, we see a consistent increase in top 1%, top 0.01% and top 10%-1% income shares and total incomes. For bottom 90% we see an increase in total income but

a decrease in income share. Unfortunately, the tax cancellation coincided with the rapid development of oil industry in Alaska, which makes it difficult to attribute the observed effect to the cancellation of the personal income tax.[20]

Thus our analysis of tax cancellations once again does not provide robust evidence in favor of a strong relationship between income inequality and taxation.

In the appendix, we consider alternative matching approaches. Appendix Figures D.34–D.37 match on pre-cancellation pre-test window values of state Gini coefficients. Since Gini coefficient only distantly accounts for the values of the outcome studied, this approach is the least likely to overfit. At the other extreme, Appendix Figures D.38–D.41 match on pre-cancellation pre-test window values of the outcome itself (e.g., top 1% income shares when estimating results for top 1% income shares, each outcome separately). Naturally, this approach produces the best fit in the pre-test window but is most prone to over-fitting. The results are qualitatively similar.

7 Two-Way Fixed Effects Analysis

In this section, we explore the relationship between individual/corporate income taxes and inequality using a simple two-way fixed effects (TWFE) analysis that includes all within-state variation in tax rates. We interpret this analysis as measuring the extent to which within-state changes in tax rates are correlated with changes in inequality – analagous to the finding from Figure 1 in Piketty et al. (2014) (reproduced in Appendix Figure A.1) that federal top personal income tax rates and the U.S. top 1% income share exhibit a strong negative correlation. We estimate the following equation:

$$\ln(Outcome_{st}) = \tau'_{st}\ \beta + \alpha_s + \lambda_t + \varepsilon_{st} \tag{4}$$

[20]The sharp increase in oil production started in 1977, at which point production roughly doubled for a few years until it reached its peak in late 1980s.

where $Outcome_{st}$ is our inequality outcome, e.g., the share of income that accrues to the top 1%, in state s and year t. The vector τ_{st} includes personal, corporate, or both tax rates. Coefficients of interest β capture the relationship between tax rates and inequality outcomes, and are identified using all changes in tax rates i.e., extensive margin changes due to tax adoptions and tax cancellations, as well as intensive margin changes due to tax increases and decreases. State fixed effects α_s ensure that estimates are identified from variation within states, rather than cross-sectional comparisons. Year fixed effects λ_t control for idiosyncratic time effects. We cluster standard errors ε_{st} at the state level. In order to interpret β as the causal effect of tax rates on inequality, changes in tax rates must be uncorrelated with other unobserved time-varying determinants of inequality. We discuss the plausibility of this assumption in greater detail above in Section 3.

Table 2 shows our results from estimating Equation 4. Each panel shows the results of six separate regressions, where the outcome variable is always the logarithm of a particular income share. In Panels A and B, we include only the personal tax rate or only the corporate tax rate, and we find that either tax is associated with a reduction in top income shares. Since most states change multiple tax rates within the same year (Robinson and Tazhitdinova, 2025), in Panel C we include both personal and corporate tax rates in the same regression.

The results in Panel C suggest that corporate income taxes appear to have a stronger relationship with income inequality than individual income taxes. An increase in the corporate tax rate of 1 percentage point is associated with a 1.7% reduction in the top 1% income share and a 3.7% reduction in the top 0.01% income share. These reductions correspond to a 0.5% increase in the income that accrues to the bottom 90%, with no detectable effect on the top 10%-1%. In contrast, personal income tax changes do not appear to affect inequality, with all point estimates close to zero and statistically insignificant.

Assuming inequality trends are slow moving and cannot adjust immediately to tax changes, results in Panels A-C may represent a lower bound. In Panel D, we estimate the same specification but using decade averages. The results are qualitatively and quanti-

tatively similar. Finally, Panels E and F isolate intensive and extensive margin changes in tax policy. Intensive margin results are similar, though smaller in magnitude and imprecise for those in the top 0.1% and higher. Extensive margin results are directionally consistent for the corporate tax but none of the estimates are statistically significant.

Table 3 provides analogous estimates, but using the logarithm of real income for each group as the outcome variables. Focusing on Panel C, these results suggest that state corporate taxes reduce real incomes across the board, though the estimates are only statistically significant at conventional levels for the top 1% and above. At the highest end of the income distribution, a 1 percentage point increase in the corporate tax corresponds to a 6.7% reduction in real income. Furthermore, while corporate taxes increase the income *share* of the bottom 90%, we do not find any evidence that the real incomes for this group increased (and the point estimate suggests, if anything, a decrease).

Appendix E offers a variety of additional robustness checks: we study the effects of taxes on income thresholds, explore how results vary across time periods (1917-1946, 1947-1976, 1977-2018), use lagged values of tax rates, and finally, we re-estimate the TWFE using net-of-tax rates as independent variables. The results in Appendix E show that conclusions are sensitive to sample selection and choice of independent variables used.

8 Interpretation of the Results and Conclusion

Sections 4–7 provide empirical evidence on how various measures of pre-tax income inequality respond to tax adoptions, tax cancellations and tax changes. Our empirical results are summarized in Panel B of Table 1. With the exceptions of TWFE analysis, we generally find a statistically insignificant relationship between inequality and tax measures. A more holistic analysis (of coefficient patterns alone) suggests that higher income taxes may reduce top income shares and possibly income levels. For bottom incomes the evidence is further mixed: suggesting that higher taxes may increase or decrease both shares and income levels.

Accounting for the presence of spillovers that should bias our estimates upward (in absolute value), our results suggest that the relationship between state-level inequality and state taxes is weak at best.

Assuming the reader accepts these results as plausibly causal, what do they imply about the nature of tax-inequality relationship? The reader can compare our results with the predictions summarized in Panel A of Table 1, previously discussed in Section 2. Our TWFE and tax change evidence is most consistent with the first three channels (reduced work incentives, increased avoidance/evasion and out-migration), rather than bargaining scenarios. The tax adoption evidence does not match either of the mechanisms listed in Panel A, while tax cancellation evidence generally implies no relationship.

One plausible explanation for our null result is that our analysis is simply underpowered, and we are not able to establish a statistically significant relationship, despite its existence. An alternative explanation is that inequality responds to tax changes but only to sufficiently large and persistent ones. For example, if tax-inequality relationship is primarily driven by reduced work efforts, then our conclusions are broadly consistent with the vast literatures that document weak labor supply responses to taxes (Keane, 2011; Saez et al., 2012; McClelland and Mok, 2012; Neisser, 2021). On the other hand, if tax-inequality relationship is mainly driven by changes of bargaining power, then the small changes in state income taxes may not be sufficient to change bargaining powers, and hence, affect inequality. Overall, our empirical evidence suggests that states alone may not have the power to resolve income inequality, and that changes at the federal level may be required.

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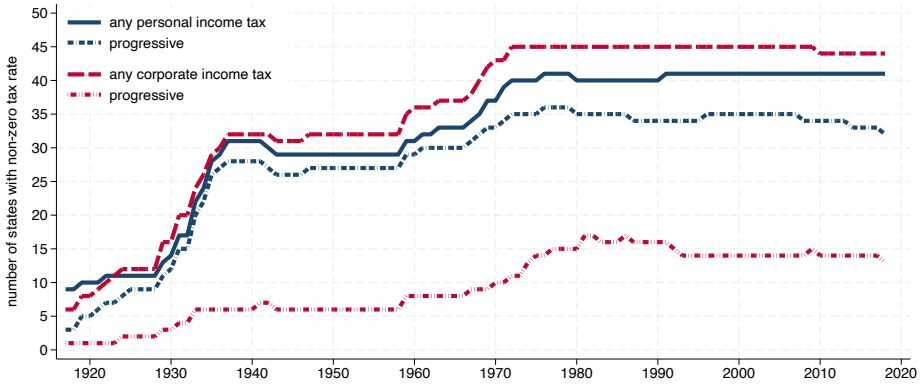
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Figure 1: State Tax Policy Variation

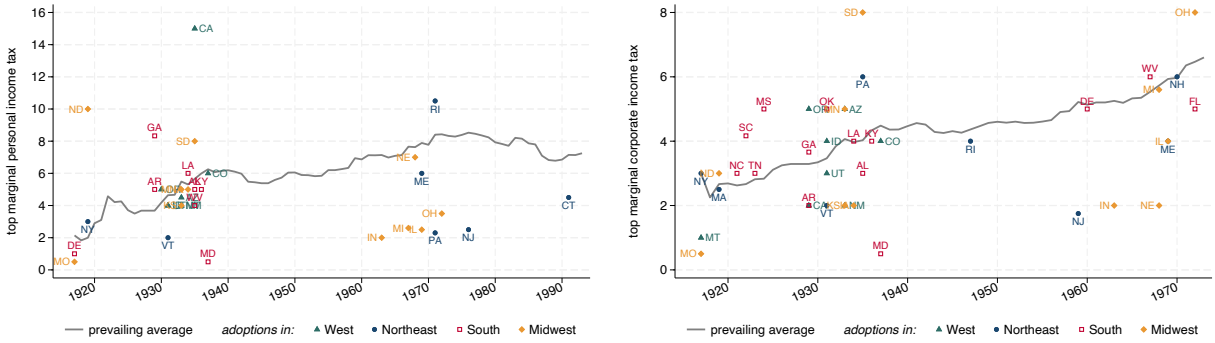
Panel A: States with Personal and Corporate Income Taxes



Panel B: Tax Rates at First Adoption

(a) Top Personal Income Tax

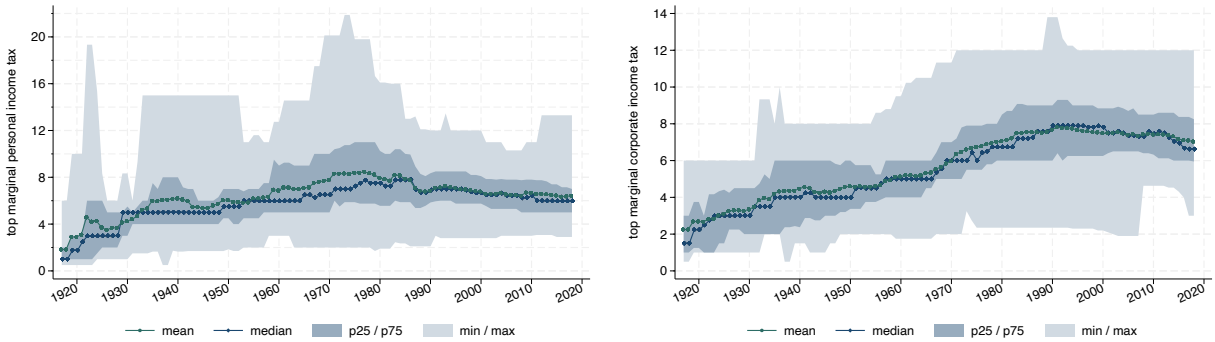
(b) Top Corporate Income Tax



Panel C: Tax Rates Over Time

(c) Top Personal Income Tax

(d) Top Corporate Income Tax



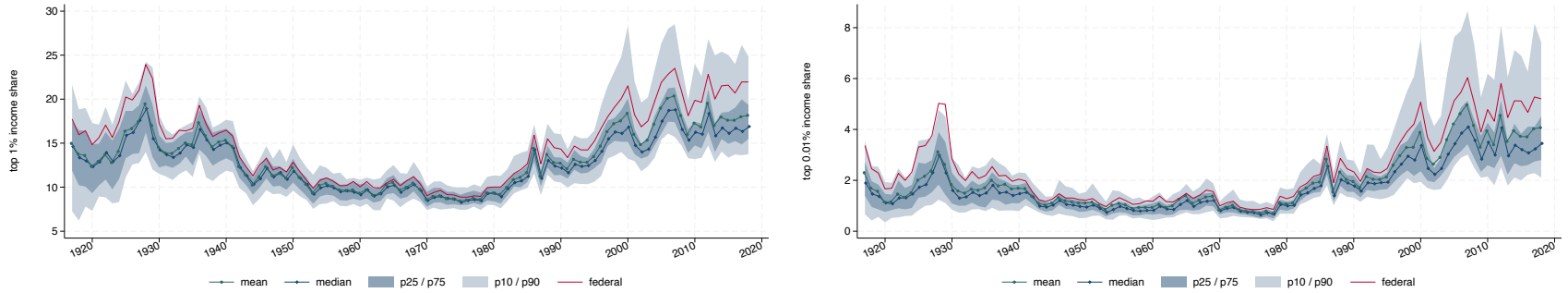
Notes: Panel A shows the number of states with personal and corporate income taxes, as well as the number of states with progressive tax systems for each type. Panel B show the tax rate in the year the tax was first adopted by each state, as well as the prevailing average tax rate at the time (where the prevailing average in a given year excludes states that first adopted the tax in that year). Panel C shows the average, median, 25th and 75th percentiles, minimum, and maximum of state top personal income and top corporate income tax rates. Throughout, only non-zero tax rates are included.

Figure 2: State Inequality Variation

Panel A: Inequality Over Time

(a) Top 1% Income Share

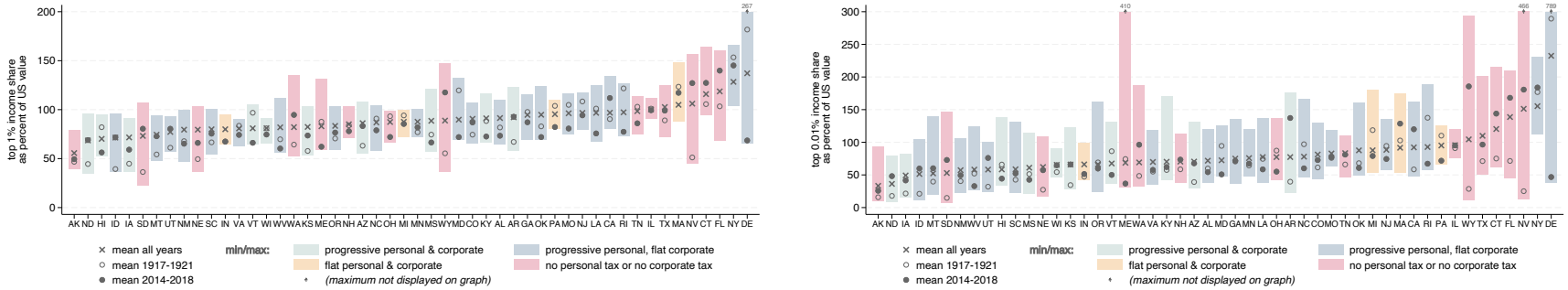
(b) Top 0.01% Income Share



Panel B: Inequality by State

(c) Top 1% Income Share (as Percent of U.S.)

(d) Top 0.01% Income Share (as Percent of U.S.)



Notes: Panel A shows the average, median, and 10th, 25th, 75th, and 90th percentiles of the top 1% and top 0.01% income shares for all U.S. states over time, as well as the equivalent U.S.-wide shares. Panel B shows, for each state, the minimum and maximum in the top 1% and top 0.01% income shares as a percent of the equivalent U.S.-wide share over time. The mean income shares are also displayed over all years, over the last five years, over the first five years available (1917-1921, except for AK and HI as 1959-1963). The ranges are colored based on the *modal* tax policy for each state over all years: whether the state collects personal income and corporate taxes, and whether those tax rates are progressive or flat. See Appendix for income shares as a percent of the U.S.-wide share over time (Figure A.2), the Gini Index over time (A.3), a version of Panel B categorizing states by their 2018 (rather than modal) tax policy (A.4), and state-specific time series (A.5).

Table 1: Potential Channels and Estimated Effects of Personal/Corporate Income Tax Increases on Inequality

	income		income shares		overall
	top	bottom	top	bottom	inequality
Panel A – Potential Mechanisms:					
1. reduced work incentives	↓	-/↓	↓$^{\alpha}$	↑$^{\alpha}$	↓$^{\alpha}$
2. increased avoidance/evasion	↓	-/↓	↓$^{\alpha}$	↑$^{\alpha}$	-
3. increased out-migration	↓$^{\beta}$	↓$^{\beta}$	↓/↑$^{\gamma}$	↓/↑$^{\gamma}$	-
4. reduced bargaining power/incentives	↓	↑	↓	↑	↓
Panel B – Observed Responses:					
Tax Adoptions (Figures 4 & 5)	-/↓	-/↓	-/↓	-/↓	
Large Tax Increases (Figures 6 & 7)	-	-/↑	-/↓	-/↑	
Large Tax Decreases$^{\delta}$ (Figures 8 & 9)	-/↓	-	-/↓	-/↑	
Tax Cancellations$^{\delta}$ (Figures 10, D.30–D.33)	-	-	-	-	
Two-Way Fixed Effects (Tables 2 & 3)	↓	-/↓	↓	↑	

Notes: Panel A summarizes the various channels through which personal and corporate income tax increases may affect inequality. We focus this discussion on tax changes that disproportionately affect top incomes, such as changes that are larger (or only) for the top marginal personal rate, flat changes in personal income taxes if high-income individuals are more tax-elastic (e.g., Gruber and Saez, 2002), or corporate tax changes when high-income individuals bear a greater share of the tax incidence on wages (e.g., Kennedy et al., 2022). Panel B summarizes our empirical results from Sections 4–7.

$^{\alpha}$ In the case of tax reforms that affect all individuals equally, we would expect no effect for these outcomes.

$^{\beta}$ We consider income tax increases to be less likely to result in migration responses by low-income individuals, even in the case of uniform tax increases.

$^{\gamma}$ Income shares would remain fixed in the simple case where the entire top X% moves out of the state, and incomes follow a Pareto distribution. Otherwise, top income shares may increase or decrease (with bottom income shares moving in the opposite direction).

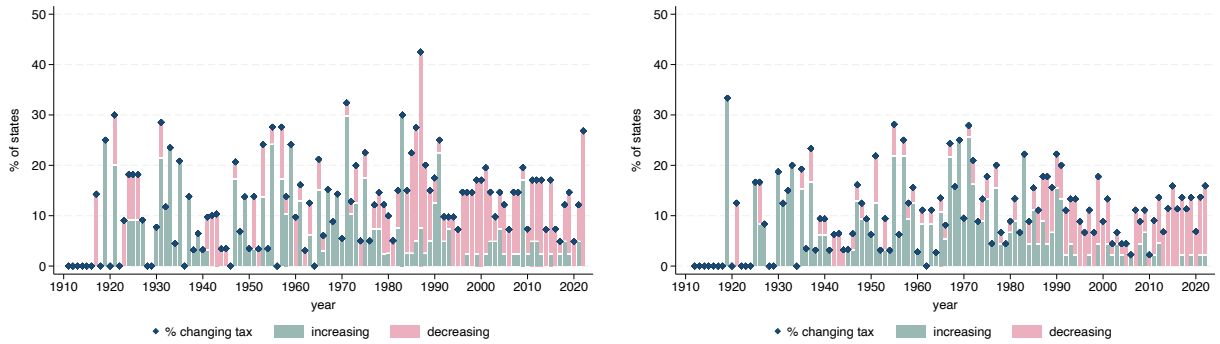
$^{\delta}$ For cancellations and tax decreases we record the effect with the opposite sign for ease of comparison (all arrows are in the direction consistent with tax increases).

Figure 3: Inequality and Tax Policy

Panel A: Tax Changes

(a) Personal Income Tax Changes

(b) Corporate Income Tax Changes



Panel B: Tax Adoptions

(c) Personal, Top 1% share

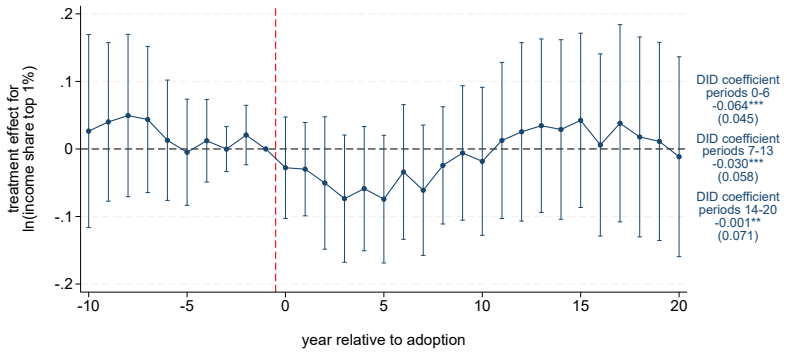
(d) Corporate, Top 1% share



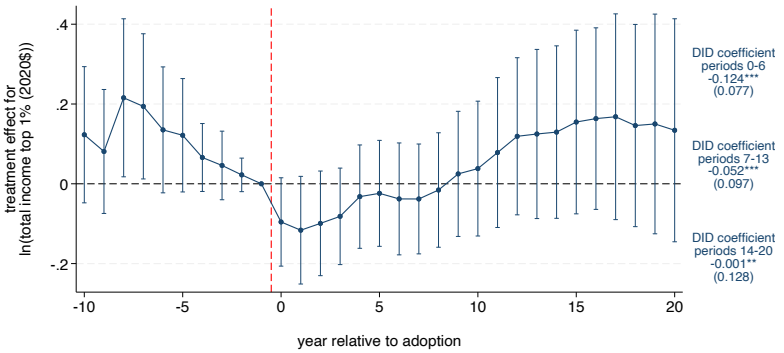
Notes: Figures (a) and (b) show the percent of states that change a given tax rate in a given year (scatter points), increase it (green bars), or decrease it (pink bars). Only states with non-zero tax rates are included, and only intensive margin tax changes are included (tax adoptions and cancellations are excluded). Figures (c) and (d) show top 1% income shares in the year the state adopts personal or corporate income tax. Each point represents a state. States that adopted a progressive tax scheme are shown in blue and states that adopted flat tax schemes are shown in pink. Finally, the horizontal blue and pink dashed lines represent the average top income shares for states that adopted progressive and flat income tax schemes, respectively, when the tax was initially adopted.

Figure 4: Effect of Early (1929-1937) Tax Adoptions on Log(Income Shares) and Log(Income)

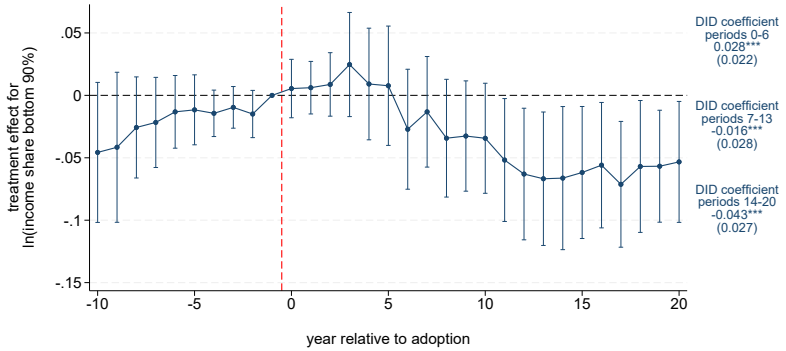
(a) Top 1% Income Share



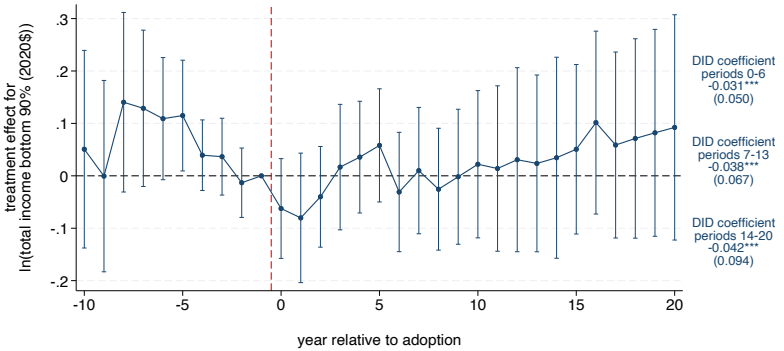
(b) Top 1% Income



(c) Bottom 90% Income Share



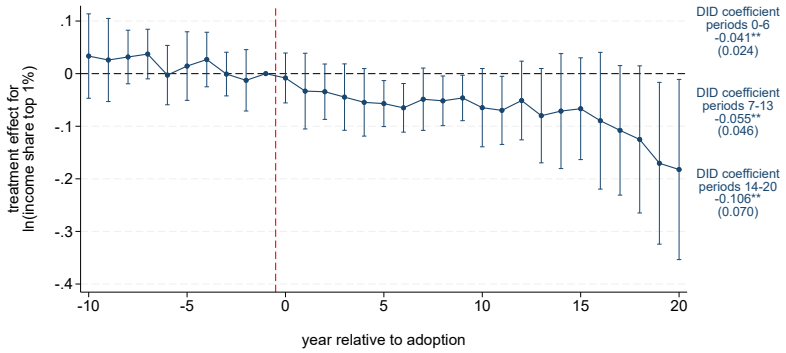
(d) Bottom 90% Income



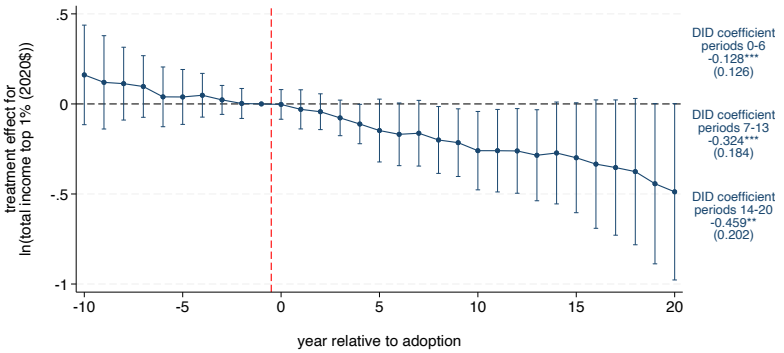
Notes: These figures show the results of estimating Equation (1). The outcome variable is the logarithm of income shares or income levels. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. Tax rate changes are shown in Appendix Figure B.7. The sample includes states that adopted taxes in 1929-1937 (treated), as well as states that adopted after 1962 or never adopted (controls). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure B.9 for estimates for the top 10%-1% and top 0.01%, and Figures B.11 and B.12 for alternative estimators.

Figure 5: Effect of Late (1963-1972) Tax Adoptions on Log(Income Shares) and Log(Income)

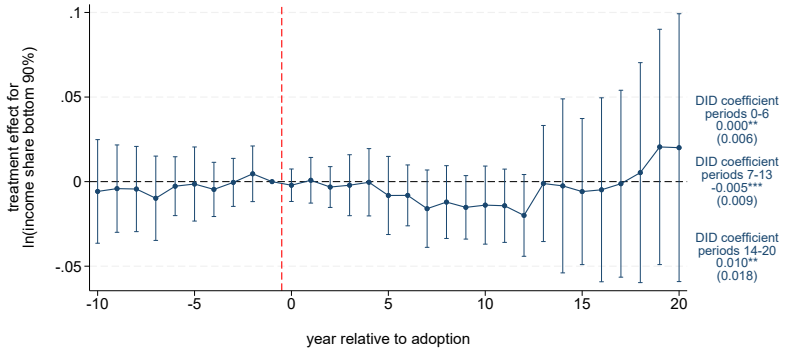
(a) Top 1% Income Share



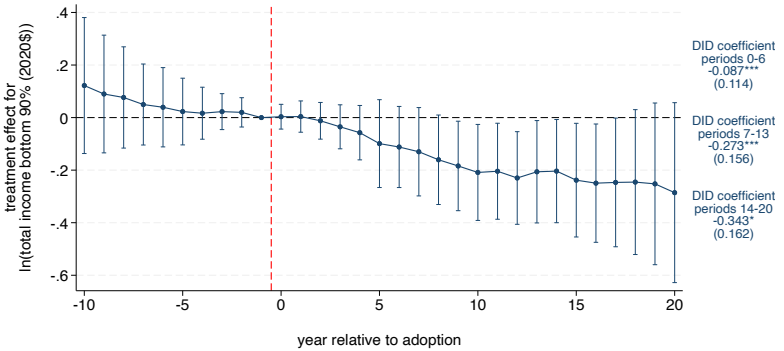
(b) Top 1% Income



(c) Bottom 90% Income Share

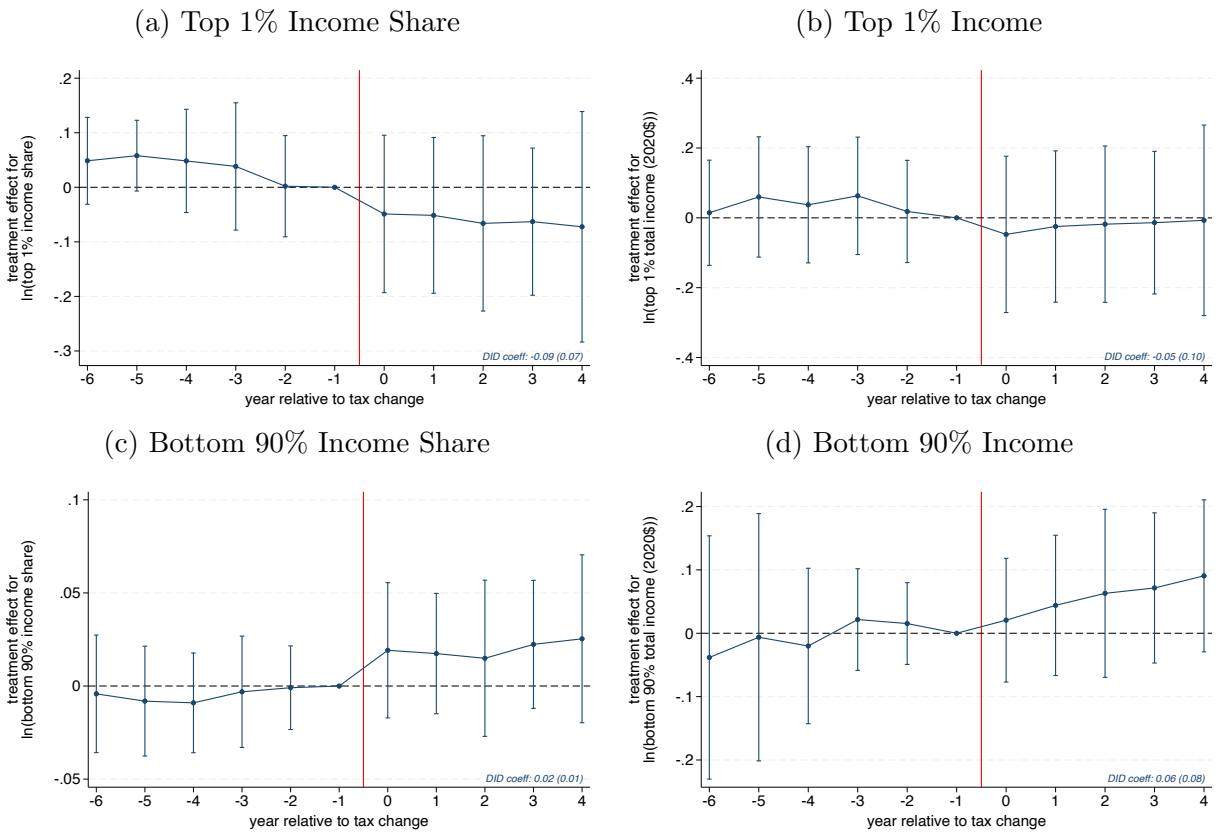


(d) Bottom 90% Income



Notes: These figures show the results of estimating Equation (1). The outcome variable is the logarithm of income shares or income levels. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. Tax rate changes are shown in Appendix Figure B.8. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never adopted either tax (controls). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure B.10 for estimates for the top 10%-1% and top 0.01%, Figures B.13 and B.14 for alternative estimators, and Figure B.17 for an alternative control group (pre-1927 adopters).

