Do Corporate Tax Cuts Increase Income Inequality?*

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Abstract

We study the effects of corporate taxes on income inequality. Using state corporate taxes as a setting, we provide evidence that corporate tax cuts lead to increases in income inequality. This result is robust across regression, matching, and synthetic controls approaches, and to controlling for a host of potential confounders. We use Statistics of Income data from the IRS to explore mechanisms behind this result. We find tax cuts lead to higher income for both top and bottom earners, but the gains to capital income for top earners exceed the gains to total income for bottom earners. This result suggests that, while all earners appear to benefit from a corporate tax cut, the relation between tax cuts and inequality is positive, in part, because high income individuals shift their compensation to reduce taxes.

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The question of whether corporate tax cuts benefit capital owners or workers is always at the center of debates over corporate tax reform. Proponents of the Tax Cuts and Jobs Act (TCJA) of 2017 argued that, following a federal corporate tax cut from 35% to 21%, American workers would see an increase in their wages of $4,000 (CEA, 2017). Estimating the effects of taxes on inequality is challenging since the equilibrium effects of corporate tax changes rely on changes in investment decisions, factor reallocation, and the tightness of the labor market. Indeed, critics of the TCJA noted that these wage increases would only be realized if a series of effects ranging from increases in investment to wage increases took place (Clausing, 2017).

This paper informs this debate by directly estimating the causal effect of state corporate tax cuts on top income inequality. We exploit a new data series from Frank et al. (2015) who compute pre-tax inequality measures at the state-year level. A causal interpretation of these analyses relies on the assumption that the decision to cut corporate taxes is not correlated with other forces that may lead to changes in income inequality. We conduct several exercises to explore the validity of this assumption. First, we show that tax cut states had similar trends in income inequality to states without tax cuts. Second, we use several regression and matching approaches to control for potential confounders.

The evidence suggests that corporate tax cuts increase pre-tax income inequality over a three-year period. Focusing on the share of income accruing to the top 1%, we find that a 1 percentage point (pp.) cut in corporate taxes increases this share by 0.90pp. For comparison, the share of income accruing to the top 1% grew by 6.1pp from 1990-2010. Thus, the usual state corporate tax cut of 0.5pp would explain 7.4% of the increase to the top 1% during this time period. This effect is robust to using regression and matching approaches, and to controlling for a host of potential confounders. We also find similar effects when focusing on alternative measures of inequality.

We then study the potential mechanisms that may drive this result. First, we compare our estimate to the mechanical increase in the income share of the top 1% that we would expect to find if there were no behavioral responses.[1] We find that this mechanical effect accounts for only 36% of the total increase in the share accruing to the top 1%. Second, we explore whether tax cuts were associated with changes in labor force participation and government spending, and we

[1]While the data from Frank et al. (2015) do not account for the effect of the personal income tax system on inequality, corporate tax changes have a mechanical effect on inequality since after-tax corporate profits are then reported as income by individual taxpayers.

find no significant effects.

We then explore whether the increase in income inequality is driven by changes in top income compensation, or by increases in state-level investment. We use data from the IRS Statistics of Income to study labor and capital income at the top (income above $200,000) and bottom (below $200,000) of the income distribution. We find that corporate tax cuts benefit all earners in the tax-cut state, but the benefits are not evenly distributed. Taxpayers in the top of the distribution see an increase in capital income of 12.6%. In contrast, we do not find a statistically significant increase in the capital income of taxpayers in the bottom of the distribution. Further, while the salary of bottom income earners increases by 1.3%, the salary of top earners decreases by 4.4%. These effects are consistent with four mechanisms: (1) a model where managers may respond to tax cuts by extracting surplus from employers (Piketty, Saez and Stantcheva, 2011), (2) a change in the compensation of capitalists who work in their businesses (Smith et al., 2017), (3) income relabeling (DeBacker et al., 2017), and (4) with corporate tax cuts spurring additional investment.[2] We test channel (4) using data from the Annual Survey of Manufacturers (1997). We do not find that corporate tax cuts increase capital investment. Therefore, the increase in capital income for top earners points to a combination of channels (2) and (3). These results suggest that top earners shift income from wages to capital income to reduce taxes and thereby increase the share of total income that accrues to the top 1%.

This paper is related to the public finance literature on the incidence of corporate taxes. Academic economists disagree on who bears the incidence of corporate taxes (Harberger, 1962; Kotlikoff and Summers, 1987). Recently, advocates of corporate tax cuts have argued that they are the best way to help American workers, since they presume the incidence of the tax cuts ultimately falls on labor (Kotlikoff, 2014). Clausing (2017) notes that the effect of taxes on labor income requires multiple channels, including an increase in investment and labor productivity, and for workers to capture the gains from increased productivity in the form of higher wages. Suárez Serrato and Zidar (2016) analyze the incidence of state corporate tax cuts and find that the largest gains go to business owners. Their model takes a medium-term perspective (10 years) and allows for the direct benefit of lower taxes to incentivize business relocation, and thus spur

[2]Relabeling of wage income into capital income could help reduce taxes for several reasons: First, taxes will decline if the marginal personal tax rate is greater than the marginal capital tax rate; second, taxes will decline if personal income taxes are greater than capital income taxes (i.e., dividends and capital gains); third, by relabeling wage income into capital income, payroll taxes could be reduced.

wage growth. Using data from Germany, Fuest, Peichl and Siegloch (2018) find that a substantial portion of local business taxes are passed on to workers. They analyze short-term effects, which are closer to the setting in this paper. This paper contributes to this debate by directly estimating the effects of corporate tax cuts on state-level measures of inequality, which eschews from many of the mechanisms behind the equilibrium effects of corporate tax changes.

This paper is also related to a literature on the effects of state corporate tax changes. We use variation in state-level taxes to investigate the relation between corporate taxes and income inequality for several reasons. First, unlike federal tax rate changes, which are rare and affect all firms, state-level corporate rate changes are more frequent. Second, state-level corporate tax changes affect only a subset of states, which leaves unaffected states as potential controls that can be used to estimate the effects of tax changes. Third, there is significant cross-sectional variation in state-level corporate tax changes during our sample period. A resurgent literature has leveraged these facts to provide analyses of the effects of state taxes on firm location (Giroud and Rauh, 2018), corporate debt (Heider and Ljungqvist, 2015*a*), employment (Ljungqvist and Smolyansky, 2015), entrepreneurship (Curtis and Decker, 2018), tax revenues (Suárez Serrato and Zidar, 2017), investment (Ohrn, 2016), tax harmonization (Fajgelbaum et al., 2015), income shifting (DeBacker et al., 2017), and innovation (Akcigit et al., 2018) among others.

This paper is also related to a literature measuring the rise in income inequality over time (Piketty and Saez, 2003). Smith et al. (2017) argue that the rise of business income accounts for most of the rise in top incomes during recent years. In particular, they find that the income of active owner-managers plays an important role in driving top income inequality. Our results on changes in top income compensation are consistent with these results. They are also consistent with Rubolino and Waldenström (2018*a*), who find evidence at the country level that reductions in personal income tax progressivity increases income for top earners. In addition, our findings are related to a large literature that documents that top earners are more sensitive to taxation than other tax payers (Feenberg and Poterba, 1993; Feldstein, 1999; Slemrod, 1996; Gruber and Saez, 2002; Saez, 2004; Saez, Slemrod and Giertz, 2012; Piketty, Saez and Stantcheva, 2011; Rubolino and Waldenström, 2018*b*,*a*; Saez, 2017). Troiano (2017) analyzes the effects of institutional changes in the state taxation of personal income on income inequality. He finds that income inequality increased following the expansion of states' capacities to tax personal income. Finally, our paper is related to the literature that investigates the role of corporate tax deductions in

stimulating the real economy (e.g., Lester (2019)).

The paper proceeds as follows. Section 1 discusses our data sources and main variables. Section 2 discusses different channels through which changes in corporate tax rates may affect inequality. Section 3 presents our main results, and Section 4 studies the potential mechanisms behind these changes. Section 5 reports the results of alternative specifications to the research design and robustness tests. Section 6 concludes.

1 Data

This section describes the data and variables we use in the analysis. All variables are defined in Appendix A.

1.1 Measures of Income Inequality

We obtain U.S. state-level income inequality data from the Frank-Sommeiller-Price Series for Top Income Shares (Frank, 2009, 2014; Frank et al., 2015; Sommeiller and Price, 2014). The main variables of interest are the share of total state income going to a certain top percentage of the population (e.g., the total income going to the top 1% of earners). These variables are calculated using data from the IRS Statistics of Income on adjusted gross income (before personal income taxes are paid). Pre-tax adjusted gross income includes wages, salaries, and capital income (dividends, interest, rents, royalties, and business income) (Frank, 2014). These data also include other measures of income inequality including the Gini coefficient, the Theil index, the relative mean deviation, and Atkinson's measure, which is based on a social welfare function. Our main analysis focuses on the shares of income accruing to the top 10%, 5%, 1%, etc., but we also analyze these other measures in robustness checks.

1.2 Corporate Tax Rates and Tax Changes

We use data on state-level corporate tax rates from Suárez Serrato and Zidar (2017). These data are merged with the corporate tax changes described in Heider and Ljungqvist (2015*b*), which span from 1989-2012 and identify two types of tax changes: changes to the top corporate income tax rate and changes to tax surcharges. We make three sample restrictions in our matching

analysis. First, we restrict the control observations to include only states that did not have corporate tax changes in the six years around the changes of the treated observations. Second, we examine only the first tax cut or tax increase for each state. Finally, we avoid interactions with the 1986 Tax Reform Act. These restrictions yield a dataset on tax changes from 1991-2013.

1.3 Control Variables and Additional Outcomes

We construct several measures of local economic activity using data on Gross Domestic Product (GDP) from the Bureau of Economic Analysis (BEA). First, GDP-per-capita is the natural log of GDP scaled by total population. We also use a measure of the log output gap, which is the natural log of the relative distance of GDP per capita to its filtered value.[3] The share of GDP in finance, the size of government, and military are the natural logs of the portion of GDP attributable to each of these sectors scaled by total population. Finally, we construct a measure of spillover GDP per capita as the weighted value of the natural log of neighboring states' GDP per capita in the prior year. In addition, we use BEA measures of state-level population growth, defined as the year-over-year percent change in population.

We measure the unemployment rate and the labor force participation rate for the working age population using data from the Bureau of Labor Statistics (BLS). All of our regressions control for the state top personal income tax rate as well as for apportionment factors for state corporate taxes using data from Suárez Serrato and Zidar (2017).

We use data from the IRS Statistics of Income on the composition of income by state and income level. These data include measures of adjusted gross income, salary and wage income, and capital income (interest, dividends, businesses income, and capital gains). We use total measures of these variables and we also consider their breakdown across the income distribution. For each of these types of income we calculate the income accrued to taxpayers earning less that $200,000 per year (bottom) and to those earning more that $200,000 per year (top). While this income cutoff does not line up perfectly with data from Frank (2014), the SOI data allow us to explore different mechanisms that give rise to changes in top income inequality. These data are available starting in 1997.

Finally, we measure capital investment at the state-industry level using data from the Annual Survey of Manufactures.

[3]This measure is calculated following Aghion et al. (2015) using an HP filter of λ equal to 6.25.

1.4 Descriptive Statistics

Our main dataset of tax rates consists of 1,250 state-year observations from 1988-2012. Table 1 reports descriptive statistics for these variables. The average state-level corporate tax rate is 6.63%. While several states changed their tax rate during this time period, the average tax rate did not change considerably.

Table 1 shows that, on average, the top 10% of earners at the state level receive 42% of the income, and the top 1% of earners receive 16%. However, these averages mask considerable changes across time, and heterogeneity across states. Panel A in Figure 1 plots the density of the share accruing to the top 1% for 1980, 1995, and 2010. These densities are shifting rightward over time, denoting increases in the average share of income for the top 1%. Moreover, the densities become more dispersed over time with the right tail expanding considerably by 2010. Panel B of Figure 1 plots the average increase in the share of the top 1%, and breaks down this share into smaller groups. This graph shows that, on average, the top 0.01% of taxpayers capture about 5% of a states' total income. Panel A of Figure 2 shows the cross-state heterogeneity in the top 1% share in 1980. Even by 1980, several states, including Nevada, Texas, Florida, and New York, had more than 10% of their income accruing to the top 1% of taxpayers. Panel B of Figure 2 shows the increase in the share to the top 1% between 1980 and 2010. This map shows that, while several states saw double-digit increases in the share to the top 1% (California, Florida, Illinois, New York), several others saw much smaller changes in income inequality over this time period (e.g., North Carolina, Ohio, Indiana).

2 Accounting for Corporate Taxes in Income Inequality

We now present a framework to trace out how changes in corporate taxes may affect income inequality based on the model of Suárez Serrato and Zidar (2016). Consider total income in a given state s:

$$L_s \times w_s + (1 - t_s^c)\pi_s \left(w_s, \frac{\rho}{1 - t_s^c} \right) E_s S_{s,s} + \sum_{s' \neq s} (1 - t_{s'}^c)\pi_{s'} \left(w_{s'}, \frac{\rho}{1 - t_{s'}^c} \right) E_{s'} S_{s,s'}. \quad (1)$$

The first component of income in a state is labor income, which equals the average wage times the number of workers. A corporate tax cut may increase labor income if workers migrate to a

state following a tax cut, or if increased demand for workers raises wages.

The second and third components are after-corporate-tax profits from business income. Since business owners pay taxes in their state of residence, business income in a given state flows from businesses in the same state, as well as in other states. Let E_s denote the number of establishments in state s and let $S_{s,s}$ denote the share of these businesses in state s that are owned by residents of state s. The second component multiplies average after-corporate-tax profits in state s, $(1 - t_s^c)\pi_s\left(w_s, \frac{\rho}{1-t_s^c}\right)$ by the share of the number of businesses owned by residents of state s, $S_{s,s}$.[4] Note that, while the data from Frank et al. (2015) do not account for personal income taxes, the income reported by individuals will be mechanically affected by the corporate rate as it affects their after-corporate-tax profits. In addition, average profits are also affected by changes in the wage rate w_s as well as by changes in the cost of capital $\frac{\rho}{1-t_s^c}$.[5] Business income from this second component will increase mechanically with a corporate tax cut. Current firms may increase investment as the cost of capital decreases, and additional firms may enter the state. These forces may place upward pressure on wages, which may partially decrease π_s.

Finally, the third term accounts for business income from businesses owned by residents of state s, but that are located in other states, $s' \neq s$.

Consider now the effect of a state corporate tax cut on total income. The following expression describes the percentage change in total income following the tax cut:

$$\text{Earnings Share}_s(\Delta L_s + \Delta w_s) + \text{Business Income Share}_s \times (1 + \Delta\pi_s + \Delta E_s)\,, \tag{2}$$

where Δ denotes a percentage change, and where we assume that out-of-state businesses are not affected by changes in other-state-taxes. As described above, workers and business owners may relocate in response to changes in corporate taxes $(\Delta L_s, \Delta E_s)$, and wages and profits may also adjust $(\Delta w_s, \Delta\pi_s)$.

This equation helps set ideas for how a corporate tax cut may affect income inequality. Assume, for instance, that all businesses are owned by top-income taxpayers. A corporate tax cut may reduce inequality if the tax cut leads to additional labor demand, which boosts labor

[4]Note that this simple accounting formula abstracts from the choice of whether to organize a business as a corporation or a passthrough entity. Further, we assume that all after-tax profits are paid out as dividends.

[5]We assume ρ is the cost of equity capital which is constant across states and demands a constant after-tax return.

income. The entry of new businesses could compete away the mechanical increase in after-corporate-tax profits, as well as the reduction in the cost of capital. Indeed, Suárez Serrato and Zidar (2016) find large elasticities of firm location with respect to the business tax rate, ΔE_s. Alternatively, a corporate tax cut may increase inequality if wage income does not rise as much as the direct and indirect effects of profits on capital income.

