

# Political Competition and Tax Expenditures: A Machine Learning Approach to 121 years of U.S. Laws\*

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November 8, 2025

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## Abstract

Tax complexity imposes significant costs on society, yet we know little about its political determinants. Does political competition drive tax complexity? I examine this question in the context of the US. I capture political competition by the closeness of elections and tax complexity by the prevalence of tax expenditures (TEs) (exemptions, deductions, and credits). I use machine learning to identify TEs in a novel dataset of over 3.1 billion words of legislative text built from the State Session Laws spanning 121 years (1900-2020). I find that overall political competition leads to fewer TEs. Importantly, this effect varies by party control. When elections are close, Republican-led legislatures enact more TEs than Democrats, particularly when campaign contributions from wealthy donors are large. Their strategy is to obfuscate the true tax burden on high-income earners by increasing tax complexity via TEs in order to win elections. These results challenge the conventional view that political competition uniformly improves policy outcomes, showing instead that its effects depend on partisan incentives.

**Keywords:** tax complexity; tax expenditures; political competition; text analysis; machine learning

**JEL codes:** H0, D73, H11, H77, C38, C55

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\*I am deeply grateful to my supervisors, Gianni De Fraja, Marit Hinnosaar, and Valeria Rueda, for their guidance and support with this project. I would also like to especially thank Devesh Rustagi, Elliott Ash, Dario Tortarolo and Tommaso Reggiani for their invaluable comments and helpful conversations. I also benefited from discussions and feedback from Tim Besley, Dan Bernhardt, Luca Braghieri, Jake Bradley, Adam Brzezinski, Mattia Bertazzini, Jean-Paul Carvalho, Enrico Cantoni, David Coluccia, Olle Folke, Ernst Fehr, Martin Fiszbein, Simon Gächter, Lucie Gadenne, Mireia Giné, Francesco Giovannoni, Toomas Hinnosaar, Giuseppe Ippedito, Julien Labonne, Yotam Margalit, Imran Rasul, Emmanuel Saez, Emilie Sartre, Cecilia Testa, Martina Uccioli, Richard Upward, Mathias Thoenig, Camille Urvoy, Tommaso Valletti, Silvia Vanutelli, Guo Xu, Gabriel Zucman, and seminar participants at the 10th MPWZ-CEPR Text-As-Data Workshop, NICEP Annual Conference at University of Nottingham, the Text-as-Data Workshop at the University of Liverpool and the Applied Micro Group at University of Nottingham. Thanks to my friends Ysabel Vieira, Kieran Stockley, and Miquel Oliver-Vert for their support.

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# 1 Introduction

In many countries, tax systems are highly complex and have become more so over time (Benzarti and Wallossek, 2024; Chetty et al., 2009). An important form of tax complexity is tax expenditures (TEs)—credits, deductions, and exemptions made available to taxpayers by tax authorities. Having a large number of TEs creates significant costs for society and makes the system more regressive, as wealthier individuals better navigate the tax code (Craig and Slemrod, 2024). Because TEs disproportionately benefit higher-income earners, creating new provisions has direct redistributive consequences (Burman et al., 2008). Mapping their political determinants is therefore a precondition for future debates on inequality. Despite this, we know little about the determinants of tax complexity, that is the number of TEs.

In this paper, I examine whether political competition affects the enactment of TEs. Prior work shows that political competition reduces the economic rents that the rich can capture (Acemoglu and Robinson, 2006; Besley et al., 2010). One plausible channel is a reduction in TEs, which lowers benefits to high-income earners. However, the link between political competition and TEs is complex and may depend on the governing party’s redistributive preferences. For example, in the U.S., Democrats may reduce TEs in response to political competition to benefit lower-income earners, whereas Republicans may increase TEs to lower the tax burden on higher-income earners. Despite these possibilities, there is no evidence on either the relationship between political competition and TEs or heterogeneity by party ideology. I address these gaps using a novel corpus of U.S. state legislation built from the Regular Session Laws from 1900–2020, comprising 3.1 billion words.

I measure tax complexity by the prevalence of TEs. I use machine learning to estimate the share of TEs in the entire legislation. To identify TEs, I apply BERT, a large language model, which captures complex semantic relationships in language. I compute the ratio of provisions classified as TEs to the total number of provisions in the legislation.

I measure political competition as the closeness of the election outcome. I calculate how close the Democratic vote share is to 50 percent, across all statewide races held every year (Besley et al., 2010). The measure ranges from -0.5 to 0, with higher values indicating more competition. The distribution is skewed to the right, with 72% of the observations between -0.1 and 0. A one-standard deviation increase in political competition means that the Democratic vote share moves 9.1 percentage points closer to 50 percent.

Political competition is endogenous, even after accounting for state and year fixed effects. It could be due to omitted variable bias coming from campaign contributions, share of media penetration, unionization rates, lobbying intensity, media fragmentation, etc. These time-varying variables may be correlated with both political competition and

the implementation of fiscal policy through TEs. It may also suffer from reverse causality if incumbent politicians enact new TEs to affect voting behavior in order to win elections.

To mitigate these concerns, I exploit the introduction of the 1965 Voting Rights Act as a source of exogenous variation, which unexpectedly removed existing voting restrictions such as poll taxes and literacy test. The Voting Rights Act is plausibly exogenous because it was a federal intervention to end racial disenfranchisement, rather than designed to change state fiscal policy directly. Thus, it is orthogonal to pre-existing TE legislation. Following [Besley et al. \(2010\)](#), I instrument political competition with the share of the state population subject to voting restrictions that attracted the attention of the 1965 Voting Rights Act. This is a valid instrument for two reasons. First, it satisfies the relevant condition because enfranchising previously excluded voters mechanically increases registration and turnout, thereby increasing political competition. Second, the exclusion restriction holds because the Voting Rights Act: (i) changed electoral access, not fiscal rules—there was no federal mandate or direct channel affecting state tax policy; (ii) was enacted and enforced by the federal government, while TE legislation is written and administered by state-level legislatures—different level of government officials and incentives. Thus, the instrument only affects TE legislation through political competition.

I find that a one-standard deviation increase in political competition leads to 0.19 s.d. fewer TEs enacted ( $-0.45 \text{ pp} \approx -10\%$  of the mean). Importantly, this result masks partisan differences: the effect depends on which party controls the state legislatures. In close elections, Republican-led legislatures enact 0.90 s.d. more TEs ( $+2.0 \text{ pp} \approx +45\%$  of the mean) than Democratic ones, making the tax code more complex and less transparent. The Republican strategy is to confuse voters by making them believe that high-income earners are heavily taxed, while reducing their burden through targeted TEs. Close elections intensify fiscal obfuscation via tax complexity when redistribution favoring high-income earners increases the risks of a voter backlash. By contrast, consistent with the idea that political competition induces politicians to reduce economic rents to the rich, Democratic-led legislatures enact fewer TEs in close races. Democrats benefit from transparency and complexity is not a political tool for them because their voters want redistribution to be clear and visible. Since Democrats control the state legislatures for two-thirds of the state-year observations, the aggregate effect is driven by Democratic behavior.

I propose a framework of obfuscation via TEs in which voters' voting decision is determined by: 1) the tax paid by the rich, (2) voters' ability to understand the tax code, and (3) their income. High-income voters are less susceptible to obfuscation because they have more access to professional advice, and thus a superior tax literacy. Politicians enact TEs to obscure the actual tax rate paid by the rich, thereby influencing voting behaviour

to win elections. The more TEs are passed into legislation, the more complex the tax code becomes, and the more likely it is that low-income voters will be subject to obfuscation. In this framework, political parties pursue different strategies when enacting TEs. These strategies are shaped by ideological preferences for redistribution. Republican incumbents, who seek to lower taxes on the wealthy, strategically enact TEs to mislead voters. Adding these extra layers of complexity lead the median voter to believe that the rich are taxed more heavily than they actually are, making them more likely to vote for Republicans. In contrast, Democrats, whose electoral base supports redistribution, respond to political competition by increasing transparency and reducing reliance on TEs. This transparency helps them appeal to the median voter, who is more likely to vote for them.

In line with evidence showing that TEs can serve as a tool of political influence (Bertrand et al., 2020), I find that political competition increases the enactment of TEs only when campaign contributions are high and Republicans control the state legislature. This suggests that, in close elections, Republicans value the extra money from rich donors—funds they use to persuade voters to support them—more than the risk of a potential voter backlash. They add TEs to lower those donors’ tax burden while leaving the statutory tax rates that voters directly observe unchanged. A more complex tax code has negative implications in terms of efficiency losses and distortions in individual responses to fiscal incentives (Chetty et al., 2013; Giommoni et al., 2025). It also raises compliance costs, which mainly affect those without resources to navigate the tax system.

This paper contributes to the literature in four ways. First, I extend work on how political competition shapes fiscal and redistributive policy (Acemoglu and Robinson, 2006; Besley and Case, 2003; Besley et al., 2010; Bierbrauer et al., 2022; Carlino et al., 2023; Coate and Morris, 1995; Husted and Kenny, 1997; Ilzetzki, 2018). My work relates to Carlino et al. (2023), who show that partisanship drives differences in fiscal policies. While they focus on direct spending from federal transfers, I study how tax policies are strategically designed through the tax code. I show that close elections lead to different partisan strategies when enacting TEs. My paper breaks the symmetric assumption in orthodox political competition models, where both parties maximise an identical weighted sum of economic rents and voter utility, by letting the weights differ by party. Republicans place a larger weight on high-income donors who understand and benefit from TEs, whereas Democrats place more weight on the median voter who prizes visible redistribution. I allow ideological preferences for redistribution to shape how parties value transparency versus obfuscation.