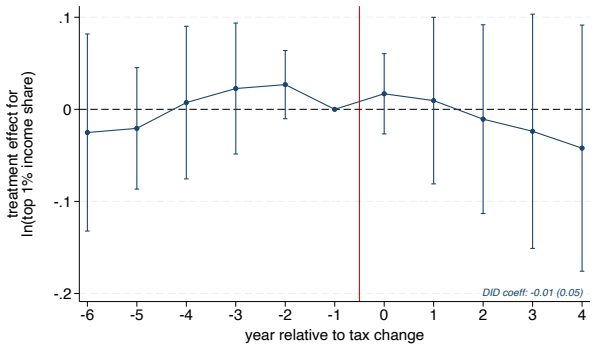
Figure 6: Effect of Personal Income Tax Increases on Log(Income Shares) and Log(Income)



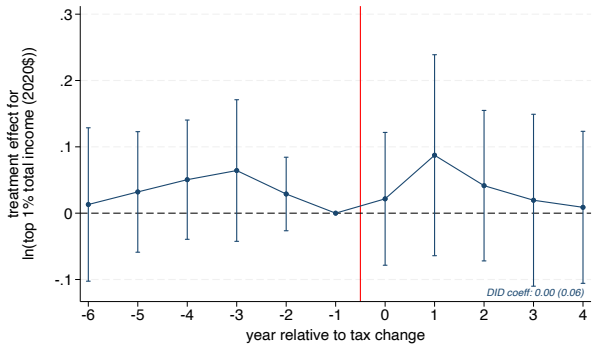
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the personal income tax. The sample includes states that increased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure C.19 for estimates for the top 10-1% and top 0.01%.

Figure 7: Effect of Corporate Tax Increases on Log(Income Shares) and Log(Income)

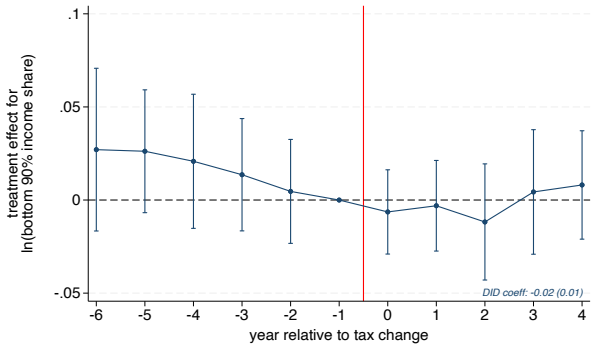
(a) Top 1% Income Share



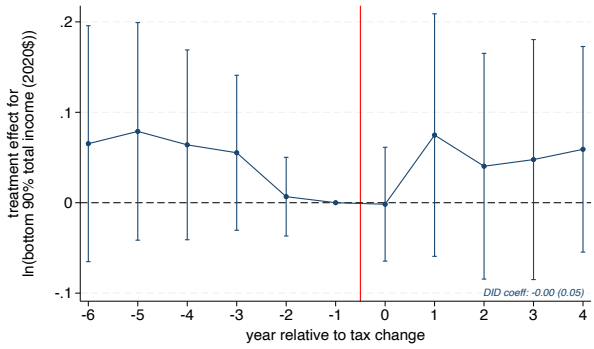
(b) Top 1% Income



(c) Bottom 90% Income Share



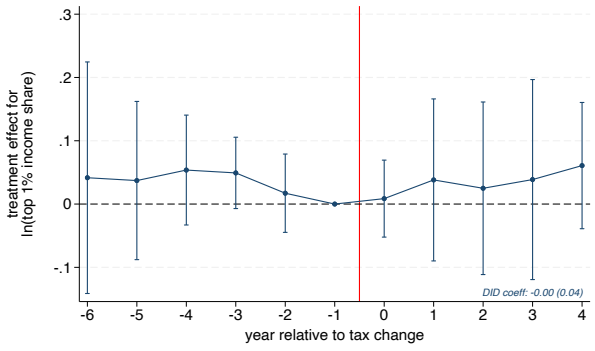
(d) Bottom 90% Income



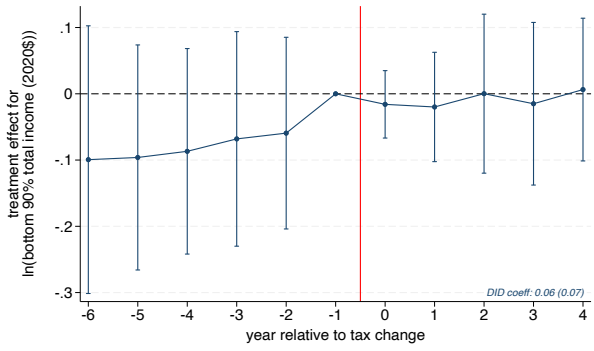
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the corporate income tax. The sample includes states that increased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure C.20 for estimates for the top 10-1% and top 0.01%.

Figure 8: Effect of Personal Tax Decreases on Log (Income Shares) and Log(Income)

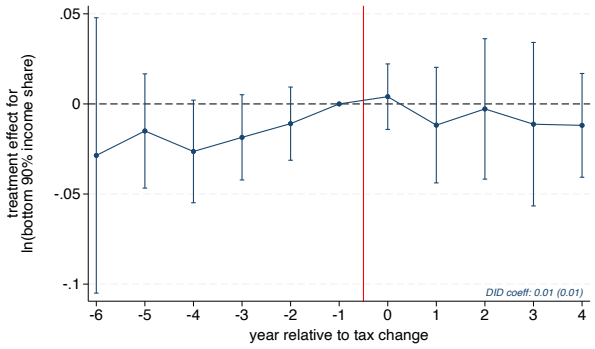
(a) Top 1% Income Share



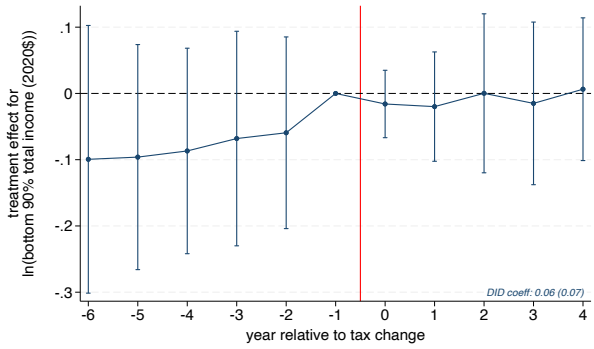
(b) Top 1% Income



(c) Bottom 90% Income Share



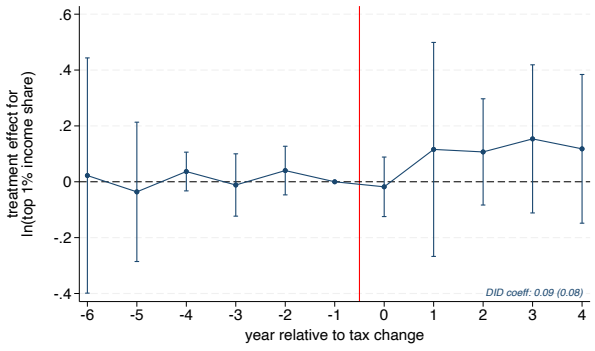
(d) Bottom 90% Income



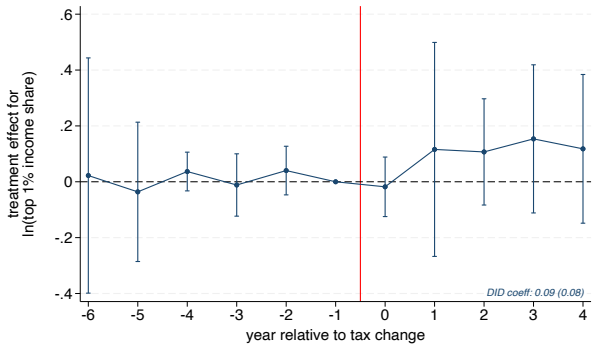
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the personal income tax. The sample includes states that decreased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure C.21 for estimates for the top 10-1% and top 0.01%.

Figure 9: Effect of Corporate Tax Decreases on Log(Income Shares) and Log(Income)

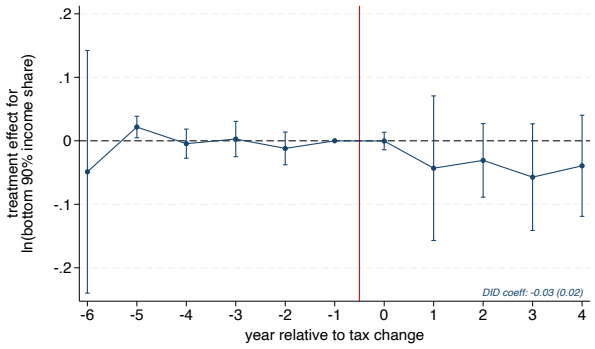
(a) Top 1% Income Share



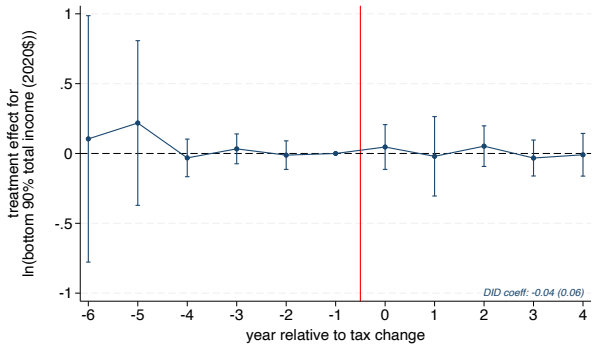
(b) Top 1% Income



(c) Bottom 90% Income Share



(d) Bottom 90% Income

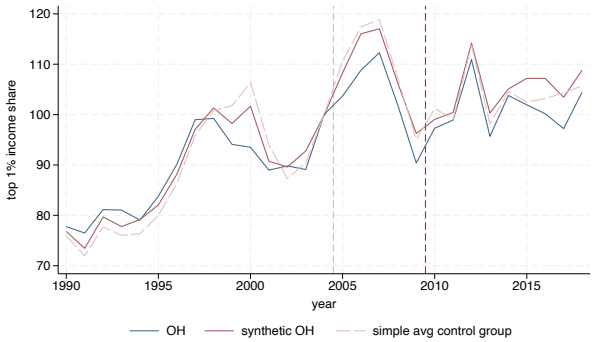


Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the corporate income tax. The sample includes states that decreased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure C.22 for estimates for the top 10-1% and top 0.01%.

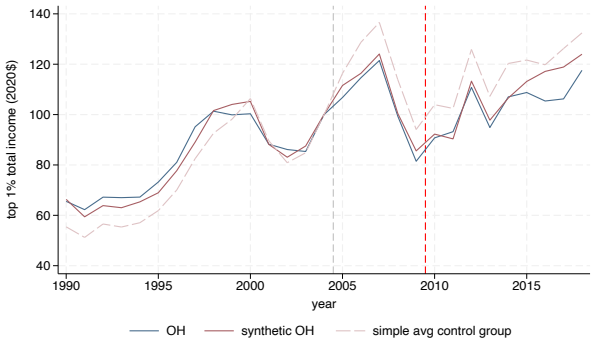
Figure 10: Effect of Tax Cancellations on Top 1% Log(Income Shares) and Log(Income)

Ohio cancelled $\tau^{corporate} = 8.5\%$, kept $\tau^{personal} = 6.24\%$ in 2010

(a) Top 1% Income Share

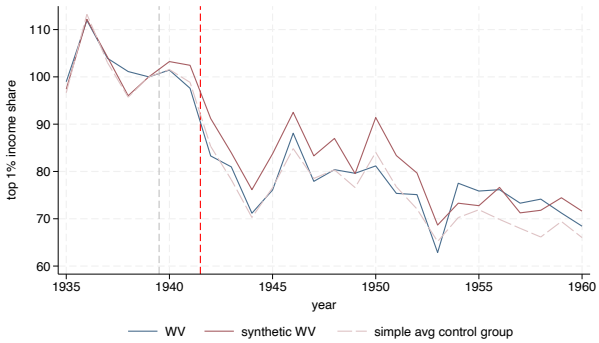


(b) Top 1% Income

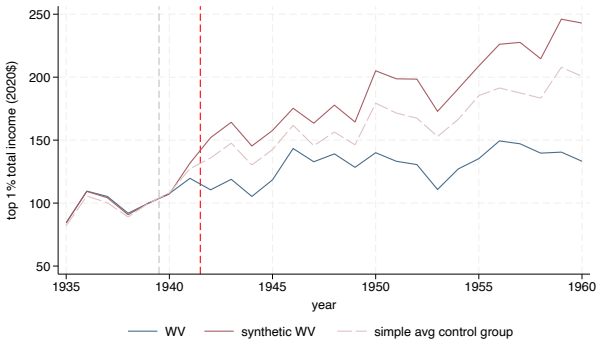


West Virginia cancelled $\tau^{personal} = 6\%$, kept $\tau^{corporate} = 0\%$ in 1942

(c) Top 1% Income Share

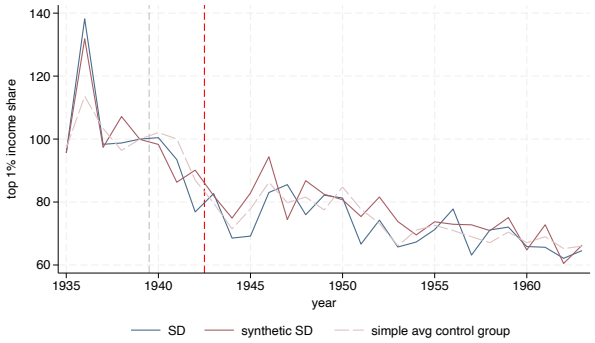


(d) Top 1% Income

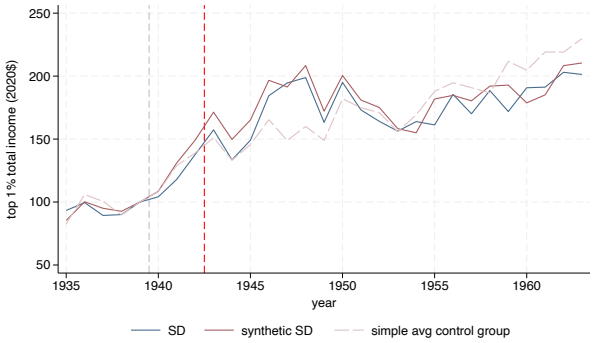


South Dakota: cancelled $\tau^{personal} = 6\%$ and $\tau^{corporate} = 8\%$ in 1943

(e) Top 1% Income Share



(f) Top 1% Income

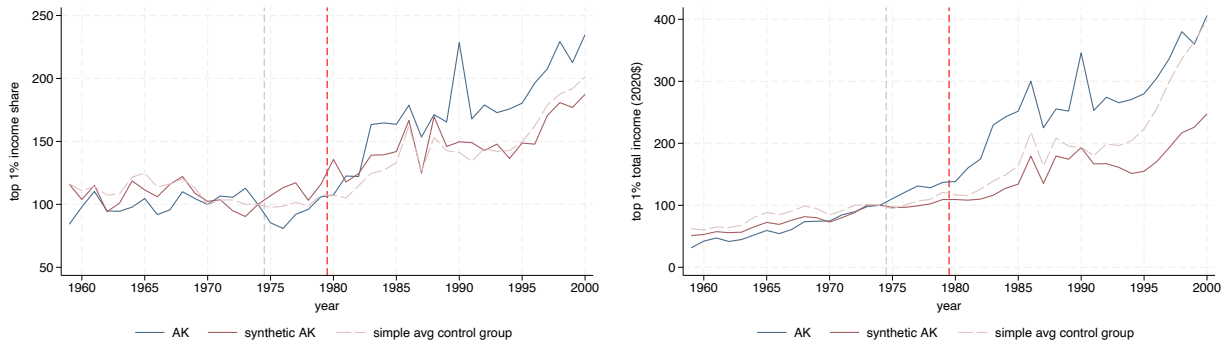


Notes: see next page.

Figure 10: Effect of Tax Cancellations on Top 1% Income Share

Alaska cancelled $\tau^{personal} = 14.5\%$, kept $\tau^{corporate} = 9.4\%$ in 1980

(g) Top 1% Income Share (h) Top 1% Income



Notes: These figures show the results of the synthetic control analysis for cancellations of a personal and/or corporate income tax. Each figure shows changes in the top 1% income and income share, before and after each state's cancellation, normalized to the last year of the matching period. The figures also show both the synthetic control (weighted average of the donor pool) and simple average of all the potential donors. The potential donor pool includes states that maintained the cancelled tax throughout the period of study. The red line identifies the year of tax cancellation. The synthetic control is selected using annual outcomes only during the period to the left of the gray dashed line. Thus, the years between the gray dashed line and the red line allow us to assess the performance of the synthetic control. For other income shares and alternative choices of the synthetic control, see Appendix D.

Table 2: Estimates of Personal and Corporate Income Taxes on (Log) Income Shares

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$						
Top Personal Rate	0.001	-0.000	-0.007*	-0.004	-0.009**	-0.017**
	(0.001)	(0.002)	(0.004)	(0.003)	(0.004)	(0.006)
Panel B – Independent variables: $\tau_s^{corporate}$						
Top Corporate Rate	0.005**	0.000	-0.017**	-0.009**	-0.023**	-0.038**
	(0.002)	(0.003)	(0.007)	(0.004)	(0.009)	(0.014)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$						
Top Personal Rate	-0.001	-0.001	-0.000	-0.001	-0.000	-0.002
	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)	(0.008)
Top Corporate Rate	0.005**	0.001	-0.017**	-0.008**	-0.023**	-0.037**
	(0.002)	(0.003)	(0.007)	(0.004)	(0.010)	(0.017)
Panel D – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, by decade						
Top Personal Rate	-0.001	-0.001	0.000	-0.001	0.001	-0.002
	(0.001)	(0.002)	(0.004)	(0.004)	(0.005)	(0.010)
Top Corporate Rate	0.006**	0.001	-0.019**	-0.009*	-0.025**	-0.039*
	(0.002)	(0.004)	(0.009)	(0.004)	(0.012)	(0.020)
Panel E – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, excluding zeros						
Top Personal Rate	-0.000	-0.002	0.001	-0.001	0.001	0.005
	(0.002)	(0.002)	(0.004)	(0.003)	(0.006)	(0.013)
Top Corporate Rate	0.006***	-0.006	-0.011**	-0.008***	-0.011	-0.017
	(0.002)	(0.005)	(0.004)	(0.003)	(0.007)	(0.013)
Panel F – Independent variables: $1\{\tau_s^{personal} > 0\}$ and $1\{\tau_s^{corporate} > 0\}$						
Has Personal Income Tax	-0.038	-0.003	0.062	0.051	0.074	0.003
	(0.035)	(0.026)	(0.076)	(0.050)	(0.097)	(0.135)
Has Corporate Income Tax	0.041	0.023	-0.120	-0.067	-0.160	-0.220
	(0.035)	(0.019)	(0.079)	(0.046)	(0.105)	(0.147)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955
Observations	5,016	5,016	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log income shares for each group shown in the first row e.g., ln(top 1% share). The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. In addition to the independent variables listed, Panels A, B, C, E, F include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included), while Panel F estimates extensive marginal responses (only indicators for the presence of personal and corporate income taxes are included). * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$, standard errors clustered at the state level.

Table 3: Estimates of Personal and Corporate Income Taxes on (Log) Real Incomes

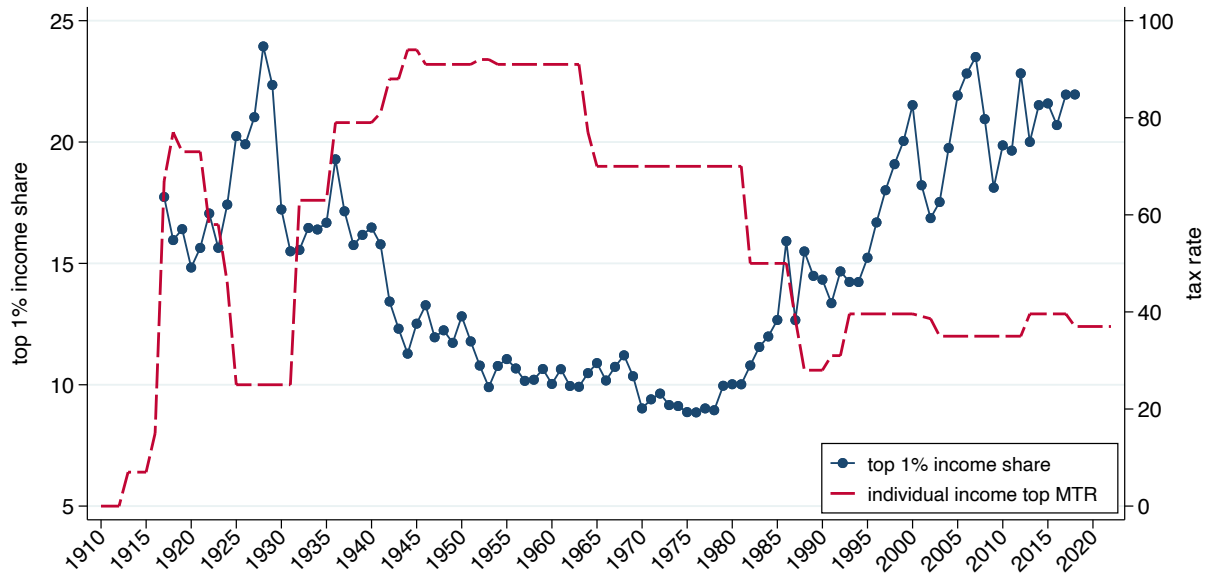
	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $\tau_s^{personal}$							
Top Personal Rate	-0.025***	-0.026***	-0.033***	-0.030***	-0.035***	-0.043***	-0.026***
	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.009)
Panel B – Independent variables: $\tau_s^{corporate}$							
Top Corporate Rate	-0.035**	-0.039***	-0.056***	-0.048***	-0.062***	-0.077***	-0.040***
	(0.015)	(0.014)	(0.017)	(0.016)	(0.018)	(0.021)	(0.014)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$							
Top Personal Rate	-0.015*	-0.014	-0.014	-0.015	-0.014	-0.016	-0.014
	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)	(0.013)	(0.009)
Top Corporate Rate	-0.025	-0.029*	-0.047**	-0.038**	-0.053**	-0.067***	-0.030*
	(0.015)	(0.015)	(0.019)	(0.017)	(0.020)	(0.024)	(0.016)
Panel D – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, by decade							
Top Personal Rate	-0.016	-0.015	-0.014	-0.016	-0.014	-0.016	-0.015
	(0.010)	(0.011)	(0.012)	(0.011)	(0.012)	(0.015)	(0.011)
Top Corporate Rate	-0.028	-0.032*	-0.052**	-0.042**	-0.059**	-0.073**	-0.034*
	(0.018)	(0.018)	(0.022)	(0.020)	(0.023)	(0.028)	(0.018)
Panel E – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, excluding zeros							
Top Personal Rate	-0.005	-0.007	-0.004	-0.006	-0.004	0.000	-0.005
	(0.008)	(0.009)	(0.007)	(0.007)	(0.008)	(0.012)	(0.008)
Top Corporate Rate	-0.029**	-0.041***	-0.046***	-0.043***	-0.046***	-0.052***	-0.035***
	(0.012)	(0.014)	(0.014)	(0.013)	(0.015)	(0.017)	(0.012)
Panel F – Independent variables: $1\{\tau_s^{personal} > 0\}$ and $1\{\tau_s^{corporate} > 0\}$							
Has Personal Income Tax	-0.351***	-0.315***	-0.250	-0.261*	-0.239	-0.309	-0.313**
	(0.108)	(0.116)	(0.161)	(0.141)	(0.175)	(0.203)	(0.117)
Has Corporate Income Tax	0.135	0.117	-0.026	0.027	-0.066	-0.126	0.094
	(0.119)	(0.130)	(0.177)	(0.153)	(0.195)	(0.222)	(0.130)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0
Observations	5,016	5,016	5,016	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income earned by each group shown in the first row. The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. In addition to the independent variables listed, Panels A, B, C, E, F include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included), while Panel F estimates extensive marginal responses (only indicators for the presence of personal and corporate income taxes are included). The average Top X% real incomes are expressed in 2020 billions of dollars. * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$, standard errors clustered at the state level.

APPENDIX FOR ONLINE PUBLICATION

A Additional Descriptive Evidence

Figure A.1: U.S. Top 1% Income Share and
Federal Top Individual Income Tax Rate



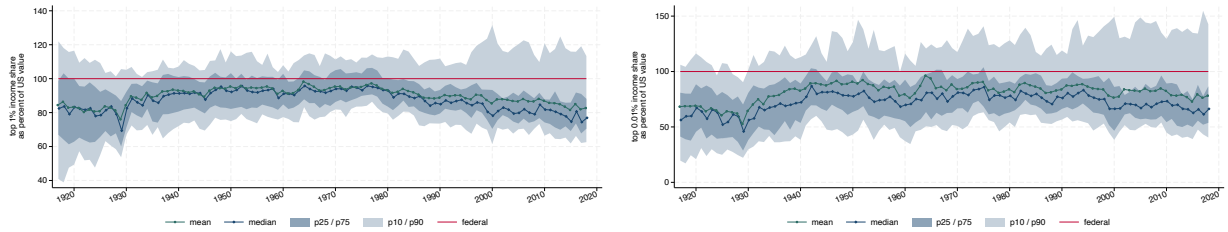
Notes: This figure shows the U.S.-wide top 1% income share as well as the federal top individual income tax rate, as in Piketty and Saez (2003).

Figure A.2: State Inequality Over Time as Percent of US

Panel A: Unweighted

(a) Top 1% Income Share

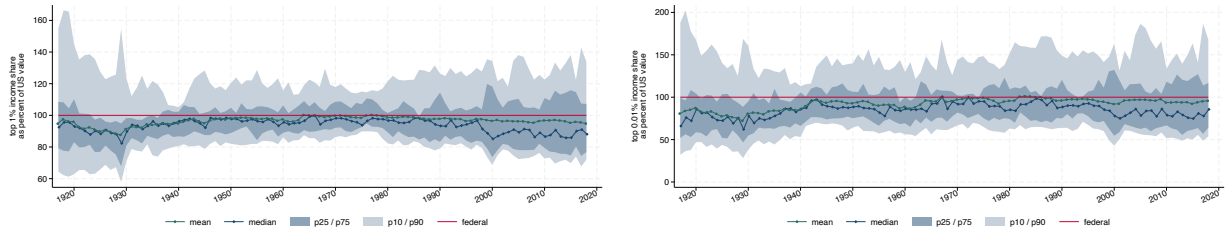
(b) Top 0.01% Income Share



Panel B: Weighted by Number of Tax Units

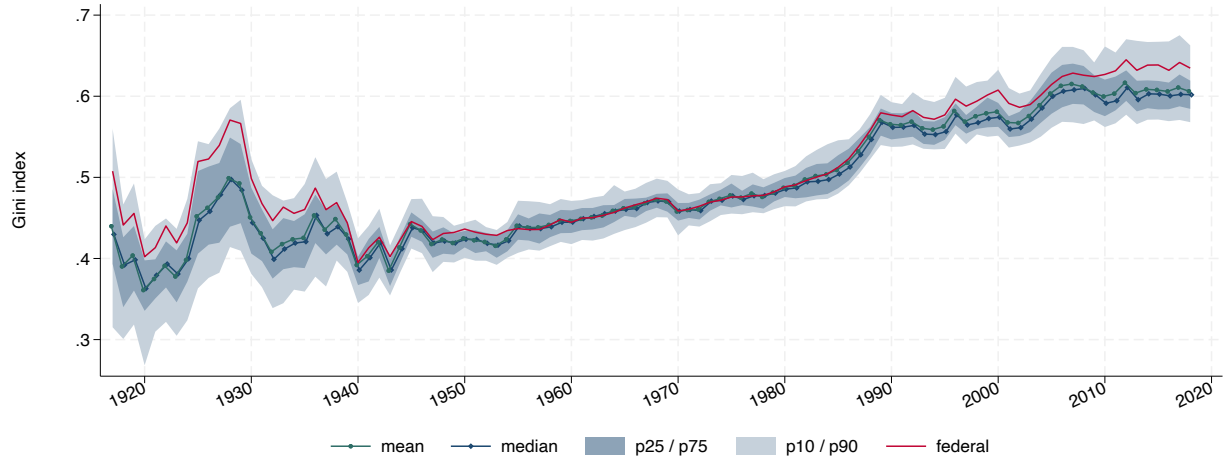
(c) Top 1% Income Share

(d) Top 0.01% Income Share



Notes: These figures show the average, median, and 10$^{\text{th}}$, 25$^{\text{th}}$, 75$^{\text{th}}$, and 90$^{\text{th}}$ percentiles of the top 1% and top 0.01% income shares, as a percent of the equivalent U.S.-wide share, for all U.S. states over time. Panel A is unweighted (as in Figure 2), while in Panel B all statistics are weighted by the number of tax units in each state.

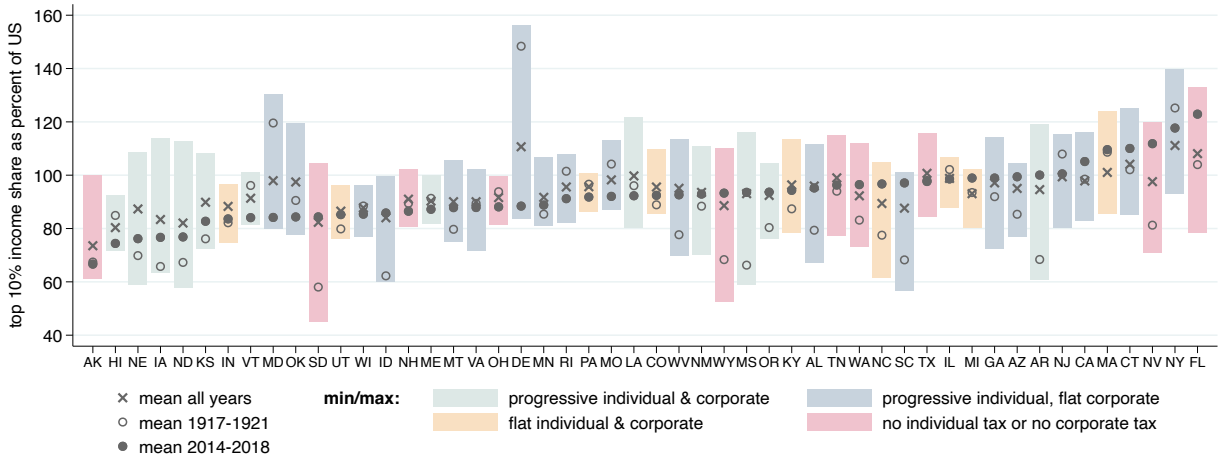
Figure A.3: State Inequality Over Time: Gini Index



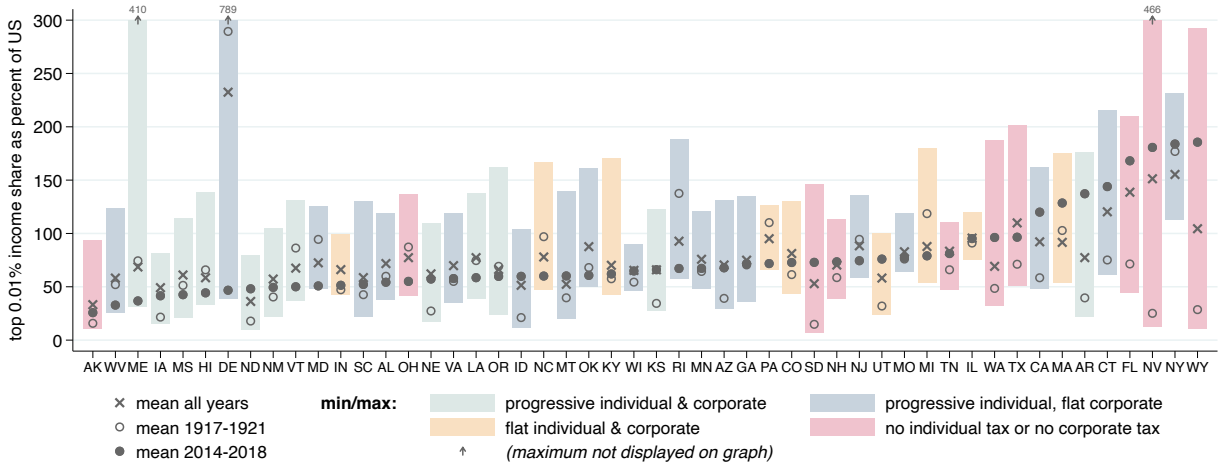
Notes: These figures show the average, median, and 10$^{\text{th}}$, 25$^{\text{th}}$, 75$^{\text{th}}$, and 90$^{\text{th}}$ percentiles of the Gini index, for all U.S. states over time, as well as the U.S. time-series.