One specific hypothesis is that a corporate tax cut only has direct effects on income, so that behavioral and wage effects can be ignored. If this were the case, and if tax payers in the top 1% own all businesses, we would expect that the share of income for the top 1% would increase by the Business Income Share$_s$. In practice, we can use the share of business income to taxpayers earning above $200,000 as an estimate for the share of capital income accruing to top earners. This is a useful reference point for our empirical analysis. In addition, note that worker migration and wage increases would push the effect on the share to the top 1% to be below this number. In contrast, if business formation and additional investment provide additional income to top earners, we would expect to find a larger increase on top income inequality.

This simple framework ignores important mechanisms that may also affect income inequality. For instance, active owner-managers can choose whether to receive compensation in the form of labor or capital income. As shown in Smith et al. (2017), business income of this sort may be a large driver of recent increases in income inequality. A corporate tax cut may then incentivize owner-managers to shift their compensation from labor to capital income. This would lead to a larger increase in inequality than that prescribed by the mechanical effect above.

3 Corporate Taxes and Income Inequality

This section presents our main results. We first explore the effects of corporate taxes on inequality using a simple difference-in-differences analysis. We complement these results with a matching approach, where we analyze the effects of tax cuts and tax increases.

3.1 A Difference-in-Differences Analysis

We start our analysis of the effects of corporate taxes on inequality by estimating the following regression:

$$\text{Income Inequality}_{st} = \alpha_s + \gamma_t + \beta \tau^c_{st} + \Psi X_{st} + \varepsilon_{st}, \tag{3}$$

where Income Inequality$_{st}$ is the share of income that accrues to the top $x\%$ of the income distribution. α_s and γ_t are state and year fixed effects that capture permanent differences in inequality across states, as well as common time trends. X_{st} is a vector of controls that includes GDP per capita; population growth; the natural log of the output gap; the share of GDP in the finance, government, and military; a measure of spillover in GDP from neighboring states; and the unemployment rate. In order to interpret the coefficient β as the causal effect of the corporate tax rate τ^c_{st} on our measures of inequality, we make the assumption that changes in tax rates are independent of other drivers of inequality ε_{st} that are omitted from the regression. We allow ε_{st} to be clustered at the state level.

Table 2 documents the relation between tax rates and income inequality in our full sample. The first six columns report estimates of β for various measures of top income inequality without controlling for the covariates in X_{st}. These estimates are all negative and statistically significant. We find that a tax cut of 1pp increases the income share of the top 10% and top 1% by 0.40pp. In columns (6)-(12) we explore whether controlling for the covariates in X_{st} affects these estimates. If states with higher growth in GDP per capita or with a higher share of GDP in finance experienced a faster rise in income inequality, we would expect that controlling for these confounders would attenuate our results. We find that controlling for these covariates has a very small effect on our estimates. In particular, the conclusion that corporate tax cuts increase income inequality is robust to including these potential confounders.

3.2 A Matching Approach

We now take a matching approach to estimating the effects of state corporate tax changes on income inequality. This approach has the benefit that it clarifies which states are used as controls in our counterfactual comparisons. In particular, while the analysis in the previous section uses all other states as controls for states with tax changes, this approach allows us to select control states from states without recent tax changes, that are geographically proximate, and that have similar economic characteristics.

We analyze the effects of tax cuts and tax increases separately. For each event, we categorize a state as treated during the six years around its first corporate tax change. That is, each state with a tax cut can only be a treatment state once, and is considered "treated" from year t-3 to year t+3, where year t is the year of the initial tax cut. We identify the pool of potential control

states as states in the same years as the treated states, that are in the same Census division, and that had no tax changes from years t-3 to t+3.[6] Within these eligible controls, we find a match for each treated state by comparing the propensity score of the likelihood that a state had a tax change.

We use the following logistic model to estimate the propensity score of the likelihood that a state had a tax change:

$$\log\left(\frac{\mathbb{P}r(\text{Tax Change}_{st})}{1-\mathbb{P}r(\text{Tax Change}_{st})}\right) = \alpha_s + \sum_{i=1,\ldots,3}\left(\Psi_i X_{s,t-i} + \sum_{j\in\{10,5,1,0.5,0.1,0.01\}} \beta_i^j \text{Top}_{s,t-i}^j\right),$$

where α_s are state fixed effects, and where we include three lags of the covariates in X_{st}. The last summation notes that we also use lags in our measures of top income inequality in estimating the propensity score. Lastly, we match each treatment state with the control state in the same geographic division with the most similar propensity score.

Figure 3 shows that this matching procedure is successful at balancing the covariates across treatment and control groups. This figure plots the difference in means between treated and controls states for years t-3 to t-1 normalized by the overall mean of each variable. The figure also plots 95% confidence intervals that show all of these differences are statistically insignificant at the 5%-level. Table A.2 in Appendix C reports the t-tests of the differences in means and provides further support that the covariates are balanced.

3.2.1 The Impacts of Corporate Tax Cuts on Income Inequality

We now estimate the effects of a corporate tax cut on our matched sample using the following regression:

$$\text{Income Inequality}_{st} = \alpha_s + \gamma_t + \beta \text{Post}_{st} \times \text{Tax Cut}_{st} + \Psi X_{st} + \varepsilon_{st}. \tag{4}$$

The data we use to estimate these regressions consists of the treated and matched states during a six year window around the year of the tax cut. Since states may serve as controls in more than one tax cut event, this specification allows for different state and year fixed effects for every

[6] Using a six-year window allows for a large enough pool of control states to create a balanced matched sample. Increasing the window significantly reduces the number of states that are geographically and economically similar but did not have a tax cut. In addition, as we show in the dynamic analysis below, the six-year window provides ample time for the impact of the tax cut to take effect.

tax cut event.[7] The controls in this equation are the same as those in Equation 3 and we again allow ε_{st} to be clustered at the state level. The coefficient of interest is now β, which measures the average effect of a tax cut on income inequality. There are 25 states that had at least one tax cut from 1991-2010. We drop the year in which the tax cut occurred, leaving a sample size of 300 state-years.[8]

In Table 3, we report results from a seemingly unrelated regression model of Equation 4 for the outcomes of the matched tax-cut sample. This procedure increases the efficiency of the statistical inference by exploiting the fact that the income inequality measures are related to each other. For all measures of income inequality, the coefficient on Post X Tax Cut is positive and significant. For example, column (1) reports that a corporate tax cut increases the share of income to the top 10% by almost 0.55pp, and to the top 1% by 0.48pp. This again implies that most of the effect is concentrated at the top of the income distribution with 87% $\left(\approx \frac{0.48}{0.55}\right)$ of the increase in top 10% concentration accruing to the top 1% and 54% $\left(\approx \frac{0.30}{0.55}\right)$ to the top 0.01%. Columns (7)-(12) show that these relations also hold when including potential confounding factors in X_{st}, providing robust evidence that state-level corporate tax cuts result in increased income inequality.

As discussed in Section 1.4, states have seen an increase in income inequality over our sample period. On average, the share of income to the top 1% increases by 6.1pp between 1990 and 2010. This implies that the average tax cut would explain about 7.4% $\left(\approx \frac{0.45}{6.1}\right)$ of the increase in top income inequality over this period, which is an economically significant effect.

To further examine how tax cuts impact income inequality over time, we examine year-by-year changes in income inequality around tax cuts using the matched sample. Examining these dynamic effects provides additional evidence that alleviates potential concerns related to the confounding factors or time-series patterns. To estimate the dynamic effects of tax cuts on income inequality, we create indicator variables for each year around a tax cut. These variables are equal to 1 for the treated state and 0 for the control state. We regress these variables on the measures of income inequality with and without controls and plot the coefficients in Figure 4.[9] Figure 4 shows that states with tax cuts had similar pre-trends to the control states, since none

[7] This practice follows the recommendation of recent papers that analyze the behavior of difference-in-differences estimators with variation in treatment timing (Goodman-Bacon, 2018; de Chaisemartin and D'Haultfoeuille, 2018).

[8] Unlike the tax rate data, the tax change data begin in 1988 and end in 2013, and we require three years of tax-change data before and after each change, so the tax change sample is constrained to the period 1991-2010.

[9] Table A.4 in Appendix C reports the full regression results used to create the coefficients.

of the effects prior to the tax cut are statistically significant. In contrast, we see an increase in all of the measures of top income inequality in years t+1 to t+3. The timing of these results confirms the hypothesis that corporate tax cuts increase top income inequality.

One potential concern when analyzing effects with few treated observations is that the estimated effects are due to some form of spurious correlation. We conduct a placebo test for each measure of income inequality to allay this concern. The tests consist of assigning a random non-tax-cut year to each treated state and treating that year as if it were the actual year in which the state had its first tax cut. We then match this state-year with a control state using the methodology described in Section 5.1, and estimate Equation 3.2 using this placebo tax cut year. We run this simulation 1,000 times for each coefficient and present the cumulative distribution functions (CDFs) of the coefficient values in Figure 5. The vertical line identifies where the actual coefficient values from Table 3 (Columns (7) - (12)) fall within the distributions. For all measures of income inequality, the values of the coefficients fall outside the extreme right tails, meaning that the probability of randomly receiving coefficient values equal to those in Table 3 is less than 0.1%.[10]

3.2.2 Corporate Tax Increases and Income Inequality

Next, we investigate the relation between inequality and corporate tax increases. We conduct the same matching analysis as described above, except for tax increases. The matched sample consists of the 22 states that had at least one tax increase during the sample period as well as their control state.

Table 4 presents estimates of a version of Equation 4 for tax increases. We find that the coefficients on the variables of interest (Post X Tax Increase) in Table 4 are negative and significant, providing evidence that tax increases decrease income inequality. Figure 6 also reports effects across time. For completeness, we report the distribution of the coefficients from the placebo tests in Figure 7.[11]

[10] In Figure A.3 in Appendix B, we report the probability density functions of the coefficients.

[11] Appendix C reports the results of the regressions used to calculate the coefficients in Figure 6 in Table A.5 and the PDFs of the placebo coefficients in Figure A.4.

4 Alternative Mechanisms Linking Tax Cuts to Inequality

The previous section provides robust evidence that state corporate tax cuts increase income inequality. This section explores different mechanisms that may give rise to this increase in inequality including how tax cuts may affect state spending, labor market conditions, investment, and the form of compensation across the income distribution.[12]

Before we explore these mechanisms, we first consider whether the effects estimated in the previous section could be due to mechanical changes. As discussed in Section 2, while the data from Frank et al. (2015) compute income shares before personal income taxes are taken into account, state corporate taxes can have a mechanical effect on top income inequality. Consider the case where a corporate tax cut has no effect on the location of firms, workers, wages, or investment. From IRS data, we observe that, on average, 32% of capital income accrues to top earners. This implies that a 0.5pp tax cut would mechanically increase the top 1% share by about 0.16pp. However, this is only about 36% $\left(\approx \frac{0.16}{0.45}\right)$ of our effect. Note also that this is an upper bound on the increase we would expect if wages and employment increased as a consequence of a corporate tax cut. Other mechanisms, such as changes in the form of compensation of owner-managers or returns to investment that accrue to top earners would result in a larger increase in inequality.

4.1 Government Spending and the Labor Market

One mechanism that may link corporate tax cuts and inequality is related to government spending. If corporate tax cuts lead to a decrease in government spending and this leads to worsened labor market outcomes, we might expect to see a decrease in income for low income individuals, which would contribute to an increase in income inequality. We examine this conjecture in Table 5 by examining whether states that cut corporate taxes see a change in government size or labor force participation compared to the matched sample of control states. The tests in these tables are similar to those described in Equation 4, except that the dependent variables are government size in columns (1) and (2), and labor force participation in columns (3) and (4). For both dependent variables, the coefficient on Post X Tax Cut is insignificant, suggesting that states

[12]For completeness, we conduct the same analysis for the tax increase sample and report the results in the Appendix.

that cut corporate taxes see no meaningful change in government size or workforce participation compared to states that do not cut taxes.

4.2 Effects on Industry-level Investment

We now examine whether lower corporate tax rates lead to increased private-sector investment. A justification for tax cuts is that companies will be encouraged to invest because the value of potential projects is increased through lower (tax) costs. We explore this hypothesis using data at the industry-state level from the Annual Survey of Manufactures. Table 5 provides estimates of Equation 4 where the outcome is log investment at the state-year level. The evidence suggests that the relation between tax cuts and investments is insignificant at the state level.

4.3 Gains in Compensation and Changes to the Form of Compensation

One possible explanation for the increase in income inequality following a corporate tax cut is that top earners reap higher gains and shift their taxable income from wages to capital income in order to take advantage of lower tax rates (Rubolino and Waldenström, 2018*b*). As the corporate tax rate decreases relative to the personal rate, top earners may find it beneficial to recategorize a portion of their income as coming from capital as opposed to from wages.

Table 6 examines whether corporate tax cuts impact income and result in income shifting among individual tax payers. As described in Section 1.3, Statistics of Income data from the IRS are available beginning in 1997, which further reduces the sample size to 84 state-year observations. In Table 6, we use the fact that these outcomes are related to each other and estimate a seemingly unrelated regression model of Equation 3.2.

Columns (1)-(3) examine the impact of corporate tax cuts on adjusted gross income (AGI). While the AGI of all earners significantly increases, the income of those earning less than $200,000 per year increases by 1.2% following a tax cut, while the AGI for those that earn more than $200,000 increases by 4.2%. These columns show that low earners have modest benefits from tax cuts, while the gains for top earners are more than three times as large. Overall, total AGI increases by 2.5% after a tax cut.

We next examine whether the gain in AGI are driven by salary or capital income. Columns

(4)-(6) report the relation between tax cuts and reported taxable income attributable to salary and wages. We find that salary and wage income increases by 1.3% for bottom earners following a tax cut. In contrast, tax payers in the top of the distribution see wage income decrease by 4.4%. The combined effect is that total wage and salary income increases by 1.2%. Finally, columns (7)-(9) report the effects of tax cuts on capital income. For the top earners, capital income increases by 12.6% following a tax cut. We do not find a statistically significant increase in the capital income for bottom earners.

These results suggest that, while all earners see increases in income following a tax cut, top earners receive a greater benefit, in part by responding to corporate tax cuts by shifting taxable income into capital to take advantage of the lower rate. Those making less than $200,000 do not have a similar response. Back of the envelop calculations suggests that a sizable fraction of the effects in Table 3 can be explained by this channel. Specifically, differential changes in capital income and salary and wages between top and bottom earners explain 52% percent of the income inequality effect we document in Table 3 for the tax cuts. This calculation compares the relative earnings between top and bottom earners in Table 6 to the implied increase in top income from Table 3. That is, Table 6 shows differential capital income increases of 12.6% for the top earners. For salary and wages, top earners see a decrease of 4.4% and bottom earners see an increase 1.3%. When we compare the relative increase in income that would accrue to the top earners, we find that it is 52% of the increase in the income of top 5% earners.[13]

5 Alternative Design and Robustness

In this last section, we examine whether our results are sensitive to our research design choices or how income inequality is measured.

5.1 A Synthetic Controls Event Study Approach

As an alternative to the propensity score matching methodology in the main analysis, we now take a synthetic controls event study approach to estimating the effects of state corporate tax changes on income inequality to examine whether our results are robust to alternative methodological

[13]Those making more than $200,000 a year (from the IRS data) are comparable to the top 5% of earners. Our results remain economically significant if we alter that assumption to examine other top x% earners.

choices. States that had a corporate tax cut compose the treated sample. The synthetic controls are composed of combinations of states that had no tax changes in the comparison period. This approach follows Severnini (2014) in combining synthetic control methods (Abadie, Diamond and Hainmueller, 2010) and event study techniques (Jacobson, LaLonde and Sullivan, 1993), allowing us to compare the treated sample with a sample of states that have similar economic characteristics but no tax changes.