Second, I also contribute to a growing body of literature that uses text analysis and machine learning in economics (Ash, 2018; Ash et al., 2021, 2025; Baker et al., 2016; Gennaro and Ash, 2022; Gentzkow et al., 2019a,b; Hansen et al., 2018, 2023; Schöll et al., 2023). To my

knowledge, this is the first study to use machine learning tools to classify TEs. I leverage large language models to build a TE classifier; this is an approach that can be used to classify other aspects of legislation to cover a long period of time. I also build a large database spanning 121 years of U.S. state legislation, which is a valuable resource for future research on many topics, including taxation. My work relates to [Ash \(2018\)](#), who applies text analysis to recover the effective tax code using the U.S. "State Session laws" for the period 1963-2010. The author shows that political parties use different language when implementing tax policy, with Democrats being more in favour of using redistributive language in their fiscal policy. Another related paper, [Ash et al. \(2025\)](#), uses NLP tools to detect provisions in U.S. state statutes and finds that more detailed laws, including fiscal policies, promote investment and growth by reducing legal uncertainty. I show that, in close elections, Republican-led legislatures pass TEs as a political strategy to win elections.

Third, this paper contributes to the public and behavioral economics literature by linking this partisan heterogeneity to the information friction and cognition channel ([Bhargava and Manoli, 2015](#); [Chetty et al., 2009](#); [Chetty and Saez, 2013](#); [Finkelstein, 2009](#); [Kleven and Kopczuk, 2011](#); [Zwick, 2021](#)). As [Bhargava and Manoli \(2015\)](#) highlight, salience costs rise steeply with lower tax literacy; hence Democrats gain electorally by enacting fewer complex TEs, while Republicans exploit informed elites' low cognition costs to expand them. By documenting these mechanisms with a century-long state-level panel of TEs, I also extend the fiscal illusion<sup>1</sup> literature from [Buchanan \(1987\)](#) and [Dollery and Worthington \(1996\)](#) by showing that who controls the state legislature conditions whether obfuscation is deployed. I recast fiscal illusion as a partisan strategy that is switched on or off depending on the governing coalition's incentives and its voters' cognitive constraints, supplying a political micro-foundation absent from the literature. Also, I contribute to public economics by showing that complexity reduces take-up not only in welfare programs (e.g., long, cumbersome forms) but also across the broader set of TEs, beyond means-tested programs.

[Abeler and Jäger \(2015\)](#) show that complexity reduces the take-up of TEs, even when the financial payoff is high. They interpret complexity as a behavioural barrier that limits individuals' ability to optimize. I build on this insight by examining the political conditions under which such complexity arises, using TEs as a lens. While existing work focuses on individual behaviour in response to complex incentives, my contribution lies in analysing the macro-level political determinants of enacting TEs and their role in the complexity of tax legislation. I ask whether complexity is a feature, not a bug, of tax policy design. By doing so, I introduce a political economy explanation for the persistence of TE

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<sup>1</sup>When the tax burden is spread across many small or opaque provisions, citizens underestimate its true size, allowing policymakers to expand or redirect resources with minimal electoral backlash ([Buchanan, 1987](#)).

complexity across states and over a long period. I bring a political economy lens to this behavioral query by examining how electoral incentives shape the use and design of TEs.

Finally, I contribute to the literature on how fiscal policies are determined in US states (Baker et al., 2025; Robinson and Tazhitdinova, 2025; Suárez Serrato and Zidar, 2016; Slatery et al., 2023). My work is closely related to Robinson and Tazhitdinova (2025), who compile a century-long panel of statutory tax rates and revenues across U.S. states to study tax policy trends. I extend this work by focusing on a different dimension of taxation: the tax base. I show how TEs serve as a mechanism through which politicians strategically narrow the base to benefit interest groups to win elections. This effectively lowers the de facto tax burden without changing statutory rates, changes that are often politically costly. By studying over a century of state tax laws, my paper shows how partisanship and electoral incentives shape the hidden and complex architecture of the US tax system.

The paper is organized as follows. Section 2 describes the institutional background of TEs. Section 3 introduces a conceptual framework of obfuscation via TEs. Section 4 describes why the US is an ideal field setting for studying TEs and shows the datasets used in the empirical analysis. Section 5 explains the text analysis used to classify TEs and measure their linguistic complexity. Section 6 presents the empirical strategy for addressing endogeneity concerns. Section 7 shows the main results and heterogeneity by political parties. Section 8 presents mechanisms. Finally, section 9 provides concluding remarks.

## 2 Institutional Background of TEs

### 2.1 Definition and examples

TEs, as defined in federal law<sup>2</sup>, are revenue losses resulting from provisions in the tax code that allow special exclusions, exemptions, or deductions from gross income, or that offer special credits, preferential tax rates, or deferrals of tax liability for specific activities or groups. Major examples include the home mortgage interest deduction, the exclusion of employer-sponsored health insurance from taxable income, the Earn Income Tax Credit (EITC), deductions for charitable giving contributions, and preferential rates for capital gains and dividends. While some TEs are designed to promote socially desirable behavior, they do not always achieve their stated goals—for example, in charitable giving and homeownership (Fack and Landais, 2010; Hilber and Turner, 2014). Others have been more successful, such as the EITC in improving the living conditions of low-income households (Bastian and Micheltore, 2018) and R&D credits in improving economic development and stimulating innovation (Dechezleprêtre et al., 2023; Wilson, 2009).

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<sup>2</sup>Congressional Budget and Impoundment Control Act of 1974, Pub. L. No. 93-344, § 3(3), 88 Stat. 297



## 2.2 Evolution in the U.S.

The term was first coined in 1967 (Surrey, 1973). Surrey's idea behind TEs was that governments could deliver subsidies through special tax deductions or exclusions with equivalent effects to direct spending policies (Wolfman, 1985). This idea was later termed by Howard (1999) as the 'hidden welfare state'. Historically, TEs expanded during periods like the Great Depression and World War II, when policymakers used them to stimulate economic activity and support social goals (Brownlee, 2016; Mundell, 2000; Vernon, 1994).

In subsequent decades, whenever direct government spending came under political constraint, legislators often turned to tax breaks as an alternative way to achieve policy goals. For example, the postwar era saw employer-provided benefits (health insurance, pensions) receive favourable tax treatment (Buchmueller and Monheit, 2009), and the 1980s U.S. tax reforms introduced new ones. The most notable consequence of these reforms was the direct increase in the complexity of the tax code due to the proliferation of the new TEs (Stewart III, 1991), such as the Carter energy programme, with numerous tax incentives but with limited actual economic benefits given to certain groups of society.

## 2.3 Relevance of TEs and Use as Political Tool

There are important reasons to study TEs. First, evidence shows that these tax instruments are highly complex and disproportionately benefit middle- and higher-income earners, thereby increasing inequality in the U.S (Abeler and Jäger, 2015; Ambrose and Valentin, 2024; Burman et al., 2008; Mettler, 2011). Therefore, creating new provisions has direct regressive redistribution consequences (Aghion et al., 2017; Craig and Slemrod, 2024). In recent decades, governments have expanded the use of TEs. As a result, people often fail to recognise the significant financial benefits that accrue to wealthy groups (Mettler, 2011)<sup>3</sup>. Second, TEs, like direct spending policies, cost the government revenue to support favoured activities and interest groups. However, they do so in a less visible way, through forgone revenues. This indirect spending via the tax code is significant: taken together, federal and state, TEs total over \$2.8 trillion annually, accounting for 44% of all tax revenues, 30% of government spending, and almost 10% of US GDP (See table A.4).

TEs are politically attractive because they bypass the formal budget process. Once in the tax code, a deduction or credit runs automatically without annual approval and often persists with little public debate or oversight relative to equivalent spending programmes.

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<sup>3</sup>Such as the case of insurance companies that profit from increased demand driven by the exclusion of employer-sponsored health insurance from taxable income. According to estimates from the JCT (2024), this exclusion is among the largest federal TEs, costing around \$300 billion annually. It indirectly benefits insurance companies by subsidising demand for private coverage.

As a result, they deliver subsidies in ways that are less transparent, less accountable, and more difficult to scrutinise, raising concerns of fiscal transparency (Benjamin and Posner, 2018; Burman and Phaup, 2012; Mettler, 2011). Opaque fiscal policies erode democratic accountability as voters cannot sanction their representatives for enacting complex tax benefits they cannot see. As Buchanan and Wagner (1977) showed, complex tax systems are the perfect breeding ground to create a fiscal illusion that leads voters to underestimate their true tax burden, allowing politicians to expand these budgets with no resistance.

TEs are often used strategically by politicians to benefit particular interest groups, industries or economic sectors (Mettler, 2011). Evidence suggest that they can serve as a tool of political influence and affect voting behavior (Bertrand et al., 2020; Rendleman and Yoder, 2020; Vannutelli, 2024).