Figure A.4: Persistence in State Inequality (Ordered by 2018 values)

(a) Top 1% Income Share

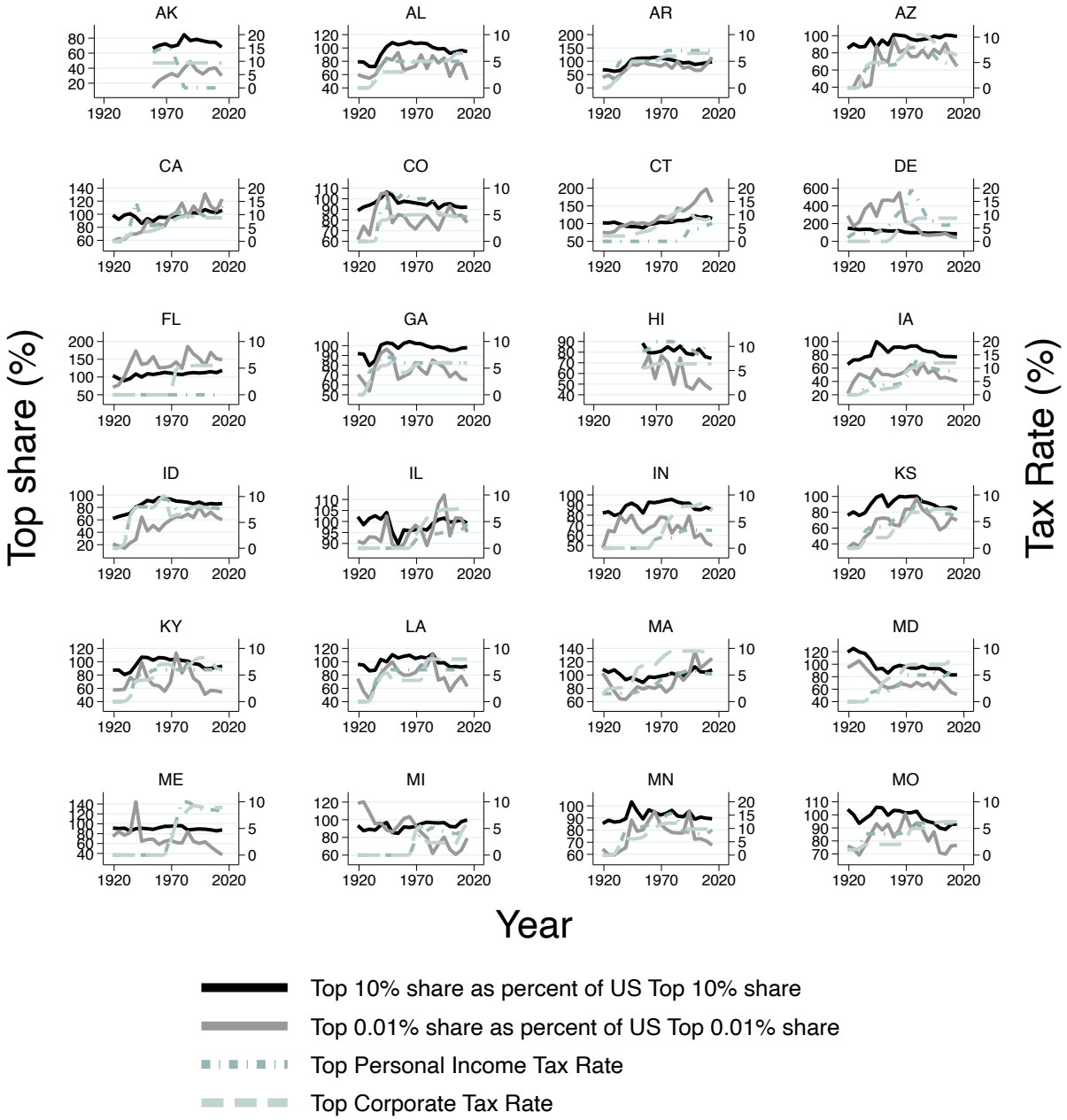


(b) Top 0.01% Income Share



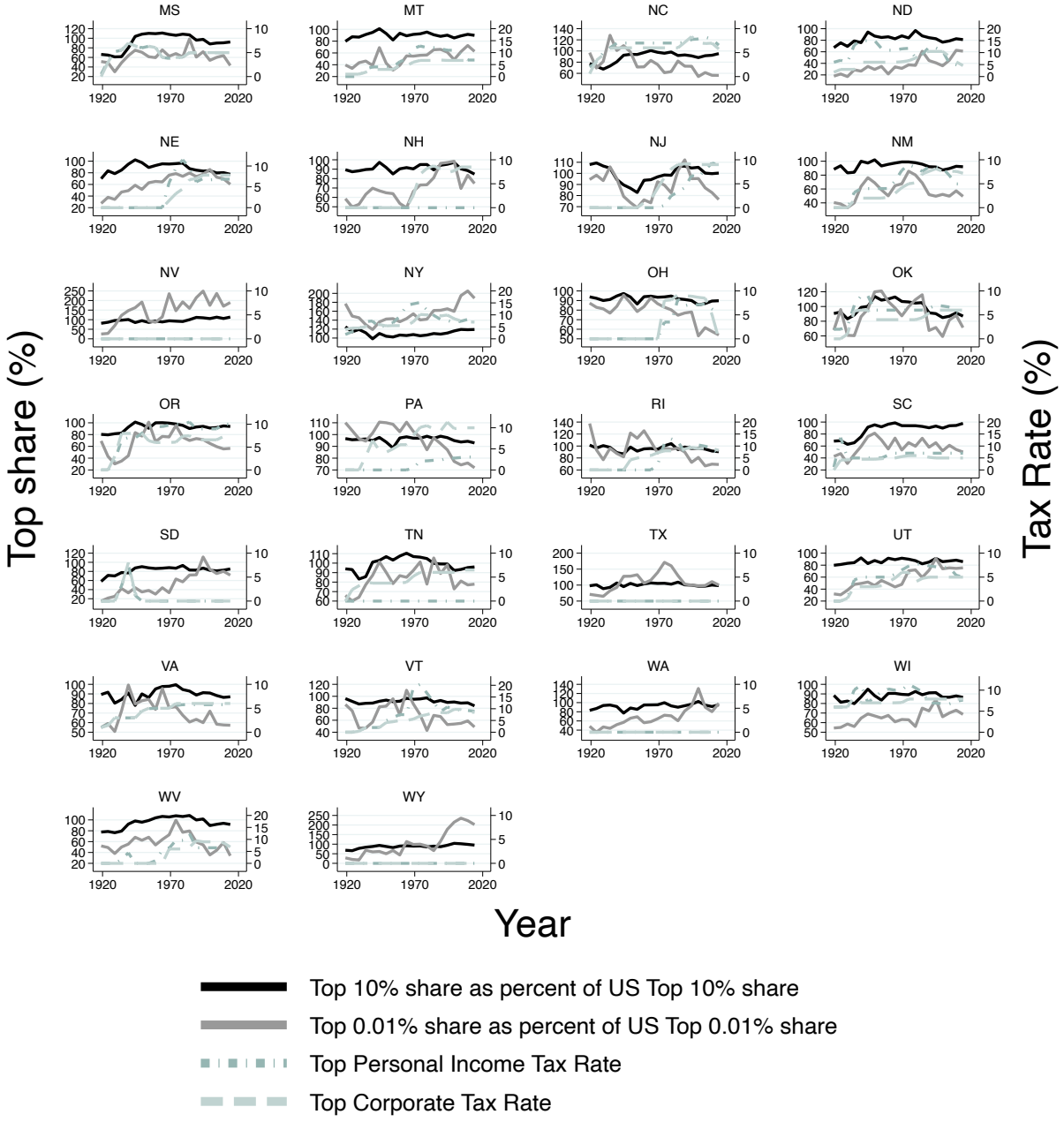
Notes: These figures show, for each state, the minimum and maximum in the top 1% and top 0.01% income shares as a percent of the equivalent U.S.-wide share over time. The mean income shares are also displayed over all years, over the last five years, over the first five years available (1917-1921, except for AK and HI as 1959-1963). The ranges are colored based on the 2018 tax policy for each state: whether the state collects individual income and corporate taxes, and whether those tax rates are progressive or flat.

Figure A.5: State Inequality Vs Tax Rates Over Time



Notes: Solid gray lines show the evolution of the 5-year state average Top 10% and Top 0.01% share as a percent of US Top 10% and Top 0.01% share. Dashed green lines show the evolution of 5-year state average Top Personal Income Tax rate and Top Corporate Tax rate over time.

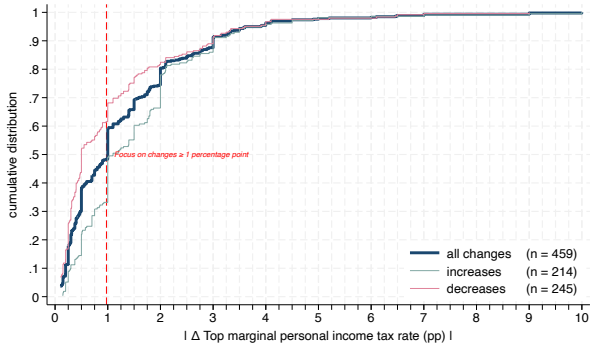
Figure A.5: State Inequality Vs Tax Rates Over Time, continued



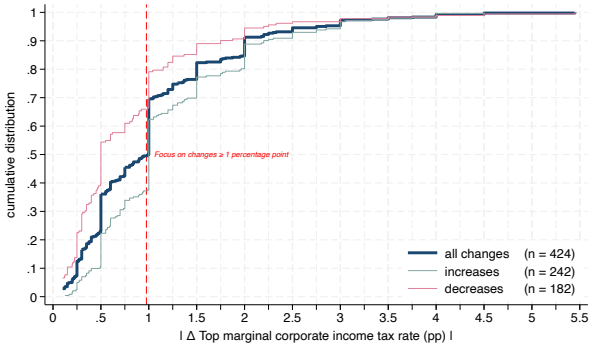
Notes: Solid gray lines show the evolution of the 5-year state average Top 10% and Top 0.01% share as a percent of US Top 10% and Top 0.01% share. Dashed green lines show the evolution of 5-year state average Top Personal Income Tax rate and Top Corporate Tax rate over time.

Figure A.6: Cumulative Distribution of Tax Changes by Magnitude

(a) Top Personal Income Tax Rate



(b) Top Corporate Income Tax Rate



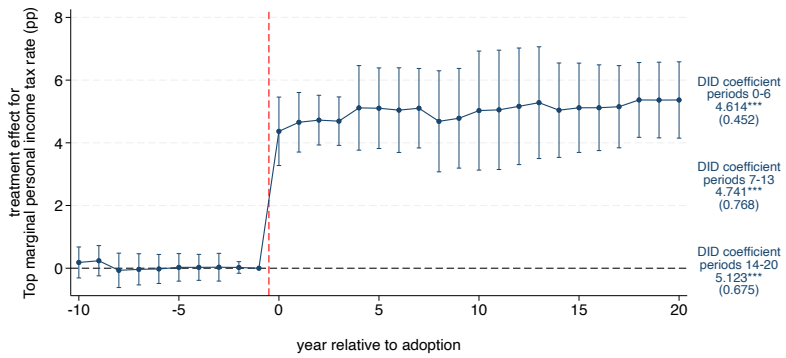
Notes: These figures show the distribution of tax increases, tax decreases, and tax changes overall by magnitude, as well as the minimum size for "large" tax changes by tax type. Only intensive margin tax changes are included; tax adoptions and cancellations are excluded.

B Tax Adoptions: Additional Evidence

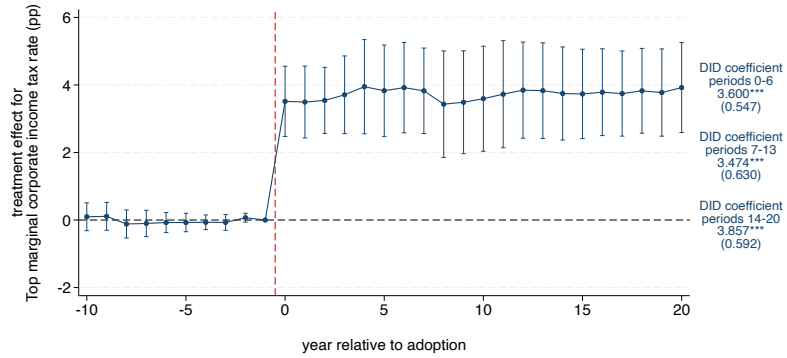
Figure B.7: Effect of Tax Adoptions on Tax Rates

Panel A: Early (1929-1937) Tax Adoptions

(a) Personal Income Tax Rate

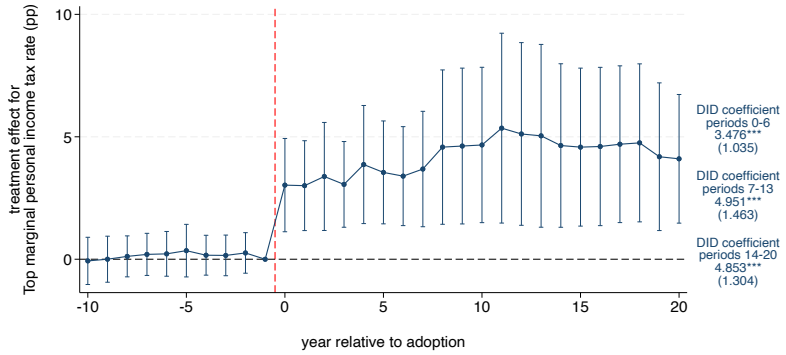


(b) Corporate Income Tax Rate

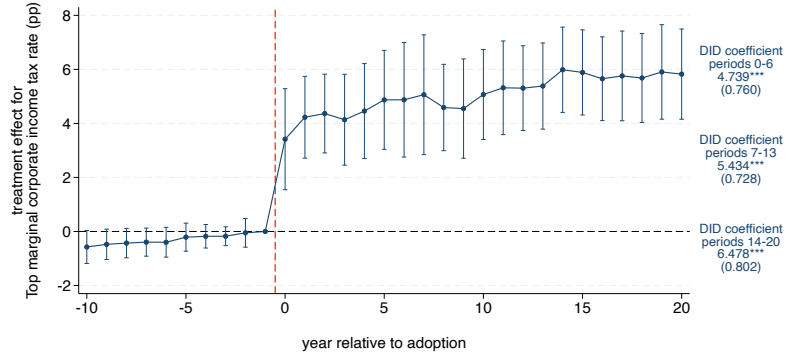


Panel B: Late (1963-1972) Tax Adoptions

(c) Personal Income Tax Rate



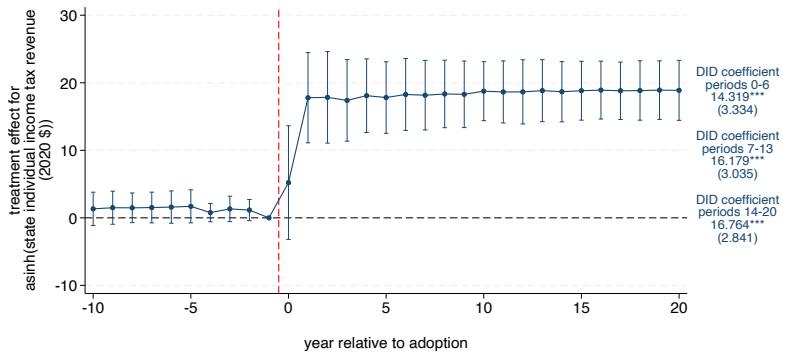
(d) Corporate Income Tax Rate



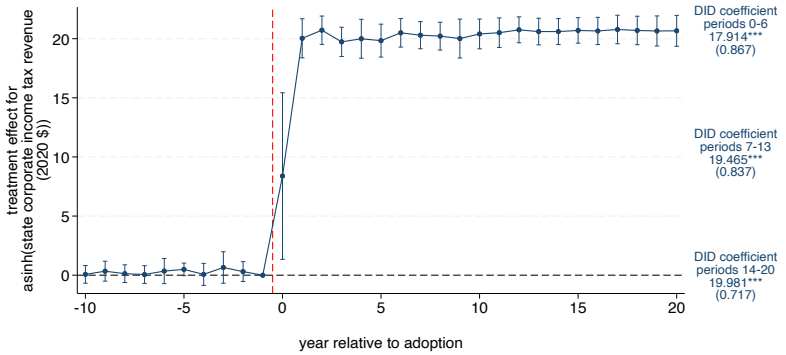
Notes: These figures show the first stage results of estimating Equation (1). The outcome variables are the tax rate levels. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. In Panel A, the sample includes early adopters (treated), as well as late-adopters and never-adopters (control). In Panel B, the sample includes late-adopters (treated) and never-adopters (control). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure B.8: Effect of Late (1963-1972) Tax Adoptions on Tax Revenue

(a) Personal Income Tax Revenue

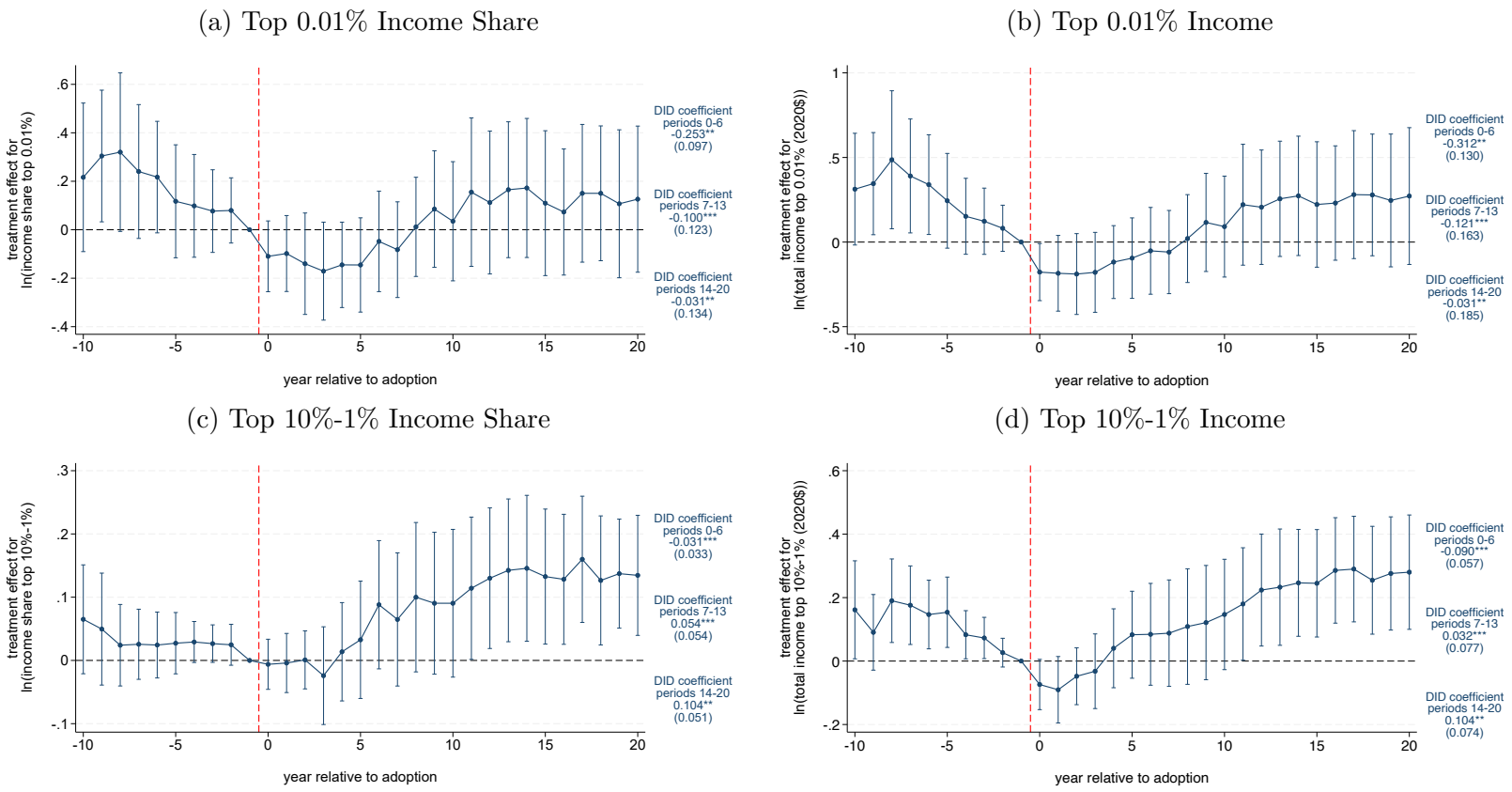


(b) Corporate Income Tax Revenue



Notes: These figures show the results of estimating Equation (1). The outcome variables are the (inverse hyperbolic sine) tax revenues. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never either tax adopted (control). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

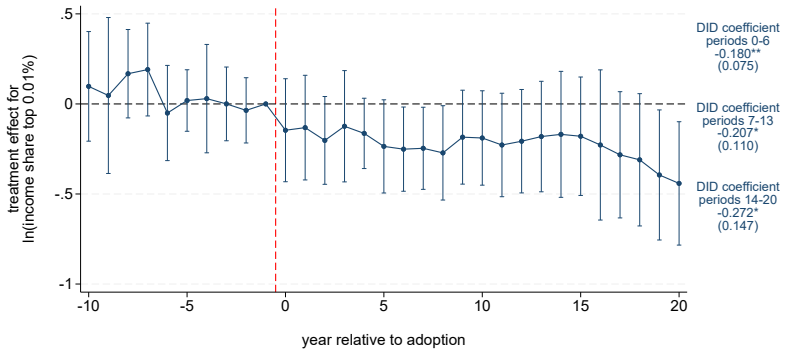
Figure B.9: Effect of Early (1929-1937) Tax Adoptions on Log(Income Shares) and Log(Income)



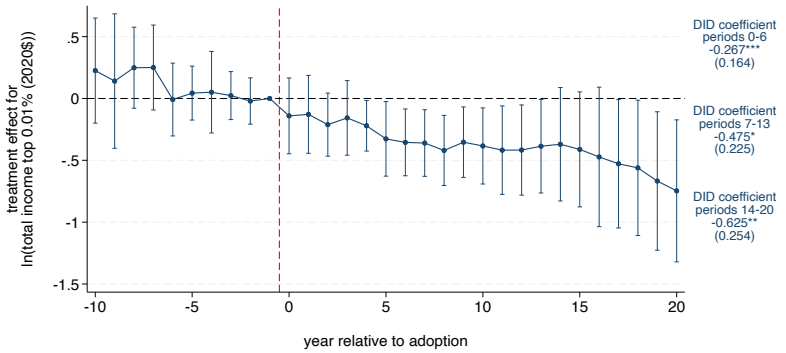
Notes: These figures show the results of estimating Equation (1). The outcome variable is the logarithm of income shares or income levels. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. Tax rate changes are shown in Appendix Figure B.7. The sample includes states that adopted taxes in 1929-1937 (treated), as well as states that adopted after 1962 or never adopted (controls). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure 4 for estimates for the top 1% and bottom 90%, and Figures B.11 and B.12 for alternative estimators.

Figure B.10: Effect of Late (1963-1972) Tax Adoptions on Log(Income Shares) and Log(Income)

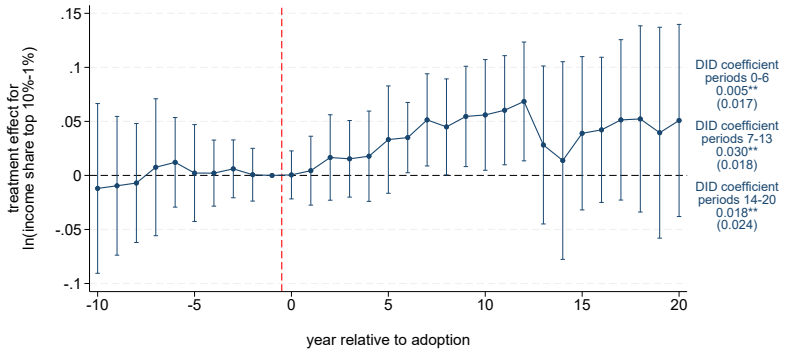
(a) Top 0.01% Income Share



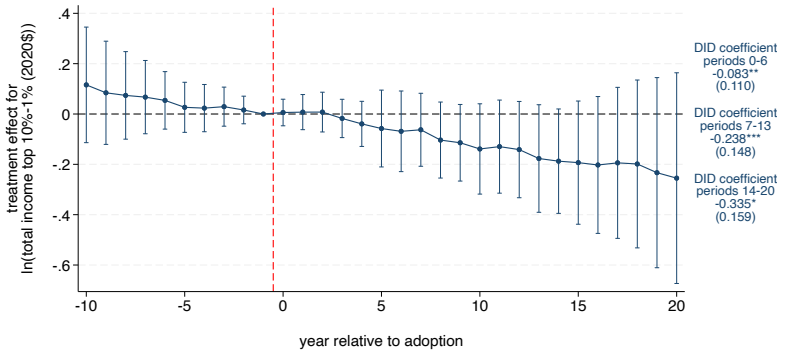
(b) Top 0.01% Income



(c) Top 10%-1% Income Share



(d) Top 10%-1% Income

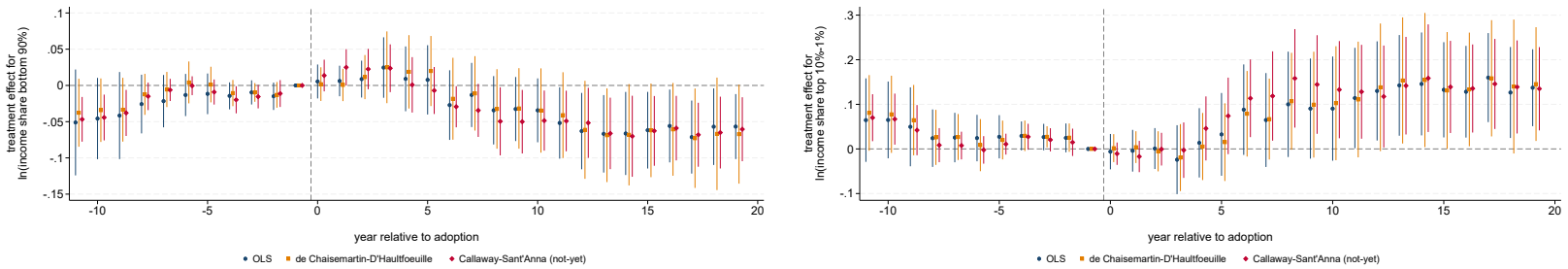


Notes: These figures show the results of estimating Equation (1). The outcome variable is the logarithm of income shares or income levels. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. Tax rate changes are shown in Appendix Figure B.8. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never adopted either tax (controls). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure 5 for estimates for the top 1% and bottom 90%, Figures B.13 and B.14 for alternative estimators, and Figure B.17 for an alternative control group (pre-1927 adopters).