For each tax cut between 1991 and 2010 we construct a synthetic control (Abadie, Diamond and Hainmueller, 2010) state by taking a weighted average of potential control states to estimate the outcome trajectory that the treated state would have in the absence of the tax change. The potential control states are selected such that they are not located in the same region as the treated state (to provide a robust set of potential control states and avoid spillover effects) and do not have a tax cut within a seven-year window from three years before to three years after the treated state's tax change. The weights are calculated such that the trajectory of all the primary outcomes of interest (the measures of income inequality) as well as values of other state economic characteristics (GDP per Capita, population growth, government spending, etc.), averaged over the pretreatment period, are similar between the treated state and the constructed synthetic control state. As in the case of our matching approach, the synthetic control procedure is successful at balancing the covariates across treatment and control groups for years t-3 to t-1. Figure 8 shows that tax cust states had similar trends in inequality as their synthetic controls prior to the tax cut.

Under the assumption that synthetic controls represent a valid counterfactual for states that experience a tax change, the differences in the post treatment values of inequality can be attributed to the tax change. We compute this difference by estimating Equation 4 on the sample of states with tax cuts and their synthetic controls. Our SUR estimation mirrors our previous estimates by including the same fixed effects, controls, and by clustering standard errors at the state level.

Table 7 reports results from this analysis. This table confirms our previous results: corporate tax cuts increase income inequality. The estimates are generally of a similar order of magnitude. For instance, this table finds that the share of income accruing to the top 1% increases by 0.375pp, while Table 3 estimates an increase of 0.45pp. Figure 8 presents dynamic effects of the tax cut and confirms the results of Figure 4.

5.2 Alternative Measures of Inequality

To ensure that our results are robust to how income inequality is measured, we examine the relation between tax cuts and alternative measures of income inequality (the relative mean deviation, Gini coefficient, Atkinson index, and Theil's entropy index).[14] Table 8 reports the result of a seemingly unrelated regression of Equation 4 on these outcomes. The coefficients on the Gini coefficient and the relative mean deviation are positive and statistically significant. These results are robust to including potential confounders. In Table A.6 in Appendix C, we also report the results of dynamic analyses, where we allow the effect of the tax cut to vary across relative years. Overall, these outcomes also show that corporate tax cuts increase income inequality.

6 Conclusions

The evidence in this paper suggests that corporate tax cuts increase top income inequality. We document this evidence using regression and matching techniques. Relative to recent trends, we find that a state corporate tax cut of 0.5pp would explain about 7.4% of the average rise in the share of income accruing to the top 1% between 1990 and 2010. We show that the size of the effect is greater than that implied by a mechanical increase in after-tax income to business owners. We also provide evidence that top earners can shift their form of compensation between capital and labor income, and that this mechanism is responsible for most of the measured increase in income inequality.

These results illuminate the mechanisms through which corporate tax cuts affect the local economy. In the model of Suárez Serrato and Zidar (2016), wages rise as lower corporate taxes encourage business formation, which then increases the demand for labor. Since the results of this paper focus on short-term effects, it may be the case that these effects may be partially reversed over the medium term. To clarify, the benefits to existing owners are front-loaded, while the benefits to workers are back-loaded and only materialize after competitive forces drive down after-tax profits. This clarifies that attempts to use corporate tax cuts as a means to boost the local economy depend on increases in top income inequality to generate additional economic activity. In contrast, other approaches such as government spending at the local level (e.g.,

[14] For completeness, we conduct identical analysis for the tax increase sample and report the results in Appendix C.

Suárez Serrato and Wingender (2011)) or tax cuts to low-income earners (e.g., Zidar (2015)) may stimulate the economy without increasing inequality.

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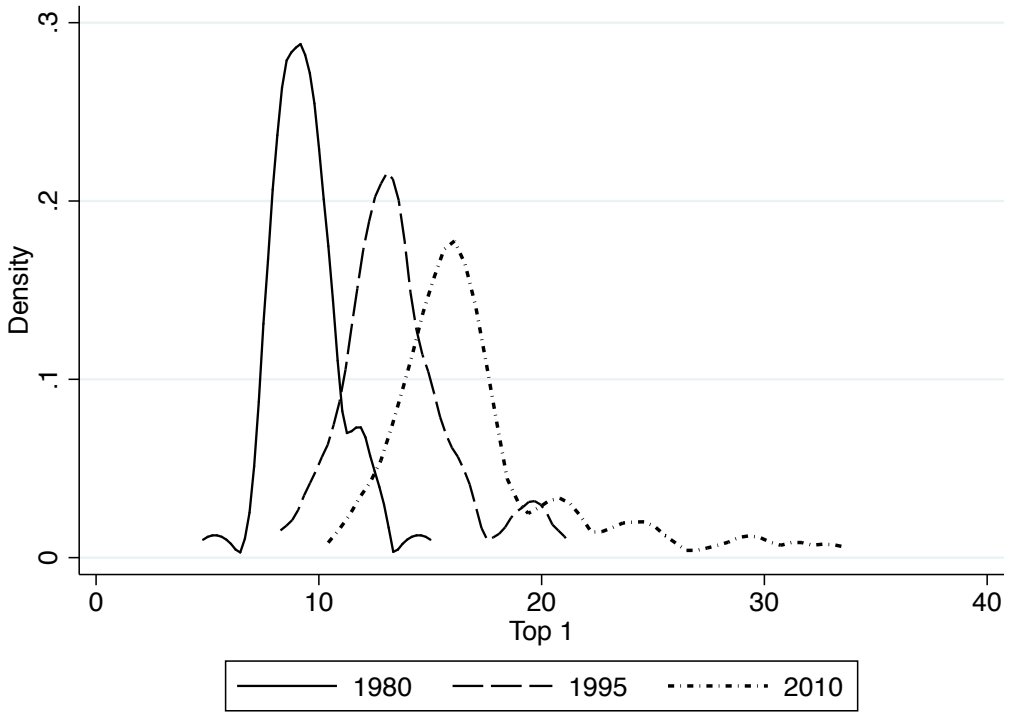
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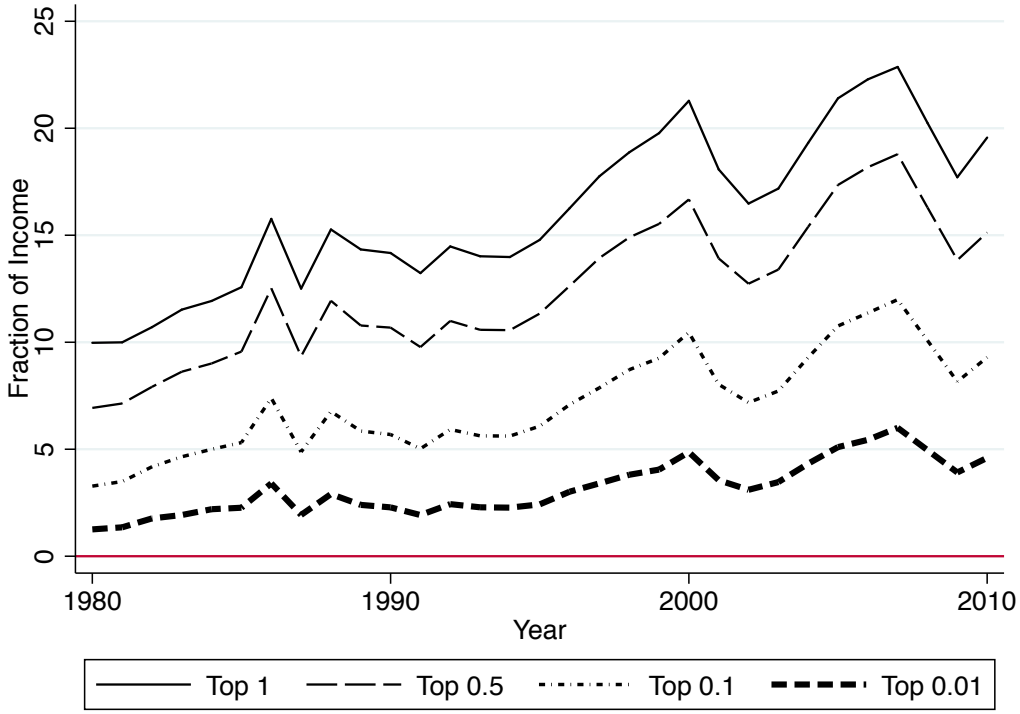
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Figure 1: Trends in Top Income Inequality

A. The shift in densities for the percent of income going to the top 1% of earners



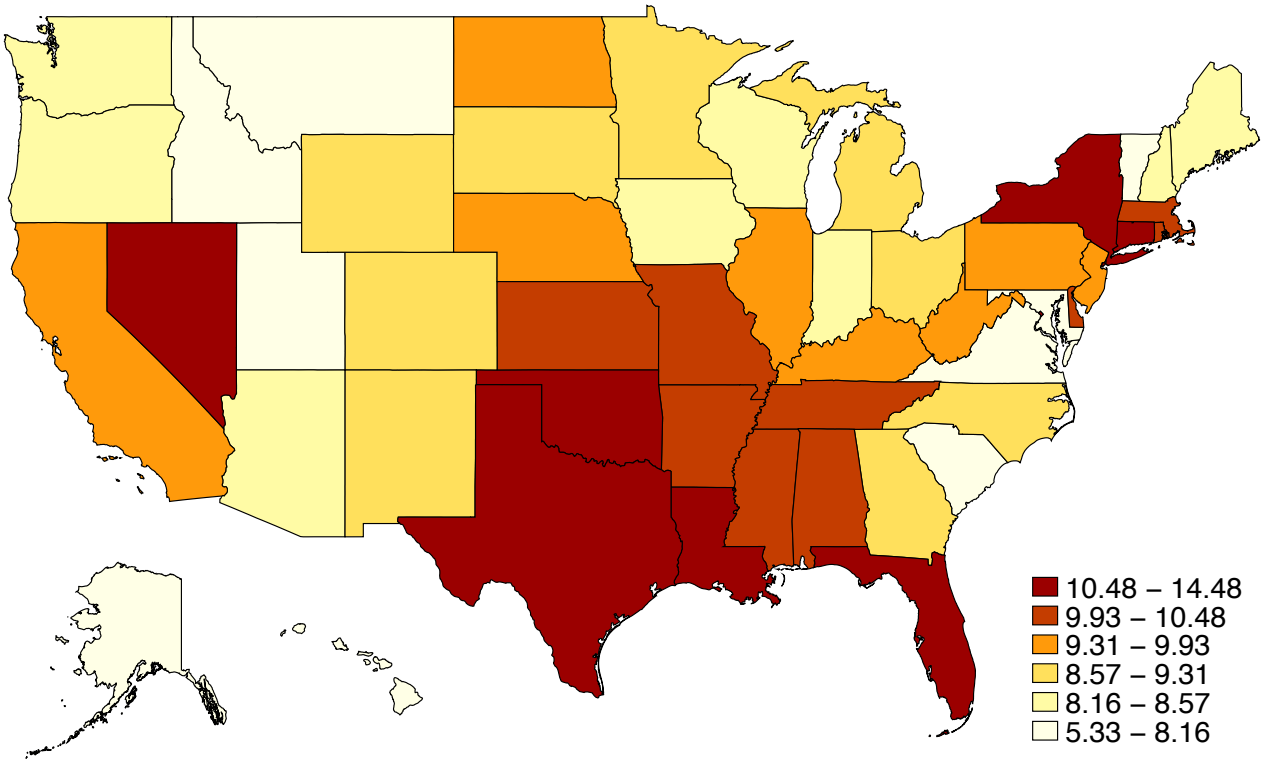
B. Trends of top 1% of earners and above



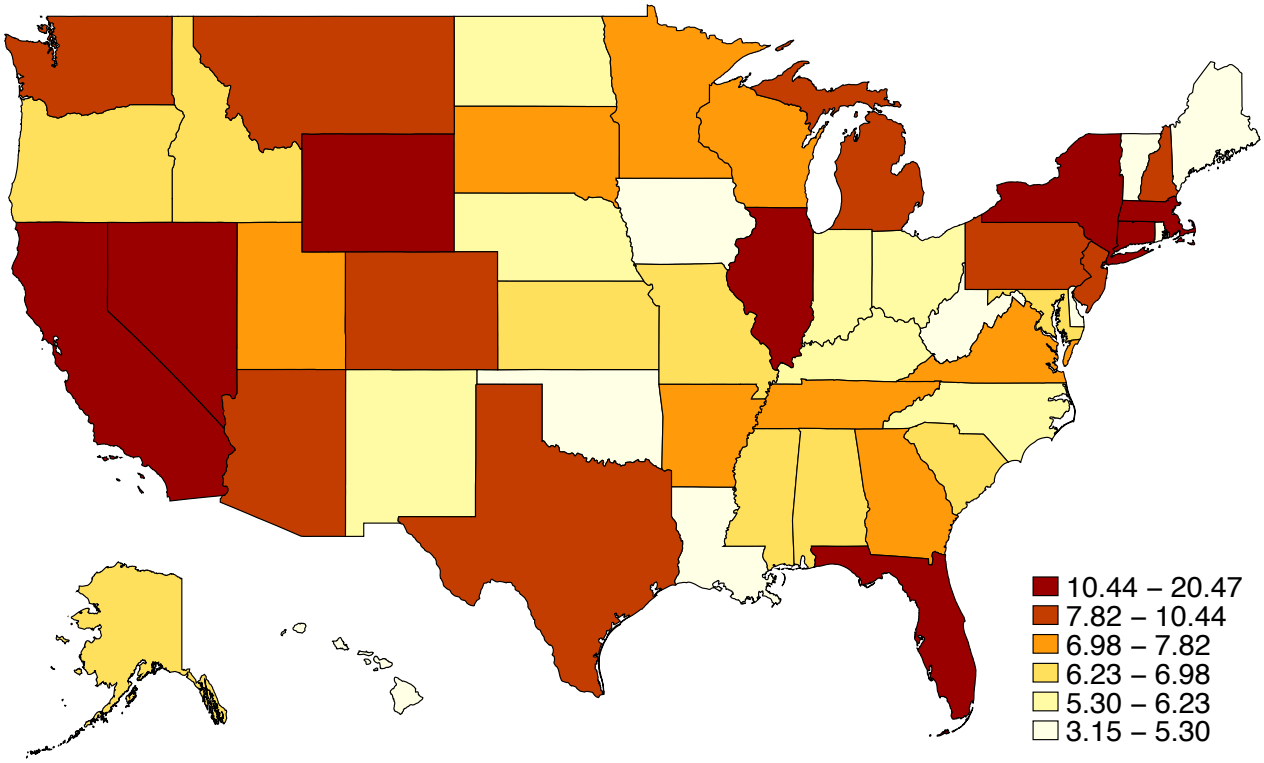
NOTES: Figure 1 describes how the distribution of income has shifted from 1980-2010 in aggregate.