### 3 Conceptual framework

Consider a framework where consumers receive an income, are taxed by the government and vote to retain or reject the government. Voters voting decision is determined by the tax rate paid by the rich and their income. Voters differ along two dimension: the ability to understand the tax code  $a \in [0, 1]$  and their income  $y \in R$ . The ability of a voter to understand the tax schedule is positively correlated with their income and individual characteristics. I capture the above in a compact reduced form as follows:

$$q = \pi(\beta(a, \eta) \hat{\tau}, y)$$

where:

- $q \in [0, 1]$  is the probability of voting for the government in state  $i$ ;
- $a \in \{0, 1\}$  is an indicator variable that reflects the voter's ability to understand the tax code, it takes the value of 1 if and only if this voter understand tax expenditures;  $\Pr(a = 1) = k(y)$  with  $k'(y) > 0$ ;
- $\eta \in E \subset R^p$  is a vector that captures the linguistic complexity of TE provisions.
- $\beta : \{0, 1\} \times R^p \rightarrow [0, 1]$  with  $\beta(a, \eta)$  misunderstanding function of TEs that maps the headline tax rate  $\hat{\tau}$  to the perceived tax rate (attenuation factor from complexity)  $\beta(0, \eta) = 1$  for every  $\eta \in E$ , and  $\beta(1, \eta) < 1$ , with  $\frac{\partial \beta}{\partial \eta_i} < 0$  for every  $\eta_i, i = 1, \dots, p$ .
- $\hat{\tau} \in [0, 1]$  is the actual tax rate on the rich;
- $y$  is a voter's income;



- $\pi : [0, 1] \times R \rightarrow [0, 1]$  with  $\pi(\beta\hat{\tau}, y)$  corresponding to the probability that an individual with income  $y$  and extent of misunderstanding of the tax code  $\beta$  votes for the government when the tax rate on the rich is  $\hat{\tau}$ .

Consider a voter with income  $y$ . If he does not understand the tax code (is confused),  $a = 0$  he votes for the government with probability  $\pi(\hat{\tau}, y)$ . If this voter understands the tax code (is not confused),  $a = 1$ , then the extent of their confusion is  $\beta(1, \eta)$ , and they think that the tax rate on the rich is  $\beta(a, \eta)\hat{\tau}$ , and therefore they vote for the government with probability  $\pi(\beta(a, \eta)\hat{\tau}, y)$ . A convenient set of functional forms is:

$$k(y) = \gamma y$$

with  $\gamma \in (0, \frac{1}{\bar{y}})$ ,  $\bar{y}$  is the maximum income.

$$\beta(a, \eta) = 1 - af(\eta) = 1 - a \|\eta\| = 1 - a \sqrt{\sum_{i=1}^p \eta_i^2}$$

The norm of TE:  $\pi(\beta\hat{\tau}, y)$ , this is a normalization. A linear formulation is:

$$\underbrace{\pi(\beta\hat{\tau}, y)}_{\text{probability of voting for the incumbent}} = \underbrace{z(y)}_{\text{baseline support if perceived tax}=0} + \underbrace{(\alpha(y) - z(y))}_{\text{slope w.r.t. perceived tax}} \underbrace{\beta}_{\text{attenuation from TE complexity}} \times \underbrace{\hat{\tau}}_{\text{headline tax on the rich}} \underbrace{\quad}_{\text{perceived tax on the rich}}$$

Taking again linear specifications:

$$z(y) = \frac{y_0 + y}{y_0 + \bar{y}} \quad (\uparrow y), \quad \alpha(y) = 1 - \rho y \quad (\downarrow y), \quad \rho \in (0, \frac{1}{\bar{y}})$$

$$\pi(\beta\hat{\tau}, y) = (1 - \hat{\tau}) \left( \frac{y_0 + y}{y_0 + \bar{y}} \right) + (1 - \rho y) \hat{\tau}$$

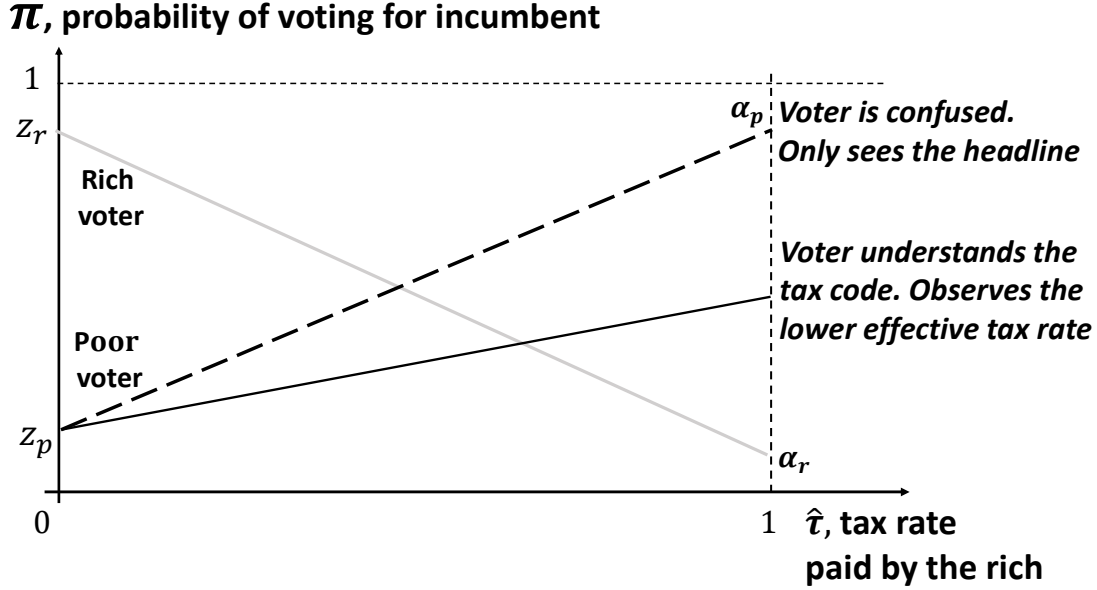
Summing up, a person with income  $y$  will vote for an incumbent government that has set a tax rate  $\hat{\tau}$  with probability  $(1 - af(\eta))$

$$\pi(\hat{\tau}, y) = \begin{cases} (1 - \hat{\tau}) \left( \frac{y_0 + y}{y_0 + \bar{y}} \right) + (1 - \rho y) \hat{\tau} & \text{with probability } \gamma y \\ (1 - (1 - af(\eta))\hat{\tau}) \left( \frac{y_0 + y}{y_0 + \bar{y}} \right) + (1 - \rho y) (1 - af(\eta)) \hat{\tau} & \text{with probability } 1 - \gamma y \end{cases}$$

In Figure 1,  $z_p$  and  $z_r$  are probabilities for rich and poor, and similarly for  $\alpha_p$  and  $\alpha_r$ . In the picture, the black lines are for a poor voter: the dotted line for the confused one, that only sees the headline marginal tax rate, and the solid one for the poor voter who understands the tax code, and see the effective (lower) tax rate paid by the rich, after discounting TEs such as deductions, credits, exemptions, etc. When the tax rate increases

a poor person is more likely to vote for the government. It is worth stressing that the horizontal axes does not measure the tax rate paid by the voter, unless the voter is rich.

Figure 1: Probability of voting for the incumbent



Analogously for the rich voter represented by the gray line, an increase in the tax rate causes a reduction in the probability of a rich person voting for the government. For simplicity, I assume that rich voters are not confused because they have different and more complicated sources of income, which makes them more likely to invest in costly knowledge about TEs by hiring tax experts, lawyers, or tax planners. The rich benefit more from observing the effective tax rate because they can take advantage of tax deductions, exemptions, etc. to reduce their tax burden. At the same time, poor voters want high taxes on the rich and are confused by the fact that TE clauses are complex and difficult to understand.

**Type of voters and when TEs matters.**— I identify two groups of voters: (i) ideological voters—those whose choices are driven by ideology: positions on abortion, same-sex marriage, religion, and traditional family values; and (ii) swing voters—those whose choices are based on economic issues, in our setting the perceived tax rate paid by the rich. Let  $\sigma \in [0, 1]$  denote the share of ideological voters whose choices are independent of TEs and the headline tax rate. Let  $\lambda \in [0, 1]$  be the share of ideological voters who support the incumbent regardless of TEs, namely for ideological reasons (e.g.: an ideological bias). The

remaining  $1 - \sigma$  are swing voters. Define the incumbent's expected vote share as follows:

$$Q(\hat{\tau}, \eta) = \underbrace{\sigma \lambda}_{\text{ideological voters}} + \underbrace{(1 - \sigma) \mathbb{E}_{y,a}[\pi(\beta(a, \eta) \hat{\tau}, y)]}_{\text{swing voters}}.$$

This extension leaves the individual-level mechanics unchanged; it only re-weights how  $\eta$  maps into electoral outcomes. Since the ideological block of voters is independent of TEs, changes in TE complexity affect  $Q(\eta)$  only through swing voters.

$$\frac{\partial Q}{\partial \|\eta\|} = (1 - \sigma) \mathbb{E}_{y,a} \left[ \frac{\partial \pi}{\partial (\beta \hat{\tau})} \frac{\partial \beta}{\partial \|\eta\|} \hat{\tau} \right],$$

**Implications.** (i) If the ideological block is large and unevenly split (i.e.,  $\sigma$  is high and  $|\lambda - \frac{1}{2}|$  is large), the election is effectively predetermined by ideology and marginal changes in  $\eta$  have negligible electoral returns. (ii) If the ideological block is small and/or evenly split ( $\sigma$  low and/or  $\lambda \approx \frac{1}{2}$ ), swing voters will care about TEs; then  $\eta$  becomes electorally relevant, and the party in control has strong incentives to enact more or fewer TEs to influence the median voter's perceived tax burden on the rich. The electoral returns to manipulating  $\eta$  are greatest when ideological voters are evenly split, which generally occurs when political competition is high.