Figure B.11: Effect of Early (1929-1937) Tax Adoptions on (Log) Income Shares

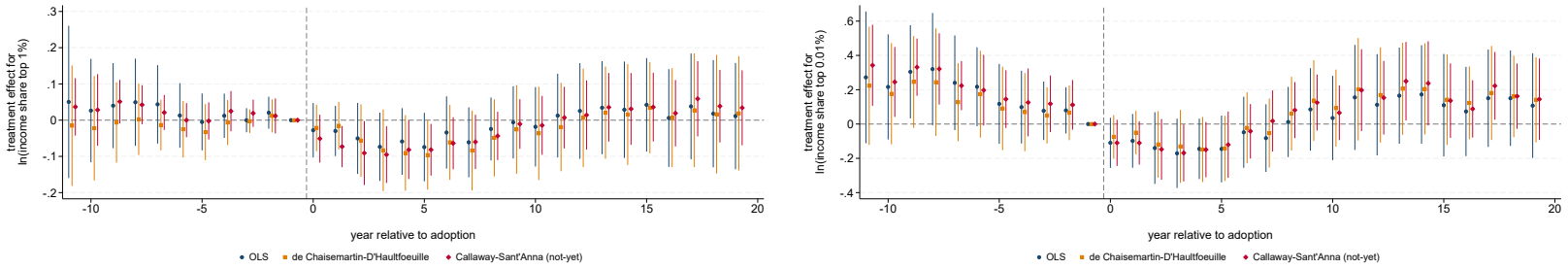
(a) Bottom 90% Income Share

(b) Top 10%-1% Income Share



(c) Top 1% Income Share

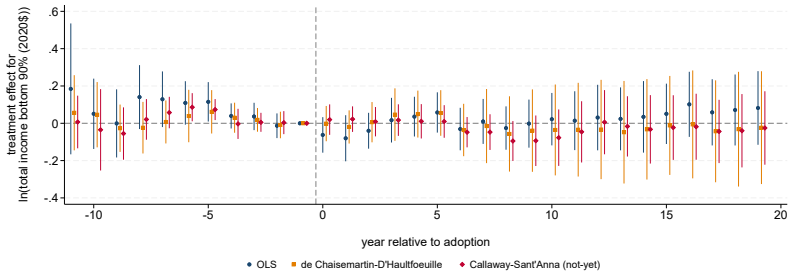
(d) Top 0.01% Income Share



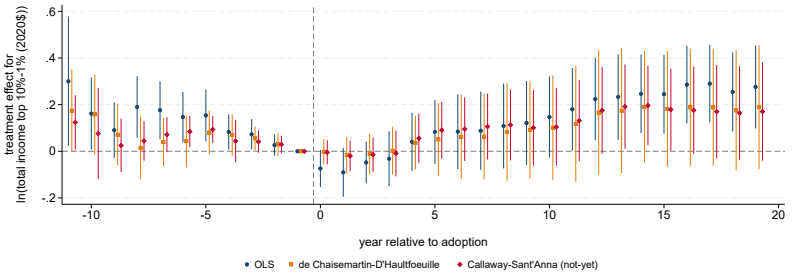
Notes: These figures show results from estimating Equation (1) along with alternative estimators proposed in de Chaisemartin and D'Haultfoeuille (2021) and Callaway and Sant'Anna (2021). Figures (a)-(d) each show a different log income share as the outcome variable. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1929-1937 (treated), as well as states that adopted after 1962 or never adopted (controls). The OLS specification includes state fixed effects and year fixed effects. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure B.12: Effect of Early (1929-1937) Tax Adoptions on (Log) Income

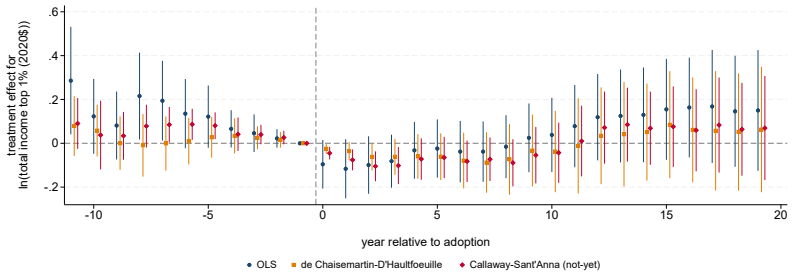
(a) Bottom 90% Income



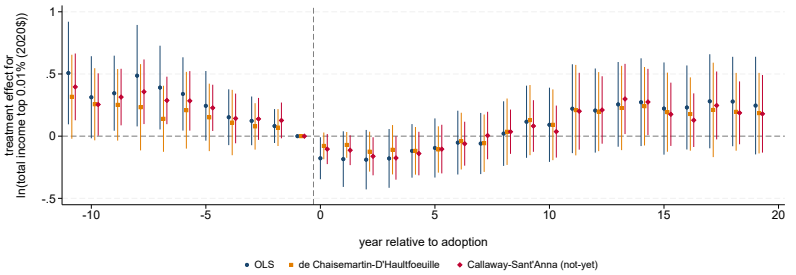
(b) Top 10%-1% Income



(c) Top 1% Income



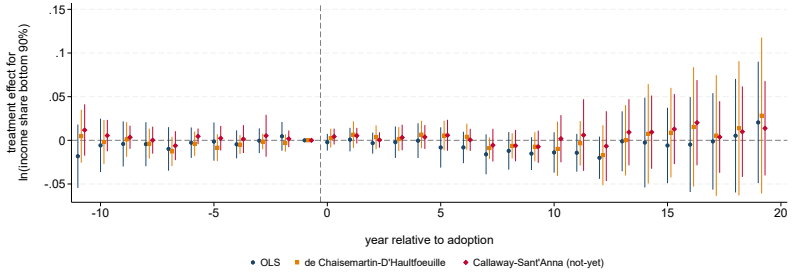
(d) Top 0.01% Income



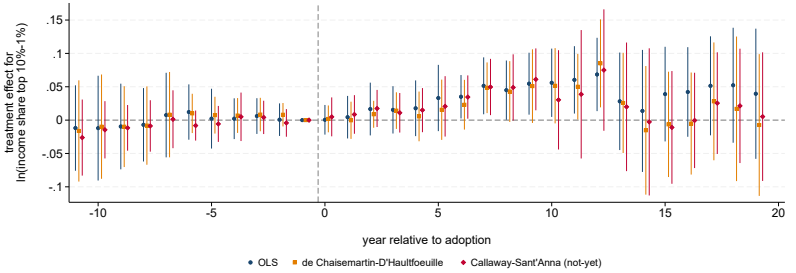
Notes: These figures show results from estimating Equation (1) along with alternative estimators proposed in de Chaisemartin and D'Haultfoeuille (2021) and Callaway and Sant'Anna (2021). Figures (a)-(d) each show a different log income as the outcome variable. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1929-1937 (treated), as well as states that adopted after 1962 or never adopted (controls). The OLS specification includes state fixed effects and year fixed effects. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure B.13: Effect of Late (1963-1972) Tax Adoptions on (Log) Income Shares

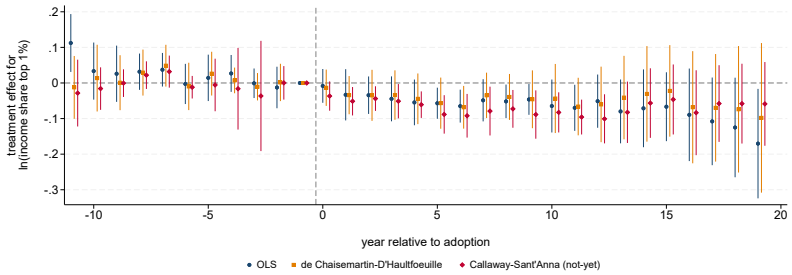
(a) Bottom 90% Income Share



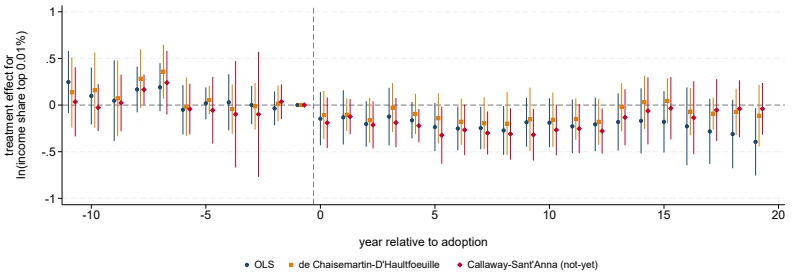
(b) Top 10%-1% Income Share



(c) Top 1% Income Share



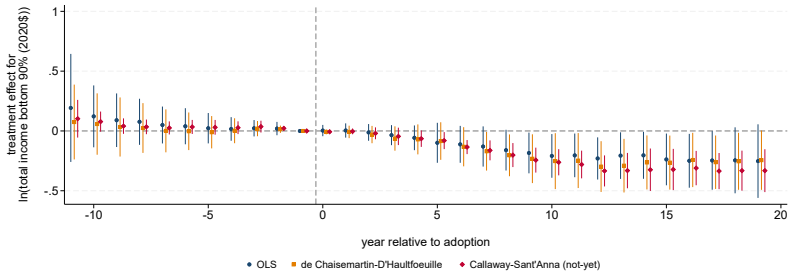
(d) Top 0.01% Income Share



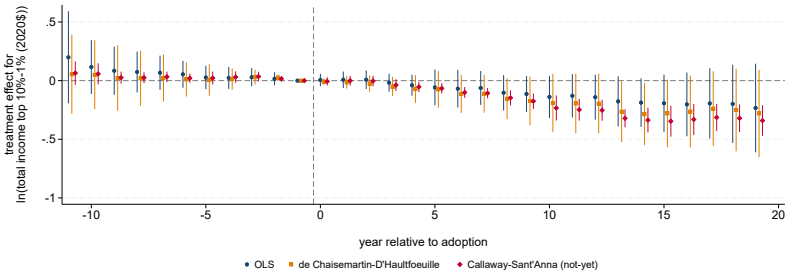
Notes: These figures show results from estimating Equation (1) along with alternative estimators proposed in de Chaisemartin and D'Haultfoeuille (2021) and Callaway and Sant'Anna (2021). Figures (a)-(d) each show a different log income share as the outcome variable. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never adopted either tax (controls). The OLS specification includes state fixed effects and year fixed effects. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure B.14: Effect of Late (1963-1972) Tax Adoptions on (Log) Income

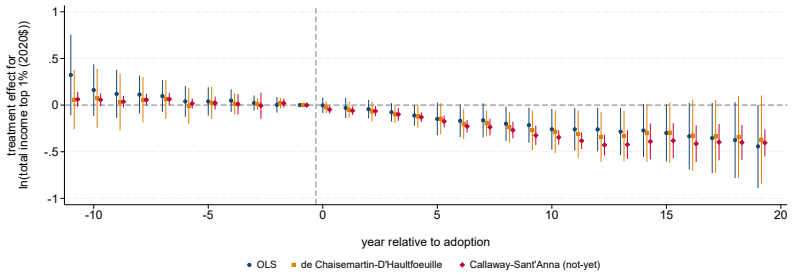
(a) Bottom 90% Income



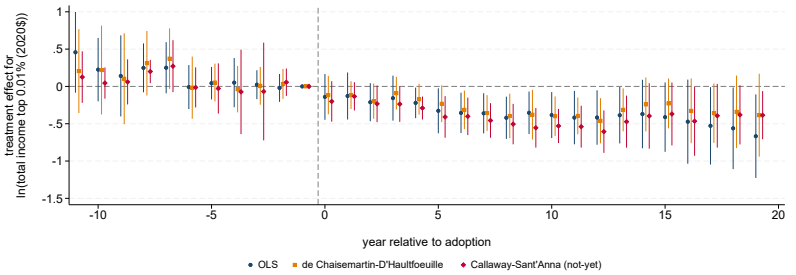
(b) Top 10%-1% Income



(c) Top 1% Income



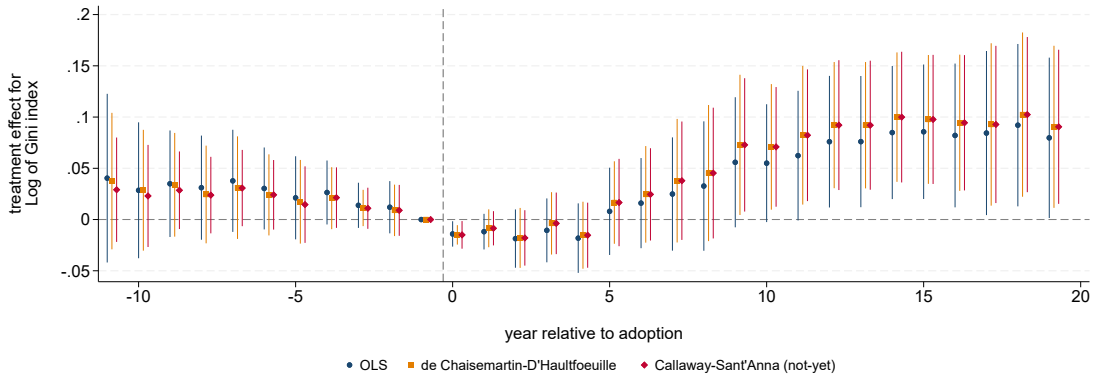
(d) Top 0.01% Income



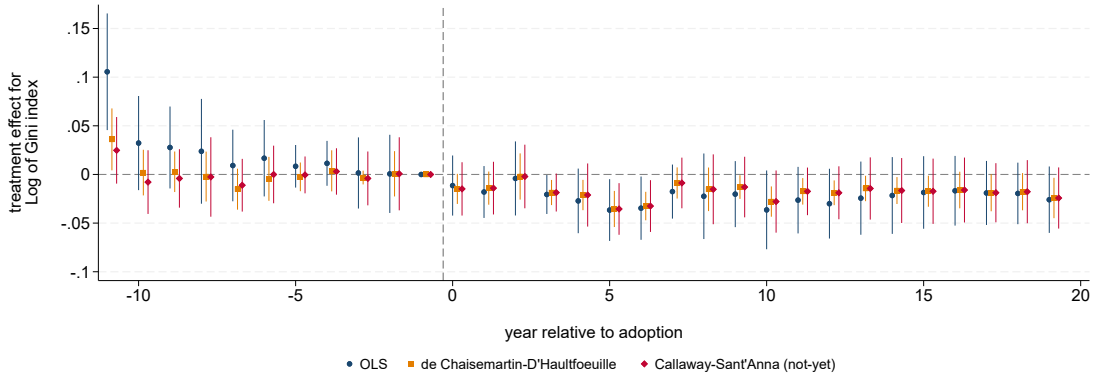
Notes: These figures show results from estimating Equation (1) along with alternative estimators proposed in de Chaisemartin and D'Haultfoeuille (2021) and Callaway and Sant'Anna (2021). Figures (a)-(d) each show a different log income as the outcome variable. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never adopted either tax (controls). The OLS specification includes state fixed effects and year fixed effects. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure B.15: Effect of Tax Adoptions on (Log) Gini Index

(a) Early (1929-1937) Tax Adoptions



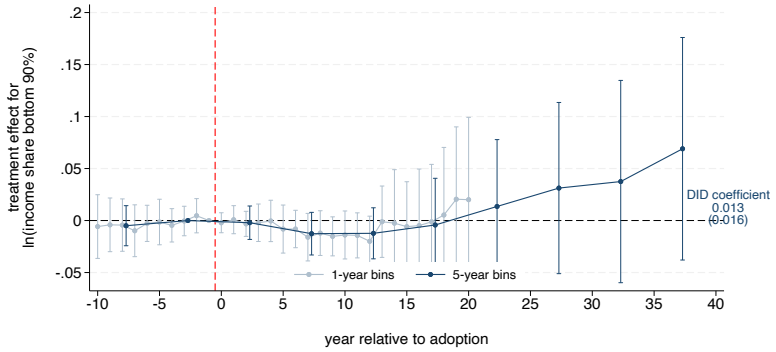
(b) Late (1963-1972) Tax Adoptions



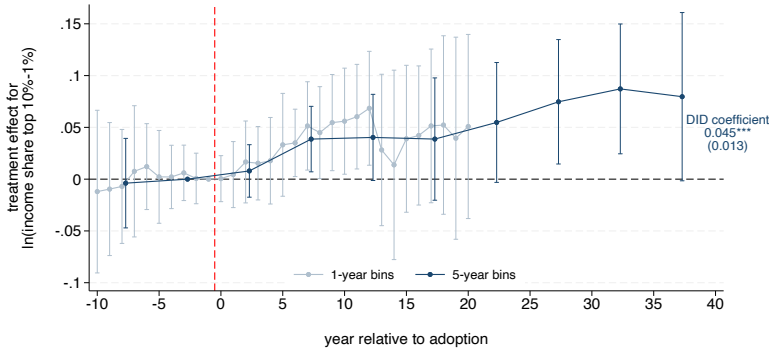
Notes: These figures show results from estimating Equation (1) along with alternative estimators proposed in de Chaisemartin and D'Haultfoeuille (2021) and Callaway and Sant'Anna (2021), using the (log) Gini Index as the outcome variable. Figure (a) includes states that adopted taxes 1929-1937, with states that adopted 1963+ or never adopted either tax acting as controls. Figure (b) includes states that adopted taxes 1963-1972, with states that never adopted either tax acting as controls. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The OLS specification includes state fixed effects and year fixed effects. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure B.16: Effect of Late (1963-1972) Tax Adoptions on Log(Income Shares) with 5-Year Bins

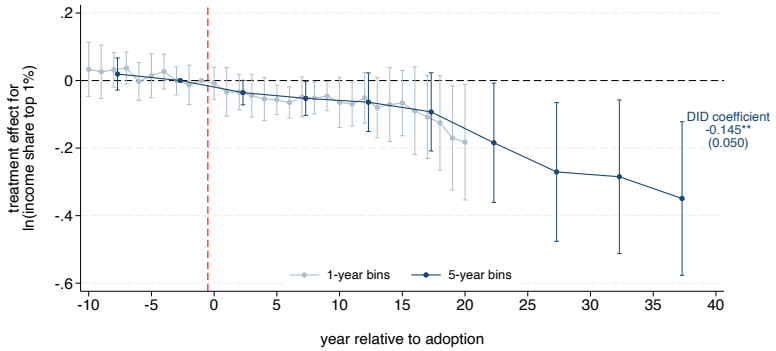
(a) Bottom 90% Income Share



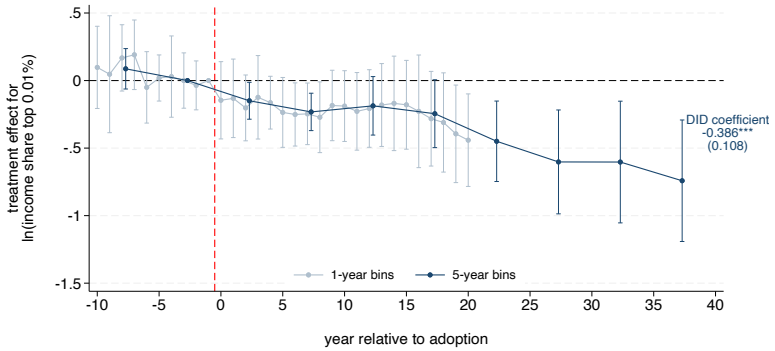
(b) Top 10%-1% Income Share



(c) Top 1% Income Share



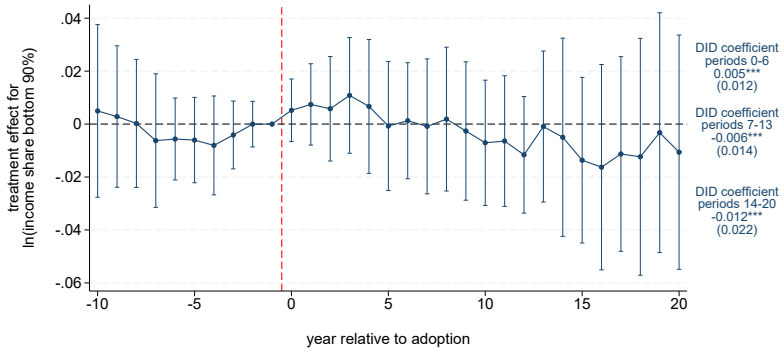
(d) Top 0.01% Income Share



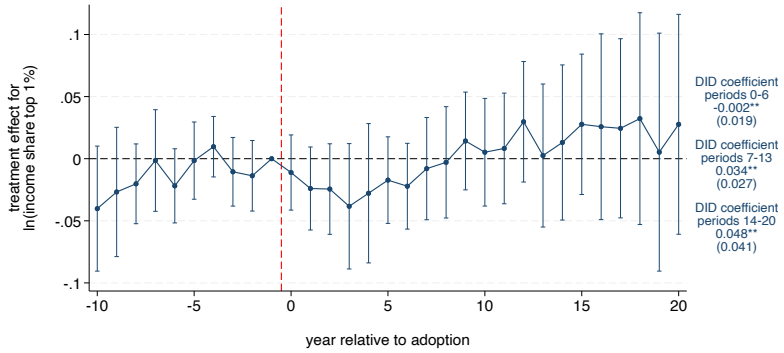
Notes: These figures show the results of estimating Equation (1) using 5-year bins (1-year bins from Figure 5 are also displayed for comparison). The outcome variable is the logarithm of income shares. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted taxes in 1963-1972 (treated), as well as states that never adopted either tax (controls). The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients over the entire period are also reported, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure B.17: Effect of Late (1963-1972) Tax Adoptions on Log(Income Shares) and Log(Income) with Pre-1927 Adopters as Control Group

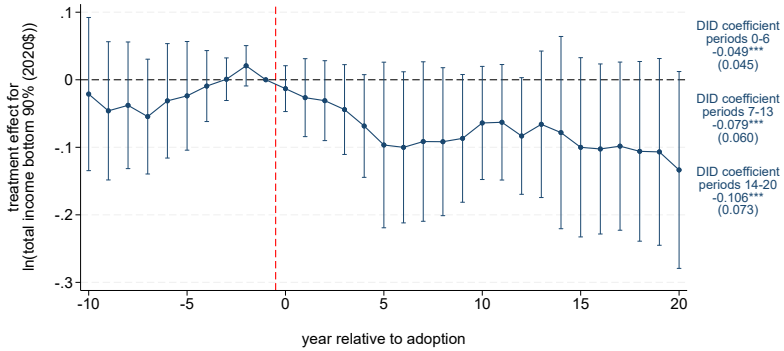
(a) Bottom 90% Income Share



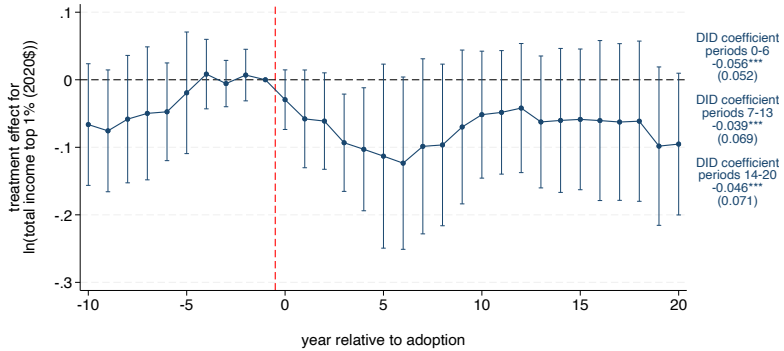
(b) Top 1% Income Share



(c) Bottom 90% Income



(d) Top 1% Income



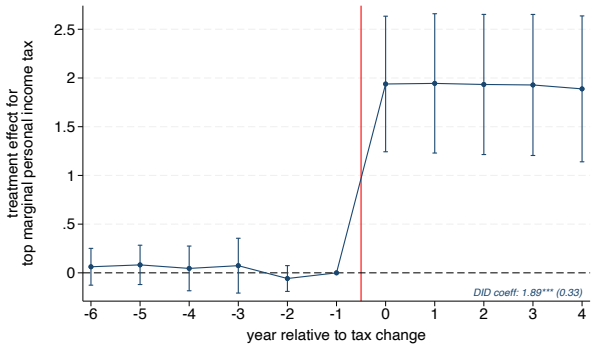
Notes: These figures show the results of estimating Equation (1). The outcome variable is the logarithm of income shares. Event time 0 corresponds to the year that the state adopted both personal and corporate income taxes, the year of the first adoption if the second adoption occured the following year, or the year of adoption for the corporate income tax if the state never adopted a personal income tax. The sample includes states that adopted income taxes in 1963-1972, and the states that adopted income taxes prior to 1927 and did not adopt any income taxes since then acting as controls. The specification includes state fixed effects, year fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported for periods 0-6, 7-13, and 14-20, with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

C Large Tax Changes: Additional Evidence

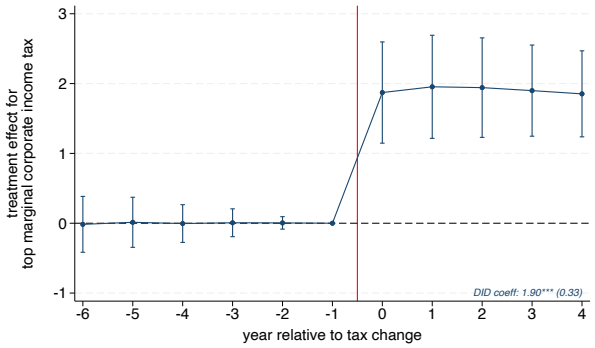
Figure C.18: Effect of Tax Changes on Tax Rates

Panel A: Tax Increases

(a) Personal Income Tax Rate

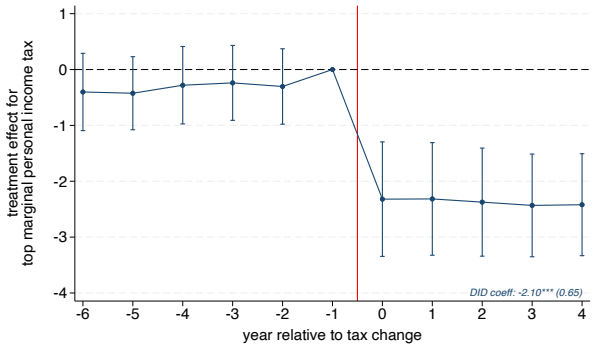


(b) Corporate Income Tax Rate

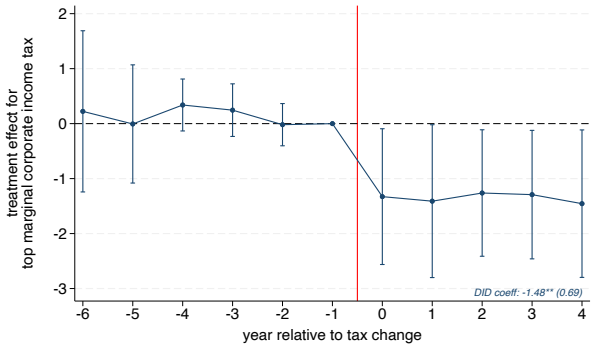


Panel B: Tax Decreases

(c) Personal Income Tax Rate

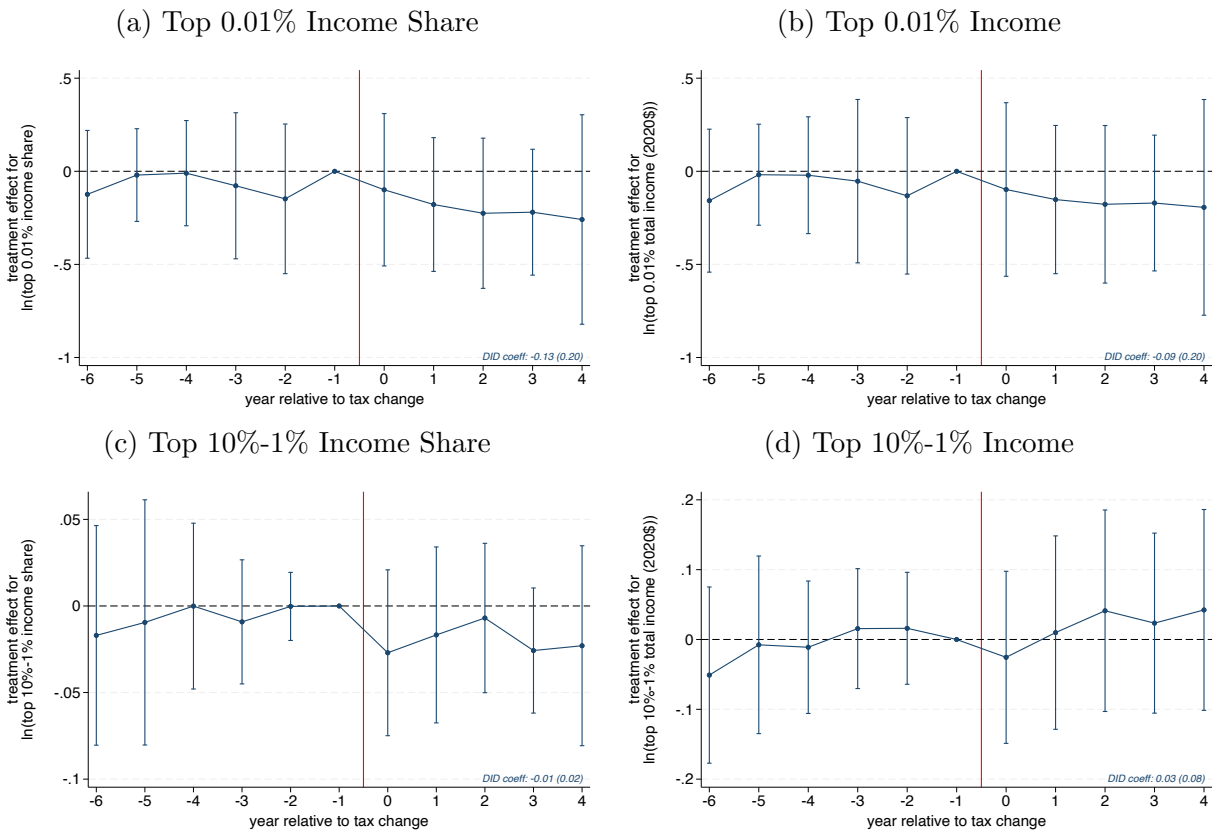


(d) Corporate Income Tax Rate



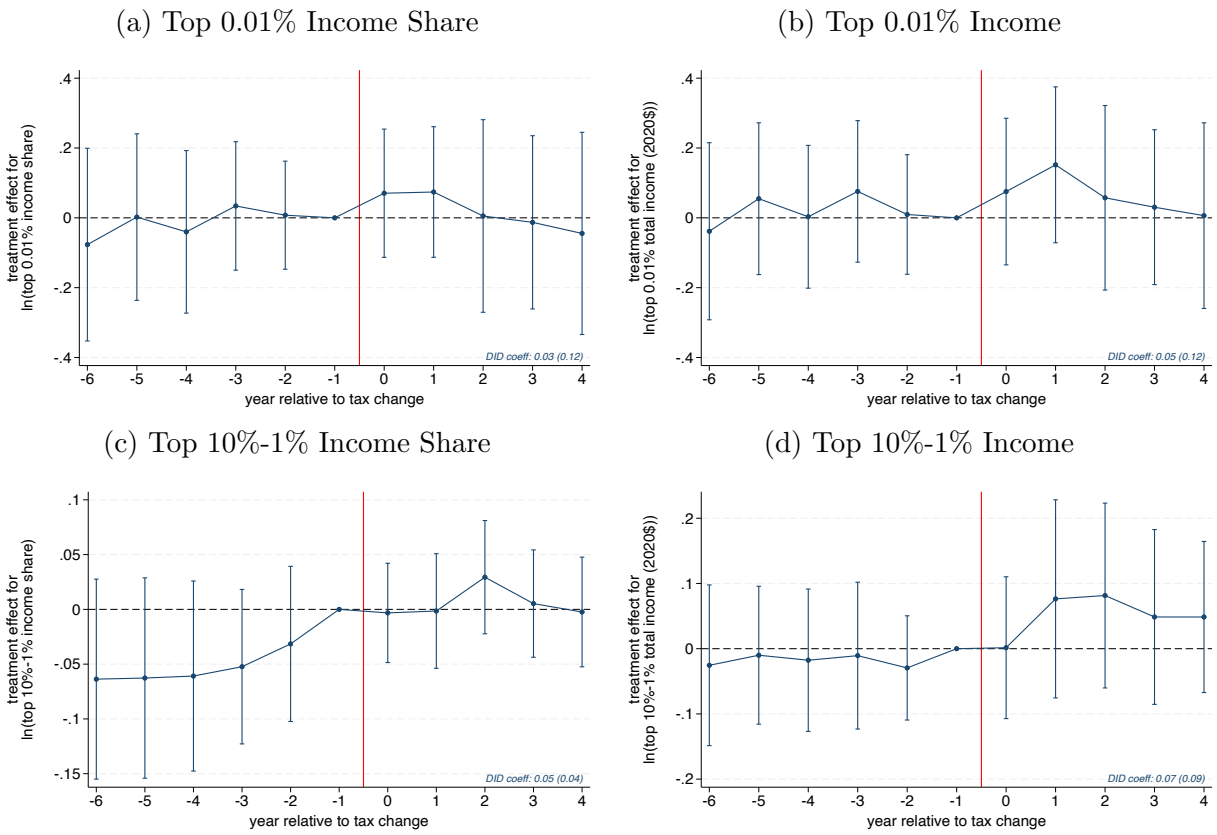
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variables are the tax rates. Event time 0 corresponds to the year that the state increased or decreased personal or corporate income taxes. The sample includes states that increased/decreased the personal/corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states).The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported.

Figure C.19: Effect of Personal Tax Increases on Log(Income Shares) and Log(Income)



Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the personal income tax. The sample includes states that increased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure 6 for estimates for the top 1% and bottom 90%.

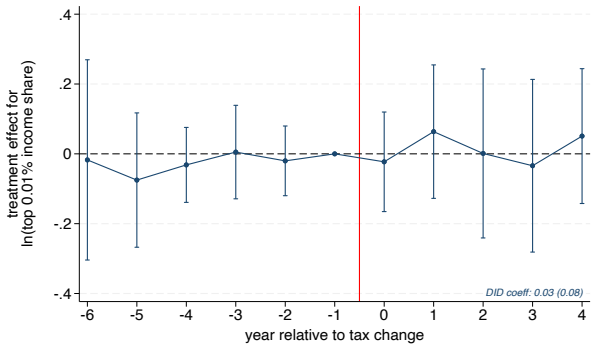
Figure C.20: Effect of Corporate Tax Increases on Log(Income Shares) and Log(Income)



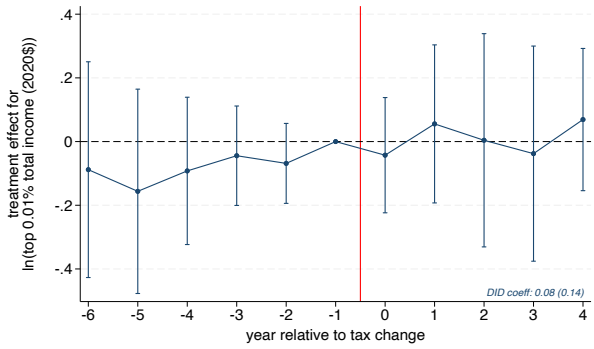
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the corporate income tax. The sample includes states that increased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure 7 for estimates for the top 1% and bottom 90%.