Figure 2: Maps of Income Inequality by State

A. Fraction of Income Going to Top 1% by State: 1980

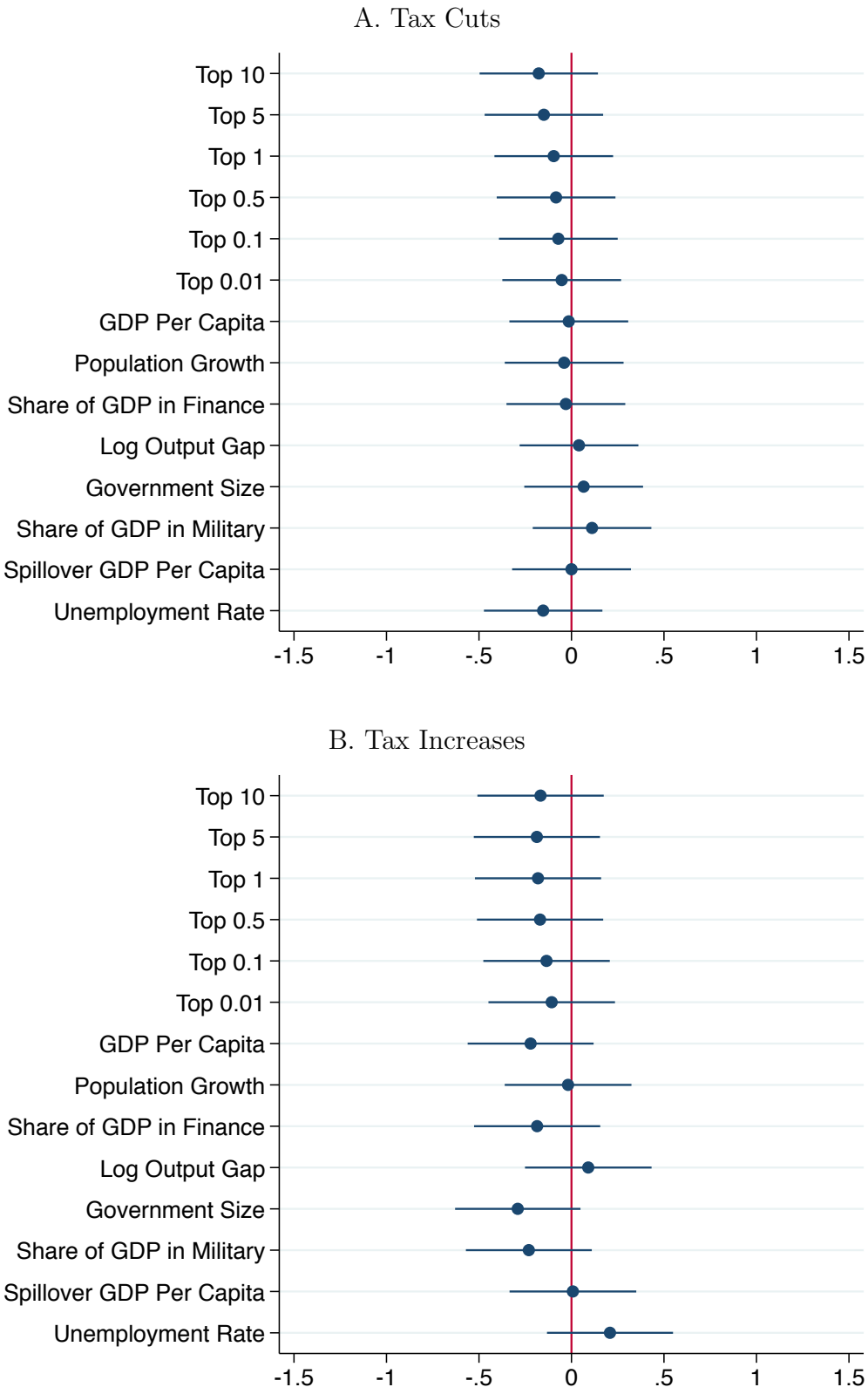


B. Change in Fraction of Income Going to Top 1% by State: 1980-2010



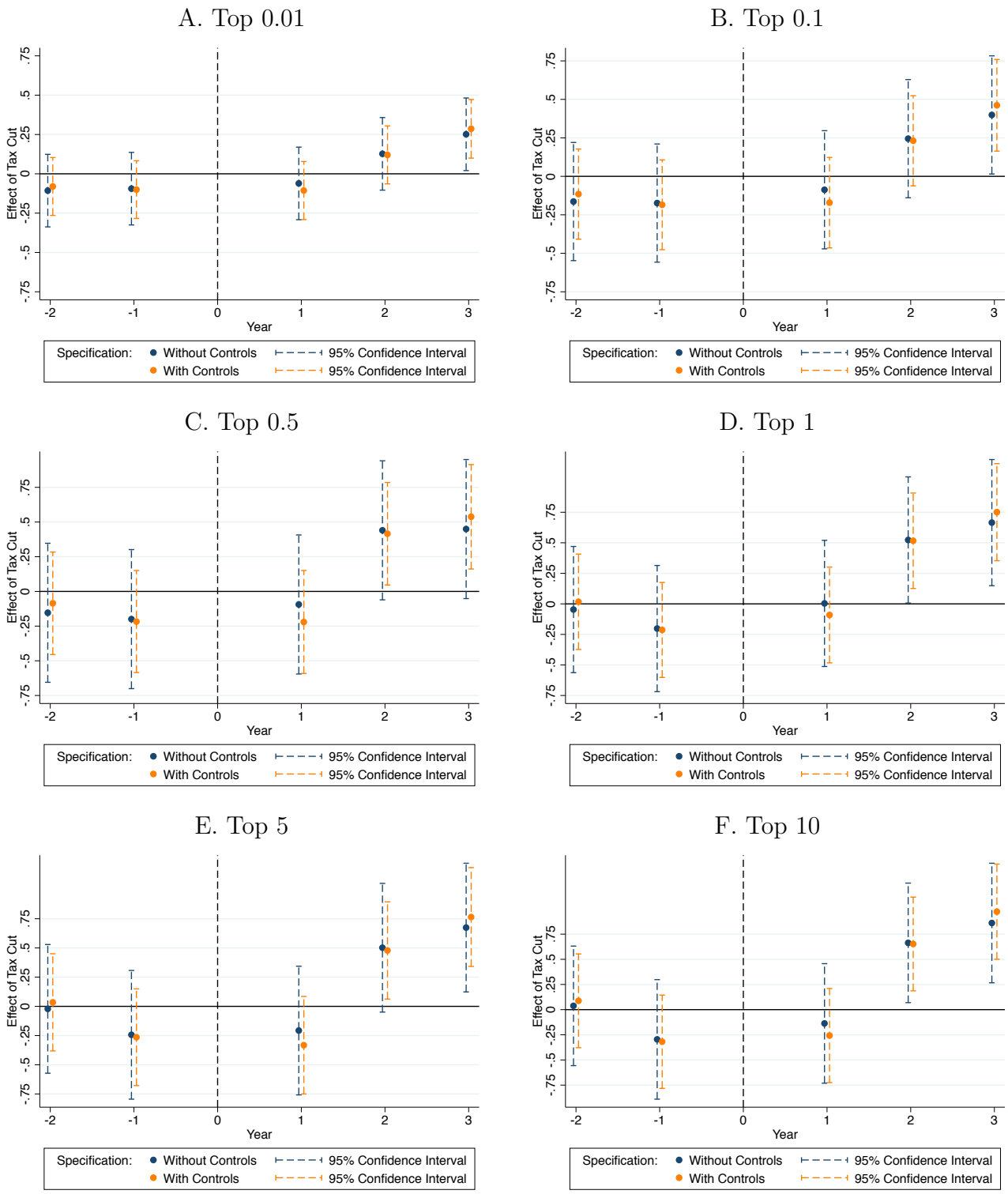
NOTES: Figure 2 describes how the distribution of income has shifted from 1980-2010 at the state level.

Figure 3: Differences Between Treatment and Control Groups



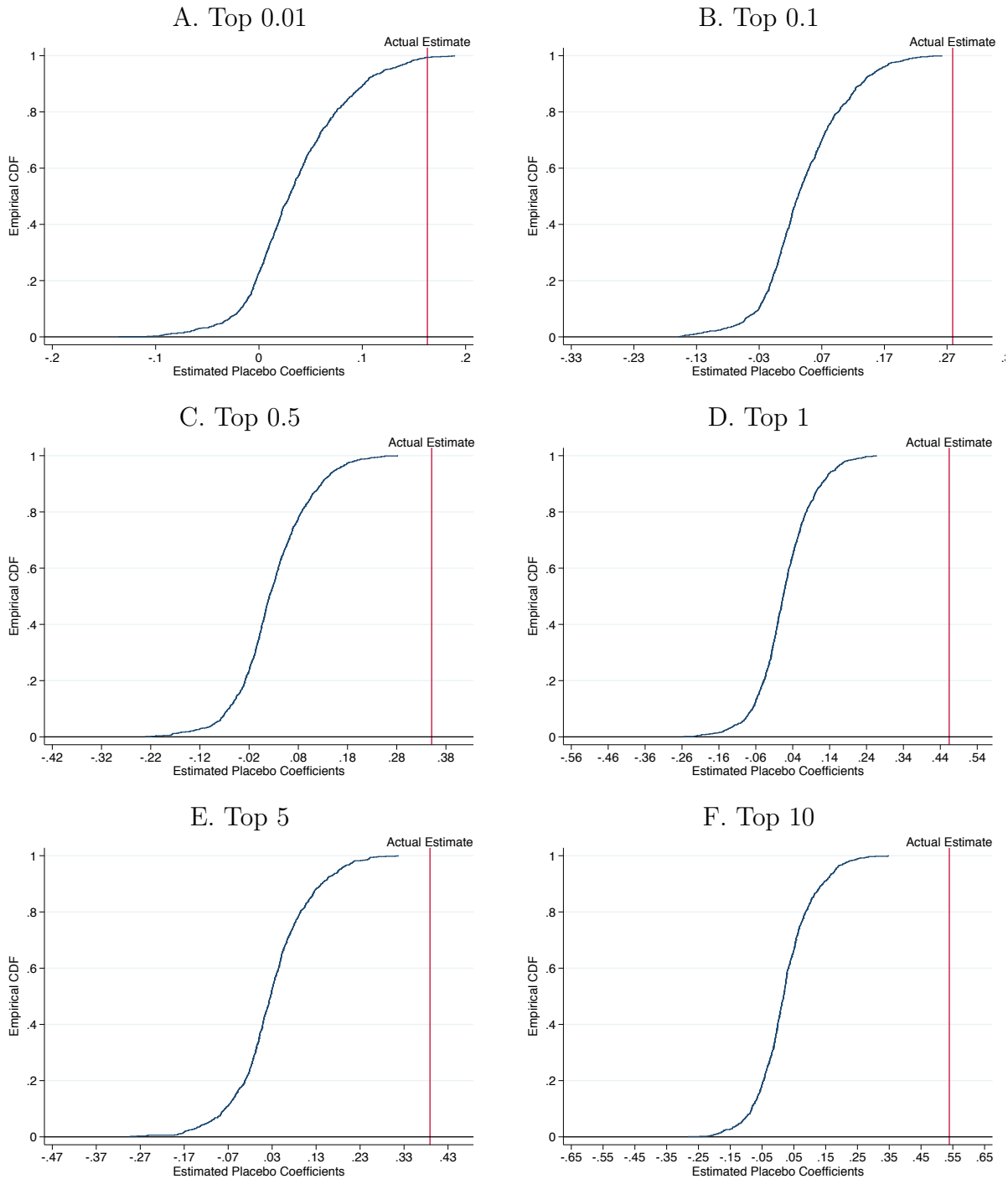
NOTES: Figure 3 describes the differences in means for all variables of interest for the treatment and control groups for years t-3 to t-1. Horizontal bars represent the 95% confidence interval. All variables are defined in Appendix A.

Figure 4: Dynamic Effects of Tax Cuts



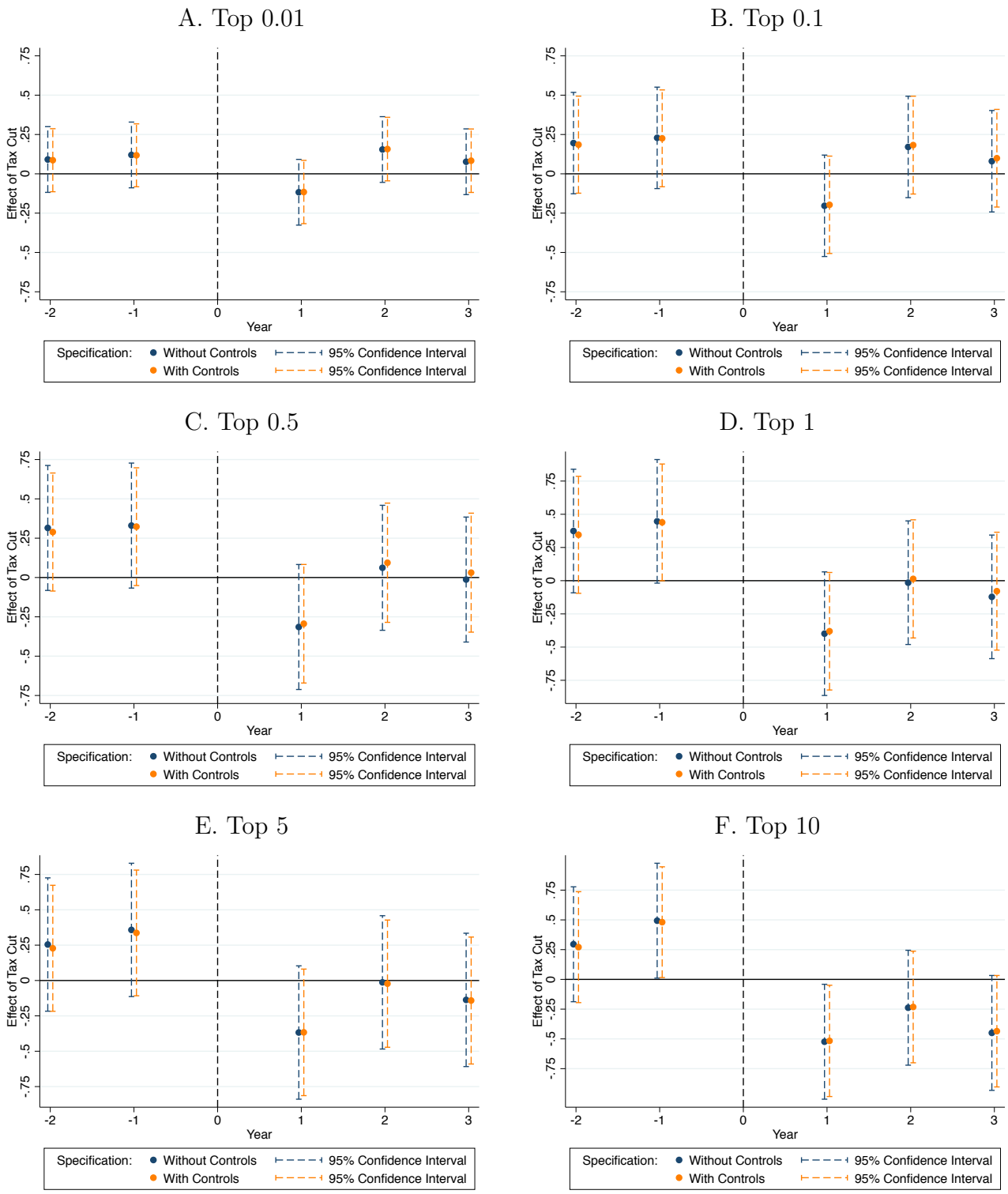
NOTES: Figure 4 shows how tax cuts impact income inequality over time for all measures of income inequality. Year 0 represents the year in which the treated state cuts its corporate tax rate.