**Political Parties:** Parties choose the headline tax rate on the rich,  $\hat{\tau} \in [0, 1]$ , and the number of TE provisions—which raise the linguistic complexity of the tax code,  $\eta \in E \subset \mathbb{R}^p$  (entering via  $\beta$ )—to maximize an incumbent-motivated objective with a small policy penalty. Let  $t \equiv \beta(a, \eta) \hat{\tau}$  denote the *effective* tax on the rich perceived by informed voters. Let the incumbent party  $P \in \{D, R\}$  choose  $(\hat{\tau}, \eta)$  to maximize:

$$\underbrace{Q(\hat{\tau}, \eta)}_{\text{expected vote share}} - \underbrace{\frac{\nu_P}{2} (t - t_P)^2}_{\text{policy loss}}, \quad Q(\hat{\tau}, \eta) = \sigma \lambda + (1 - \sigma) \mathbb{E}_y[\pi(\beta(a, \eta) \hat{\tau}, y)],$$

where  $t_P$  is party  $P$ 's ideal effective tax on the rich (with  $t_D > t_R$ ), and  $\nu_P \geq 0$  weights policy motives. I add a small legislative/administrative cost of complexity,  $C(\eta) = \frac{c}{2} \|\eta\|^2$  with  $c > 0$ . The party's objective function is therefore

$$\max_{\hat{\tau}, \eta} \underbrace{\sigma \lambda + (1 - \sigma) \mathbb{E}_y[\pi(\beta(a, \eta) \hat{\tau}, y)]}_{\text{expected vote share}} - \underbrace{\frac{\nu_P}{2} (\beta(a, \eta) \hat{\tau} - t_P)^2}_{\text{policy loss}} - \underbrace{\frac{c}{2} \|\eta\|^2}_{\text{convex drafting / admin cost of TEs}}$$

**First-order conditions.** Write  $\Pi(\cdot) \equiv \mathbb{E}_y[\pi(\cdot, y)]$  and denote by  $\bar{a} \equiv \mathbb{E}[a]$  the average ability to understand the tax code among swing voters.<sup>4</sup> Using  $\beta(a, \eta) = 1 - af(\eta)$  and  $f(\eta) = \|\eta\|$ , I have  $\partial\beta/\partial\eta_i = -a\eta_i/\|\eta\|$ . The FOCs are

$$\frac{\partial \mathcal{U}_P}{\partial \hat{\tau}} = (1 - \sigma) \Pi'(\beta \hat{\tau}) \beta - \nu_P (t - t_P) \beta = 0, \quad (1)$$

$$\frac{\partial \mathcal{U}_P}{\partial \eta_i} = (1 - \sigma) \Pi'(\beta \hat{\tau}) \hat{\tau} \frac{\partial \beta}{\partial \eta_i} - \nu_P (t - t_P) \hat{\tau} \frac{\partial \beta}{\partial \eta_i} - c \eta_i = 0. \quad (2)$$

Taking expectations over  $a$  (so  $\mathbb{E}[\partial\beta/\partial\eta_i] = -\bar{a}\eta_i/\|\eta\|$ ), the complexity condition (2) can be written compactly as:

$$\eta_i \left\{ -\bar{a} \frac{\hat{\tau}}{\|\eta\|} \left[ (1 - \sigma) \Pi'(\beta \hat{\tau}) - \nu_P (t - t_P) \right] - c \right\} = 0.$$

Hence, when  $\eta \neq 0$  the sign and magnitude of optimal complexity are determined by the term in brackets. With  $\pi(\beta \hat{\tau}, y) = z(y) + (\alpha(y) - z(y)) \beta \hat{\tau}$ , I have  $\Pi'(x) = \mathbb{E}[\alpha(y) - z(y)] \equiv B > 0$  (since the median-poor tilt implies the average slope is positive). See Appendix D for more details.

Then the FOCs simplify to

$$\begin{aligned} (1 - \sigma) B \beta - \nu_P (t - t_P) \beta &= 0, \\ -\bar{a} \frac{\hat{\tau}}{\|\eta\|} \left[ (1 - \sigma) B - \nu_P (t - t_P) \right] - c &= 0 \quad \text{if } \eta \neq 0. \end{aligned}$$

Equation (1) pins down the effective tax close to a vote-maximizing target:

$$t^* = \beta \hat{\tau} = t_P + \frac{(1 - \sigma) B}{\nu_P}.$$

When ideology is small/evenly split (low  $\sigma$ ), office motives dominate and  $t^*$  tilts toward the electorate's preferred effective tax (higher if  $B > 0$ ). As  $\sigma \rightarrow 1$  or  $|\lambda|$  grows (ideological dominance),  $t^* \rightarrow t_P$  and policy converges to the party's ideal. The complexity condition yields

$$(1 - \sigma) B - \nu_P (t - t_P) = \frac{c \|\eta\|}{\bar{a} \hat{\tau}}.$$

Combining with  $t^*$  implies  $\|\eta\|$  is increasing in  $(1 - \sigma)$  and decreasing in  $c$ , with party differences operating through  $t_P$  and  $\nu_P$ .

<sup>4</sup>With  $k(y) = \gamma y$ ,  $\bar{a} = \gamma \mathbb{E}[y]$ ; using our linear  $\pi$  keeps closed-form expressions tractable.

**Party predictions.** Let  $t_D > t_R$  (Democrats prefer a higher effective tax on the rich) and suppose both parties face the same  $c$  and electorate ( $B > 0$ ). See appendix C for derivation.

1. **Republican complexity under competition.** When competition is high (low  $\sigma$ ), the vote return to the *perceived* tax on the rich,  $B$ , is large. Republicans, whose  $t_R$  is low, optimally choose a *higher headline rate*  $\hat{\tau}_R^*$  and enact more TEs, which leads to *higher complexity*  $\|\eta_R^*\|$  so that  $t^* = \beta \hat{\tau}$  remains close to  $t_R$  while the confused voters observe a higher  $\hat{\tau}$ .<sup>5</sup> Thus, *in close elections, Republicans enact more TEs—thereby increasing tax-code complexity—while keeping the effective tax rate on the rich low, even when they raise the headline rate.*
2. **Democratic transparency under competition.** Democrats have a high ideal  $t_D$ . With low  $\sigma$ , (1) pushes  $t^*$  up further. Raising  $\hat{\tau}$  and enacting *fewer* TE provisions, making the tax code less complex and more transparent (lower  $\|\eta_D^*\|$ ). They both increase  $t$  and the salience of taxing the rich for policy voters. Given the administrative cost  $c$  and the fact that  $(1 - \sigma)B > 0$ , (2) implies *lower* optimal complexity for Democrats in competitive environments. Hence, *under close elections Democrats raise the effective rate and enact fewer TEs, reducing complexity (greater transparency).*
3. **Ideology attenuates TE relevance.** As  $\sigma \rightarrow 1$  (or  $\lambda$  large), the  $(1 - \sigma)$  multiplier drives both  $\partial W / \partial \hat{\tau}$  and  $\partial W / \partial \eta$  to zero; choices converge to policy ideals:  $t^* \rightarrow t_P$ , and  $\|\eta^*\|$  collapses toward the legislatively efficient level (low, given  $c > 0$ ). TE design is electorally second-order, matching the intuition in the suggestion.
4. **Costs and comprehension.** Higher legislative cost  $c$  reduces  $\|\eta^*\|$  for both parties. Greater average comprehension  $\bar{a}$  (e.g., simpler language environment or higher financial literacy) reduces the marginal benefit of complexity by steepening the  $\partial \beta / \partial \eta$  channel in (2); this tightens the Democratic preference for transparency and dampens the Republican incentive to obfuscate.

<sup>5</sup>Formally, since  $t^* = t_R + \frac{(1-\sigma)B}{\beta \hat{\tau}}$ , holding  $t^*$  fixed near  $t_R$  as  $(1 - \sigma)$  rises requires increasing  $\hat{\tau}$  and  $\|\eta\|$  in opposite directions to keep  $\beta \hat{\tau}$  near  $t_R$ . The sign in (2) ensures  $\|\eta_R^*\|$  rises with  $(1 - \sigma)B$  net of the policy term.

### 3.1 Why political competition should matter for tax expenditures?

Political competition matters for TE provisions because it affects the amount of economic rents that interest groups can capture ([Acemoglu and Robinson, 2006](#)). Also, politicians may strategically enact more or fewer TE provisions depending on the level of political competition to benefit specific activities, industries, and sectors in order to win elections.

The standard view in political economy emphasizes that political competition disciplines politicians, reduces rent-seeking behavior, and improves governance. Theoretical work by [Becker \(1985\)](#) argues that competition induces politicians to align their policies with the median voter's preferences, maximizing social welfare and economic efficiency. Empirically, a wide body of research shows that close elections are associated with greater public service provision ([Besley and Burgess, 2002](#)), more growth-enhancing policy choices ([Besley et al., 2010](#)) and lower corruption ([Ferraz and Finan, 2011](#)). In contrast, in environments with low political competition, politicians face fewer constraints and are more likely to favour narrow interest groups, implementing anti-growth policies ([Besley and Case, 2003](#); [Husted and Kenny, 1997](#)).