Figure C.21: Effect of Personal Tax Decreases on Log (Income Shares) and Log(Income)

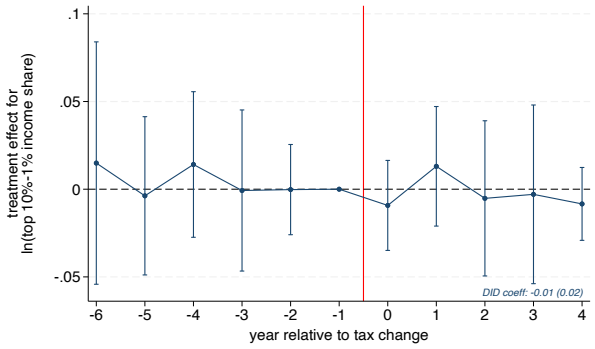
(a) Top 0.01% Income Share



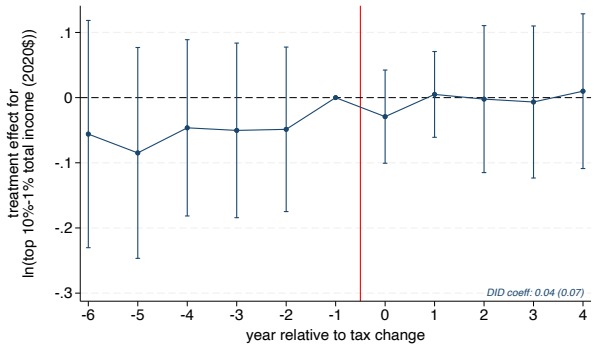
(b) Top 0.01% Income



(c) Top 10%-1% Income Share

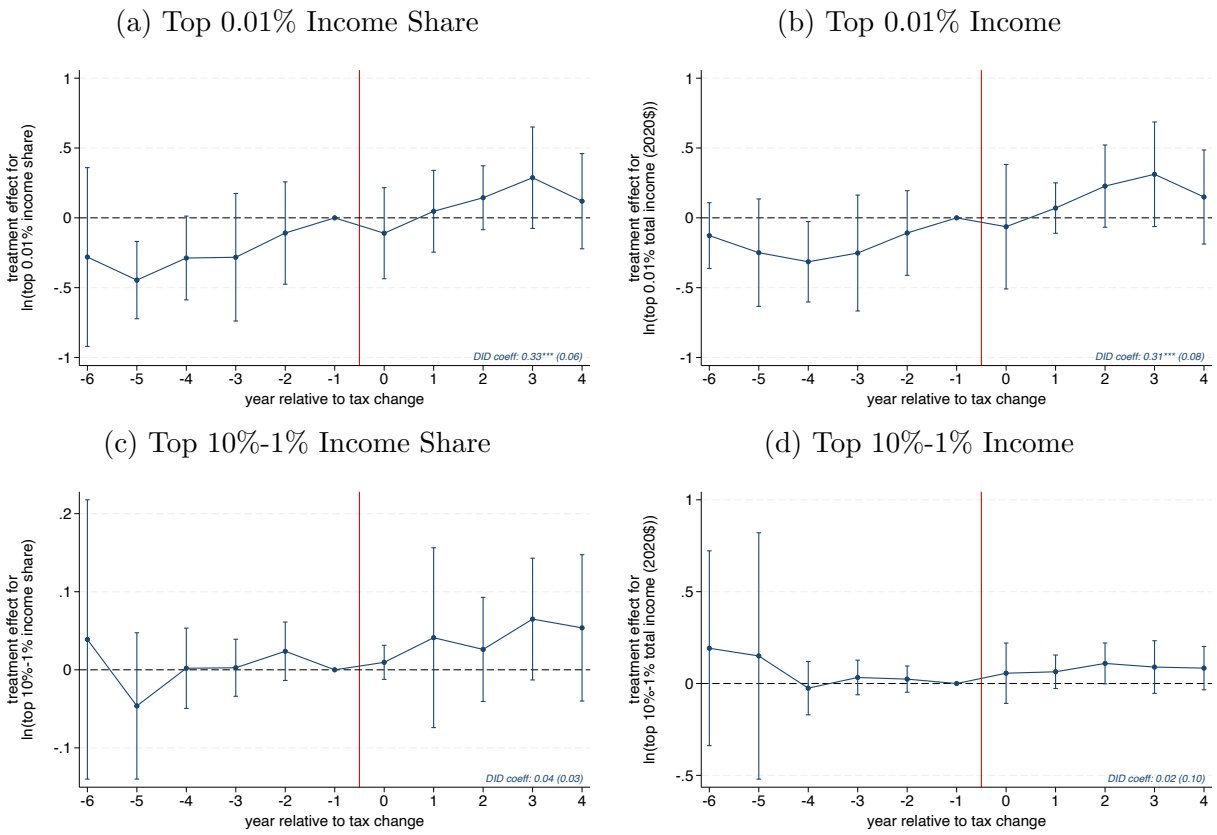


(d) Top 10%-1% Income



Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the personal income tax. The sample includes states that decreased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure 8 for estimates for the top 1% and bottom 90%.

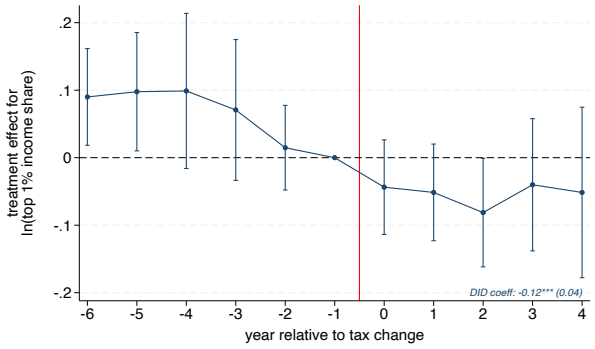
Figure C.22: Effect of Corporate Tax Decreases on Log(Income Shares) and Log(Income)



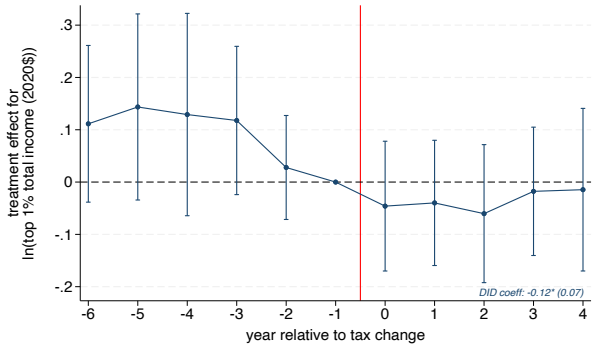
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the corporate income tax. The sample includes states that decreased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$. See Figure C.18 for the corresponding tax rate changes, and Figure 9 for estimates for the top 1% and bottom 90%.

Figure C.23: Effect of Personal Tax Increases on Log(Income Shares) and Log(Income) with Expanded Control Group

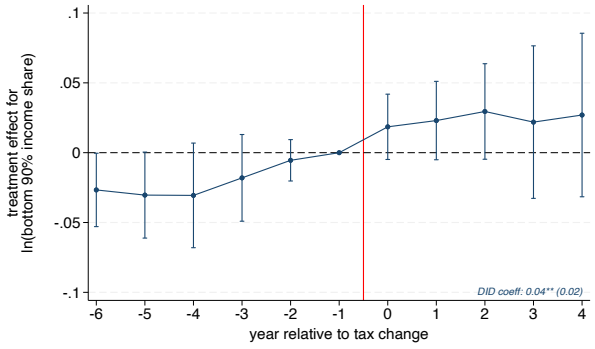
(a) Top 1% Income Share



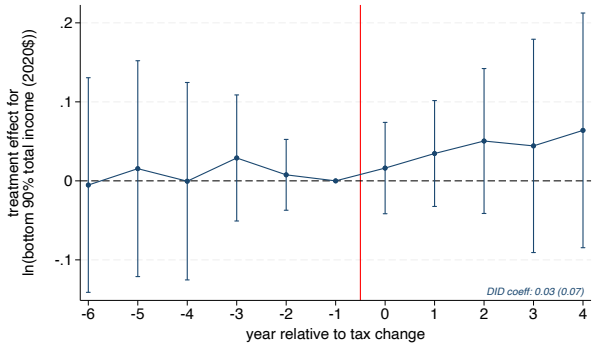
(b) Top 1% Income



(c) Bottom 90% Income Share



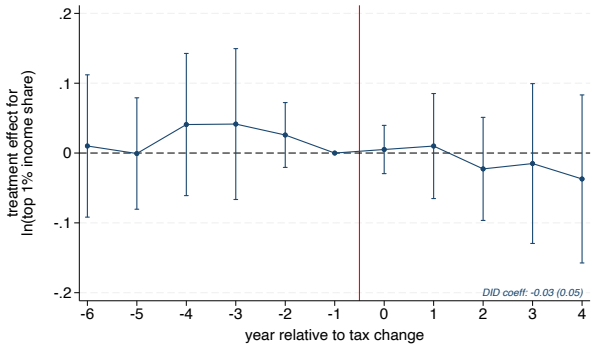
(d) Bottom 90% Income



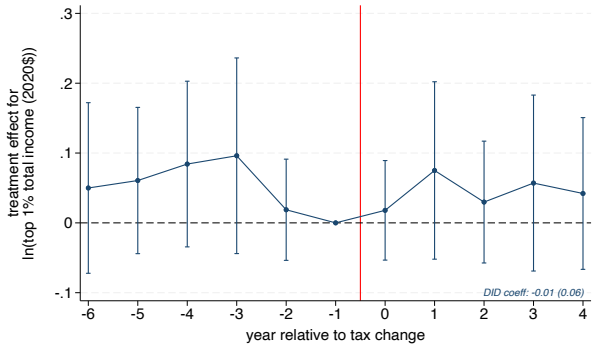
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the personal income tax. The sample includes states that increased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.5pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.24: Effect of Corporate Tax Increases on Log(Income Shares) and Log(Income) with Expanded Control Group

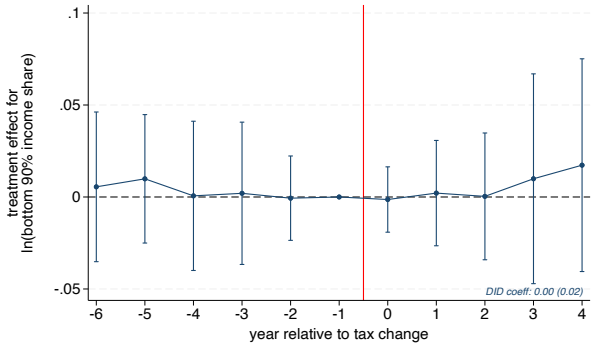
(a) Top 1% Income Share



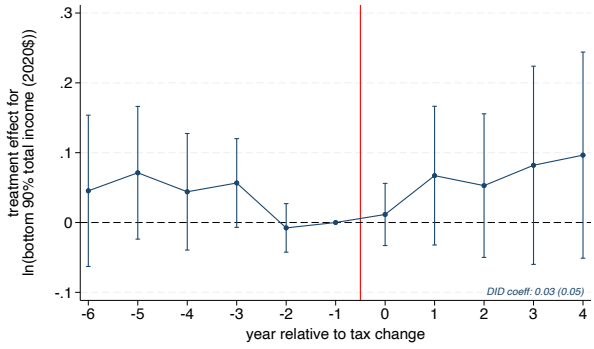
(b) Top 1% Income



(c) Bottom 90% Income Share



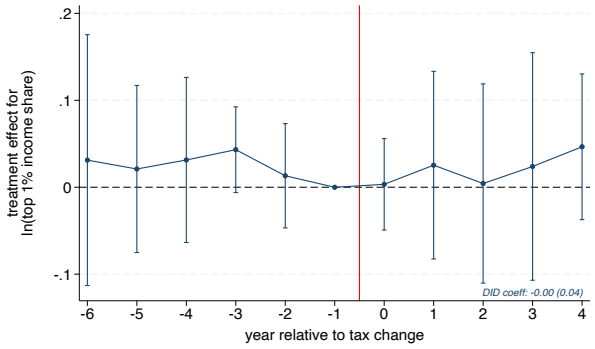
(d) Bottom 90% Income



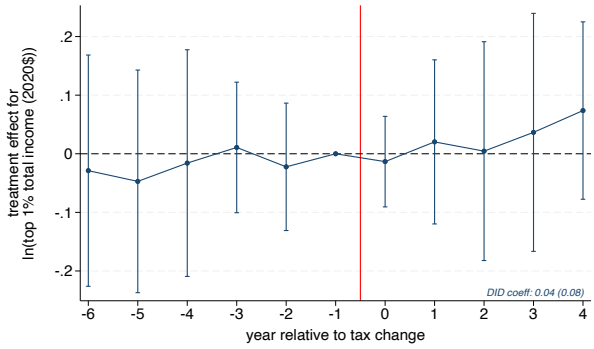
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the corporate income tax. The sample includes states that increased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.5pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.25: Effect of Personal Tax Decreases on Log (Income Shares) and Log(Income) with Expanded Control Group

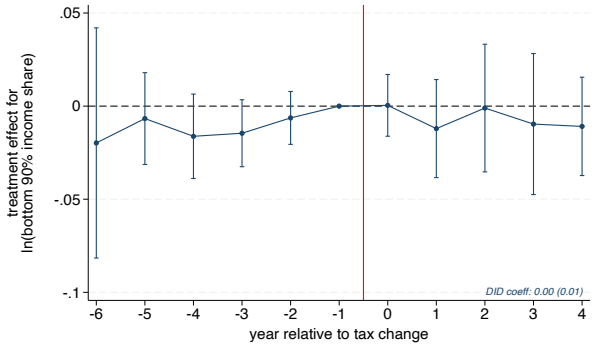
(a) Top 1% Income Share



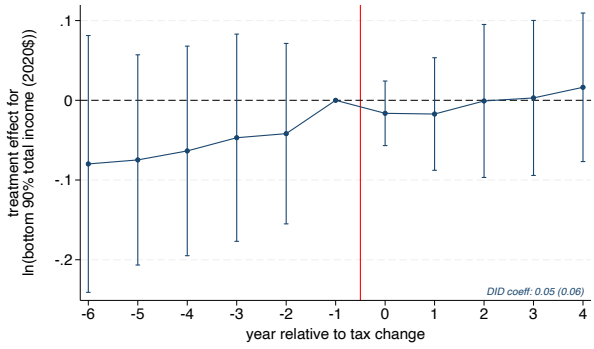
(b) Top 1% Income



(c) Bottom 90% Income Share



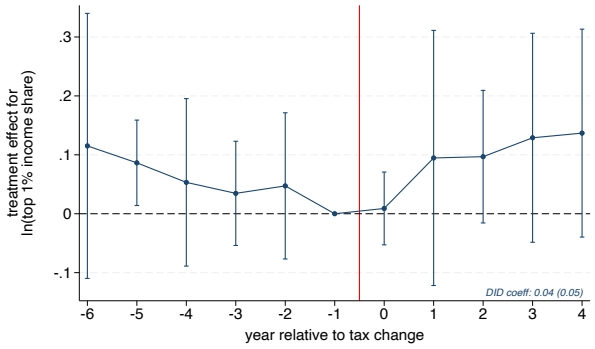
(d) Bottom 90% Income



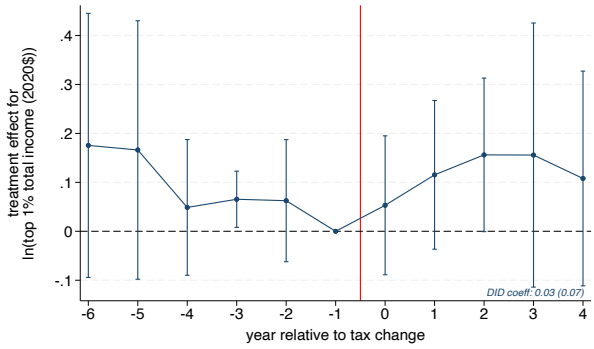
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the personal income tax. The sample includes states that decreased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.5pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.26: Effect of Corporate Tax Decreases on Log(Income Shares) and Log(Income) with Expanded Control Group

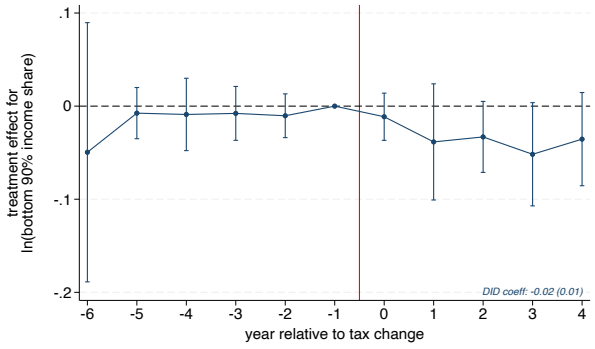
(a) Top 1% Income Share



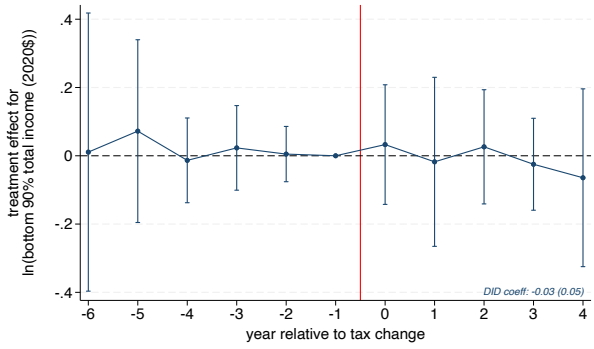
(b) Top 1% Income



(c) Bottom 90% Income Share



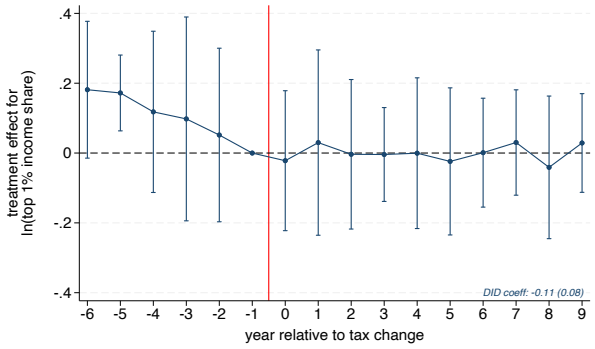
(d) Bottom 90% Income



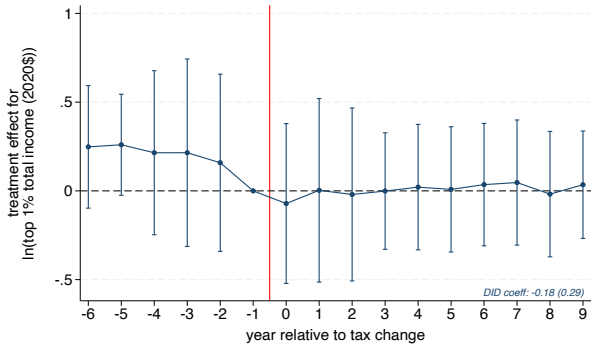
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the corporate income tax. The sample includes states that decreased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.5pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.27: Effect of Personal Tax Increases on Log(Income Shares) and Log(Income) with Extended Event Window

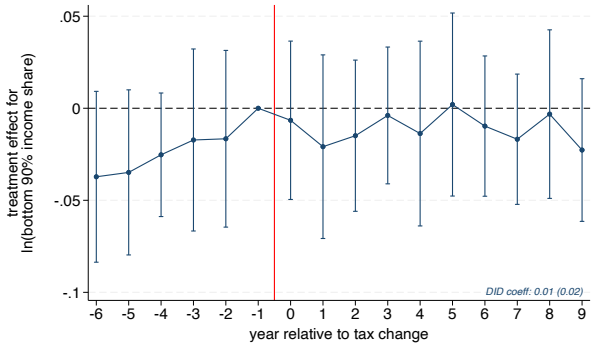
(a) Top 1% Income Share



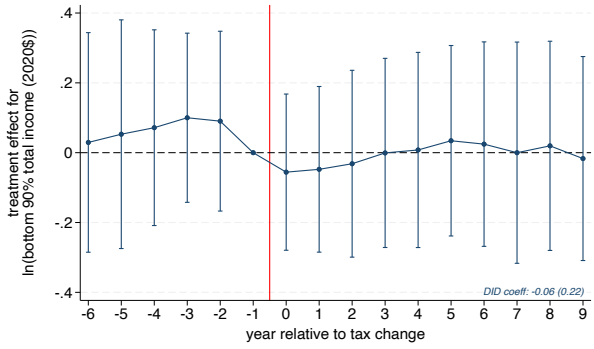
(b) Top 1% Income



(c) Bottom 90% Income Share



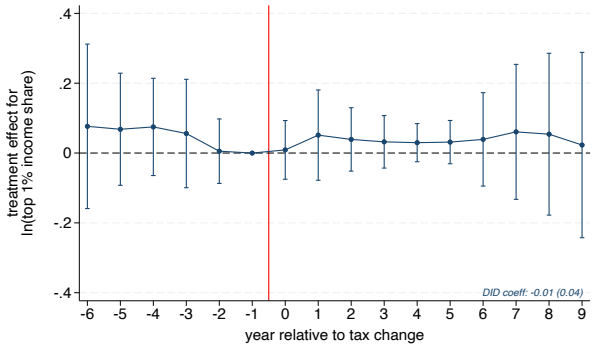
(d) Bottom 90% Income



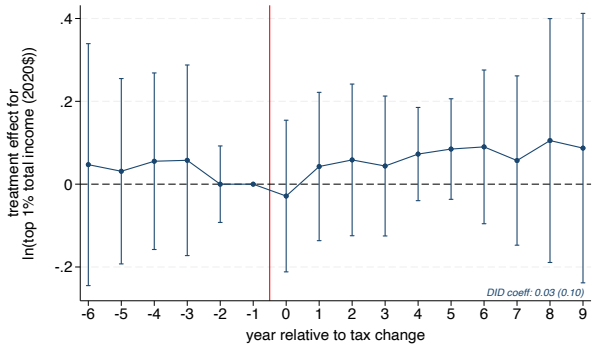
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the personal income tax. The sample includes states that increased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.28: Effect of Corporate Tax Increases on Log(Income Shares) and Log(Income) with Extended Event Window

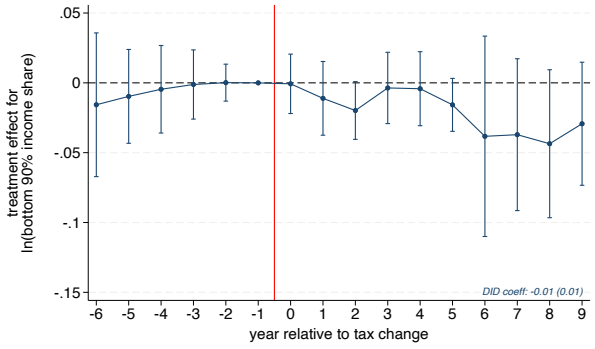
(a) Top 1% Income Share



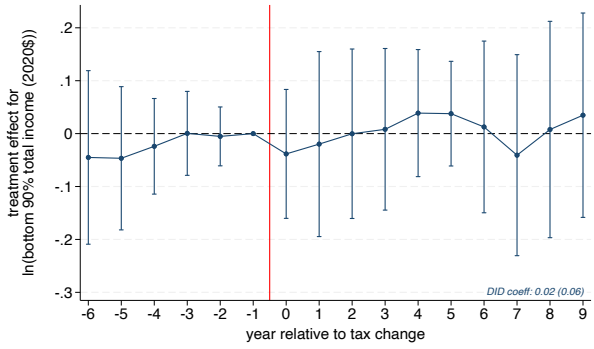
(b) Top 1% Income



(c) Bottom 90% Income Share



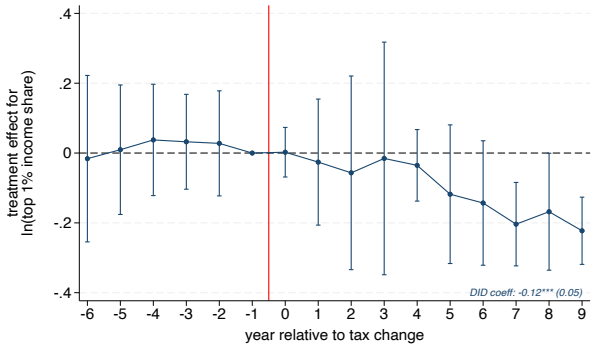
(d) Bottom 90% Income



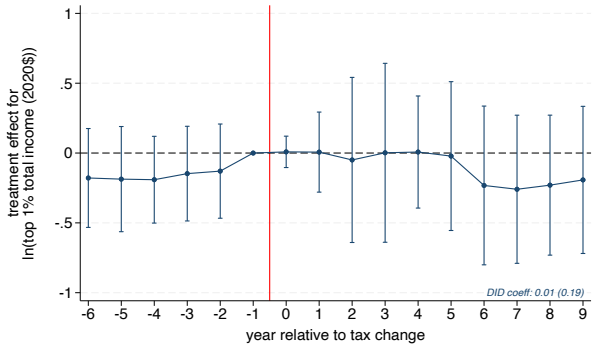
Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states increased the corporate income tax. The sample includes states that increased the corporate income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

Figure C.29: Effect of Personal Tax Decreases on Log (Income Shares) and Log(Income) with Extended Event Window

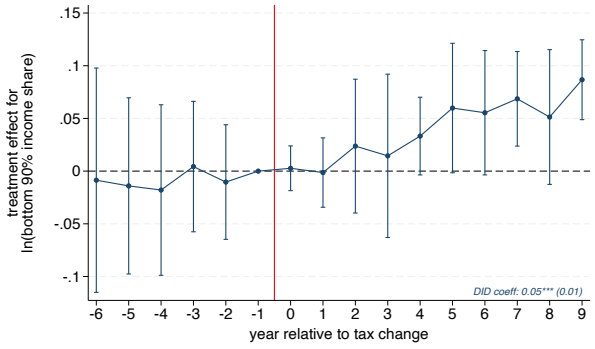
(a) Top 1% Income Share



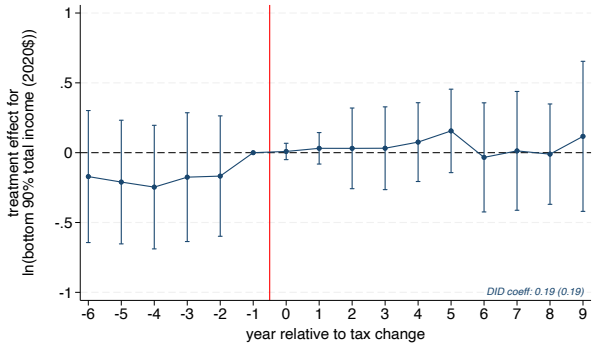
(b) Top 1% Income



(c) Bottom 90% Income Share



(d) Bottom 90% Income

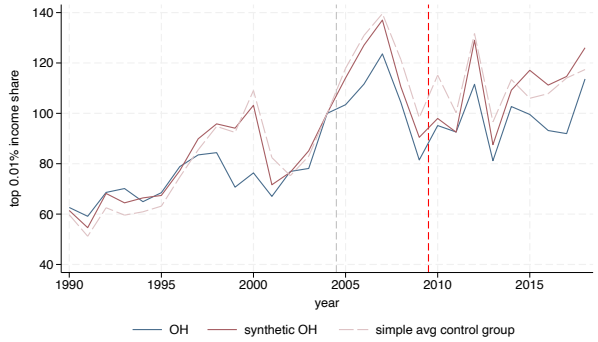


Notes: These figures show the results of estimating the stacked event study regression in Equation (2) using sample weights from Equation (3) following Wing et al. (2024). The outcome variable is the logarithm of top income shares. Event time 0 corresponds to the year that states decreased the personal income tax. The sample includes states that decreased the personal income tax by more than 1pp (treated states) as well as states that did not change either the personal or corporate income tax by more than 0.25pp during the relevant period of analysis (control states). The specification includes an indicator for treated states, event time fixed effects, and controls for population, the percent of population that is Black, and tax rates and indicators if the tax is non-zero for sales, gasoline, alcohol, and cigarette taxes. Standard errors are clustered at the state level and 95% confidence intervals are reported. Pooled DID coefficients are also reported with * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

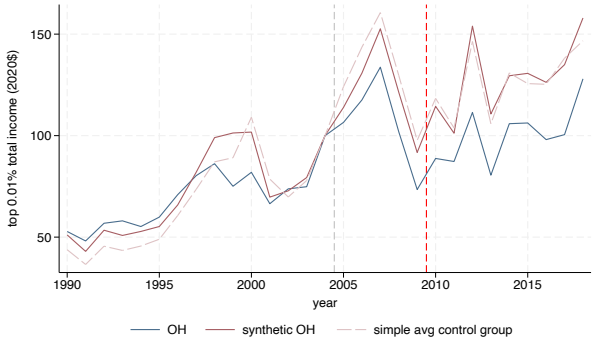
D Tax Cancellations: Additional Evidence

Figure D.30: Ohio cancelled $\tau^{corporate} = 8.5\%$, kept $\tau^{personal} = 6.24\%$ in 2010

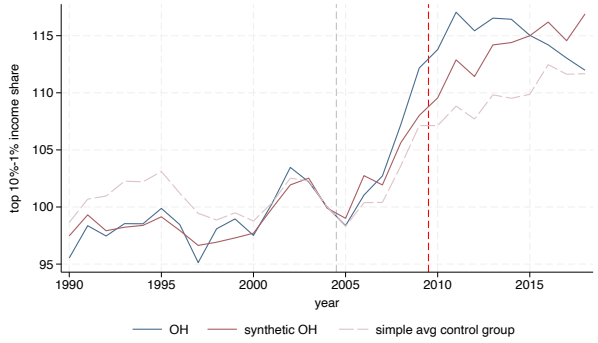
(a) Top 0.01% Income Share



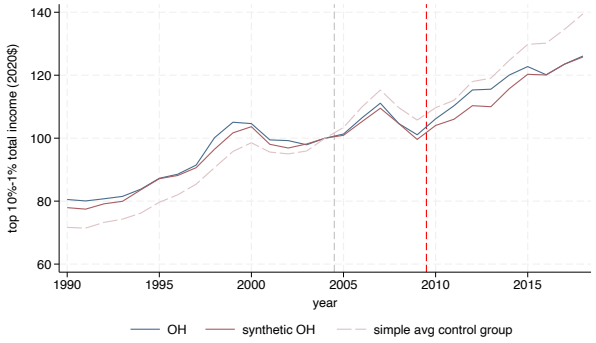
(b) Top 0.01% Income



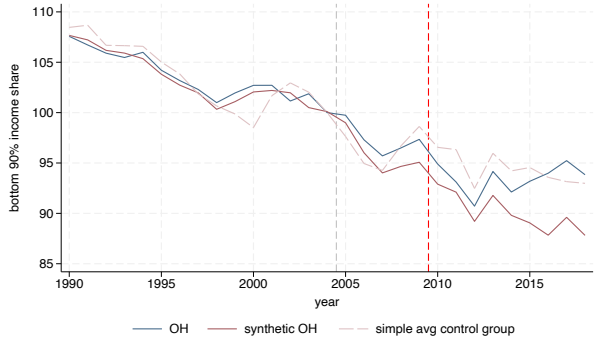
(c) Top 10%-1% Income Share



(d) Top 10%-1% Income



(e) Bottom 90% Income Share



(f) Bottom 90% Income

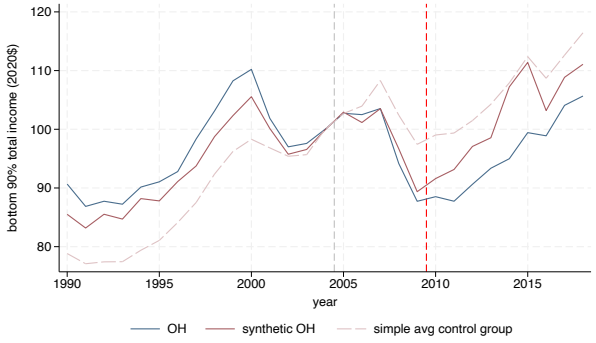
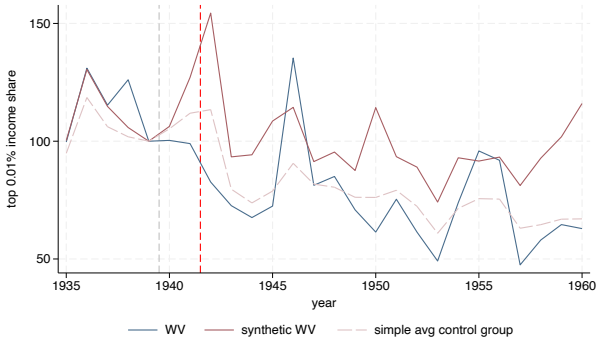
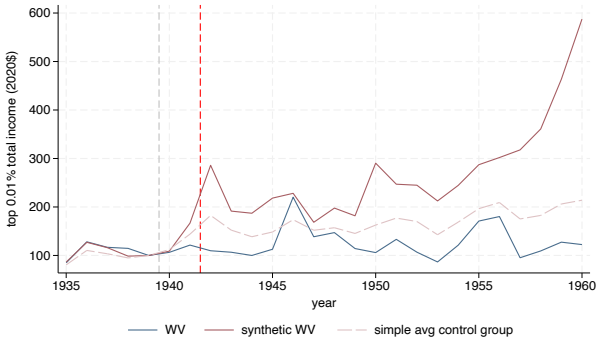