Figure 5: The CDFs of the Coefficient on Post X Tax Cut across Placebo Tests



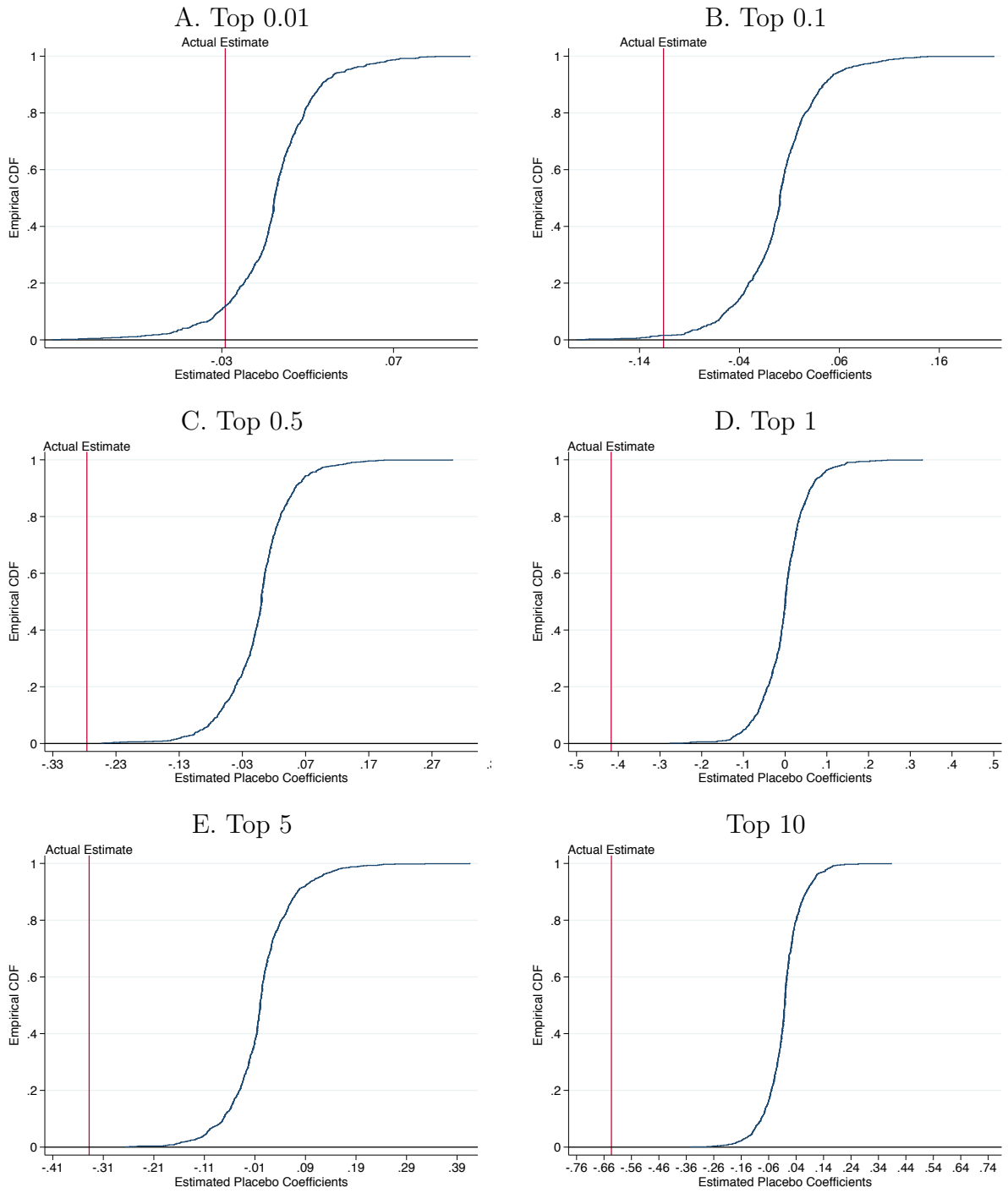
NOTES: Figure 5 reports the cumulative distribution function of the coefficient on Post X Tax Cut for placebo tests for all measures of income inequality. The placebo tests consist of assigning a random non-tax-cut year to each treated state and treating that year as if it were the actual year in which the state had its first tax cut. This state-year is matched with a control state using the methodology described in Section 5.1. Next, we run Equation 3.2 using the as-if tax cut year. This simulation is run 1,000 times for each coefficient, and the CDF is reported here. The vertical line identifies where the actual coefficient values from Table 3 (Columns (7) - (12)) fall within the distributions.

Figure 6: Dynamic Effects of Tax Increases



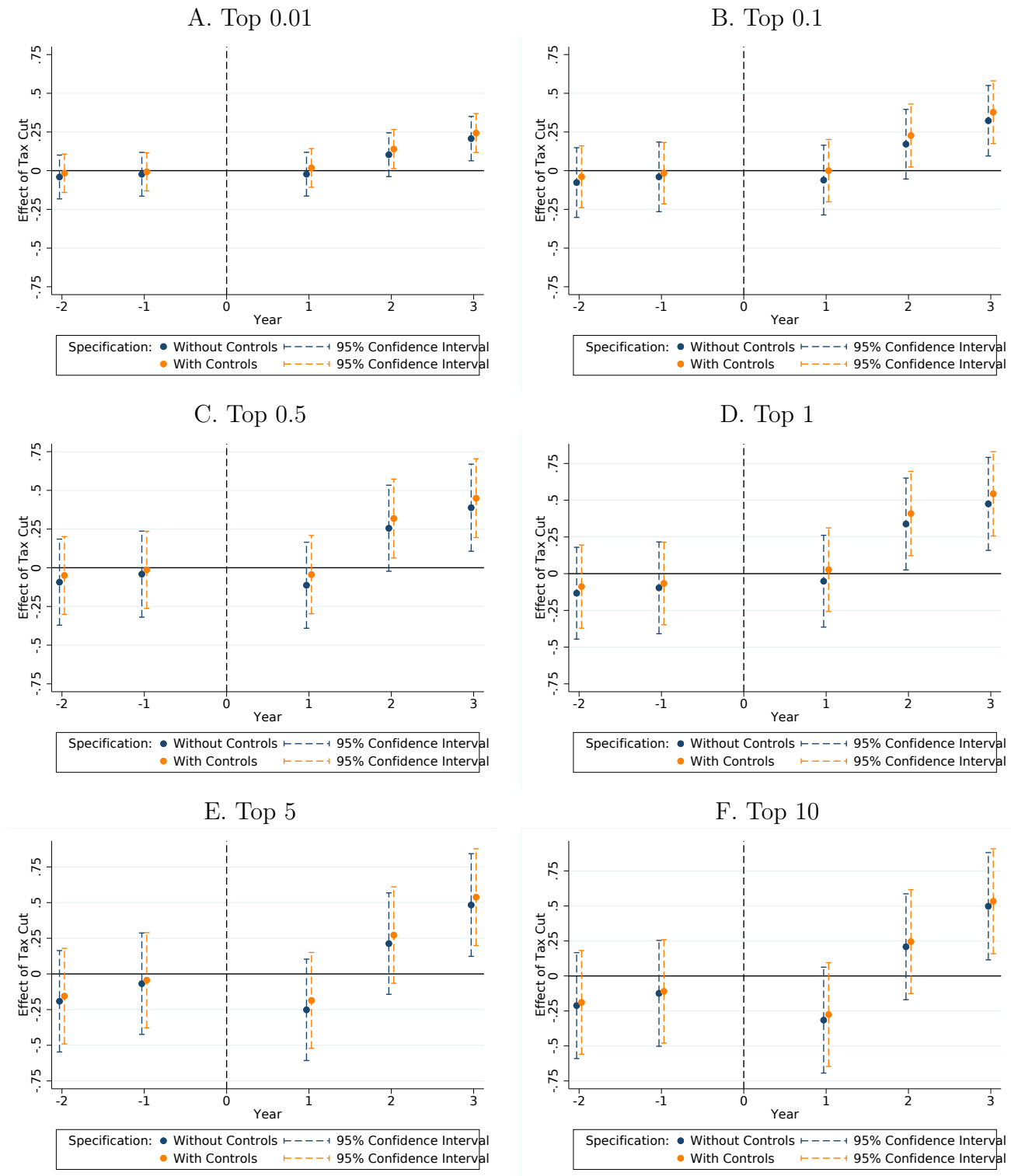
NOTES: Figure 6 shows how tax cuts impact income inequality over time for all measures of income inequality. Year 0 represents the year in which the treated state cuts its corporate tax rate.

Figure 7: The CDFs of the Coefficient on Post X Tax Increase across Placebo Tests



NOTES: Figure 7 reports the cumulative distribution function of the coefficient on Post X Tax Increase for placebo tests for all measures of income inequality. The placebo tests consist of assigning a random non-tax-cut year to each treated state and treating that year as if it were the actual year in which the state had its first tax cut. This state-year is matched with a control state using the methodology described in Section 5.1. Next, we run Equation 3.2 using the as-if tax cut year. This simulation is run 1,000 times for each coefficient, and the CDF is reported here. The vertical line identifies where the actual coefficient values from Table 4 (Columns (7) - (12)) fall within the distributions.

Figure 8: Dynamic Effects of Tax Cuts Using Synthetic Controls Event Study



NOTES: Figure 8 shows how tax cuts impact income inequality over time for all measures of income inequality using a synthetic controls event study methodology. Year 0 represents the year in which the treated state cuts its corporate tax rate.

Table 1: Summary Statistics

	count	mean	p25	p50	p75
Top 10	1250	41.86	38.55	41.17	44.42
Top 5	1250	30.37	26.97	29.56	32.49
Top 1	1250	15.93	12.90	15.13	17.63
Top 0.5	1250	12.30	9.66	11.31	13.80
Top 0.1	1250	7.05	5.02	6.23	8.07
Top 0.01	1250	3.10	1.94	2.57	3.59
Corporate Rate	1250	6.63	5.50	7.00	8.84
GDP Per Capita	1250	10.39	10.12	10.41	10.65
Population Growth	1250	0.01	0.00	0.01	0.01
Share of GDP in Finance	1250	8.63	8.25	8.65	8.98
Log Output Gap	1250	0.00	-0.01	0.00	0.01
Government Size	1250	8.39	8.12	8.39	8.64
Share of GDP in Military	1250	5.97	5.42	6.01	6.48
Spillover GDP Per Capita	1250	14.32	14.05	14.35	14.62
Unemployment Rate	1250	5.63	4.30	5.30	6.60
Sales Apportionment	1250	54.91	33.34	50.00	60.00
Personal Tax Rate	1250	5.20	3.40	5.97	7.15

NOTES: Table 1 presents the descriptive statistics for inequality measures and other macroeconomic variables. The sample has 1,250 state-years from 1988-2012. All variables are defined in Appendix A.

Table 2: Difference-in-Differences Estimates of the Effects of Corporate Taxes on Income Inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001
Corporate Rate	-0.401***	-0.461***	-0.399***	-0.375***	-0.292***	-0.182***	-0.399***	-0.440***	-0.374***	-0.350***	-0.272***	-0.170***
	(0.062)	(0.063)	(0.055)	(0.053)	(0.044)	(0.030)	(0.061)	(0.061)	(0.053)	(0.050)	(0.042)	(0.029)
GDP Per Capita							0.162	1.151***	1.319***	1.311***	1.028***	0.639***
							(0.238)	(0.342)	(0.283)	(0.285)	(0.218)	(0.132)
Population Growth							1.715	3.452	3.335	3.341	2.404	1.325
							(1.918)	(2.522)	(2.251)	(2.295)	(1.760)	(1.063)
Share of GDP in Finance							-0.045	-0.202	-0.160	-0.165	-0.132	-0.082
							(0.131)	(0.172)	(0.154)	(0.157)	(0.120)	(0.073)
Log Output Gap							0.550	0.427	0.202	0.291	0.209	0.098
							(0.663)	(0.883)	(0.780)	(0.793)	(0.608)	(0.368)
Government Size							-0.207	0.065	0.131	0.126	0.120	0.095
							(0.232)	(0.305)	(0.272)	(0.277)	(0.213)	(0.129)
Share of GDP in Military							0.099*	0.046	-0.012	-0.005	-0.010	-0.014
							(0.054)	(0.071)	(0.064)	(0.065)	(0.050)	(0.030)
Spillover GDP Per Capita							2.977***	-0.137	0.061	-0.027	-0.096	-0.236***
							(0.159)	(6.406)	(2.232)	(0.187)	(0.234)	(0.087)
Unemployment Rate							-0.005	-0.042**	-0.043***	-0.043***	-0.034***	-0.021***
							(0.012)	(0.016)	(0.015)	(0.015)	(0.011)	(0.007)
Sales Apportionment							0.001	-0.002*	-0.002**	-0.002**	-0.002**	-0.001**
							(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Personal Tax Rate							-0.004	0.052***	0.041**	0.041**	0.034***	0.023***
							(0.014)	(0.018)	(0.016)	(0.016)	(0.013)	(0.008)
Observations	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Number of States	50	50	50	50	50	50	50	50	50	50	50	50

NOTES: Table 2 documents the relation between tax changes and income inequality for the full sample of state-years estimated using the specification in Equation 3. Corporate Rate is the top marginal corporate tax rate in the state. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table 3: Matching Estimates of the Effects of Corporate Tax Cuts on Income Inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001
Post X Tax Cut	0.548***	0.411**	0.480***	0.383**	0.298***	0.173**	0.522***	0.371***	0.450***	0.338***	0.268***	0.157***
	(0.179)	(0.165)	(0.154)	(0.149)	(0.114)	(0.069)	(0.147)	(0.131)	(0.121)	(0.115)	(0.091)	(0.057)
GDP Per Capita							8.915***	10.731***	10.472***	9.555***	7.392***	4.166***
							(2.092)	(1.988)	(1.849)	(1.815)	(1.342)	(0.759)
Population Growth							5.014	1.534	6.382	7.641	5.340	2.908
							(12.720)	(12.085)	(11.237)	(11.035)	(8.160)	(4.614)
Share of GDP in Finance							1.739**	1.344*	0.823	1.150	0.749	0.416
							(0.853)	(0.810)	(0.753)	(0.740)	(0.547)	(0.309)
Log Output Gap							-11.006***	-11.557***	-10.584***	-9.097***	-7.221***	-4.148***
							(3.445)	(3.273)	(3.043)	(2.989)	(2.210)	(1.250)
Government Size							2.637	2.638	3.046**	3.547**	2.414**	1.293**
							(1.708)	(1.623)	(1.509)	(1.482)	(1.096)	(0.620)
Share of GDP in Military							0.104	0.136	-0.086	0.227	0.079	0.028
							(0.299)	(0.284)	(0.264)	(0.260)	(0.192)	(0.109)
Spillover GDP Per Capita							-6.668***	-8.584***	-9.140***	-9.414***	-7.055***	-3.965***
							(1.254)	(1.191)	(1.108)	(1.088)	(0.804)	(0.455)
Unemployment Rate							-0.069	-0.036	-0.033	0.001	-0.010	-0.009
							(0.066)	(0.062)	(0.058)	(0.057)	(0.042)	(0.024)
Sales Apportionment							-0.007	-0.008	-0.006	-0.005	-0.004	-0.002
							(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.003)
Personal Tax Rate							-0.141**	-0.139**	-0.117*	-0.129**	-0.090**	-0.050**
							(0.070)	(0.066)	(0.062)	(0.060)	(0.045)	(0.025)
Observations	300	300	300	300	300	300	300	300	300	300	300	300
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Number of States	32	32	32	32	32	32	32	32	32	32	32	32

NOTES: Table 3 reports the results of implementing Equation 4 for the matched tax-cut sample. Post X Tax Cut is an indicator equal to 1 in years t+1 to t+3 for states that had tax cuts, and 0 otherwise. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table 4: Matching Estimates of the Effects of Corporate Tax Increases on Income Inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001
Post X Tax Increase	-0.667***	-0.377***	-0.452***	-0.304**	-0.126	-0.032	-0.646***	-0.367***	-0.411***	-0.262**	-0.111	-0.029
	(0.144)	(0.140)	(0.139)	(0.119)	(0.096)	(0.063)	(0.142)	(0.137)	(0.136)	(0.116)	(0.095)	(0.062)
GDP Per Capita							-2.136**	-2.710**	-1.774	-1.293	-0.492	-0.249
							(0.997)	(1.193)	(1.154)	(1.002)	(0.734)	(0.472)
Population Growth							1.695	-0.172	4.003	3.646	1.484	0.580
							(4.942)	(5.917)	(5.722)	(4.969)	(3.640)	(2.339)
Share of GDP in Finance							0.923*	1.274**	1.164*	1.030**	0.558	0.289
							(0.518)	(0.621)	(0.600)	(0.521)	(0.382)	(0.245)
Log Output Gap							3.556**	4.047*	3.656*	3.002*	1.581	0.867
							(1.795)	(2.150)	(2.079)	(1.805)	(1.322)	(0.850)
Government Size							-0.409	-0.926	-0.007	-0.005	-0.108	-0.184
							(0.613)	(0.734)	(0.710)	(0.616)	(0.452)	(0.290)
Share of GDP in Military							-0.027	0.066	-0.093	-0.053	0.003	0.021
							(0.126)	(0.151)	(0.146)	(0.127)	(0.093)	(0.060)
Spillover GDP Per Capita							4.195***	3.883***	1.752**	1.219*	0.576	0.313
							(0.700)	(0.838)	(0.810)	(0.704)	(0.515)	(0.331)
Unemployment Rate							-0.001	0.007	-0.005	-0.007	0.001	0.003
							(0.037)	(0.044)	(0.042)	(0.037)	(0.027)	(0.017)
Sales Apportionment							-0.001	-0.003	0.000	-0.000	-0.000	-0.001
							(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)
Personal Tax Rate							0.017	0.038	-0.006	-0.018	-0.005	0.001
							(0.030)	(0.036)	(0.035)	(0.030)	(0.022)	(0.014)
Observations	264	264	264	264	264	264	264	264	264	264	264	264
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Number of States	34	34	34	34	34	34	34	34	34	34	34	34