From this perspective, close elections should encourage more efficient policies, reduce rent-seeking by interest groups, and discipline fiscal behaviour. Thus, one would expect close elections to result in fewer TEs being enacted, since politicians have fewer opportunities to direct hidden tax benefits to special interest groups, especially when voters perceive it as non-transparent, misallocated or regressive. The tax system would thus become simpler, fairer, and more transparent. However, I propose that this prediction varies with partisan control of the state legislature. The next subsection sets out the underlying assumptions; section 7 tests them empirically using U.S. state legislation.

### 3.2 Political parties may use different strategies when enacting TE

In the US, the two major political parties have taken very different approaches to fiscal policies. Democrats promote redistributive policies and support a more progressive tax structure, placing relatively heavier burdens on high-income earners in order to finance public services, investment and social welfare programs ([Carlino et al., 2023](#)). In contrast, Republicans consistently advocate for lower taxes on the wealthy and tend to implement tax cuts that disproportionately benefit middle- and higher-income earners ([Bierbrauer et al., 2021](#); [Burman et al., 2008](#); [Reed, 2006](#)). These differences also extend to TEs.

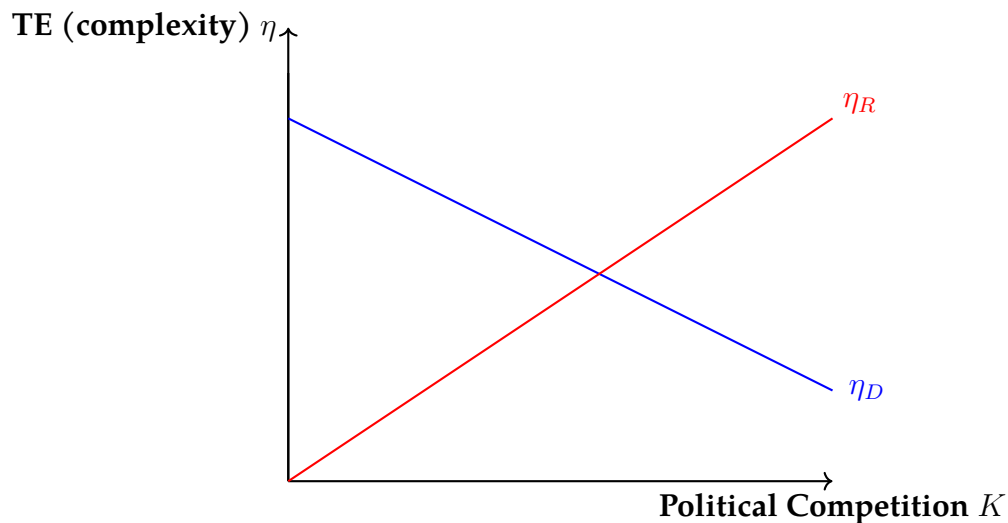
In our framework, political parties have different incentives when enacting TEs. When elections are close, Republican incumbents, who seek to lower taxes on the wealthy, strategically introduce new and complex TE provisions to confuse voters in order to



win elections. Adding these extra layers of complexity lead voters—especially low-and middle-income earners—to believe that the rich are taxed more heavily than they actually are, making them more likely to vote for Republican candidates. The mechanism is obfuscation: policies appear to tax high-income households heavily while lowering their effective burden via additional TEs.

In contrast, when elections are close, Democrats— whose electoral base supports redistribution and favours higher taxes on the wealthy— do not want to introduce new TE provisions for two reasons. First, such measures would generate opposition and lower their re-election chances. Second, they seek to make tax policies as salient and transparent as possible. By enacting fewer complex TE provisions, they avoid confusing voters about the true burden on high-income households, reinforce their commitment to equity, and ensure the median voter clearly perceives the impact of higher taxes on the rich—thereby maximising electoral support. In sum, under high political competition, Democratic-led legislatures have little incentive to obfuscate and do not use TEs and complexity as a political tool, aligning policy with median-voter preferences for clear, progressive taxation. I illustrate these party-specific incentives across competition levels in Figure 2.

Figure 2: TE provisions, complexity and political competition



## 4 Field setting and Data

### 4.1 Field Setting

The U.S provides an ideal field setting for examining the extent to which political competition influences political parties to enact TE provisions—either as a fiscal policy instrument or as a political tool to benefit interest groups. First, ideological polarisation between parties is well documented and has intensified in recent decades across multiple domains,

including tax policy, government spending ([Gentzkow et al., 2019b](#)). Second, the federal structure of the US, where each of the 50 states has the power to design and implement its own fiscal policies, including the enactment of new tax credits, deductions, and exemptions. Third, political competition in the U.S. varies significantly across states and over time, offering a good source of exogenous variation to study its effects on TE provisions.

## 4.2 Data

**US state "Regular Session Laws".**— To construct a measure of tax expenditure provisions, I use detailed information from a corpus of U.S. state statutes contained in the State Session Laws, covering the period 1900–2020. See Appendix [A.4](#) for an example of a Regular Session in Alabama. The "Regular Session Laws" of U.S. states are the official compilations of laws passed by state legislatures during their regular sessions. These session laws include all public laws enacted, organized chronologically by passage. The corpus contains the full text of all newly written legislative acts enacted by US states (the flow of laws), which typically include the full spectrum of state-level governance and policy.

The corpus of state statutes includes deletions (repeals), amendments (modifications to existing laws), and newly enacted laws. A key limitation is that the text was collected directly from HeinOnline, which applies optical character recognition, making it difficult to reliably identify deletions and amendments. While deletions likely reduce the stock of laws and amendments may have an ambiguous effect, prior work by [Ash et al. \(2025\)](#) shows that such provisions represent only 1% and 3% of the corpus, respectively. This suggests that this potential problem is not a concern for our measure of TE provisions.

**Political variables.**— To measure political competition ( $k$ ), I use the closeness of the election outcome. I follow the definition of political competition from ([Besley et al., 2010](#)):

$$k_{st} = -|d_{st} - 0.5|$$

Where  $d_{st}$  denotes the average vote share (%) of Democrats in state  $s$  at time  $t$ . Data for the average vote share consist of all statewide races built from election results for a broad set of directly elected state executive offices<sup>6</sup>, i.e: U.S. representatives, Governors, down-ballot officers, such as Lieutenant Governor, Secretary of State, Attorney General, etc. The measure of political competition ranges from -0.5 to 0, with larger values indicating more competition. I also use these variables from the State Partisan Balance Data, 1937–2011 ([Klarner, 2013](#)): party affiliation of the Governor and legislative control over tax issues.

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<sup>6</sup>I am very grateful to James Snyder for sharing this data for the period 2000–2020

**State economic variables and demographics.**— I use a set of control variables in the empirical specifications. The total amount of revenues collected and total spending by each state are taken from the annual publication of State Government Finances. In addition, total income, income per-capita and population are taken from the Bureau of Economic Analysis. State tax rates for personal income, sales, and corporate are taken from ([Robinson and Tazhitdinova, 2025](#)).

**Campaign contributions.**— I use state-level information on campaign contributions from 1980 to 2020 drawn from the *Database on Ideology, Money in Politics, and Elections* (DIME), public version 4.0 ([Bonica, 2024](#)). The file contains more than 850 million itemised donations by individuals and organisations to local, state, and federal candidates and committees. For the analysis, I aggregate itemized contributions to the state–year level.

## 5 Text analysis of TE legislation

Studying TEs for over a century (1900-2020) represents a major empirical challenge due to lack of data. There is no available database that quantifies TE provisions at state-level for this historical period for every single of the 50 US states. I address this challenge by building a corpus of U.S. state legislation and applying text analysis. This section outlines the steps to process the corpus of statutes and a description of the training process to measure how frequently TE provisions are enacted within the entire legislation. Finally, I provide an overview of the readability measures used to construct a proxy for TE complexity.

### 5.1 Classification of tax expenditure clauses

#### 5.1.1 Corpus Extraction

I extract the full corpus of U.S. state statutes from the "Regular Session Laws" by building a web-scraping algorithm to collect raw text data from a specialized legal database. After downloading all 50 states from 1900-2020, I compile the texts and apply spaCy's sentence segmenter to split them into individual sentences. This step is essential to enable a detailed sentence-level analysis to identify clauses related to TEs.

#### 5.1.2 US Tax Code Sections

I leverage a processed corpus of U.S. tax code developed by [Ash et al. \(2021\)](#), which contains labeled tax law sections<sup>7</sup>. The authors apply a binary classifier to identify tax-related

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<sup>7</sup>I am very grateful to Elliot Ash for sharing this corpus.

clauses, using an algorithm that achieves 95% accuracy. This corpus spans the years 2000 to 2010 and was pre-processed through several steps<sup>8</sup>.

### 5.1.3 Dictionary Method to create input dataset

I use this clean, processed corpus of tax code sections to implement a dictionary-based approach. In particular, I pre-define a set of keywords and phrases that are commonly associated with tax expenditures—such as “credit,” “exemption,” “tax abatement,” “rebate,” “tax benefit,” “exclusion,” and “deduction.” This approach follows prior work by [Hassan et al. \(2019\)](#), [Baker et al. \(2016\)](#), and [Caldara and Iacoviello \(2022\)](#). It allows me to construct a dataset of TE-related provisions from the U.S. tax code, which I then use as training input for a BERT model to identify similar provisions in state-level legislation.