Figure D.31: West Virginia cancelled $\tau^{personal} = 6\%$, kept $\tau^{corporate} = 0\%$ in 1942

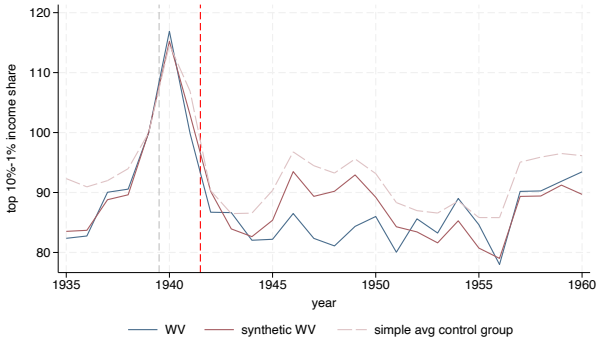
(a) Top 0.01% Income Share



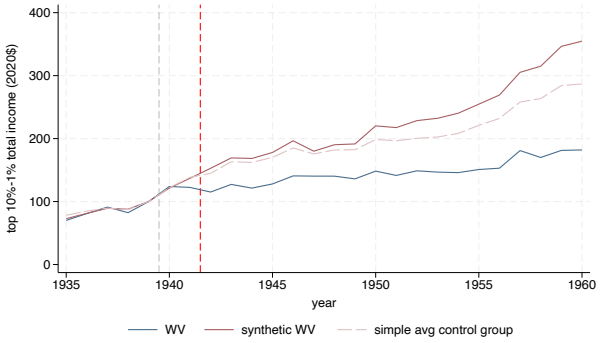
(b) Top 0.01% Income



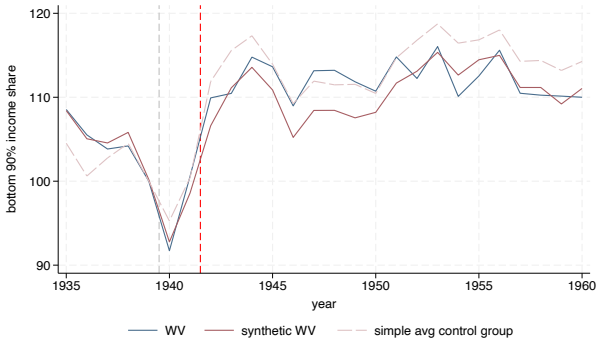
(c) Top 10%-1% Income Share



(d) Top 10%-1% Income



(e) Bottom 90% Income Share



(f) Bottom 90% Income

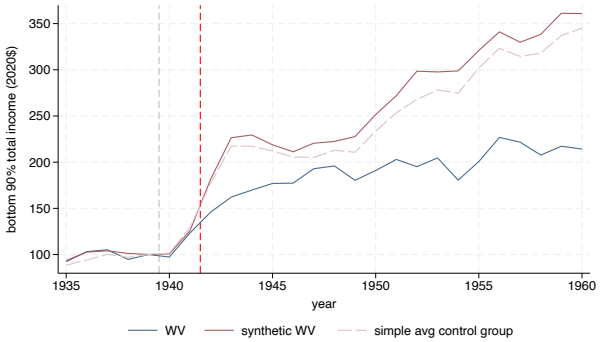
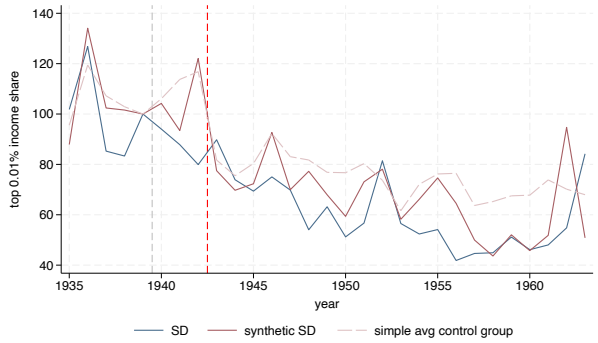
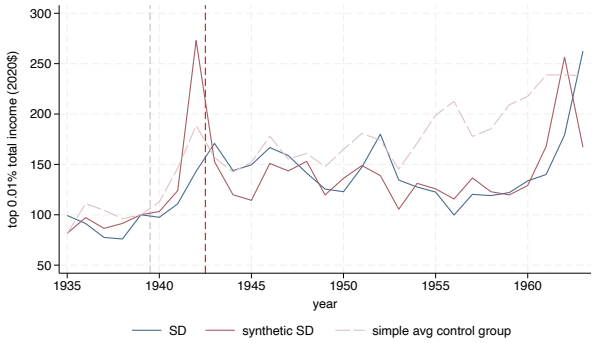


Figure D.32: South Dakota: cancelled $\tau^{personal} = 6\%$ and $\tau^{corporate} = 8\%$ in 1943

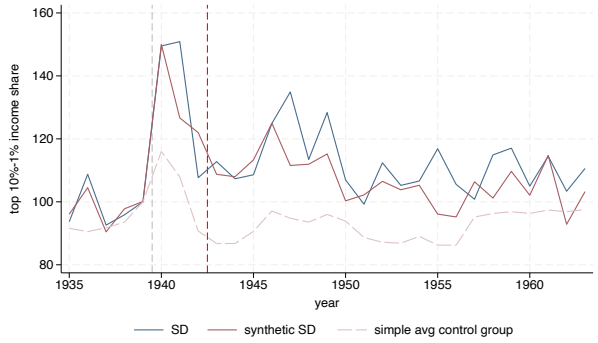
(a) Top 0.01% Income Share



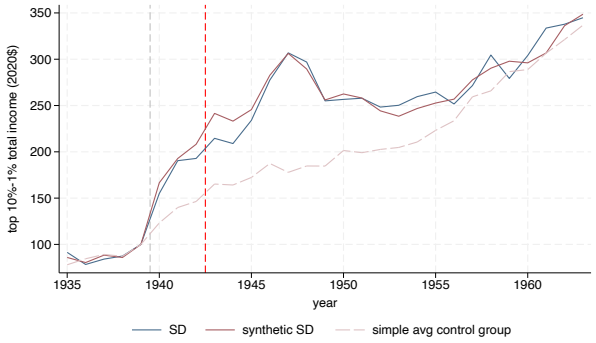
(b) Top 0.01% Income



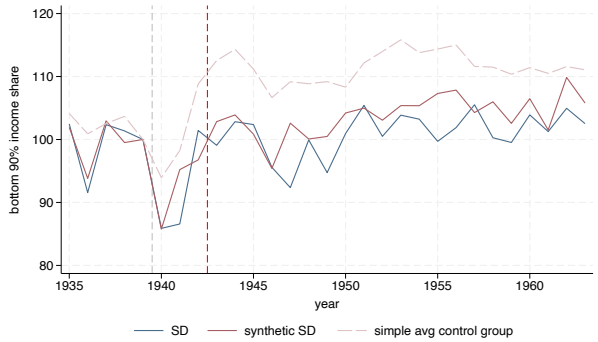
(c) Top 10%-1% Income Share



(d) Top 10%-1% Income



(e) Bottom 90% Income Share



(f) Bottom 90% Income

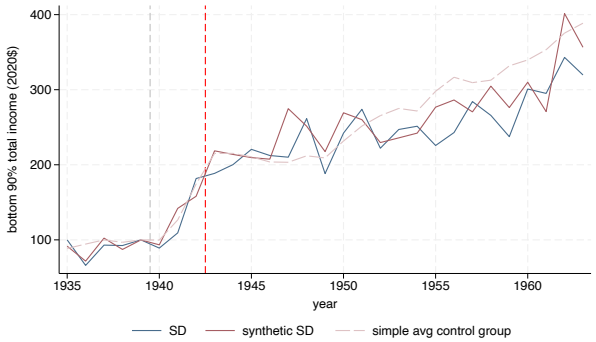
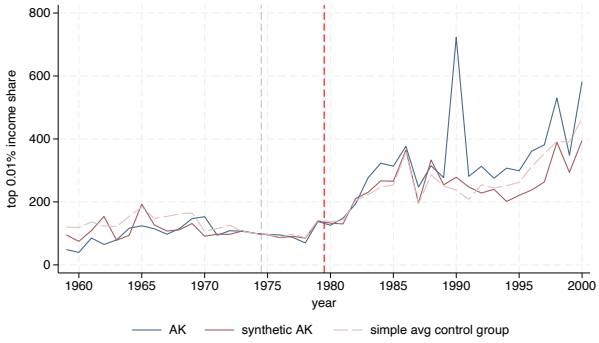
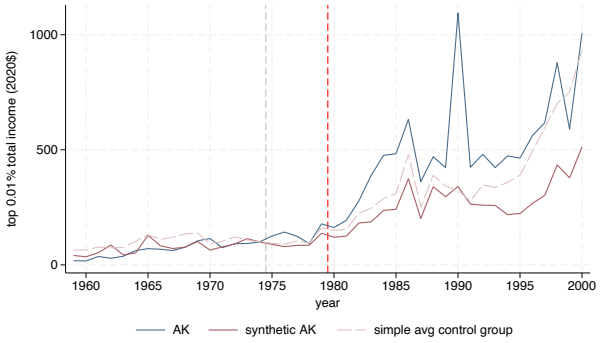


Figure D.33: Alaska cancelled $\tau^{personal} = 14.5\%$, kept $\tau^{corporate} = 9.4\%$ in 1980

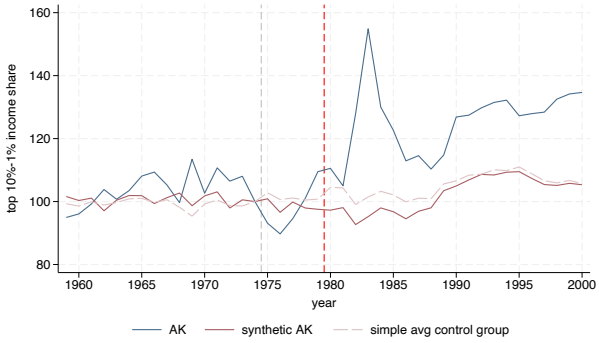
(a) Top 0.01% Income Share



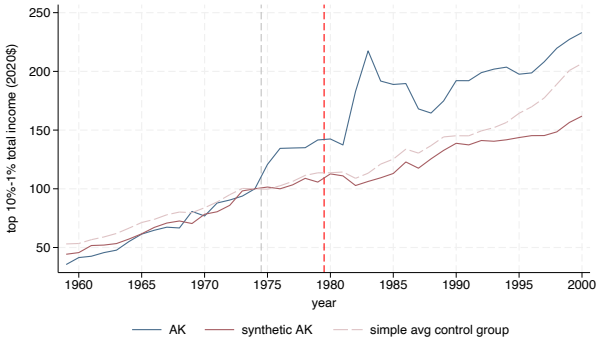
(b) Top 0.01% Income



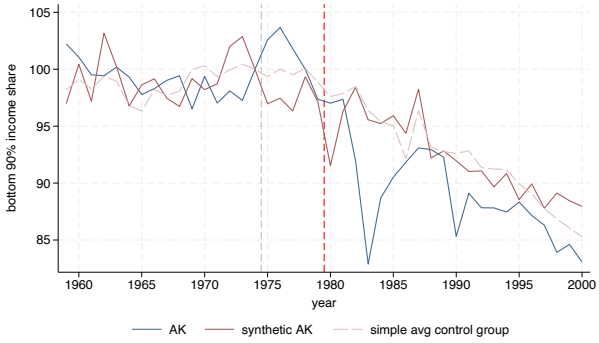
(c) Top 10%-1% Income Share



(d) Top 10%-1% Income



(e) Bottom 90% Income Share



(f) Bottom 90% Income

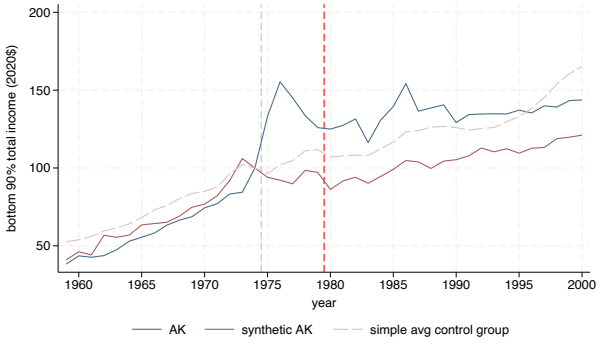
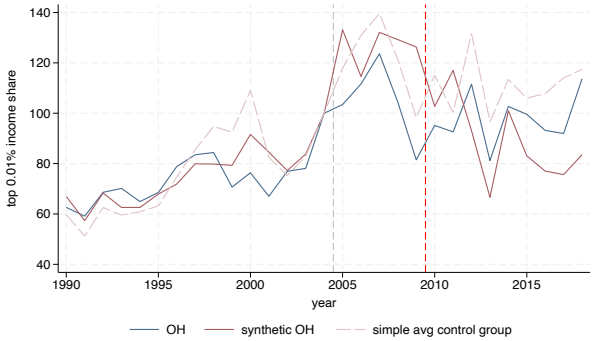
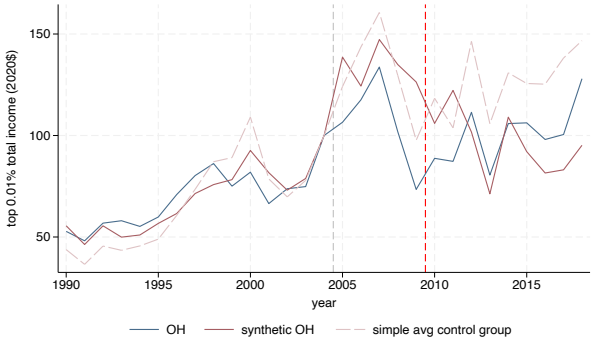


Figure D.34: Ohio cancelled $\tau^{corporate} = 8.5\%$, kept $\tau^{personal} = 6.24\%$ in 2010
Matching Only on Gini Index

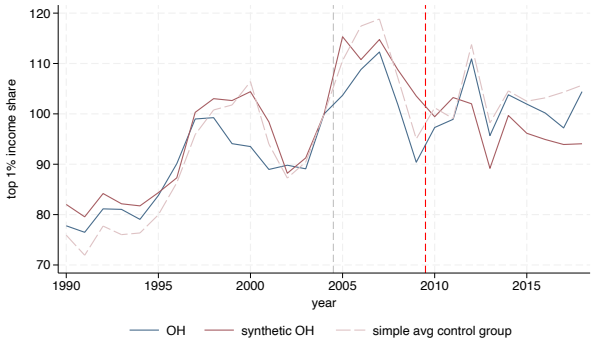
(a) Top 0.01% Income Share



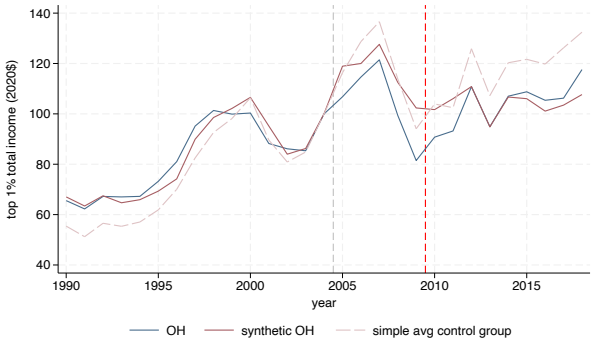
(b) Top 0.01% Income



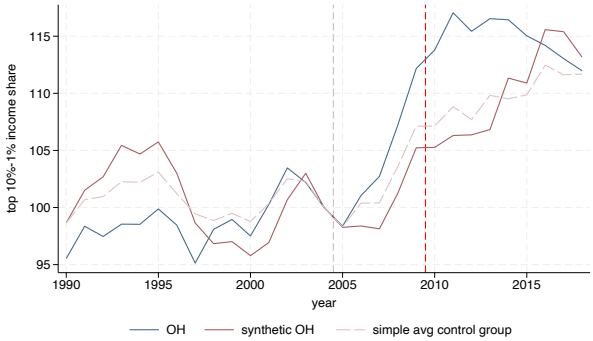
(c) Top 1% Income Share



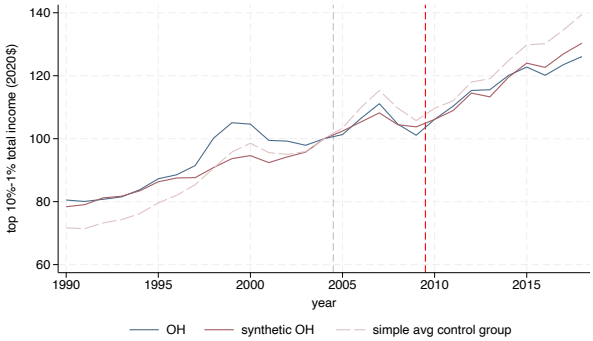
(d) Top 1% Income



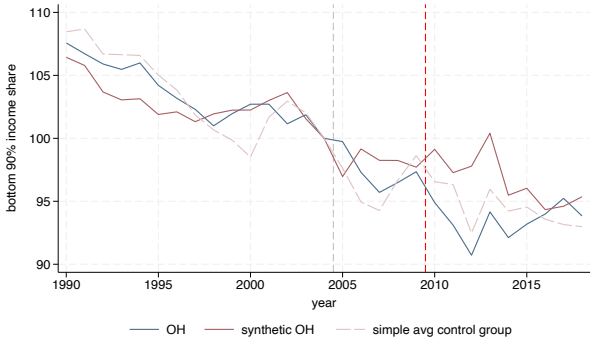
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

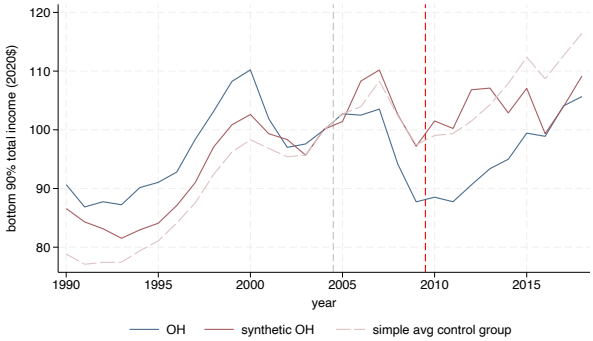
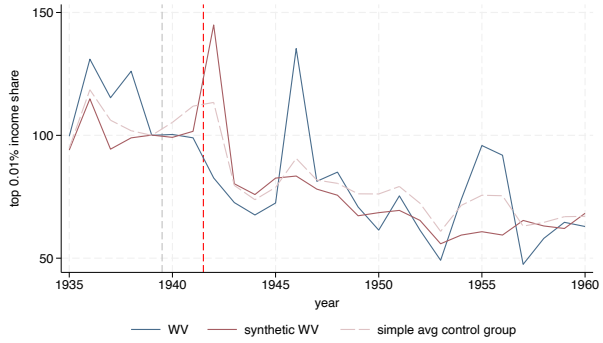
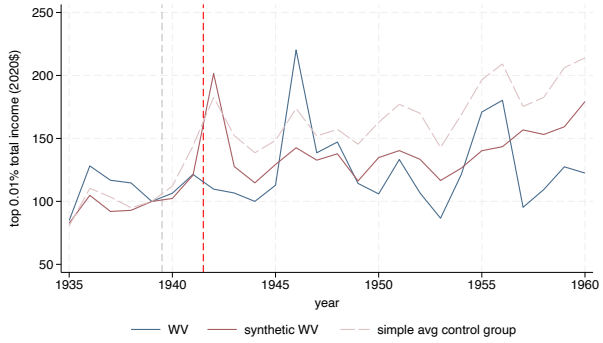


Figure D.35: West Virginia cancelled $\tau^{personal} = 6\%$, kept $\tau^{corporate} = 0\%$ in 1942
Matching Only on Gini Index

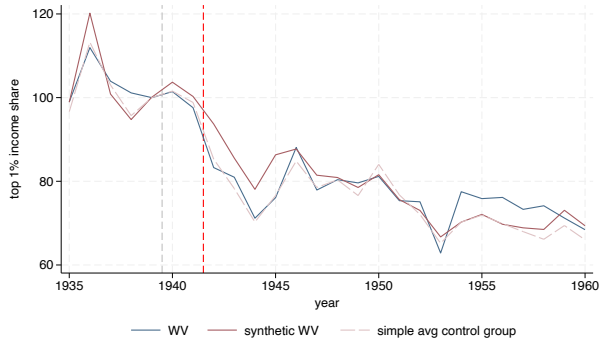
(a) Top 0.01% Income Share



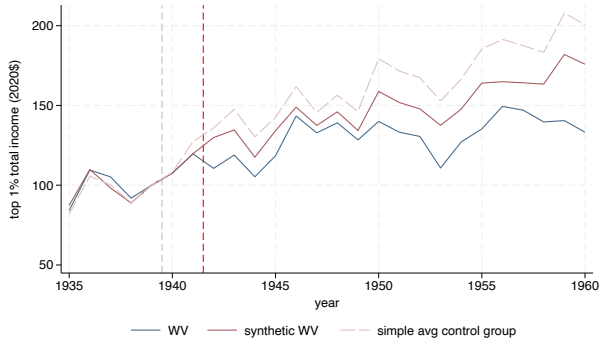
(b) Top 0.01% Income



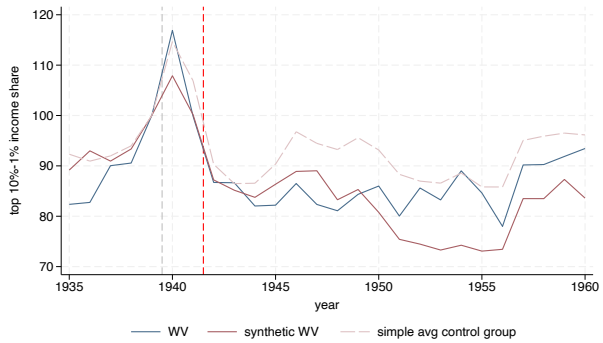
(c) Top 1% Income Share



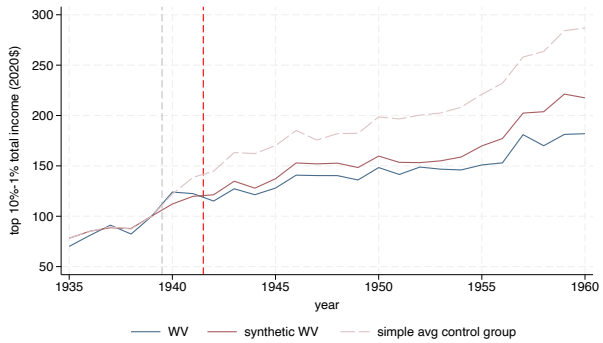
(d) Top 1% Income



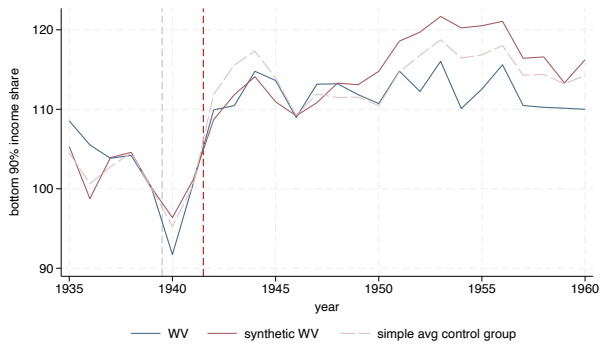
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

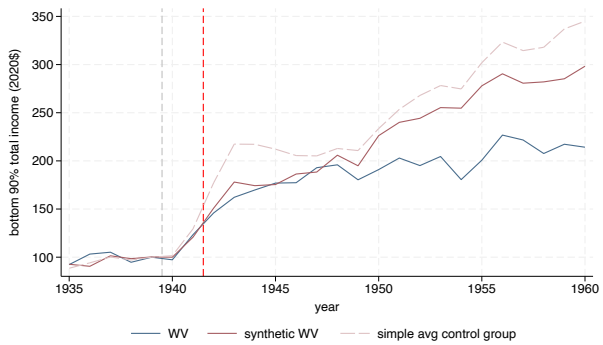
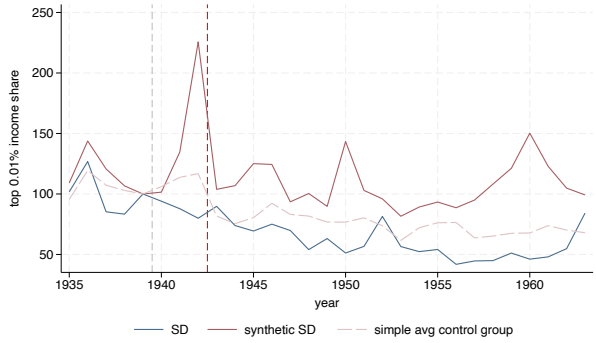
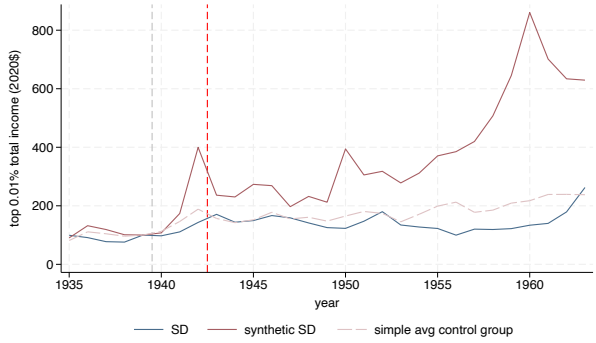


Figure D.36: South Dakota: cancelled $\tau^{personal} = 6\%$ and $\tau^{corporate} = 8\%$ in 1943
Matching Only on Gini Index

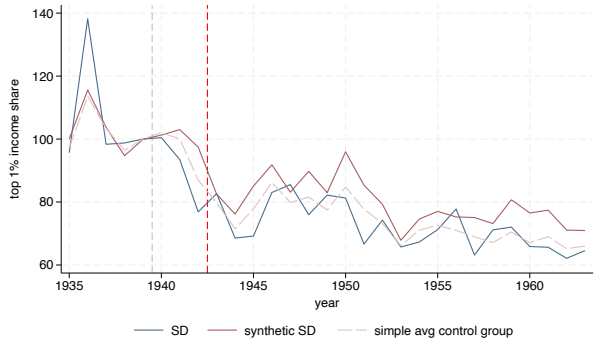
(a) Top 0.01% Income Share



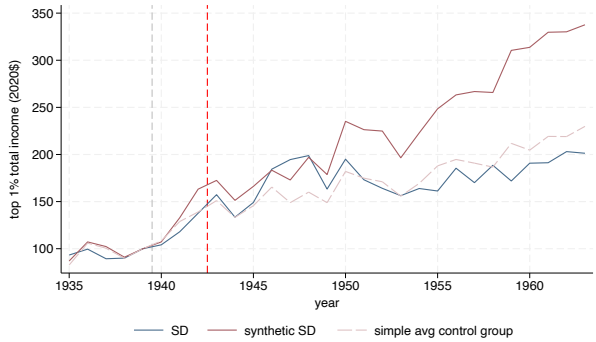
(b) Top 0.01% Income



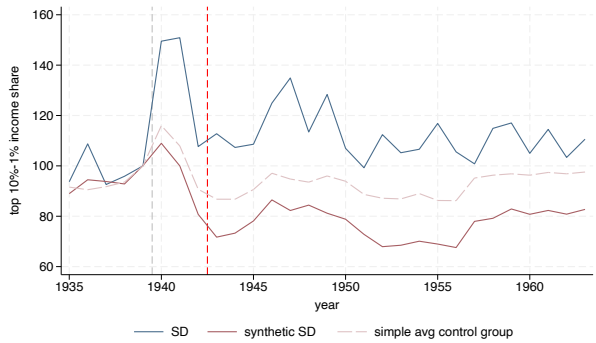
(c) Top 1% Income Share



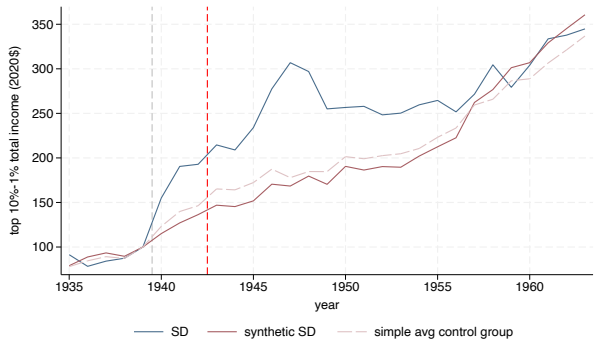
(d) Top 1% Income



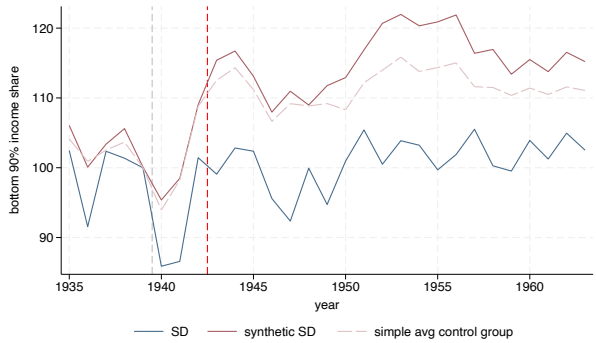
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

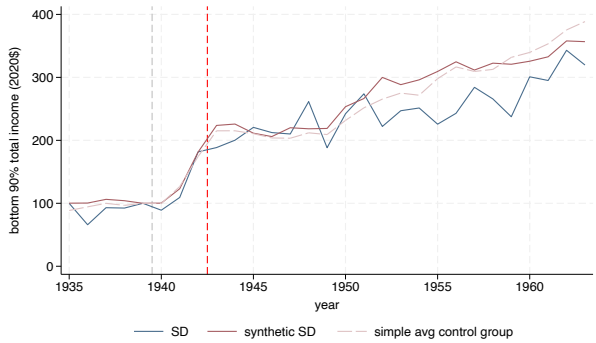
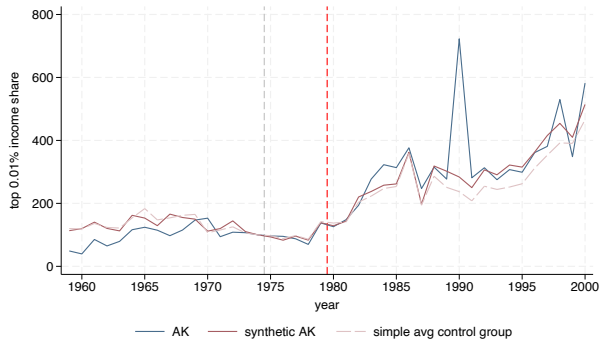
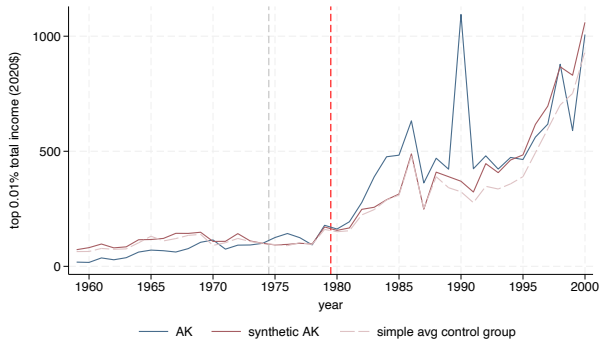