NOTES: Table 4 reports the results of implementing Equation 4 for the matched tax-increase sample. Post X Tax Increase is an indicator equal to 1 in years t+1 to t+3 for states that had tax increases, and 0 otherwise. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table 5: Corporate Tax Cuts, Government Spending, Labor Market, and Industry-Level Investment

	Government Size		Labor Force Participation		Investment	
	(1)	(2)	(1)	(2)	(1)	(2)
Post X Tax Cut	0.001	0.000	0.037	0.155	-0.042	0.003
	(0.011)	(0.010)	(0.359)	(0.222)	(0.062)	(0.068)
Population Growth		1.937		115.409***		-21.212*
		(1.277)		(23.226)		(12.741)
GDP Per Capita				6.622		2.034
				(9.029)		(2.382)
Share of GDP in Finance				1.536		-0.231
				(2.008)		(0.803)
Log Output Gap				-14.392		-0.540
				(11.441)		(2.681)
Government Size				1.074		3.374*
				(3.865)		(1.860)
Share of GDP in Military				0.333		-0.253
				(0.569)		(0.377)
Spillover GDP Per Capita				216.705		-102.030
				(161.658)		(69.187)
Unemployment Rate				-1.031***		-0.071
				(0.156)		(0.045)
Sales Apportionment				0.024*		0.003
				(0.014)		(0.004)
Personal Tax Rate				0.040		-0.031
				(0.220)		(0.063)
Observations	300	300	300	300	3087	3087
Year x Event Fixed Effects	Yes	Yes	Yes	Yes		Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes		
State x Industry x Event Fixed Effects					Yes	Yes
Number of States	32	32	32	32		
Number of StateXIndustry					560	560

NOTES: Table 5 reports how tax cuts impact other factors that may effect income inequality. Post X Tax Cut is an indicator equal to 1 in years t+1 to t+3 for states that had tax cuts, and 0 otherwise. Government Size is government spending per capita. Labor Force Participation is the percent of the working-age population that is employed. Investment is the natural log of total corporate investment, measured at the industry level. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table 6: Corporate Tax Cuts and the Distribution of Labor and Capital Income

	AGI			Salary			Capital Income		
	Bottom AGI Bottom	Top AGI Top	Total AGI Total	Bottom Salary Bottom	Top Salary Top	Total Salary Total	Bottom Capital Income Bottom	Top Capital Income Top	Total Capital Income Total
Post X Tax Cut	0.012***	0.042**	0.025***	0.013***	-0.044***	0.012***	0.017	0.126***	0.081***
	(0.003)	(0.017)	(0.004)	(0.002)	(0.015)	(0.002)	(0.011)	(0.035)	(0.020)
GDP Per Capita	0.287***	1.864***	0.408***	0.423***	1.511***	0.467***	0.034	2.298***	0.364
	(0.062)	(0.410)	(0.097)	(0.056)	(0.362)	(0.059)	(0.269)	(0.836)	(0.482)
Population Growth	-0.527	-7.320*	-1.775**	0.133	-3.837	0.037	-5.374**	-10.351	-7.897*
	(0.570)	(3.783)	(0.899)	(0.513)	(3.347)	(0.548)	(2.487)	(7.716)	(4.450)
Share of GDP in Finance	0.029	0.020	0.056	-0.015	-0.281*	-0.033	0.293***	0.468	0.411**
	(0.026)	(0.171)	(0.041)	(0.023)	(0.151)	(0.025)	(0.112)	(0.349)	(0.201)
Log Output Gap	-0.047	-1.214**	-0.025	-0.088	0.527	0.081	-0.101	-1.845	0.255
	(0.092)	(0.608)	(0.144)	(0.082)	(0.538)	(0.088)	(0.400)	(1.240)	(0.715)
Government Size	-0.124**	0.529	-0.005	-0.188***	0.721**	-0.176***	-0.304	0.397	-0.060
	(0.061)	(0.405)	(0.096)	(0.055)	(0.359)	(0.059)	(0.266)	(0.827)	(0.477)
Share of GDP in Military	0.014	-0.258**	-0.067**	-0.023	-0.136	-0.038**	0.003	0.004	-0.133
	(0.018)	(0.117)	(0.028)	(0.016)	(0.104)	(0.017)	(0.077)	(0.239)	(0.138)
Spillover GDP Per Capita	1.008***	-0.492	0.883***	0.967***	-0.296	0.954***	0.999***	-1.095	0.677
	(0.056)	(0.371)	(0.088)	(0.050)	(0.328)	(0.054)	(0.244)	(0.756)	(0.436)
Unemployment Rate	0.006**	-0.038**	-0.008*	0.002	-0.011	-0.003	-0.006	-0.105***	-0.065***
	(0.003)	(0.018)	(0.004)	(0.002)	(0.016)	(0.003)	(0.012)	(0.037)	(0.021)
Sales Apportionment	0.000	-0.002**	-0.000	0.000	-0.003***	-0.000	-0.002**	-0.001	-0.002
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)
Personal Tax Rate	0.003	0.032	0.007	0.005*	0.006	0.004	0.030**	-0.005	0.005
	(0.003)	(0.022)	(0.005)	(0.003)	(0.019)	(0.003)	(0.014)	(0.045)	(0.026)
Observations	84	84	84	84	84	84	84	84	84
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	14	14	14	14	14	14	14	14	14

NOTES: Table 6 reports how tax cuts relate to pre-tax income attributable to total individual earnings, capital earnings, and wages. Post X Tax Cut is an indicator equal to 1 in years t+1 to t+3 for states that had tax cuts, and 0 otherwise. AGI is the natural log of adjusted gross income. Salary is the natural log of pre-tax income attributable to salaries and wages. Capital income is the natural log of pre-tax income attributable to capital. Salary/Capital is salary income divided by capital income. "Bottom" is the total value of the variable for those making below $200,000. "Top" is the total value of the variable for those making above $200,000. "Total" is the total value of the variable for all income levels. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A..

Table 7: Synthetic Control Estimates of the Effects of Corporate Tax Cuts on Income Inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001
post_treat	0.237**	0.229**	0.327***	0.218***	0.180***	0.115***	0.263**	0.271***	0.375***	0.259***	0.217***	0.140***
	(0.115)	(0.108)	(0.094)	(0.084)	(0.068)	(0.043)	(0.113)	(0.103)	(0.087)	(0.077)	(0.062)	(0.038)
GDP Per Capita							1.046	1.588	1.881	1.456	1.371	0.911
							(0.770)	(1.113)	(1.179)	(1.065)	(0.918)	(0.599)
Population Growth							-8.050**	-11.948**	-14.825**	-12.319**	-11.386**	-7.584**
							(4.035)	(5.831)	(6.176)	(5.582)	(4.809)	(3.137)
Share of GDP in Finance							0.020	0.174	0.002	0.007	-0.045	-0.021
							(0.359)	(0.519)	(0.550)	(0.497)	(0.428)	(0.279)
Log Output Gap							0.523	0.791	0.812	1.145	0.839	0.497
							(1.152)	(1.664)	(1.763)	(1.593)	(1.373)	(0.895)
Government Size							0.456	0.480	0.908	0.876	0.831	0.523
							(0.544)	(0.786)	(0.832)	(0.752)	(0.648)	(0.423)
Share of GDP in Military							-0.190*	-0.244	-0.354**	-0.351**	-0.312**	-0.197**
							(0.104)	(0.150)	(0.159)	(0.144)	(0.124)	(0.081)
Spillover GDP Per Capita							1.883***	0.578	-0.775	-0.699	-0.935	-0.710*
							(0.493)	(0.712)	(0.754)	(0.681)	(0.587)	(0.383)
Unemployment Rate							-0.061***	-0.108***	-0.122***	-0.100***	-0.088***	-0.060***
							(0.021)	(0.030)	(0.032)	(0.029)	(0.025)	(0.016)
Sales Apportionment							-0.004	-0.006	-0.007*	-0.006*	-0.005*	-0.003*
							(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.002)
Personal Tax Rate							-0.010	-0.020	-0.015	-0.012	-0.010	-0.007
							(0.018)	(0.026)	(0.028)	(0.025)	(0.022)	(0.014)
Observations	300	300	300	300	300	300	300	300	300	300	300	300
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	32	32	32	32	32	32	32	32	32	32	32	32

NOTES: Table 7 reports the results of implementing Equation 4 using a synthetic controls approach. Post X Tax Cut is an indicator equal to 1 in years t+1 to t+3 for states that had tax cuts, and 0 otherwise. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table 8: Matching Estimates of the Effects of Corporate Tax Cuts on Income Inequality: Robustness to Alternative Measures of Income Inequality

	Theil	Gini	Root Mean Dev	Atkinson	Theil	Gini	Root Mean Dev	Atkinson
Post X Tax Cut	0.008	0.004**	0.005**	0.001	0.006	0.004***	0.004***	0.001
	(0.005)	(0.002)	(0.002)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)
GDP Per Capita					0.581***	0.245***	0.292***	0.086***
					(0.063)	(0.021)	(0.025)	(0.010)
Population Growth					0.248	0.007	-0.039	0.030
					(0.381)	(0.126)	(0.153)	(0.063)
Share of GDP in Finance					0.007	-0.012	-0.014	0.002
					(0.026)	(0.008)	(0.010)	(0.004)
Log Output Gap					-0.579***	-0.201***	-0.242***	-0.091***
					(0.103)	(0.034)	(0.041)	(0.017)
Government Size					0.073	0.016	0.023	0.011
					(0.051)	(0.017)	(0.021)	(0.008)
Share of GDP in Military					-0.004	-0.001	0.000	-0.000
					(0.009)	(0.003)	(0.004)	(0.001)
Spillover GDP Per Capita					-0.428***	-0.143***	-0.163***	-0.052***
					(0.038)	(0.012)	(0.015)	(0.006)
Unemployment Rate					-0.002	-0.001	-0.001	-0.000
					(0.002)	(0.001)	(0.001)	(0.000)
Sales Apportionment					-0.000	-0.000	-0.000	-0.000
					(0.000)	(0.000)	(0.000)	(0.000)
Personal Tax Rate					-0.005**	-0.002***	-0.003***	-0.001**
					(0.002)	(0.001)	(0.001)	(0.000)
Observations	300	300	300	300	300	300	300	300
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	32	32	32	32	32	32	32	32

NOTES: The results reported in Table 8 use seemingly unrelated regressions to examine how tax cuts impact alternative measures of income inequality. Post X Tax Cut is an indicator equal to 1 in years t+1 to t+3 for states that had tax cuts, and 0 otherwise. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Appendices

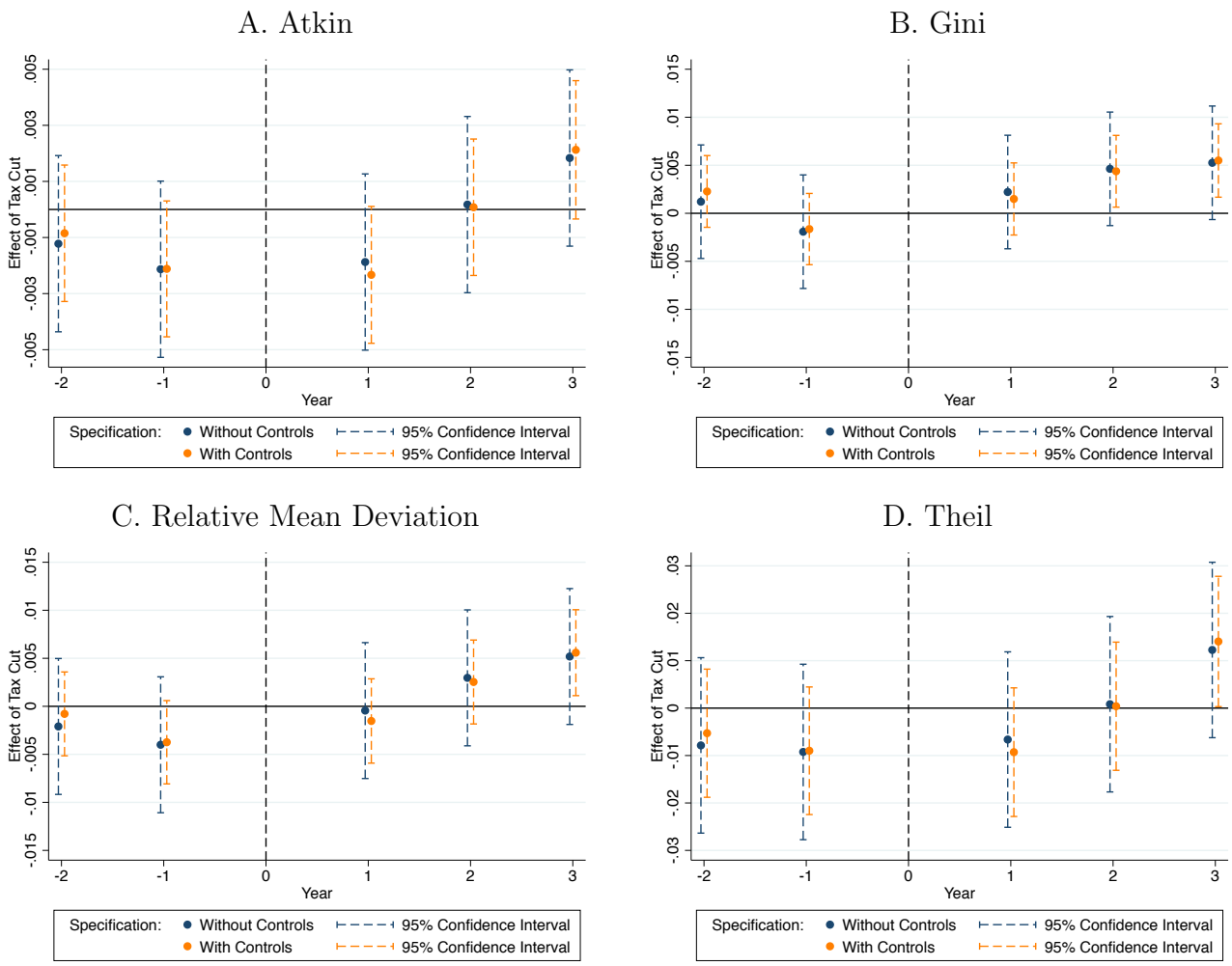
A Variable definitions

Variable name	Definition
	Income inequality variables
Top 10	Share of income held by the top 10% of the population
Top 5	Share of income held by the top 5% of the population
Top 1	Share of income held by the top 1% of the population
Top 0.5	Share of income held by the top 0.5% of the population
Top 0.1	Share of income held by the top 0.1% of the population
Top 0.01	Share of income held by the top 0.01% of the population
Theil	The Theil Entropy Index (Frank, 2014)
Gini	The Gini coefficient, defined as the average distance between all pairs of proportional income in the state (Frank, 2014)
Relative Mean Dev	The average absolute distance between each individual's income and the mean income of the state (Frank, 2014)
Atkinson	The Atkinson Index (Frank, 2014)
	Additional variables of interest
Corporate Rate	The state-level top corporate tax rate
Government Size	The natural log of the portion of GDP attributable to government scaled by total population
Labor Force Participation	The percentage of the working-age population that is employed
AGI Bottom	Pre-tax aggregate gross income reported to the IRS by those earning less than $200,000
AGI Top	Pre-tax aggregate gross income reported to the IRS by those earning more than $200,000
AGI Total	Pre-tax aggregate gross income reported to the IRS by all tax filers
Salary Bottom	Salary and wage income reported to the IRS by those earning less than $200,000
Salary Top	Salary and wage income reported to the IRS by those earning more than $200,000
Salary Total	Salary and wage income reported to the IRS by all tax filers