## 5.2 Identifying TE provisions in the corpus

To identify TE provisions, I apply a state-of-the-art large language model from the transformer architecture—BERT (Bidirectional Encoder Representations from Transformers) ([Vaswani et al., 2017](#)). BERT is a pre-trained model, having been trained on a large corpus of general-domain text (e.g., Wikipedia, Common Crawl). I choose BERT over traditional methods—such as bag-of-words models, word embeddings, or dictionary-based approaches—because it captures complex semantic relationships by learning word meanings in context. Moreover, BERT can be fine-tuned for specific tasks using a relatively small labeled dataset, allowing it to adapt quickly to domain-specific terminology such as TEs.

To fine-tune the pre-trained BERT model, I use the labeled dataset constructed in the previous step, which classifies clauses as either related or unrelated to TEs. I add a classification layer on top of the BERT architecture to enable binary classification—predicting whether a given clause is a “TE” or “No TE” provision. The fine-tuning process involves adjusting BERT’s internal parameters to minimize classification error based on the training data. The idea is that the model learns to differentiate between ‘TE’ and ‘No TE’ based on patterns in our input data. I train the model on 80% of the labeled dataset and reserve the remaining 20% for evaluation. The fine-tuned model achieves an in-sample accuracy of 90%, suggesting strong predictive performance and potential for generalization to out-of-sample data. After training, I apply the fine-tuned BERT model to the full corpus of state statutes to identify clauses that correspond to TE provisions.

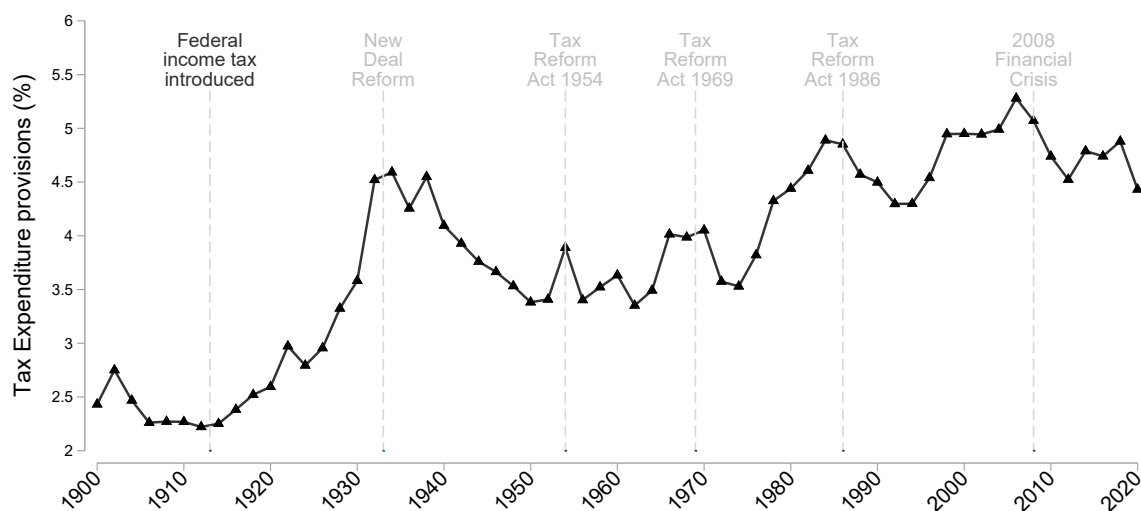
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<sup>8</sup>Removal of page numbers, indexes, capitalization, and punctuation to reduce potential noise; exclusion of meta-textual elements such as tables of contents, footers, and headers to ensure focus on substantive legal content; and the elimination of stop words and rare words to narrow the dataset to meaningful terms directly associated with tax-related provisions.

Figure A.2 in the Appendix shows the pipeline that summarizes the steps described above. Examples of TE provisions and non-TE provisions are presented in Appendix A.2 and A.3, respectively. Both lists are randomly selected from the corpus to cover different levels of complexity, years, and states. To measure the share of TE provisions, I compute the ratio of the number of provisions classified as TEs to the total number of provisions in the corpus of U.S. state statutes.

$$\text{TE Provisions} = \frac{\text{\# of TE-related provision}}{\text{Total \# of provisions in the state legislation}}$$

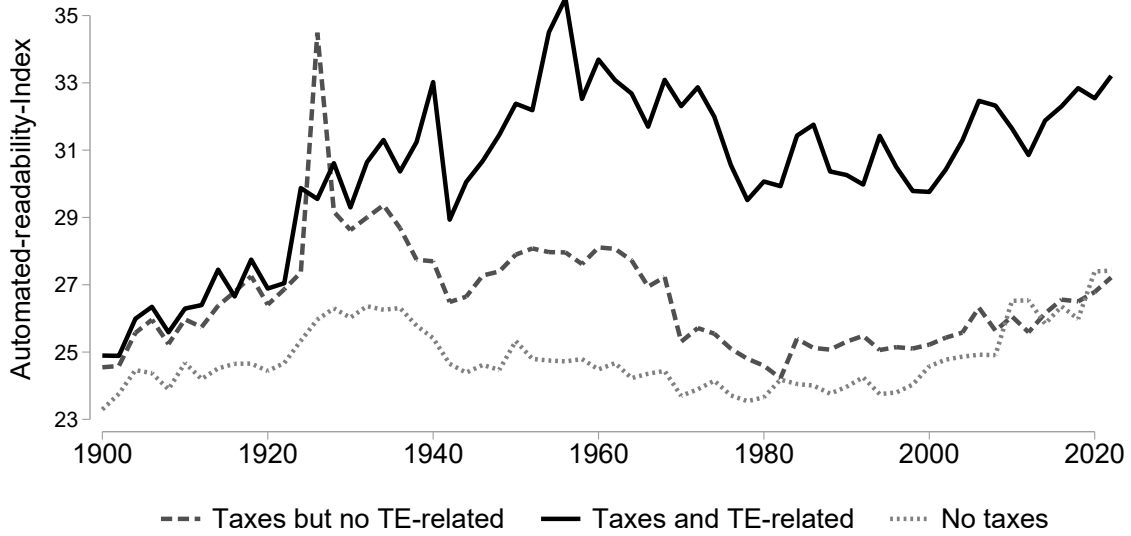
Figure 3: Flow of TE provisions in U.S. State-Level Legislation (1900-2020)



Notes: This graph depicts the provisions of TEs in U.S. state-level legislation from 1900 to 2020. The variable "tax expenditure provisions" was calculated as the ratio of the total number of sentences classified as TE provisions to the total number of sentences in the corpus of U.S. state statutes extracted from the HeinOnline Library's "State Sessions Laws." This indicates the flow of TE provisions as they come from newly written legislation every year. Tax expenditure clauses were classified using a combination of dictionary methods, involving predefined keywords related to tax expenditures (e.g., "credit", "deductions", "exclusions", "exemption", "rebate"), and text-as-data algorithms. Specifically, a fine-tuned BERT model was applied to classify each sentence as either tax expenditure-related or not.

Figure 3 depicts the proportion of TE clauses introduced in new legislation each year, measuring the flow of tax expenditure provisions. Significant increases in this flow are observed during the 1930s, likely reflecting the re-introduction of the federal income tax and the subsequent adoption of personal income tax by several states in this period. Another marked increase occurs around the 1960s and 1970s, coinciding with the Tax Reform Act of 1969 and a growing emphasis on economic regulation. After a period of decline in the late 1970s and early 1980s, the flow of TEs rose again in the mid-1980s, possibly spurred by the Tax Reform Act of 1986. The 2000s show another peak around the 2008 Financial Crisis, reflecting increased legislative activity in response to the economic downturn.

Figure 4: Linguistic complexity by type of provisions



Notes: Figure displays the complexity of legislative provisions over time for the Automated Readability Index, categorized by type. The graph compares clauses classified as 'Taxes and TE-related' (black line), 'Taxes but no TE-related' (dark gray line), and 'No taxes' (light gray line). In Appendix A.1 complexity is measured across four readability indices: Flesch-Kincaid Grade, Automated Readability Index, Dale-Chall Readability Score, and the count of Difficult Words.

My theoretical framework suggests that politicians strategically use TEs to benefit wealthy individuals while obscuring this advantage from the median voter. To avoid detection, politicians employ complex language in TE provisions, making it difficult for voters to fully understand the reduced tax burden on the wealthy. I start by calculating a set of readability measures—derived from linguistic and political science literature—for sentences classified as tax expenditures, those classified as taxes but not tax expenditures, and sentences unrelated to taxation. I use these readability measures as proxies for obfuscation. As shown in Figure 4, using the Automated Readability Index, TE provisions are, on average, 23% more complex than non-tax-related legislation throughout the study period. This pattern is consistent across all four readability measures (see Appendix A.1), suggesting that TEs are systematically more difficult to understand compared to general tax and non-tax provisions. Consequently, the higher the provisions of TEs, the more challenging it becomes for voters to understand the tax benefits provided to the wealthy.

## 6 Empirical strategy

This section outlines the main features of my empirical strategy. I first present the OLS estimates. Then, following Besley et al. (2010), I use an instrumental variable approach that exploits the federal introduction of the 1965 Voting Rights Act. I describe the instrument and show how it relates to political competition.