Figure D.37: Alaska cancelled $\tau^{personal} = 14.5\%$, kept $\tau^{corporate} = 9.4\%$ in 1980
Matching Only on Gini Index

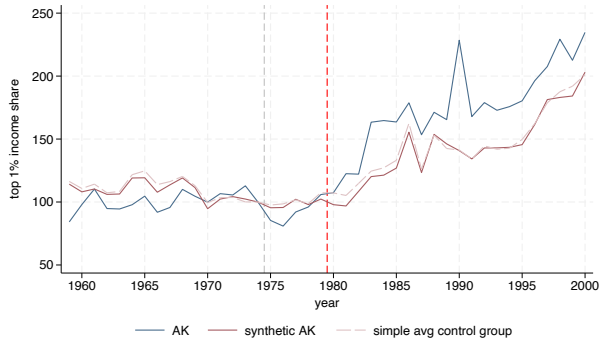
(a) Top 0.01% Income Share



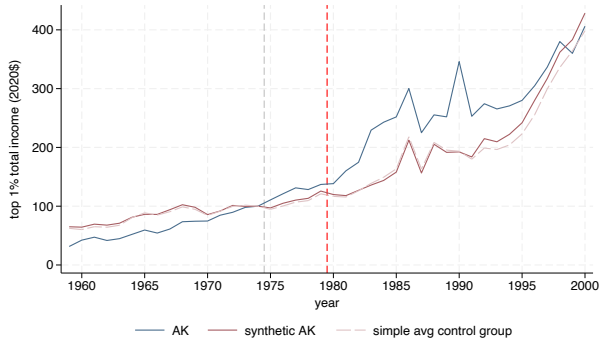
(b) Top 0.01% Income



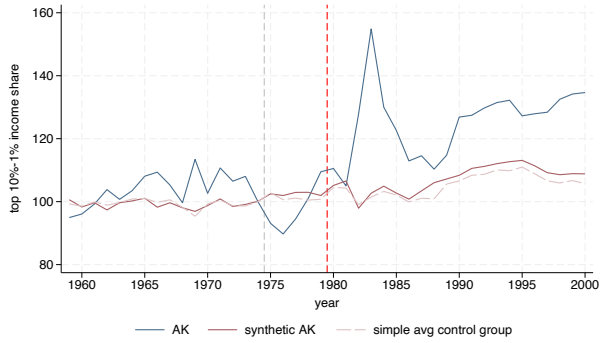
(c) Top 1% Income Share



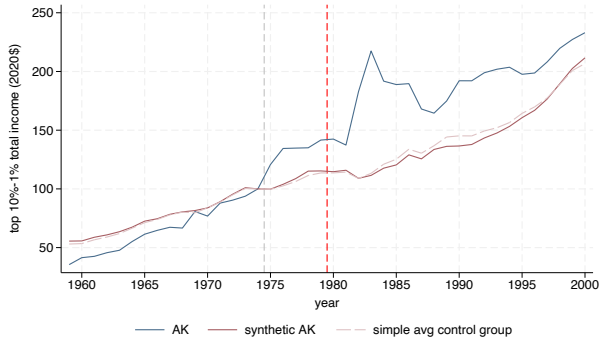
(d) Top 1% Income



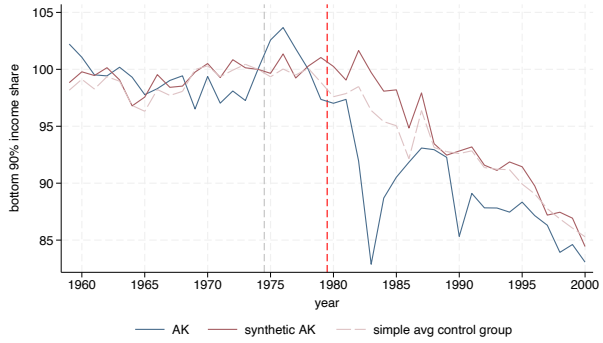
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

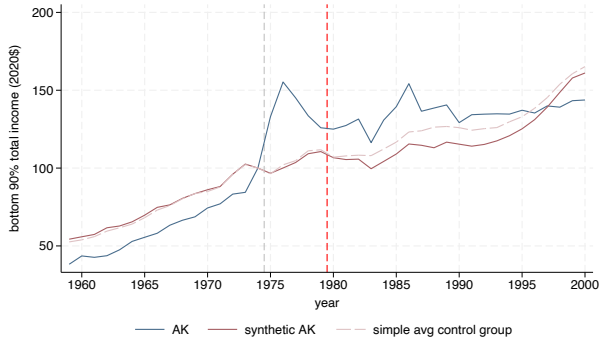
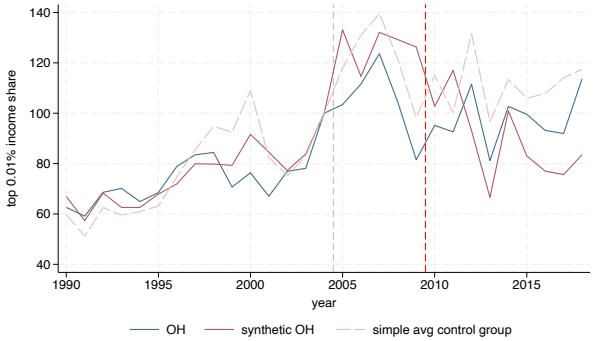
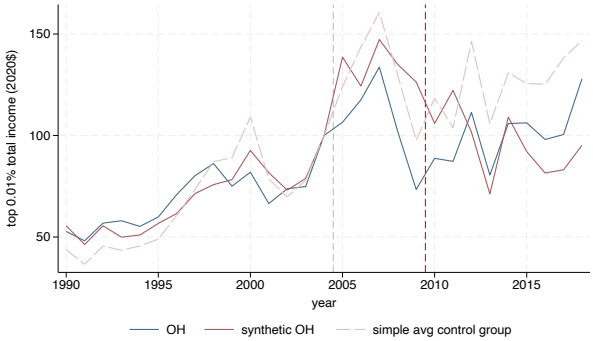


Figure D.38: Ohio cancelled $\tau^{corporate} = 8.5\%$, kept $\tau^{personal} = 6.24\%$ in 2010
Matching Only on Outcome

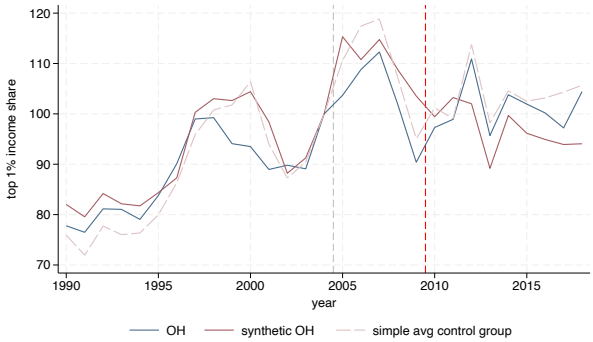
(a) Top 0.01% Income Share



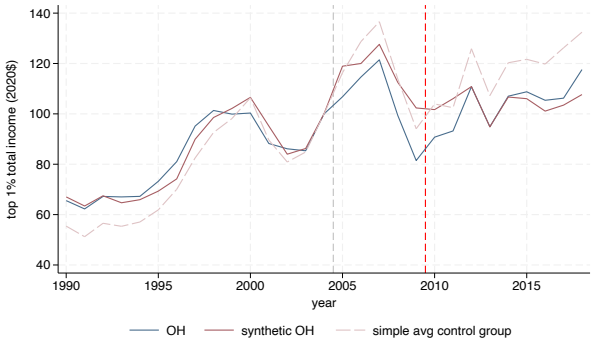
(b) Top 0.01% Income



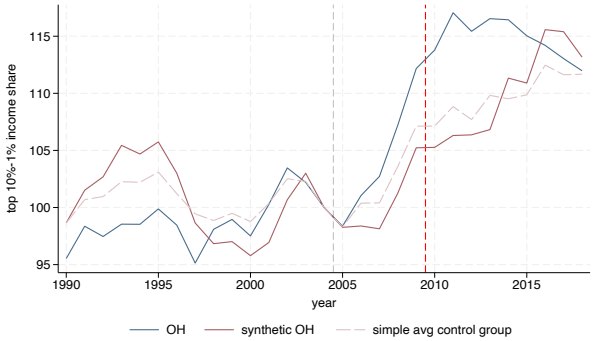
(c) Top 1% Income Share



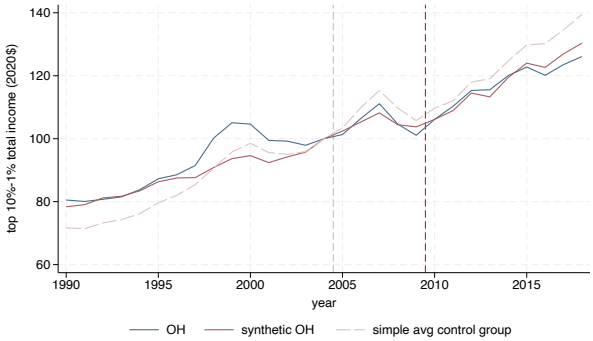
(d) Top 1% Income



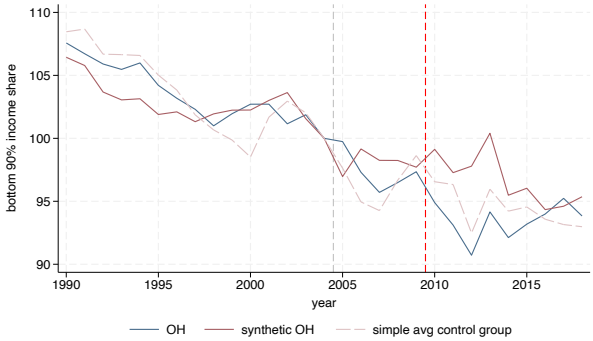
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

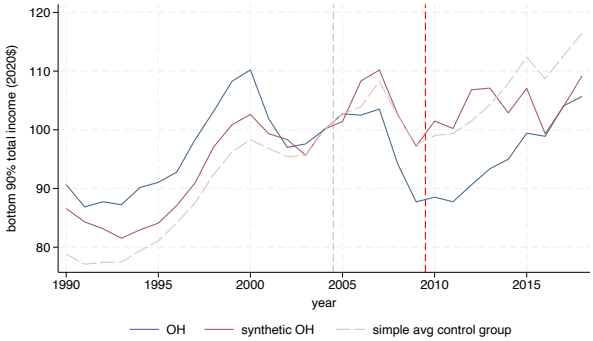
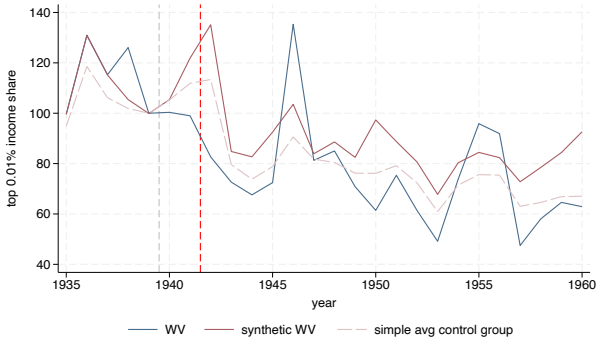
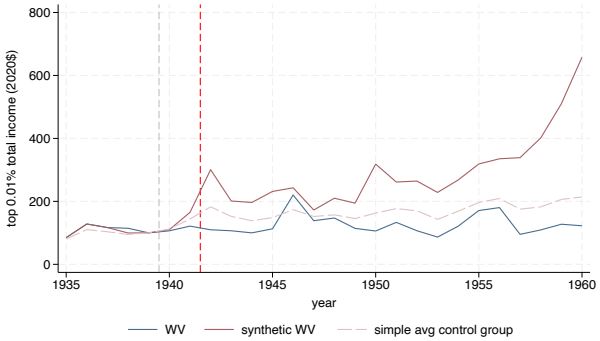


Figure D.39: West Virginia cancelled $\tau^{personal} = 6\%$, kept $\tau^{corporate} = 0\%$ in 1942
Matching Only on Outcome

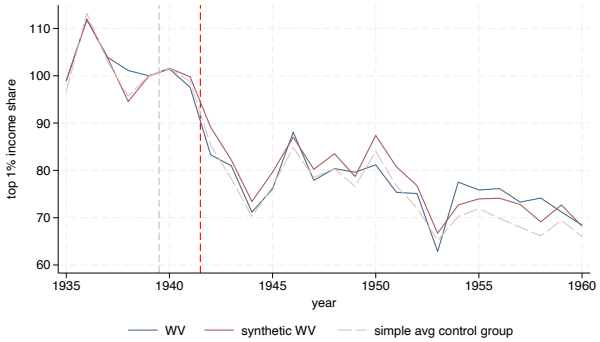
(a) Top 0.01% Income Share



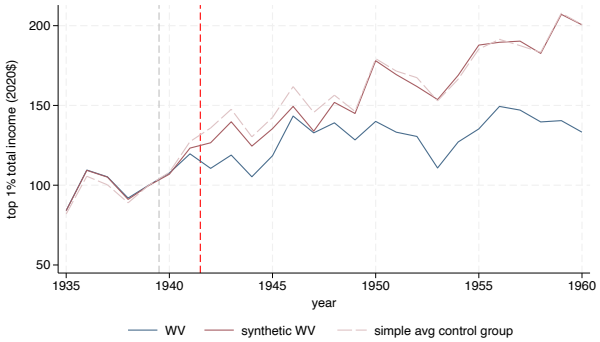
(b) Top 0.01% Income



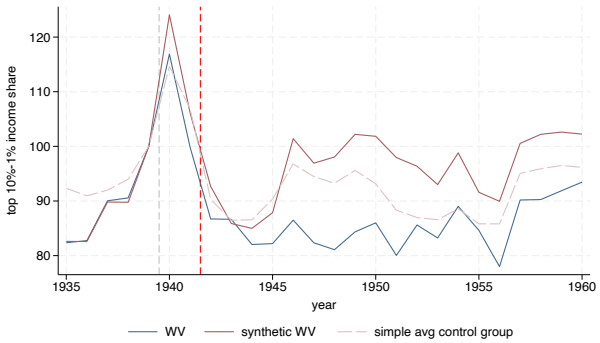
(c) Top 1% Income Share



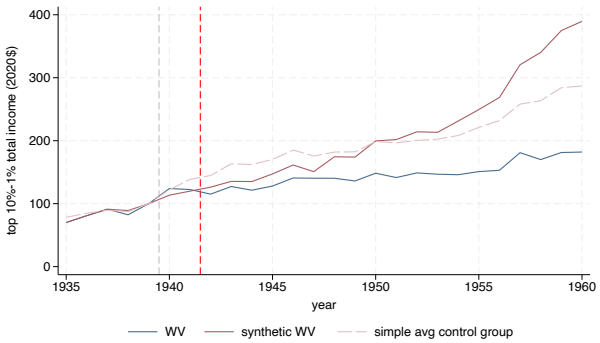
(d) Top 1% Income



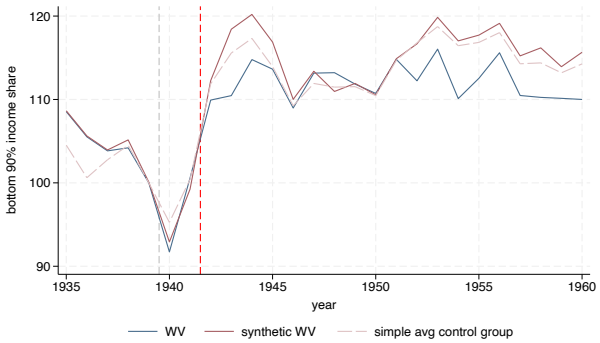
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

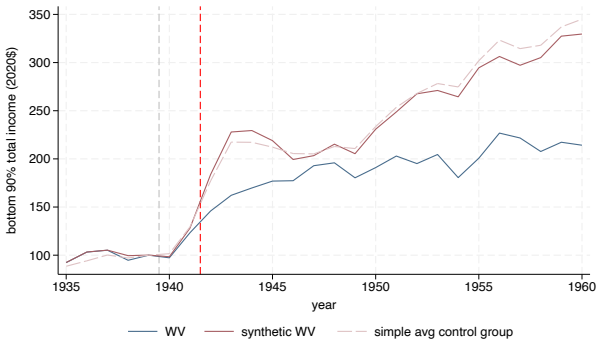
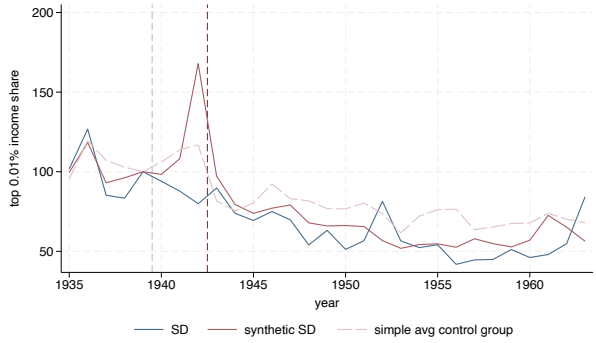
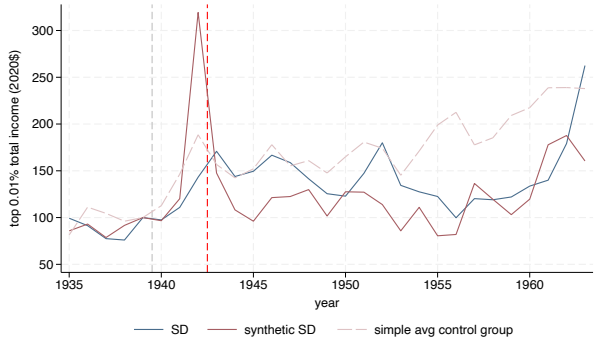


Figure D.40: South Dakota: cancelled $\tau^{personal} = 6\%$ and $\tau^{corporate} = 8\%$ in 1943
Matching Only on Outcome

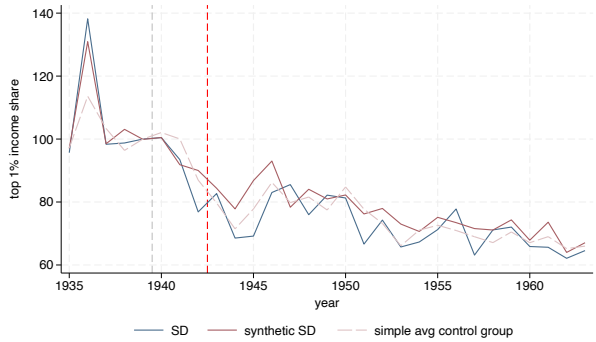
(a) Top 0.01% Income Share



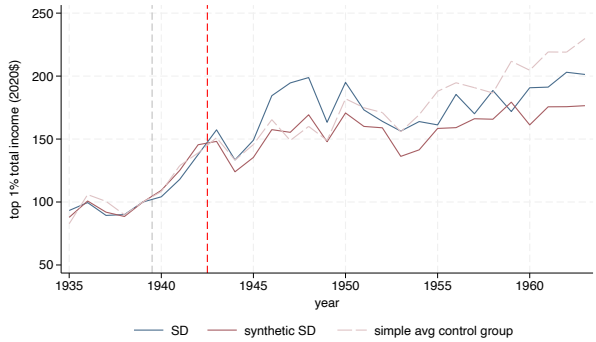
(b) Top 0.01% Income



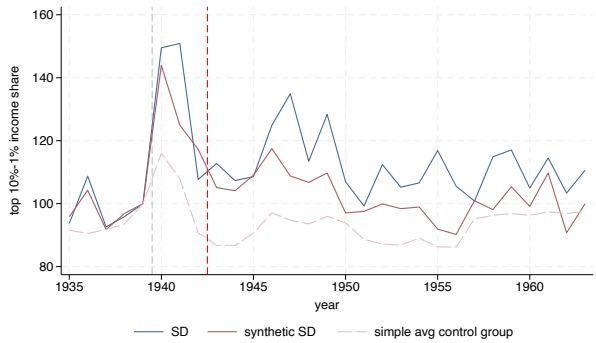
(c) Top 1% Income Share



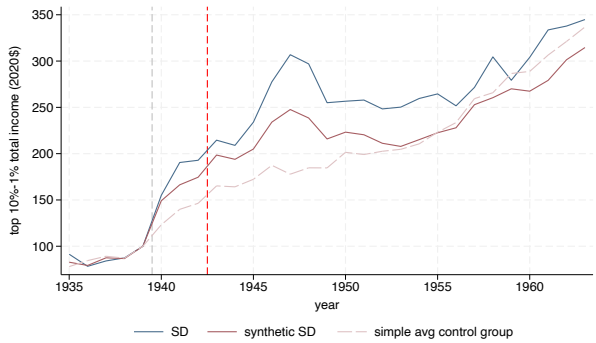
(d) Top 1% Income



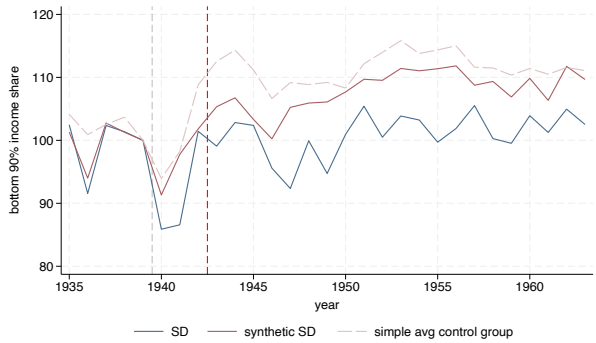
(e) Top 10%-1% Income Share



(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income

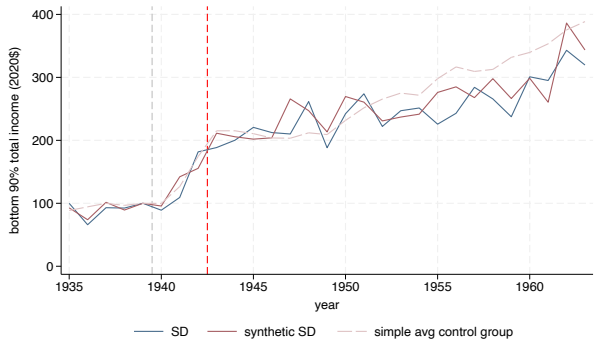
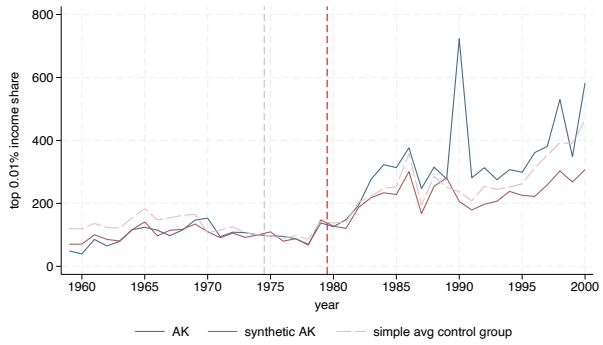
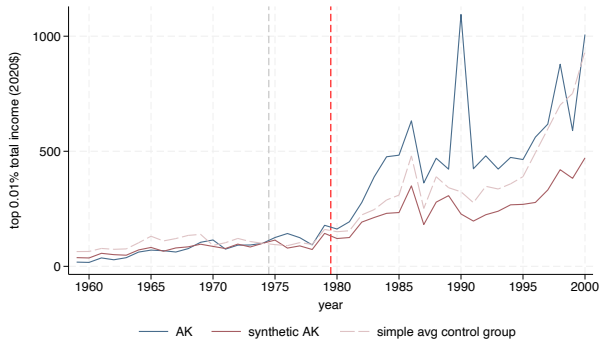


Figure D.41: Alaska cancelled $\tau^{personal} = 14.5\%$, kept $\tau^{corporate} = 9.4\%$ in 1980
Matching Only on Outcome

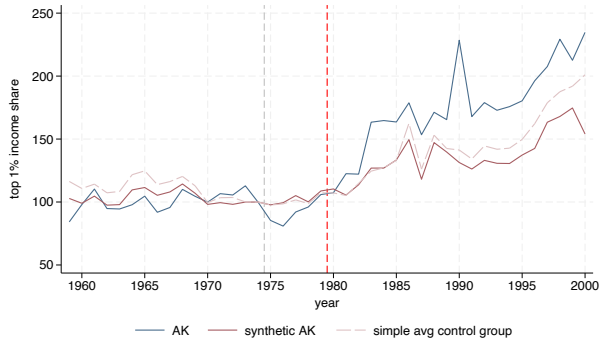
(a) Top 0.01% Income Share



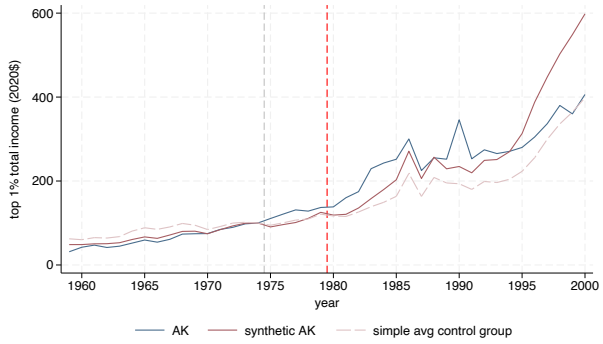
(b) Top 0.01% Income



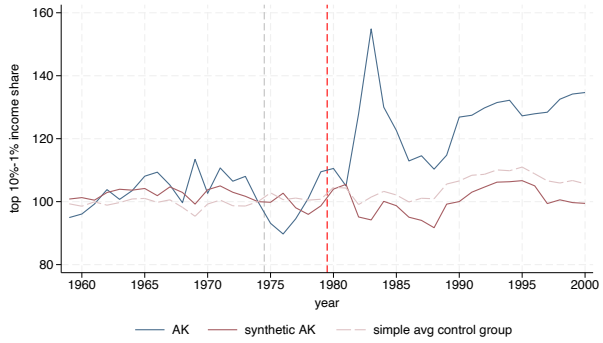
(c) Top 1% Income Share



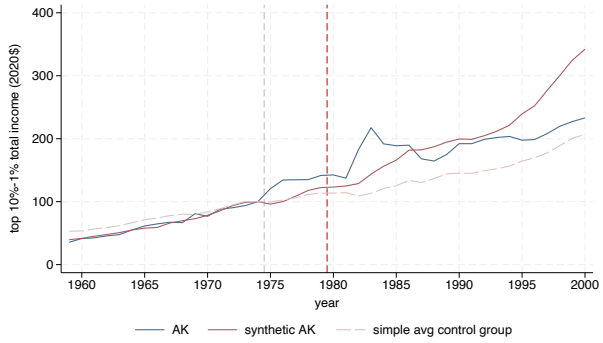
(d) Top 1% Income



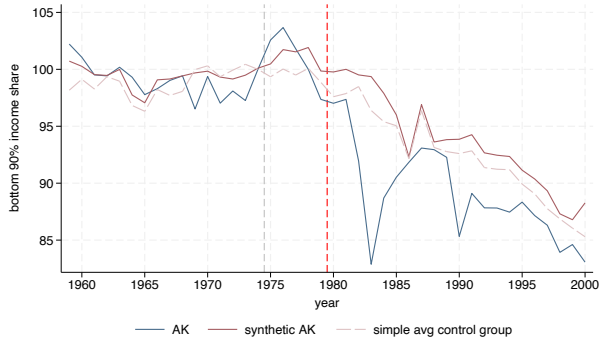
(e) Top 10%-1% Income Share



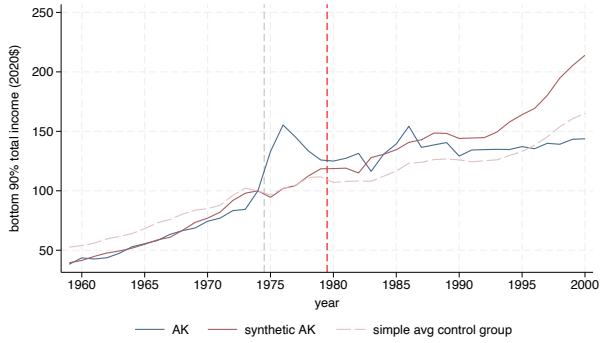
(f) Top 10%-1% Income



(g) Bottom 90% Income Share



(h) Bottom 90% Income



E Two Way Fixed Effects: Additional Evidence

Table E.1: Estimates of Personal and Corporate Income Taxes on Income Thresholds

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$				
Top Personal Rate	-0.003	-0.010***	-0.017***	-0.021***
	(0.002)	(0.003)	(0.005)	(0.006)
Panel B – Independent variables:$\tau_s^{corporate}$				
Top Corporate Rate	-0.007*	-0.019***	-0.035***	-0.047***
	(0.004)	(0.005)	(0.009)	(0.013)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$				
Top Personal Rate	0.001	-0.003	-0.004	-0.002
	(0.003)	(0.003)	(0.005)	(0.008)
Top Corporate Rate	-0.008*	-0.017***	-0.032***	-0.046***
	(0.005)	(0.005)	(0.010)	(0.016)
Panel D – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, by decade				
Top Personal Rate	0.001	-0.002	-0.002	-0.000
	(0.004)	(0.004)	(0.006)	(0.010)
Top Corporate Rate	-0.009	-0.019***	-0.037***	-0.052***
	(0.006)	(0.006)	(0.011)	(0.019)
Panel E – Independent variables:$\tau_s^{personal}$ and $\tau_s^{corporate}$, excluding zeros				
Top Personal Rate	-0.003	-0.006	-0.008	-0.002
	(0.003)	(0.004)	(0.007)	(0.014)
Top Corporate Rate	-0.013**	-0.020***	-0.023**	-0.029*
	(0.006)	(0.007)	(0.010)	(0.014)
Panel F – Independent variables: $1\{\tau_s^{personal} > 0\}$ and $1\{\tau_s^{corporate} > 0\}$				
Has Personal Income Tax	-0.018	-0.010	0.018	0.017
	(0.029)	(0.046)	(0.096)	(0.139)
Has Corporate Income Tax	-0.003	-0.085*	-0.175	-0.260
	(0.033)	(0.050)	(0.106)	(0.158)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0
Observations	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. In addition to the independent variables listed, Panels A, B, C, E, F include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included), while Panel F estimates extensive marginal responses (only indicators for the presence of personal and corporate income taxes are included). The average Top X% thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.2: Estimates of Personal and Corporate Income Taxes on Income Shares Separately by Period

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1917-1946						
Top Personal Rate	-0.001	-0.000	0.004	0.004	0.005	0.005
	(0.002)	(0.004)	(0.006)	(0.005)	(0.007)	(0.009)
Top Corporate Rate	-0.005	0.012*	0.002	0.004	0.003	-0.012
	(0.004)	(0.006)	(0.009)	(0.007)	(0.011)	(0.016)
Panel B – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1947-1976						
Top Personal Rate	0.001	0.002	-0.006	-0.002	-0.009	-0.010
	(0.001)	(0.001)	(0.005)	(0.003)	(0.007)	(0.009)
Top Corporate Rate	-0.001	0.006**	-0.002	-0.000	-0.003	-0.008
	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.008)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1977-2018						
Top Personal Rate	-0.005**	-0.001	0.005	0.003	0.004	0.005
	(0.002)	(0.002)	(0.005)	(0.004)	(0.006)	(0.011)
Top Corporate Rate	0.011**	-0.003	-0.021**	-0.016**	-0.022**	-0.029*
	(0.005)	(0.004)	(0.010)	(0.007)	(0.010)	(0.017)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log income shares for each group shown in the first row. The independent variables are state top personal and corporate income tax rates. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.3: Estimates of Personal and Corporate Income Taxes on Income Separately by Period