Variable name	Definition
Capital Income Bottom	Dividend, interest, rent, royalties, and entrepreneurial income reported to the IRS by those earning less than $200,000
Capital Income Top	Dividend, interest, rent, royalties, and entrepreneurial income reported to the IRS by those earning more than $200,000
Capital Income Total	Dividend, interest, rent, royalties, and entrepreneurial income reported to the IRS by all tax filers
Investment	The natural log of total investment, measured at the industry-state level, where industries correspond to 3-digit NAICS
	Control variables
GDP Per Capita	The natural log of gross domestic product scaled by total population
Population Growth	The year-over-year percent change in population
Share of GDP in Finance	The natural log of the portion of GDP attributable to the finance industry scaled by total population
Log Output Gap	The natural log of the relative distance of GDP per capita to its filtered value, calculated following Aghion et al. (2015) using an HP filter of λ equal to 6.25
Share of GDP in Military	The natural log of the portion of GDP attributable to the military scaled by total population
Spillover GDP Per Capita	The weighted value of the natural log of other states' GDP Per Capita in the prior year
Unemployment Rate	The percent of the working-age population that is unemployed and actively seeking work
Sales Apportionment	The percent of taxes due on apportioned profit based on sales, as calculated by Suárez Serrato and Zidar (2016)
Personal Tax Rate	The state personal income tax rate

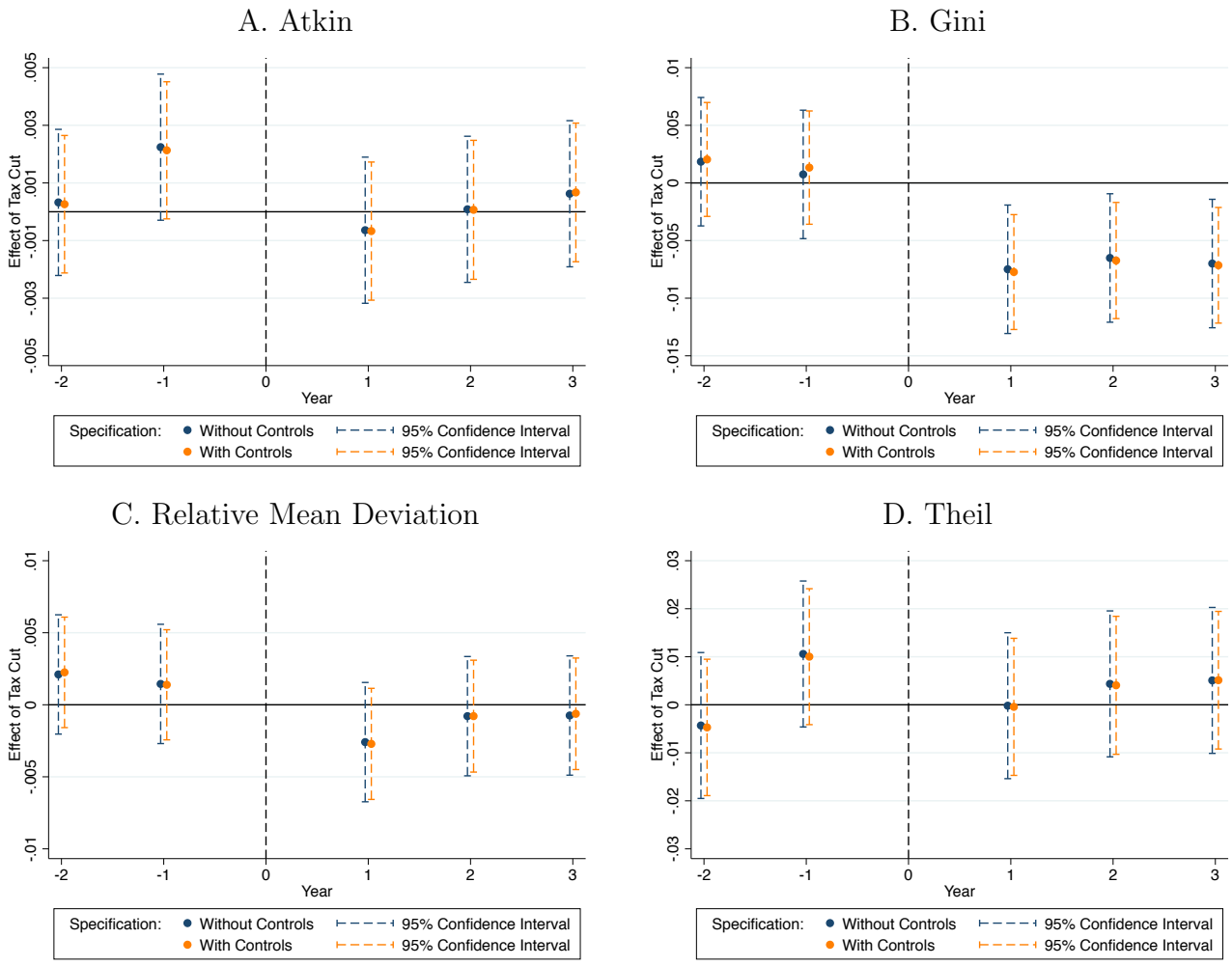
B Graph Appendix

Figure A.1: Effects of Tax Cuts on Alternative Measures of Income Inequality



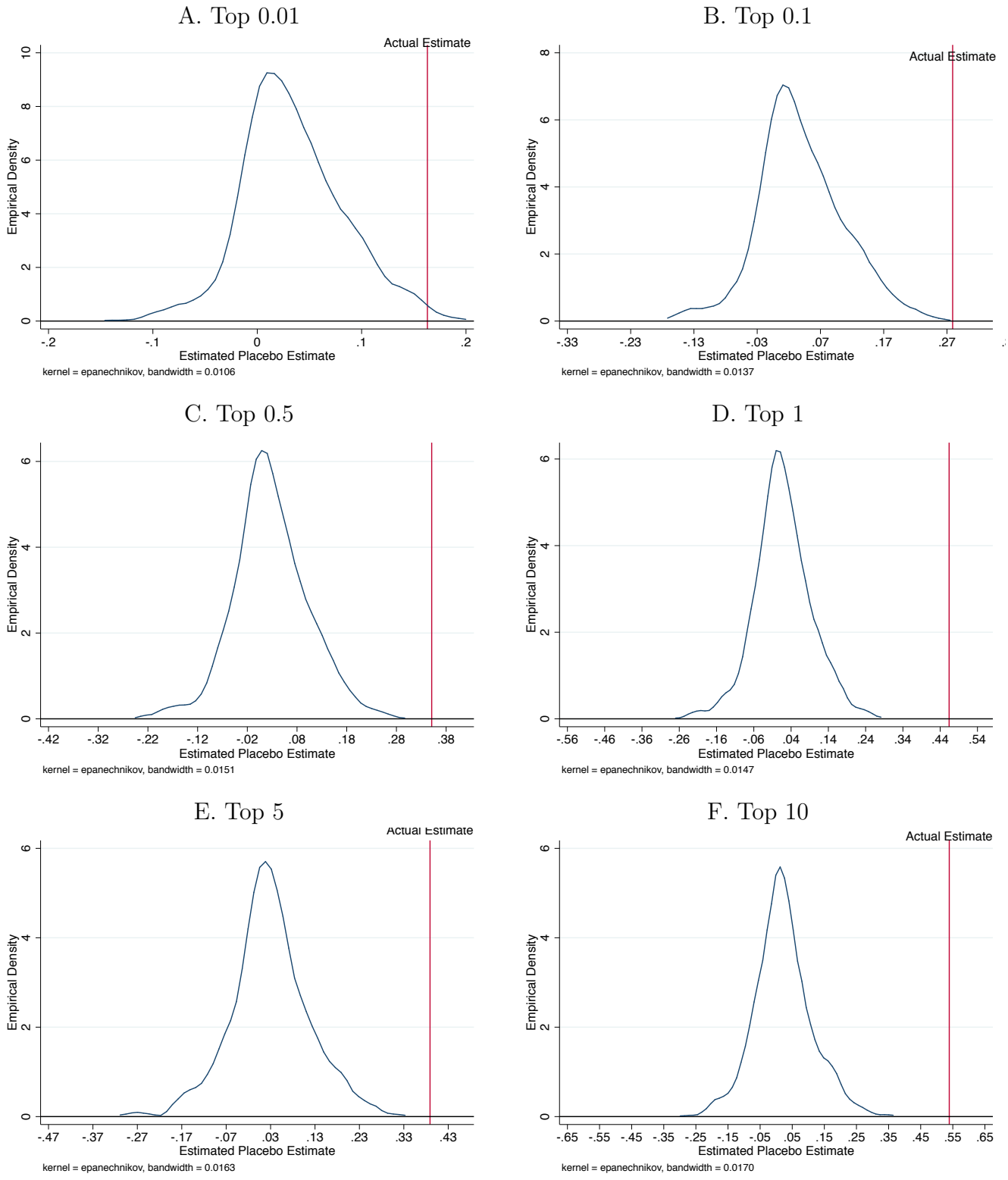
NOTES: Figure A.1 shows how tax cuts impact income inequality over time for alternative measures of income inequality. Year 0 represents the year in which the treated state cuts its corporate tax rate.

Figure A.2: Effects of Tax Increases on Alternative Measures of Income Inequality



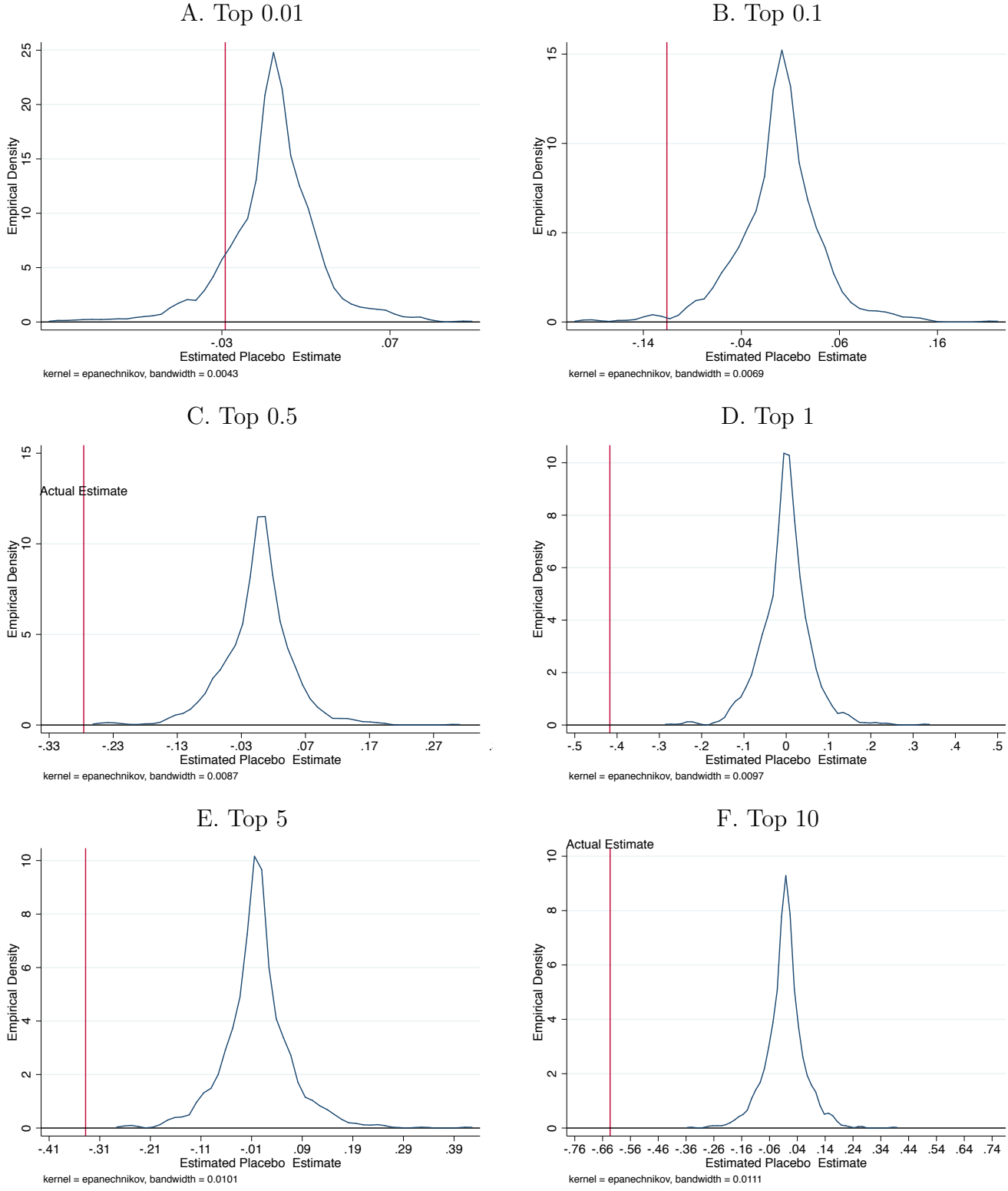
NOTES: Figure A.2 shows how tax increases impact income inequality over time for alternative measures of income inequality. Year 0 represents the year in which the treated state cuts its corporate tax rate.

Figure A.3: Probability Density Function of Coefficients in Placebo Test for Tax Cuts



NOTES: Figure A.3 reports the probability density function of the coefficient on Post X Tax Cut for placebo tests for all measures of income inequality. The placebo tests consist of assigning a random non-tax-cut year to each treated state and treating that year as if it were the actual year in which the state had its first tax cut. This state-year is matched with a control state using the methodology described in Section 5.1. Next, we run Equation 3.2 using the as-if tax cut year. This simulation is run 1,000 times for each coefficient, and the PDF is reported here. The vertical line identifies where the actual coefficient values from Table 3 (Columns (7) - (12)) fall within the distributions.

Figure A.4: Probability Density Function of Coefficients in Placebo Test for Tax Increases



NOTES: Figure A.4 reports the probability density function of the coefficient on Post X Tax Increase for placebo tests for all measures of income inequality. The placebo tests consist of assigning a random non-tax-cut year to each treated state and treating that year as if it were the actual year in which the state had its first tax cut. This state-year is matched with a control state using the methodology described in Section 5.1. Next, we run Equation 3.2 using the as-if tax cut year. This simulation is run 1,000 times for each coefficient, and the CDF is reported here. The vertical line identifies where the actual coefficient values from Table 4 (Columns (7) - (12)) fall within the distributions.

C Table Appendix

Table A.1: Difference-in-Differences Estimates of the Effects of Corporate Taxes on Alternative Measures of Income Inequality

	Theil	Gini	Root Mean Dev	Atkinson	Theil	Gini	Root Mean Dev	Atkinson
Corporate Rate	-0.017***	-0.000	-0.002***	-0.003***	-0.016***	-0.001	-0.003***	-0.003***
	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)
GDP Per Capita					0.043***	-0.001	0.004	0.008***
					(0.015)	(0.004)	(0.005)	(0.003)
Population Growth					0.303**	-0.096***	-0.125***	0.042*
					(0.121)	(0.030)	(0.041)	(0.023)
Share of GDP in Finance					-0.003	0.000	-0.000	-0.001
					(0.008)	(0.002)	(0.003)	(0.002)
Log Output Gap					-0.005	-0.007	-0.013	-0.003
					(0.042)	(0.011)	(0.014)	(0.008)
Government Size					-0.018	0.014***	0.018***	-0.001
					(0.015)	(0.004)	(0.005)	(0.003)
Share of GDP in Military					0.003	0.000	0.001	0.001
					(0.003)	(0.001)	(0.001)	(0.001)
Spillover GDP Per Capita					0.026***	0.068	0.042***	0.024
					(0.010)	(0.106)	(0.003)	(0.027)
Unemployment Rate					-0.003***	0.001***	0.001***	-0.000**
					(0.001)	(0.000)	(0.000)	(0.000)
Sales Apportionment					-0.000*	0.000***	0.000***	-0.000
					(0.000)	(0.000)	(0.000)	(0.000)
Personal Tax Rate					0.001	0.000*	0.001**	0.000
					(0.001)	(0.000)	(0.000)	(0.000)
Observations	1250	1250	1250	1250	1250	1250	1250	1250
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	50	50	50	50	50	50	50	50

NOTES: Table A.1 documents the relation between tax changes and alternative measures of income inequality for the full sample of state-years estimated using the specification in Equation 3. Corporate Rate is the top marginal corporate tax rate in the state. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table A.2: Differences in means for the treatment and control groups for the tax cut sample

	Control	Treatment	Difference/SE
Top 10	39.40	40.10	-0.701
			(0.647)
Top 5	28.05	28.66	-0.615
			(0.674)
Top 1	14.16	14.49	-0.327
			(0.559)
Top 0.5	10.72	10.97	-0.252
			(0.495)
Top 0.1	5.833	5.986	-0.153
			(0.351)
Top 0.01	2.393	2.455	-0.0621
			(0.193)
GDP Per Capita	10.21	10.22	-0.00513
			(0.0581)
Population Growth	0.00608	0.00643	-0.000354
			(0.00147)
Share of GDP in Finance	8.433	8.448	-0.0146
			(0.0790)
Log Output Gap	0.00160	0.000902	0.000703
			(0.00283)
Government Size	8.260	8.226	0.0334
			(0.0830)
Share of GDP in Military	5.831	5.740	0.0911
			(0.134)
Spillover GDP Per Capita	14.11	14.11	0.0000857
			(0.0437)
Unemployment Rate	5.627	5.877	-0.251
			(0.268)

NOTES: Table A.2 describes the differences in means for all variables of interest for the treatment and control groups for years t-3 to t-1, where treatment is having a tax cut.