## 6.1 Baseline Specification: Two-Way Fixed Effects (TWFE)

To estimate the aggregate effect of political competition on TE provisions, I implement a TWFE model estimated by OLS. I estimate the following equation:

$$\text{TE provisions}_{st} = \beta_0 + \beta_1 \text{Political Competition}_{st} + \beta_2 \mathbf{X}_{st} + \mu_t + \gamma_s + \epsilon_{st} \quad (3)$$

Where,  $\text{TE provisions}_{st}$  denotes the measure of tax expenditures provisions.  $\text{Political Competition}_{st}$  refers to political competition in state  $s$  and year  $t$ .  $\mathbf{X}_{st}$  is a vector of control variables to account for potential omitted variable bias, such as: total taxes, total spending, total income, number of tax returns, population, indicator variables for gubernatorial party affiliation (Democrat = 1, otherwise = 0), party legislative control over tax issues (Republican = 1, otherwise = 0) and elections (Election that year = 1, otherwise = 0),  $\mu_t$  corresponds to year fixed effects, it absorbs changes that affect all states equally, such as macroeconomic conditions in the US.  $\gamma_i$  refers to state fixed effects, it captures state-specific influences common to all years.  $\epsilon_{it}$  is the error term.

Table 1: Fixed Effects model (OLS):  
TE provisions and political competition

	Dependent variable: Tax Expenditure Provisions	
	State & Year FE (1)	With Controls (2)
Political competition standardized (votes)	-0.114** (0.046)	-0.122*** (0.039)
Observations	2,944	2,944
$R^2$	0.267	0.271
Number of clusters	48	48
State FE	✓	✓
Time FE	✓	✓
Controls		✓

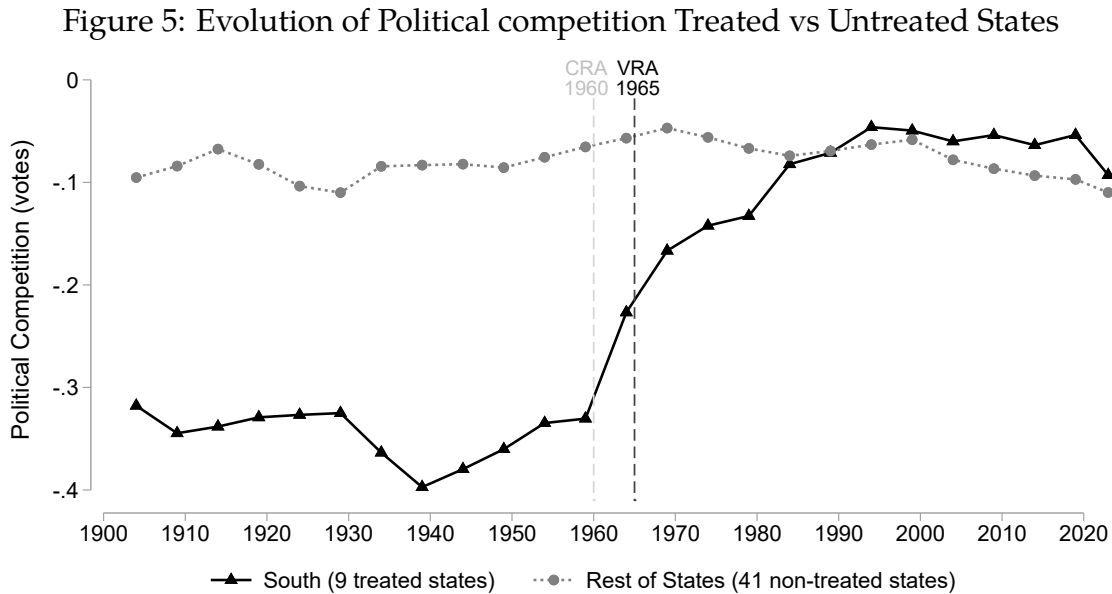
*Notes:* Table reports estimates for two-way fixed effect (FE) model, estimated by OLS. All specifications include state and year FE, with a second column including control variables such as population, an indicator variable that takes the value of 1 if the governor is a Democrat, and 0 otherwise, total taxes, total expenditures, total income, total capital, and an indicator variable that takes the value of 1 if there was an election during that year, and 0 otherwise. All standard errors clustered by state. \*\*\*p<0.01; \*\*p<0.05; \*p<0.1.

Table 1 reports the  $\beta_1$  coefficient from a two-way fixed-effects (FE) estimator that removes time-invariant state heterogeneity (e.g. fiscal institutions, long-run partisan culture) and common shocks in a given year (e.g. federal policy changes or the business cy-

cle). Column (1) corresponds to the baseline specification including only state and year FE and in column (2) fiscal and demographic controls are added. In both columns, the coefficient on political competition is negative and statistically significant at least at 5% ranging from -0.114 to -0.122, indicating that a one-standard-deviation rise in electoral competitiveness is associated with fewer TE provisions being enacted by roughly 0.12 units. It is important to emphasize that even after accounting for fixed effects,  $\mu_t$  and  $\gamma_s$ , there could be omitted variable bias coming from campaign contributions, share of media penetration, unionization rates, etc. These variables that vary over time can be correlated with both political competition and TE provisions, which may potentially bias the estimates.

## 6.2 Instrumental Variable Approach (2SLS)

To address these endogeneity concerns, following [Besley et al. \(2010\)](#), I employ an instrumental variable approach, leveraging exogenous variation in political competition generated by the Voting Rights Act (VRA) of 1965. The VRA, by relaxing some restrictive voting policies such as literacy tests and poll taxes in several southern states (9 treated), induced a shift toward higher political competition as depicted in Figure 5. I use the share (%) of a state's population affected by these restrictions as an instrument to isolate the exogenous variation in political competition attributable to the intervention of the 1965 VRA.



*Notes:* This graph depicts the evolution of political competition in treated Southern states and non-treated states from 1900 to 2020. The y-axis represents the level of political competition. Political competition is measured as the closeness of the election outcome. It is calculated as follows:  $k_{st} = -|d_{st} - 0.5|$ . Where  $d_{st}$  denotes the average vote share (%) of Democrats in all statewide races in state  $s$  at time  $t$ . This data consists of all statewide races, constructed from election results for a broad set of directly elected state executive offices, including U.S. representatives, governors, and down-ballot officers such as lieutenant governor, secretary of state, attorney general, etc. Each observation is a five-year average of our main measure of political competition, which ranges from -0.5 to 0, with larger values indicating more competition.

Given that the VRA was primarily aimed at reducing racial discrimination against Black Americans and other minorities in electoral contests, it serves as a valid instrument for political competition. This validity rests on two conditions. First, the relevance condition: states with a higher share of the population subject to voting restrictions are expected to have experienced lower levels of political competition. This assumption is testable and evaluated in the first-stage regression. Second, the exclusion restriction: the VRA is plausibly unrelated to state fiscal policy outcomes—such as the number and complexity of TE provisions—except through its impact on political competition. That is, the share of the population affected by voting restrictions influences TE provisions only via changes in political competition. This assumption is likely to hold.

### 6.2.1 First-Stage Equation

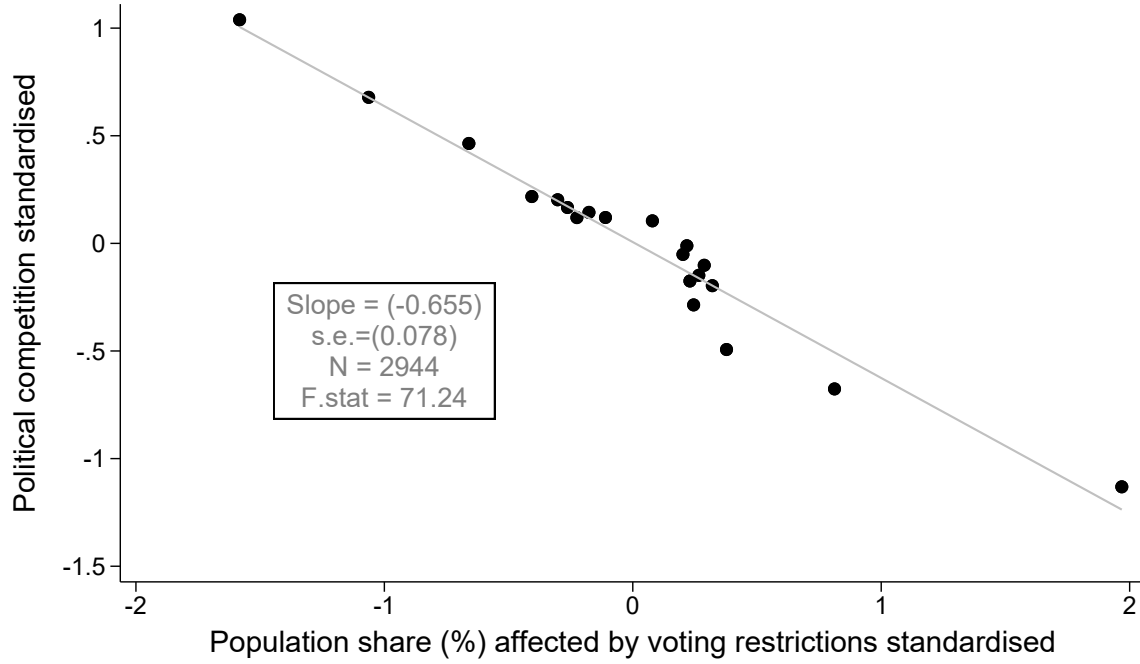
The first-stage equation estimates the impact of the VRA intervention, measured by the share of the state population subject to voting restrictions, on political competition. I specify the following equation:

$$\text{Political Competition}_{st} = \alpha_s + \beta_t + \gamma \cdot \text{Share Pop}_{st} + \lambda \cdot \mathbf{X}_{st} + \epsilon_{st} \quad (4)$$

Where  $\alpha_s$  represents state fixed effects,  $\beta_t$  represents year fixed effects.  $\text{Political Competition}_{st}$  represents the measure of political competition in state  $s$  at time  $t$ ,  $\text{Share Pop}_{st}$  is the instrumental variable, defined as the share of the population affected by restrictive voting practices (e.g., literacy tests and poll taxes) that were removed by 1965 VRA. It equals the share of the population affected by voting restrictions in 1960 for treated Southern states (see Table A.1) and 0 otherwise.  $\gamma$  captures the effect of the VRA-induced change on political competition and  $\epsilon_{it}$  is the error term. This equation generates predicted values of political competition that reflect only the exogenous variation due to the VRA, isolating it from other potential confounders.