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1917-1946							
Top Personal Rate	-0.003	-0.003	0.002	0.001	0.002	0.003	-0.002
	(0.009)	(0.008)	(0.006)	(0.005)	(0.008)	(0.009)	(0.008)
Top Corporate Rate	-0.017	-0.001	-0.010	-0.008	-0.009	-0.024	-0.012
	(0.011)	(0.011)	(0.012)	(0.010)	(0.014)	(0.018)	(0.010)
Panel B – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1947-1976							
Top Personal Rate	-0.010	-0.009	-0.017***	-0.013**	-0.020***	-0.021***	-0.011*
	(0.006)	(0.006)	(0.006)	(0.005)	(0.007)	(0.008)	(0.005)
Top Corporate Rate	-0.011	-0.003	-0.011*	-0.009	-0.012*	-0.018*	-0.009
	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)	(0.009)	(0.006)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1977-2018							
Top Personal Rate	-0.007	-0.003	0.003	0.001	0.002	0.003	-0.002
	(0.005)	(0.005)	(0.007)	(0.006)	(0.008)	(0.012)	(0.004)
Top Corporate Rate	-0.002	-0.016	-0.034	-0.029	-0.035	-0.042	-0.013
	(0.014)	(0.015)	(0.022)	(0.019)	(0.022)	(0.028)	(0.015)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log real income earned by each group shown in the first row. The independent variables are state top personal and corporate income tax rates. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period, and the average Top X% real incomes are expressed in 2020 billions of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.4: Estimates of Personal and Corporate Income Taxes on Income Thresholds Separately by Period

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1917-1946				
Top Personal Rate	0.002	-0.004	-0.002	-0.002
	(0.004)	(0.004)	(0.007)	(0.008)
Top Corporate Rate	-0.001	-0.006	-0.003	-0.011
	(0.006)	(0.006)	(0.011)	(0.015)
Panel B – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1947-1976				
Top Personal Rate	-0.002	-0.006	-0.010	-0.015*
	(0.002)	(0.004)	(0.006)	(0.009)
Top Corporate Rate	-0.006**	-0.009*	-0.010*	-0.016**
	(0.003)	(0.004)	(0.005)	(0.006)
Panel C – Independent variables: $\tau_s^{personal}$ and $\tau_s^{corporate}$, 1977-2018				
Top Personal Rate	0.002	0.004	0.004	0.007
	(0.003)	(0.005)	(0.007)	(0.010)
Top Corporate Rate	-0.007	-0.017*	-0.027*	-0.030
	(0.005)	(0.010)	(0.015)	(0.018)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are state top personal and corporate income tax rates. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period, and the average Top X% real income thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.5: Estimates of Contemporaneous and Lagged Taxes on Income Shares

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$						
Top Personal Rate	0.001	-0.004	-0.002	-0.001	-0.005	-0.007
	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.008)
Top Personal Rate (5-year lag)	-0.000	0.001	-0.003	-0.003*	-0.001	-0.003
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.007)
Top Personal Rate (10-year lag)	0.000	0.004**	-0.005	-0.001	-0.005	-0.012
	(0.002)	(0.002)	(0.005)	(0.003)	(0.007)	(0.011)
Panel B – Independent variables: $\tau_s^{corporate}$						
Top Corporate Rate	0.006***	-0.009**	-0.010**	-0.006	-0.015**	-0.032***
	(0.002)	(0.003)	(0.004)	(0.004)	(0.005)	(0.010)
Top Corporate Rate (5-year lag)	0.000	0.003	-0.007**	-0.006**	-0.009**	-0.000
	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.007)
Top Corporate Rate (10-year lag)	-0.003	0.009***	-0.001	0.003	-0.001	-0.008
	(0.002)	(0.003)	(0.007)	(0.005)	(0.009)	(0.016)
Panel C – Independent variables: $\tau_s^{personal}$ **and** $\tau_s^{corporate}$						
Top Personal Rate	-0.001	-0.002	0.002	0.001	0.001	0.004
	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)	(0.008)
Top Personal Rate (5-year lag)	-0.001	0.001	-0.000	-0.002	0.002	-0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.007)
Top Personal Rate (10-year lag)	0.002	0.001	-0.004	-0.002	-0.004	-0.009
	(0.002)	(0.002)	(0.004)	(0.002)	(0.005)	(0.008)
Top Corporate Rate	0.007***	-0.007**	-0.012**	-0.006	-0.015**	-0.035***
	(0.003)	(0.003)	(0.005)	(0.004)	(0.006)	(0.012)
Top Corporate Rate (5-year lag)	0.001	0.003	-0.007**	-0.005*	-0.010**	0.001
	(0.001)	(0.003)	(0.003)	(0.003)	(0.004)	(0.007)
Top Corporate Rate (10-year lag)	-0.004	0.009**	0.002	0.004	0.002	-0.002
	(0.003)	(0.003)	(0.008)	(0.005)	(0.009)	(0.016)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955
Observations	5,016	5,016	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log income shares for each group shown in the first row. The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. 5-year lag (10-year lag) tax rates correspond to the average tax rate from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.6: Estimates of Contemporaneous and Lagged Taxes on Income

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $\tau_s^{personal}$							
Top Personal Rate	-0.016***	-0.021***	-0.019***	-0.019***	-0.022***	-0.025**	-0.018***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)	(0.010)	(0.006)
Top Personal Rate (5-year lag)	-0.006	-0.004	-0.008*	-0.008**	-0.007	-0.008	-0.005
	(0.003)	(0.004)	(0.005)	(0.004)	(0.005)	(0.009)	(0.003)
Top Personal Rate (10-year lag)	-0.006	-0.003	-0.011	-0.007	-0.012	-0.018	-0.007
	(0.008)	(0.009)	(0.011)	(0.010)	(0.012)	(0.015)	(0.009)
Panel B – Independent variables: $\tau_s^{corporate}$							
Top Corporate Rate	-0.021**	-0.036***	-0.038***	-0.033***	-0.042***	-0.060***	-0.028***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.014)	(0.009)
Top Corporate Rate (5-year lag)	-0.003	-0.000	-0.010**	-0.010**	-0.012**	-0.004	-0.004
	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)	(0.008)	(0.004)
Top Corporate Rate (10-year lag)	-0.016	-0.004	-0.014	-0.010	-0.014	-0.021	-0.013
	(0.014)	(0.015)	(0.018)	(0.017)	(0.019)	(0.024)	(0.015)
Panel C – Independent variables: $\tau_s^{personal}$ **and** $\tau_s^{corporate}$							
Top Personal Rate	-0.011**	-0.012*	-0.007	-0.009	-0.009	-0.006	-0.010*
	(0.005)	(0.007)	(0.007)	(0.006)	(0.008)	(0.011)	(0.006)
Top Personal Rate (5-year lag)	-0.005	-0.003	-0.004	-0.005	-0.001	-0.005	-0.004
	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.008)	(0.003)
Top Personal Rate (10-year lag)	0.000	-0.000	-0.005	-0.003	-0.005	-0.010	-0.001
	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)	(0.013)	(0.009)
Top Corporate Rate	-0.015	-0.029***	-0.034***	-0.028**	-0.037***	-0.057***	-0.022**
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.015)	(0.010)
Top Corporate Rate (5-year lag)	-0.000	0.002	-0.007*	-0.006	-0.011**	-0.000	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.008)	(0.004)
Top Corporate Rate (10-year lag)	-0.015	-0.002	-0.009	-0.006	-0.009	-0.013	-0.011
	(0.015)	(0.015)	(0.019)	(0.017)	(0.019)	(0.025)	(0.015)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464	4.464	4.464	4.464
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0
Observations	5,016	5,016	5,016	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real incomes earned by each group shown in the first row. The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. 5-year lag (10-year lag) tax rates correspond to the average tax rate from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. The average Top X% real incomes are expressed in 2020 billions of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.7: Estimates of Contemporaneous and Lagged Taxes on Income Thresholds

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $\tau_s^{personal}$				
Top Personal Rate	-0.003	-0.007***	-0.012***	-0.013**
	(0.002)	(0.002)	(0.004)	(0.006)
Top Personal Rate (5-year lag)	-0.003	-0.006**	-0.006	-0.006
	(0.003)	(0.002)	(0.004)	(0.006)
Top Personal Rate (10-year lag)	0.004	0.003	0.001	-0.005
	(0.004)	(0.003)	(0.006)	(0.010)
Panel B – Independent variables: $\tau_s^{corporate}$				
Top Corporate Rate	-0.009**	-0.015***	-0.029***	-0.036***
	(0.004)	(0.004)	(0.006)	(0.008)
Top Corporate Rate (5-year lag)	-0.003	-0.013***	-0.012***	-0.013**
	(0.004)	(0.004)	(0.004)	(0.006)
Top Corporate Rate (10-year lag)	0.005	0.010*	0.006	-0.000
	(0.005)	(0.005)	(0.009)	(0.013)
Panel C – Independent variables: $\tau_s^{personal}$ **and** $\tau_s^{corporate}$				
Top Personal Rate	0.000	-0.002	-0.003	-0.000
	(0.002)	(0.003)	(0.004)	(0.008)
Top Personal Rate (5-year lag)	-0.002	-0.002	-0.002	-0.000
	(0.003)	(0.002)	(0.003)	(0.006)
Top Personal Rate (10-year lag)	0.004	0.001	0.001	-0.003
	(0.004)	(0.004)	(0.006)	(0.008)
Top Corporate Rate	-0.008**	-0.013***	-0.027***	-0.036***
	(0.004)	(0.004)	(0.007)	(0.010)
Top Corporate Rate (5-year lag)	-0.002	-0.012***	-0.010**	-0.013**
	(0.003)	(0.003)	(0.004)	(0.007)
Top Corporate Rate (10-year lag)	0.003	0.010*	0.006	0.002
	(0.005)	(0.006)	(0.010)	(0.014)
Avg. Top Personal Rate	4.400	4.400	4.400	4.400
Avg. Top Corporate Rate	4.464	4.464	4.464	4.464
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0
Observations	5,016	5,016	5,016	5,016

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are listed in panel subtitles, and are a function of state top personal and/or corporate income tax rates. 5-year lag (10-year lag) tax rates correspond to the average tax rate from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. The average Top X% real income thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.8: Estimates of Combined (State + Federal) Taxes on Income Shares

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$						
ln(1 - Combined Personal Rate)	0.021*	-0.035**	-0.037*	-0.014	-0.048*	-0.064
	(0.012)	(0.016)	(0.019)	(0.019)	(0.025)	(0.042)
Panel B – Independent variables: $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$						
ln(1 - Combined Corporate Rate)	-0.180*	-0.089	0.799**	0.424**	1.084**	1.768**
	(0.107)	(0.140)	(0.346)	(0.209)	(0.453)	(0.703)
Panel C – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$						
ln(1 - Combined Personal Rate)	0.037***	-0.036*	-0.094***	-0.043**	-0.123***	-0.184**
	(0.012)	(0.019)	(0.026)	(0.019)	(0.038)	(0.071)
ln(1 - Combined Corporate Rate)	-0.323***	0.024	1.155***	0.596***	1.530***	2.424***
	(0.098)	(0.170)	(0.374)	(0.194)	(0.511)	(0.869)
Panel D – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$**, by decade**						
ln(1 - Combined Personal Rate)	0.026**	-0.011	-0.074**	-0.031*	-0.096**	-0.150**
	(0.013)	(0.018)	(0.030)	(0.018)	(0.038)	(0.069)
ln(1 - Combined Corporate Rate)	-0.295**	-0.054	1.151***	0.589**	1.538***	2.412**
	(0.117)	(0.179)	(0.428)	(0.230)	(0.568)	(0.943)
Panel E – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$**, excluding zeros**						
ln(1 - Combined Personal Rate)	0.037***	-0.036*	-0.094***	-0.043**	-0.123***	-0.184**
	(0.012)	(0.019)	(0.026)	(0.019)	(0.038)	(0.071)
ln(1 - Combined Corporate Rate)	-0.323***	0.024	1.155***	0.596***	1.530***	2.424***
	(0.098)	(0.170)	(0.374)	(0.194)	(0.511)	(0.869)
Avg. State + Federal Top Personal Rate		64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate		39.764	39.764	39.764	39.764	39.764
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955
Observations	4,892	4,892	4,892	4,892	4,892	4,892

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log income shares for each group shown in the first row. The independent variables are listed in panel subtitles, and are the log of the share net of state+federal top personal and/or corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, Panels A, B, C, E include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included). Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.9: Estimates of Combined (State + Federal) Taxes on Income

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$							
ln(1 - Combined Personal Rate)	0.099***	0.043	0.041	0.064	0.030	0.014	0.078**
	(0.037)	(0.038)	(0.042)	(0.039)	(0.046)	(0.058)	(0.035)
Panel B – Independent variables: $(\tau_s^{corporate} + \tau_f^{corporate})$							
ln(1 - Combined Corporate Rate)	1.840**	1.931***	2.819***	2.444***	3.105***	3.788***	2.020***
	(0.718)	(0.676)	(0.834)	(0.774)	(0.869)	(1.042)	(0.710)
Panel C – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ **and** $(\tau_s^{corporate} + \tau_f^{corporate})$							
ln(1 - Combined Personal Rate)	0.007	-0.066	-0.124*	-0.073	-0.153**	-0.214**	-0.030
	(0.053)	(0.062)	(0.068)	(0.064)	(0.072)	(0.093)	(0.056)
ln(1 - Combined Corporate Rate)	1.874**	2.221**	3.352***	2.792***	3.727***	4.621***	2.197**
	(0.871)	(0.847)	(0.997)	(0.934)	(1.020)	(1.251)	(0.873)
Panel D – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ **and** $(\tau_s^{corporate} + \tau_f^{corporate})$**, by decade**							
ln(1 - Combined Personal Rate)	-0.027	-0.064	-0.127*	-0.083	-0.149**	-0.202**	-0.053
	(0.050)	(0.056)	(0.065)	(0.059)	(0.067)	(0.090)	(0.051)
ln(1 - Combined Corporate Rate)	2.151**	2.393**	3.598***	3.035***	3.985***	4.858***	2.447**
	(0.951)	(0.923)	(1.095)	(1.021)	(1.122)	(1.375)	(0.951)
Panel E – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ **and** $(\tau_s^{corporate} + \tau_f^{corporate})$**, excluding zeros**							
ln(1 - Combined Personal Rate)	0.007	-0.066	-0.124*	-0.073	-0.153**	-0.214**	-0.030
	(0.053)	(0.062)	(0.068)	(0.064)	(0.072)	(0.093)	(0.056)
ln(1 - Combined Corporate Rate)	1.874**	2.221**	3.352***	2.792***	3.727***	4.621***	2.197**
	(0.871)	(0.847)	(0.997)	(0.934)	(1.020)	(1.251)	(0.873)
Avg. State + Federal Top Personal Rate		64.148	64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate		39.764	39.764	39.764	39.764	39.764	39.764
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0
Observations	4,892	4,892	4,892	4,892	4,892	4,892	4,892

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income earned by each group shown in the first row. The independent variables are listed in panel subtitles, and are the log of the share net of state+federal top personal and/or corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, Panels A, B, C, E include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included). The average Top X% real incomes are expressed in 2020 billions of dollars. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.10: Estimates of Combined (State + Federal) Taxes on Income Thresholds

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$				
ln(1 - Combined Personal Rate)	0.015	0.021	-0.001	-0.014
	(0.014)	(0.018)	(0.029)	(0.044)
Panel B – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$				
ln(1 - Combined Corporate Rate)	0.421**	0.951***	1.683***	2.285***
	(0.208)	(0.239)	(0.446)	(0.657)
Panel C – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$				
ln(1 - Combined Personal Rate)	-0.009	-0.033	-0.105***	-0.158**
	(0.018)	(0.021)	(0.036)	(0.068)
ln(1 - Combined Corporate Rate)	0.482*	1.108***	2.119***	2.919***
	(0.249)	(0.261)	(0.463)	(0.792)
Panel D – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$**, by decade**				
ln(1 - Combined Personal Rate)	-0.016	-0.042**	-0.101***	-0.162***
	(0.016)	(0.018)	(0.032)	(0.059)
ln(1 - Combined Corporate Rate)	0.523*	1.182***	2.215***	3.075***
	(0.276)	(0.291)	(0.529)	(0.859)
Panel E – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$**, excluding zeros**				
ln(1 - Combined Personal Rate)	-0.009	-0.033	-0.105***	-0.158**
	(0.018)	(0.021)	(0.036)	(0.068)
ln(1 - Combined Corporate Rate)	0.482*	1.108***	2.119***	2.919***
	(0.249)	(0.261)	(0.463)	(0.792)
Avg. State + Federal Top Personal Rate	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate	39.764	39.764	39.764	39.764
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0
Observations	4,892	4,892	4,892	4,892

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are listed in panel subtitles, and are the log of the share net of state+federal top personal and/or corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, Panels A, B, C, E include state and year fixed effects, while Panel D includes state and decade fixed effects. Panel D is estimated with outcomes averaged by decade, all other panels use yearly data. Panel E estimates intensive margin responses (only states with non-zero personal and corporate tax rates are included). The average Top X% real income thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.11: Estimates of Combined (State + Federal) Taxes on Income Shares Separately by Period

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1917-1946						
ln(1 - Combined Personal Rate)	0.033*	-0.078**	-0.033	-0.004	-0.063	-0.150**
	(0.017)	(0.033)	(0.028)	(0.022)	(0.039)	(0.063)
ln(1 - Combined Corporate Rate)	0.276	-0.503	-0.274	-0.516	-0.232	1.223
	(0.231)	(0.373)	(0.516)	(0.445)	(0.643)	(1.037)
Panel B – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1947-1976						
ln(1 - Combined Personal Rate)	0.009***	-0.015**	-0.028***	-0.005	-0.047**	-0.074*
	(0.002)	(0.007)	(0.010)	(0.014)	(0.018)	(0.037)
ln(1 - Combined Corporate Rate)	0.010	-0.294***	0.395	0.082	0.603	0.997*
	(0.068)	(0.102)	(0.246)	(0.102)	(0.416)	(0.555)
Panel C – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1977-2018						
ln(1 - Combined Personal Rate)	0.130***	-0.011	-0.207**	-0.087	-0.222*	-0.368
	(0.046)	(0.038)	(0.099)	(0.079)	(0.120)	(0.277)
ln(1 - Combined Corporate Rate)	-0.511**	0.207	0.978**	0.854***	1.013**	1.157
	(0.251)	(0.199)	(0.472)	(0.318)	(0.489)	(0.827)
Avg. State + Federal Top Personal Rate		64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate		39.764	39.764	39.764	39.764	39.764
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log income shares for each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.12: Estimates of Combined (State + Federal) Taxes on Incomes Separately by Period

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1917-1946							
ln(1 - Combined Personal Rate)	-0.032	-0.144**	-0.099*	-0.070	-0.129*	-0.216**	-0.066
	(0.047)	(0.058)	(0.053)	(0.045)	(0.064)	(0.086)	(0.045)
ln(1 - Combined Corporate Rate)	1.708**	0.929	1.159	0.916	1.200	2.655**	1.432**
	(0.707)	(0.648)	(0.745)	(0.642)	(0.891)	(1.227)	(0.623)
Panel B – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1947-1976							
ln(1 - Combined Personal Rate)	0.034	0.011	-0.003	0.020	-0.022	-0.049	0.026
	(0.034)	(0.034)	(0.032)	(0.032)	(0.036)	(0.045)	(0.033)
ln(1 - Combined Corporate Rate)	0.651*	0.347	1.036**	0.723**	1.244**	1.638***	0.641*
	(0.381)	(0.403)	(0.398)	(0.348)	(0.487)	(0.609)	(0.370)
Panel C – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1977-2018							
ln(1 - Combined Personal Rate)	0.033	-0.108	-0.304*	-0.184	-0.319*	-0.465	-0.097
	(0.108)	(0.133)	(0.174)	(0.161)	(0.186)	(0.305)	(0.117)
ln(1 - Combined Corporate Rate)	-0.098	0.620	1.391	1.267	1.426	1.570	0.413
	(0.751)	(0.748)	(0.987)	(0.894)	(1.010)	(1.269)	(0.734)
Avg. State + Federal Top Personal Rate		64.148	64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate		39.764	39.764	39.764	39.764	39.764	39.764
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log real incomes earned by each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period, and the average Top X% real incomes are expressed in 2020 billions of dollars. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.13: Estimates of Combined (State + Federal) Taxes on Income Thresholds Separately by Period

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1917-1946				
ln(1 - Combined Personal Rate)	-0.025	-0.032	-0.098*	-0.132*
	(0.022)	(0.029)	(0.057)	(0.073)
ln(1 - Combined Corporate Rate)	0.395	0.878**	0.868	1.602*
	(0.326)	(0.342)	(0.634)	(0.901)
Panel B – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1947-1976				
ln(1 - Combined Personal Rate)	0.018	0.012	-0.015	-0.031
	(0.011)	(0.017)	(0.017)	(0.028)
ln(1 - Combined Corporate Rate)	0.267**	0.520**	0.863**	1.366***
	(0.125)	(0.209)	(0.323)	(0.480)
Panel C – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ and $(\tau_s^{corporate} + \tau_f^{corporate})$, 1977-2018				
ln(1 - Combined Personal Rate)	-0.035	-0.113	-0.175	-0.332
	(0.066)	(0.087)	(0.137)	(0.244)
ln(1 - Combined Corporate Rate)	0.439	0.999*	1.396*	1.427
	(0.270)	(0.515)	(0.733)	(0.907)
Avg. State + Federal Top Personal Rate	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate	39.764	39.764	39.764	39.764
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0

Notes: This table presents results from estimating Equation 4 using all states, for years 1917-1946 (Panel A), 1947-1976 (Panel B), and 1977-2018 (Panel C) respectively. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Averages in the last rows refer to the full 1917-2018 period, and the average Top X% real income thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.14: Estimates of Contemporaneous and Lagged Combined (State + Federal) Taxes on Income Shares

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%
Panel A – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$						
ln(1 - Combined Personal Rate)	0.006	-0.009	-0.034*	-0.000	-0.061	-0.090
	(0.008)	(0.016)	(0.018)	(0.017)	(0.039)	(0.059)
ln(1 - Combined Personal Rate) (5-year lag)	0.017	-0.022	-0.002	-0.002	0.013	0.006
	(0.010)	(0.020)	(0.024)	(0.022)	(0.032)	(0.050)
ln(1 - Combined Personal Rate) (10-year lag)	0.007	-0.025**	-0.011	-0.025*	-0.008	0.036
	(0.008)	(0.010)	(0.018)	(0.014)	(0.023)	(0.034)
Panel B – Independent variables: $(\tau_s^{corporate} + \tau_f^{corporate})$						
ln(1 - Combined Corporate Rate)	-0.175*	0.023	0.683**	0.331	1.017**	1.844**
	(0.103)	(0.139)	(0.334)	(0.223)	(0.440)	(0.695)
ln(1 - Combined Corporate Rate) (5-year lag)	-0.021	-0.025	0.183**	0.233***	0.131	-0.212
	(0.026)	(0.062)	(0.077)	(0.078)	(0.130)	(0.229)
ln(1 - Combined Corporate Rate) (10-year lag)	0.021	-0.160***	-0.059	-0.172*	-0.069	0.170
	(0.034)	(0.054)	(0.138)	(0.095)	(0.149)	(0.293)
Panel C – Independent variables: $(\tau_s^{personal} + \tau_f^{personal})$ **and** $(\tau_s^{corporate} + \tau_f^{corporate})$						
ln(1 - Combined Personal Rate)	0.015*	-0.015	-0.052***	-0.008	-0.083**	-0.139**
	(0.008)	(0.016)	(0.019)	(0.018)	(0.039)	(0.060)
ln(1 - Combined Personal Rate) (5-year lag)	0.029**	-0.030	-0.041*	-0.030	-0.048**	-0.047
	(0.013)	(0.023)	(0.022)	(0.019)	(0.023)	(0.049)
ln(1 - Combined Personal Rate) (10-year lag)	0.010	-0.008	-0.041*	-0.034**	-0.039	-0.044
	(0.010)	(0.012)	(0.023)	(0.016)	(0.025)	(0.048)
ln(1 - Combined Corporate Rate)	-0.412***	0.457**	0.669**	0.316*	0.826**	1.754***
	(0.127)	(0.189)	(0.263)	(0.170)	(0.349)	(0.600)
ln(1 - Combined Corporate Rate) (5-year lag)	0.019	-0.274**	0.594***	0.443**	0.937***	0.517
	(0.079)	(0.134)	(0.211)	(0.184)	(0.245)	(0.479)
ln(1 - Combined Corporate Rate) (10-year lag)	0.038	-0.237**	0.113	-0.056	0.016	0.575
	(0.082)	(0.101)	(0.253)	(0.172)	(0.273)	(0.557)
Avg. State + Federal Top Personal Rate	64.148	64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate	39.764	39.764	39.764	39.764	39.764	39.764
Avg. Top X% Share	62.356	24.440	13.203	8.141	3.107	1.955
Observations	4,827	4,827	4,827	4,827	4,827	4,827

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log income shares for each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. 5-year lag (10-year lag) variables use average tax rates from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. Standard errors clustered at the state level.
* $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.15: Estimates of Contemporaneous and Lagged Combined (State + Federal) Taxes on Income

	Bottom 90%	Top 10-1%	Top 1%	Top 1-0.1%	Top 0.1-0.01%	Top 0.01%	Total income
Panel A – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$							
ln(1 - Combined Personal Rate)	0.036	0.021	-0.003	0.030	-0.031	-0.060	0.030
	(0.043)	(0.045)	(0.048)	(0.045)	(0.060)	(0.073)	(0.042)
ln(1 - Combined Personal Rate) (5-year lag)	0.070**	0.032	0.052	0.051	0.066	0.059	0.053**
	(0.030)	(0.031)	(0.043)	(0.042)	(0.050)	(0.062)	(0.026)
ln(1 - Combined Personal Rate) (10-year lag)	0.020	-0.013	0.002	-0.012	0.005	0.049	0.013
	(0.029)	(0.028)	(0.034)	(0.032)	(0.038)	(0.044)	(0.027)
Panel B – Independent variables: $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$							
ln(1 - Combined Corporate Rate)	1.804***	2.002***	2.662***	2.311***	2.996***	3.823***	1.979***
	(0.641)	(0.589)	(0.751)	(0.694)	(0.796)	(0.983)	(0.625)
ln(1 - Combined Corporate Rate) (5-year lag)	-0.040	-0.044	0.164**	0.214***	0.112	-0.231	-0.019
	(0.084)	(0.051)	(0.071)	(0.064)	(0.126)	(0.203)	(0.067)
ln(1 - Combined Corporate Rate) (10-year lag)	0.120	-0.061	0.040	-0.073	0.030	0.269	0.099
	(0.273)	(0.252)	(0.361)	(0.330)	(0.358)	(0.477)	(0.272)
Panel C – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$							
ln(1 - Combined Personal Rate)	0.009	-0.020	-0.058	-0.014	-0.088	-0.145**	-0.005
	(0.044)	(0.049)	(0.048)	(0.051)	(0.056)	(0.066)	(0.045)
ln(1 - Combined Personal Rate) (5-year lag)	0.028	-0.031	-0.042	-0.032	-0.049	-0.048	-0.001
	(0.029)	(0.036)	(0.043)	(0.041)	(0.044)	(0.064)	(0.028)
ln(1 - Combined Personal Rate) (10-year lag)	-0.055	-0.072	-0.105*	-0.098*	-0.104*	-0.109	-0.064
	(0.044)	(0.047)	(0.059)	(0.055)	(0.060)	(0.074)	(0.046)
ln(1 - Combined Corporate Rate)	0.660	1.529***	1.741***	1.388***	1.898***	2.826***	1.072**
	(0.502)	(0.510)	(0.515)	(0.480)	(0.536)	(0.750)	(0.478)
ln(1 - Combined Corporate Rate)	1.019*	0.725	1.594**	1.443**	1.937***	1.517*	1.000*
	(0.541)	(0.581)	(0.642)	(0.618)	(0.672)	(0.804)	(0.554)
ln(1 - Combined Corporate Rate)	0.576	0.301	0.652	0.482	0.554	1.113	0.538
	(0.534)	(0.555)	(0.702)	(0.660)	(0.698)	(0.873)	(0.557)
Avg. State + Federal Top Personal Rate	64.148	64.148	64.148	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate	39.764	39.764	39.764	39.764	39.764	39.764	39.764
Avg. Top X% Real Income	55.1	24.1	14.8	8.4	3.6	2.8	94.0
Observations	4,827	4,827	4,827	4,827	4,827	4,827	4,827

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real incomes earned by each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. 5-year lag (10-year lag) variables use average tax rates from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. The average Top X% real incomes are expressed in 2020 billions of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$

Table E.16: Estimates of Contemporaneous and Lagged Combined (State + Federal) Taxes on Income Thresholds

	Top 10%	Top 1%	Top 0.1%	Top 0.01%
Panel A – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$				
ln(1 - Combined Personal Rate)	0.034*	0.054**	0.026	-0.011
	(0.019)	(0.023)	(0.033)	(0.069)
ln(1 - Combined Personal Rate) (5-year lag)	-0.011	-0.024	-0.027	-0.008
	(0.019)	(0.023)	(0.031)	(0.038)
ln(1 - Combined Personal Rate) (10-year lag)	-0.018	-0.025	-0.018	-0.003
	(0.014)	(0.020)	(0.027)	(0.030)
Panel B – Independent variables: $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$				
ln(1 - Combined Corporate Rate)	0.402**	0.808***	1.539***	1.978***
	(0.192)	(0.232)	(0.433)	(0.598)
ln(1 - Combined Corporate Rate) (5-year lag)	0.003	0.247***	0.123	0.322***
	(0.042)	(0.064)	(0.115)	(0.094)
ln(1 - Combined Corporate Rate) (10-year lag)	0.028	-0.102	0.074	0.074
	(0.083)	(0.132)	(0.159)	(0.222)
Panel C – Independent variables: $\left(\tau_s^{personal} + \tau_f^{personal}\right)$ **and** $\left(\tau_s^{corporate} + \tau_f^{corporate}\right)$				
ln(1 - Combined Personal Rate)	0.018	0.032	-0.019	-0.069
	(0.018)	(0.023)	(0.034)	(0.068)
ln(1 - Combined Personal Rate) (5-year lag)	-0.019	-0.068***	-0.088***	-0.096**
	(0.018)	(0.024)	(0.032)	(0.040)
ln(1 - Combined Personal Rate) (10-year lag)	-0.027	-0.038*	-0.068**	-0.070*
	(0.017)	(0.021)	(0.032)	(0.039)
ln(1 - Combined Corporate Rate)	0.730***	0.999***	1.821***	2.283***
	(0.222)	(0.265)	(0.418)	(0.577)
ln(1 - Combined Corporate Rate) (5-year lag)	-0.257	0.319	0.404	0.783*
	(0.228)	(0.292)	(0.345)	(0.396)
ln(1 - Combined Corporate Rate) (10-year lag)	0.055	-0.094	0.210	0.260
	(0.183)	(0.248)	(0.335)	(0.422)
Avg. State + Federal Top Personal Rate	64.148	64.148	64.148	64.148
Avg. State + Federal Top Corporate Rate	39.764	39.764	39.764	39.764
Avg. Top X% Threshold	77.6	219.2	788.6	3016.0
Observations	4,827	4,827	4,827	4,827

Notes: This table presents results from estimating Equation 4 using all states from 1917 to 2018. The outcome variables are log real income thresholds for each group shown in the first row. The independent variables are listed in panel subtitles, and are the share net of state+federal top personal and the share net of state+federal top corporate income tax rates. Both dependent and independent variables are expressed in logs, so the estimates represent elasticities. 5-year lag (10-year lag) variables use average tax rates from the previous 1-5 years (6-10 years). In addition to the independent variables listed, state and year fixed effects are included, and all panels use yearly data. The average Top X% real incomes are expressed in 2020 billions of dollars. The average Top X% real income thresholds are expressed in 2020 thousands of dollars. Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, ***$p < 0.01$