Table A.3: Differences in means for the treatment and control groups for the tax increase sample

	Control	Treatment	Difference/SE
Top 10	40.36	41.20	-0.840
			(0.876)
Top 5	28.66	29.66	-1.002
			(0.932)
Top 1	14.75	15.55	-0.805
			(0.775)
Top 0.5	11.16	11.82	-0.661
			(0.678)
Top 0.1	6.239	6.610	-0.371
			(0.480)
Top 0.01	2.596	2.755	-0.158
			(0.259)
GDP Per Capita	10.15	10.24	-0.0863
			(0.0678)
Population Growth	0.00618	0.00634	-0.000155
			(0.00147)
Share of GDP in Finance	8.309	8.416	-0.107
			(0.1000)
Log Output Gap	0.00870	0.00732	0.00138
			(0.00265)
Government Size	8.108	8.241	-0.133
			(0.0792)
Share of GDP in Military	5.574	5.753	-0.179
			(0.135)
Spillover GDP Per Capita	14.13	14.13	0.00227
			(0.0510)
Unemployment Rate	5.176	4.862	0.314
			(0.262)

NOTES: Table A.3 describes the differences in means for all variables of interest for the treatment and control groups for years t-3 to t-1, where treatment is having a tax increase.

Table A.4: Dynamic analysis of the relation between tax cuts and income inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 0.5	Top 0.1	Top 0.01
Year -2	0.037	-0.022	-0.047	-0.154	-0.164	-0.107	0.088	0.034	0.017	-0.085	-0.115	-0.081
	(0.303)	(0.281)	(0.264)	(0.256)	(0.196)	(0.118)	(0.238)	(0.212)	(0.199)	(0.188)	(0.149)	(0.094)
Year -1	-0.296	-0.244	-0.202	-0.200	-0.174	-0.094	-0.319	-0.264	-0.213	-0.217	-0.185	-0.100
	(0.303)	(0.281)	(0.264)	(0.256)	(0.196)	(0.118)	(0.237)	(0.211)	(0.198)	(0.188)	(0.149)	(0.094)
Year +1	-0.137	-0.207	0.004	-0.094	-0.087	-0.061	-0.258	-0.333	-0.091	-0.220	-0.171	-0.106
	(0.303)	(0.281)	(0.264)	(0.256)	(0.196)	(0.118)	(0.238)	(0.213)	(0.200)	(0.189)	(0.150)	(0.094)
Year +2	0.663**	0.502*	0.523**	0.440*	0.245	0.127	0.652***	0.479**	0.517***	0.416**	0.231	0.120
	(0.303)	(0.281)	(0.264)	(0.256)	(0.196)	(0.118)	(0.238)	(0.212)	(0.199)	(0.189)	(0.150)	(0.094)
Year +3	0.861***	0.674**	0.665**	0.449*	0.399**	0.251**	0.973***	0.765***	0.751***	0.538***	0.462***	0.286***
	(0.303)	(0.281)	(0.264)	(0.256)	(0.196)	(0.118)	(0.241)	(0.216)	(0.203)	(0.192)	(0.152)	(0.095)
GDP Per Capita							7.358***	9.388***	9.374***	8.548***	6.605***	3.704***
							(2.206)	(2.080)	(1.929)	(1.899)	(1.398)	(0.790)
Population Growth							4.623	1.078	5.713	7.107	4.868	2.638
							(13.071)	(12.324)	(11.430)	(11.248)	(8.282)	(4.679)
Share of GDP in Finance							3.196***	2.614***	1.849**	2.187***	1.505***	0.849***
							(0.899)	(0.848)	(0.786)	(0.774)	(0.570)	(0.322)
Log Output Gap							-9.979***	-10.669***	-9.885***	-8.531***	-6.734***	-3.853***
							(3.579)	(3.375)	(3.130)	(3.080)	(2.268)	(1.281)
Government Size							4.756***	4.464**	4.530***	4.910***	3.446***	1.891***
							(1.843)	(1.738)	(1.611)	(1.586)	(1.168)	(0.660)
Share of GDP in Military							0.163	0.190	-0.046	0.264	0.111	0.049
							(0.307)	(0.289)	(0.268)	(0.264)	(0.194)	(0.110)
Spillover GDP Per Capita							-7.786***	-9.558***	-9.919***	-10.186***	-7.608***	-4.280***
							(1.285)	(1.211)	(1.124)	(1.106)	(0.814)	(0.460)
Unemployment Rate							-0.066	-0.033	-0.032	0.002	-0.009	-0.008
							(0.068)	(0.064)	(0.059)	(0.058)	(0.043)	(0.024)
Sales Apportionment							-0.005	-0.006	-0.005	-0.004	-0.003	-0.002
							(0.007)	(0.007)	(0.006)	(0.006)	(0.005)	(0.003)
Personal Tax Rate							-0.207***	-0.196***	-0.163***	-0.176***	-0.124***	-0.069***
							(0.072)	(0.068)	(0.063)	(0.062)	(0.046)	(0.026)
Observations	300	300	300	300	300	300	300	300	300	300	300	300
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Number of States	32	32	32	32	32	32	32	32	32	32	32	32

NOTES: Table A.4 reports how tax cuts impact income inequality over time by examining year-by-year changes in income inequality around tax cuts using the matched sample. To estimate the overtime effects of tax cuts on income inequality, we create indicator variables for each year around a tax cut. These variables are equal to 1 for the treated state and 0 for the control state. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table A.5: Dynamic analysis of the relation between tax increases and income inequality

	Top 10	Top 5	Top 1	Top 05	Top 01	Top 001	Top 10	Top 5	Top 1	Top 0.5	Top 0.1	Top 0.01
Year -2	0.295	0.254	0.374	0.315	0.195	0.091	0.271	0.228	0.345	0.289	0.185	0.086
	(0.246)	(0.241)	(0.237)	(0.203)	(0.164)	(0.107)	(0.238)	(0.227)	(0.225)	(0.191)	(0.157)	(0.102)
Year -1	0.493**	0.358	0.447*	0.330	0.229	0.120	0.481**	0.337	0.439*	0.323*	0.226	0.118
	(0.246)	(0.241)	(0.237)	(0.203)	(0.164)	(0.107)	(0.237)	(0.227)	(0.224)	(0.191)	(0.157)	(0.102)
Year +1	-0.524**	-0.368	-0.399*	-0.315	-0.203	-0.117	-0.517**	-0.367	-0.381*	-0.294	-0.197	-0.116
	(0.246)	(0.241)	(0.237)	(0.203)	(0.164)	(0.107)	(0.238)	(0.228)	(0.226)	(0.192)	(0.158)	(0.103)
Year +2	-0.238	-0.013	-0.015	0.062	0.171	0.155	-0.232	-0.022	0.013	0.094	0.182	0.157
	(0.246)	(0.241)	(0.237)	(0.203)	(0.164)	(0.107)	(0.239)	(0.229)	(0.227)	(0.193)	(0.159)	(0.103)
Year +3	-0.450*	-0.137	-0.122	-0.013	0.080	0.077	-0.435*	-0.142	-0.079	0.031	0.099	0.083
	(0.246)	(0.241)	(0.237)	(0.203)	(0.164)	(0.107)	(0.239)	(0.229)	(0.226)	(0.193)	(0.158)	(0.103)
GDP Per Capita							-1.957**	-2.606**	-1.413	-0.961	-0.243	-0.117
							(0.994)	(1.194)	(1.178)	(1.022)	(0.752)	(0.480)
Population Growth							2.093	0.205	4.559	4.164	1.895	0.873
							(4.917)	(5.908)	(5.829)	(5.059)	(3.720)	(2.377)
Share of GDP in Finance							0.889*	1.260**	1.094*	0.967*	0.523	0.278
							(0.513)	(0.617)	(0.609)	(0.528)	(0.388)	(0.248)
Log Output Gap							3.396*	3.900*	3.532*	2.907	1.506	0.827
							(1.773)	(2.130)	(2.102)	(1.824)	(1.341)	(0.857)
Government Size							-0.317	-0.847	0.102	0.074	-0.030	-0.134
							(0.603)	(0.725)	(0.715)	(0.620)	(0.456)	(0.292)
Share of GDP in Military							-0.037	0.057	-0.102	-0.058	-0.003	0.017
							(0.124)	(0.149)	(0.147)	(0.128)	(0.094)	(0.060)
Spillover GDP Per Capita							4.021***	3.760***	1.452*	0.955	0.363	0.191
							(0.693)	(0.833)	(0.822)	(0.713)	(0.524)	(0.335)
Unemployment Rate							-0.000	0.006	-0.003	-0.005	0.002	0.003
							(0.036)	(0.044)	(0.043)	(0.037)	(0.027)	(0.018)
Sales Apportionment							-0.001	-0.003	0.001	0.001	0.000	-0.000
							(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)
Personal Tax Rate							0.014	0.034	-0.013	-0.025	-0.012	-0.003
							(0.030)	(0.036)	(0.035)	(0.031)	(0.023)	(0.014)
Observations	264	264	264	264	264	264	264	264	264	264	264	264
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Number of States	34	34	34	34	34	34	34	34	34	34	34	34

NOTES: Table A.5 reports how tax increases impact income inequality over time by examining year-by-year changes in income inequality around tax increases using the matched sample. To estimate the overtime effects of tax increases on income inequality, we create indicator variables for each year around a tax increase. These variables are equal to 1 for the treated state and 0 for the control state. Top X is the percent of income received by the top X%, where X is 10, 5, 1, 0.5, 0.1, or 0.01. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table A.6: Dynamic analysis of the relation between tax cuts and alternative measures of income inequality

	Theil	Gini	Root Mean Dev	Atkinson	Theil	Gini	Root Mean Dev	Atkinson
Year -2	-0.008	0.001	-0.002	-0.001	-0.005	0.002	-0.001	-0.001
	(0.009)	(0.003)	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.001)
Year -1	-0.009	-0.002	-0.004	-0.002	-0.009	-0.002	-0.004*	-0.002*
	(0.009)	(0.003)	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.001)
Year +1	-0.007	0.002	-0.000	-0.002	-0.009	0.001	-0.002	-0.002*
	(0.009)	(0.003)	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.001)
Year +2	0.001	0.005	0.003	0.000	0.000	0.004**	0.003	0.000
	(0.009)	(0.003)	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.001)
Year +3	0.012	0.005*	0.005	0.002	0.014**	0.005***	0.006**	0.002*
	(0.009)	(0.003)	(0.004)	(0.002)	(0.007)	(0.002)	(0.002)	(0.001)
GDP Per Capita					0.550***	0.236***	0.279***	0.081***
					(0.065)	(0.021)	(0.026)	(0.011)
Population Growth					0.207	-0.001	-0.052	0.023
					(0.386)	(0.126)	(0.153)	(0.064)
Share of GDP in Finance					0.032	-0.007	-0.005	0.006
					(0.027)	(0.009)	(0.011)	(0.004)
Log Output Gap					-0.557***	-0.191***	-0.231***	-0.088***
					(0.106)	(0.034)	(0.042)	(0.018)
Government Size					0.126**	0.030*	0.042**	0.020**
					(0.054)	(0.018)	(0.022)	(0.009)
Share of GDP in Military					-0.003	-0.001	0.000	-0.000
					(0.009)	(0.003)	(0.004)	(0.002)
Spillover GDP Per Capita					-0.453***	-0.148***	-0.171***	-0.056***
					(0.038)	(0.012)	(0.015)	(0.006)
Unemployment Rate					-0.002	-0.001	-0.001	-0.000
					(0.002)	(0.001)	(0.001)	(0.000)
Sales Apportionment					-0.000	-0.000	-0.000	-0.000
					(0.000)	(0.000)	(0.000)	(0.000)
Personal Tax Rate					-0.006***	-0.002***	-0.003***	-0.001**
					(0.002)	(0.001)	(0.001)	(0.000)
Observations	300	300	300	300	300	300	300	300
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	32	32	32	32	32	32	32	32

NOTES: Table A.6 reports how tax cuts impact alternative measures of income inequality over time by examining year-by-year changes in income inequality around tax cuts using the matched sample and seemingly unrelated regressions. To estimate the overtime effects of tax cuts on income inequality, we create indicator variables for each year around a tax cut. These variables are equal to 1 for the treated state and 0 for the control state. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.

Table A.7: Tax increase robustness check with seemingly unrelated regressions

	Theil	Gini	Root Mean Dev	Atkinson	Theil	Gini	Root Mean Dev	Atkinson
Post X Tax Increase	0.001	-0.008***	-0.003**	-0.001	0.001	-0.008***	-0.003**	-0.001
	(0.005)	(0.002)	(0.001)	(0.001)	(0.004)	(0.002)	(0.001)	(0.001)
GDP Per Capita					0.020	0.003	-0.017	-0.002
					(0.042)	(0.019)	(0.011)	(0.007)
Population Growth					-0.136	0.197**	-0.045	-0.032
					(0.206)	(0.092)	(0.056)	(0.033)
Share of GDP in Finance					0.031	-0.005	-0.006	0.004
					(0.022)	(0.010)	(0.006)	(0.003)
Log Output Gap					0.037	0.003	0.025	0.011
					(0.075)	(0.033)	(0.020)	(0.012)
Government Size					-0.026	0.032***	-0.009	-0.005
					(0.026)	(0.011)	(0.007)	(0.004)
Share of GDP in Military					0.009*	-0.007***	0.000	0.001*
					(0.005)	(0.002)	(0.001)	(0.001)
Spillover GDP Per Capita					0.026	0.026**	0.076***	0.020***
					(0.029)	(0.013)	(0.008)	(0.005)
Unemployment Rate					-0.000	0.001	0.000	-0.000
					(0.002)	(0.001)	(0.000)	(0.000)
Sales Apportionment					-0.000	0.000	0.000	-0.000
					(0.000)	(0.000)	(0.000)	(0.000)
Personal Tax Rate					-0.000	0.001	0.000	-0.000
					(0.001)	(0.001)	(0.000)	(0.000)
Observations	264	264	264	264	264	264	264	264
Year x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Event Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of States	34	34	34	34	34	34	34	34

NOTES: Table A.7 reports how tax increases impact alternative measures of income inequality over time by examining year-by-year changes in income inequality around tax increases using the matched sample and seemingly unrelated regressions. To estimate the overtime effects of tax increases on income inequality, we create indicator variables for each year around a tax increase. These variables are equal to 1 for the treated state and 0 for the control state. p-values are reporter in parentheses. Standard errors are clustered at the state level. All variables are defined in Appendix A.