Figure 6 illustrates the first-stage relationship between the instrument, the share of the state population affected by historical voting restrictions ( $\text{Share Pop}_{st}$ ), and the endogenous variable, political competition. The figure presents a binned scatterplot, with a clear negative association between the instrument and political competition. The slope coefficient  $\gamma$  of  $-0.655$  ( $\text{SE} = 0.078$ ) is highly significant at the one-percent level, and the Kleibergen-Paap F-statistic is robust at 71.2, exceeding standard thresholds for weak instrument diagnostics. This ensures the instrument provides sufficient variation in political competition to identify the causal effect in the second stage. This means that states with a larger share of their population previously subject to restrictive voting practices exhibit lower levels of political competition.

Figure 6: First stage: Impact of the instrument (Share Pop<sub>st</sub>) on Political Competition



Notes: This graph depicts the binned scatterplot for the first-stage relationship (Equation 4) between instrument (horizontal axis) and the standardized measure of political competition (vertical axis). State and year fixed effects absorbed.

Another way to visually observe the first-stage dynamically is to compare how political competition evolves in the southern states affected by the voting restrictions to those states that were not affected. To do that, I employ the following event-study approach:

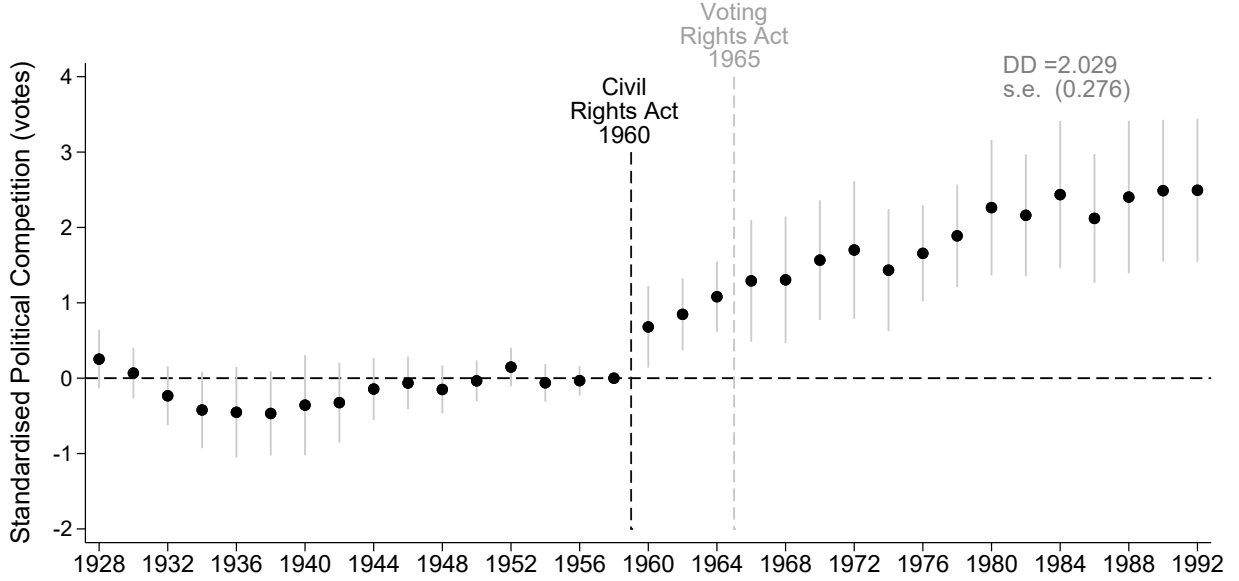
$$\text{Political Competition}_{st} = \mu_t + \gamma_s + \sum_{k \neq 1959} \beta_k \cdot T_{st}^k + \varepsilon_{st}$$

Where  $T_{st}^k$  are event-time dummies for the event occurring  $k$  years away from 1960. The nine treated southern states are: Alabama, Georgia, Louisiana, Mississippi, South Carolina, Texas, Virginia, North Carolina; and Arizona. A summary is reported in Table A.1.

Figure 7 shows an event-study to analyze the effect of the 1960 Civil Rights Act on political competition. Prior to 1960, the difference between political competition in South states (those that were subject to voting restriction before the reform) and non-South states remains constant and statistically equal to zero, satisfying the parallel trend assumption. Following the implementation of the CRA, political competition begins to rise, with this upward trend intensifying after the enactment of the 1965 Voting Rights Act. The effect remained persistent in the subsequent years. This implies that the 1960 CRA and 1965 VRA acted as a catalyst, initiating a structural shift in U.S. politics by broadening the electorate.

Research suggests that removing voting barriers, such as literacy tests and poll taxes, in Southern states led to a surge in voter registration and turnout among previously excluded groups (Bernini et al., 2024, 2025; Cascio and Washington, 2014).

Figure 7: Event-study for the effect of the 1960 Civil Rights Act on political competition



Notes: This graph depicts the event study for the effect of the Civil Rights Act (CRA) of 1960 on political competition. The y-axis represents the standardized measure of political competition (in votes). The Voting Rights Act (VRA) of 1965 is also marked by a vertical dash gray line. Ninety-five percent confidence intervals are constructed for standard errors clustered at the state level.

### 6.2.2 Second-Stage Equation

In the second stage, I use the predicted values of political competition from the first-stage equation to estimate its effect on TE provisions. The second-stage equation is specified as:

$$\text{TE provisions}_{it} = \delta_s + \phi_t + \theta \cdot \widehat{\text{Political Competition}}_{st} + \lambda \cdot \mathbf{X}_{st} + \eta_{st} \quad (5)$$

Where  $\text{TE provisions}_{it}$  denotes the measure of TE provisions,  $\widehat{\text{Political Competition}}_{st}$  is the fitted value of political competition obtained from the first-stage equation,  $\delta_s$  and  $\phi_t$  again represent state and year fixed effects,  $\theta$  is the coefficient of interest, capturing the causal effect of political competition on TE provisions,  $\eta_{st}$  is the error term. An important condition that must be satisfied is the exclusion restriction, which suggests that  $\text{Share Pop}_{st}$  affects TE provisions *only* through political competition.

$$\text{Cov}(\text{Share Pop}_{st}, \eta_{st}) = 0.$$

## 7 Main results

This section reports the main empirical results. Subsection 7.1 begins by testing whether greater political competition leads to fewer or more TE provisions being enacted. First, I examine the causal relationship between political competition and TE provisions using the instrumental variable approach described earlier. Then, I conduct some robustness checks with alternative instrument. Finally, subsection 7.3 explores heterogeneity in the effects, focusing on whether political parties use different strategies when enacting TEs.

### 7.1 Effect of Political Competition on TE provisions

Table 2 reports the 2SLS and first-stage specifications. Panel B presents the first-stage estimates of Equation 4, where political competition is regressed on the instrument ( $\text{Share Pop}_{st}$ ), which measures the share of the population affected by historical voting restrictions. The instrument is strongly negatively associated with political competition, with coefficients between  $-0.655$  ( $\text{SE} = 0.078$ ) and  $-0.228$  ( $\text{SE} = 0.104$ ), all statistically significant at least at the 5% level. This indicates that states with higher shares of their population subject to voting restrictions experienced lower levels of political competition before the introduction of the 1960 CRA. It is important to mention that the first stage F-statistics for our preferred specifications is above the conventional threshold for weak instruments of 10, suggesting that the share (%) of population subject to voting restrictions before the 1965 VRA is a strong instrument. This indicates that one of the key conditions for implementing an instrumental variables approach, the relevance condition, holds.

Panel A reports the 2SLS estimates. The coefficients are lower in magnitude and significant across all specifications compared to the OLS results in table 1. Column (1) includes state and year fixed effects to control for time-invariant state characteristics and nationwide trends. The coefficient on political competition is negative ( $-0.199$ ) and statistically significant. Column (2) incorporates additional state-level controls, such as population, total taxes, and gubernatorial party affiliation, yielding a coefficient of  $-0.192$ , significant at the 1% level. Column (3) adds states time trends to allow every state its own deterministic trend and absorb any state-specific, smoothly evolving factors—e.g. gradual shifts in industrial structure, demographics, or institutional capacity—that could be correlated with both political competition and the propensity to use TE provisions. In this specification the coefficient remains stable in magnitude ( $-0.208$ ) and is statistically significant at the 5% level. Column (4) includes lagged dependent variable to account for persistent effects and to control for potential state-specific mean reversion and autocorrelation; the



coefficient remains consistent and significant ( $-0.220$ ). Large-scale changes in political competition in the US south have clearly been associated with other important changes in the southern economy and society, which could be correlated with TE policy choices. To capture these wider changes in a non-parametric way, in Column (5), I include an interaction term for Southern states and years (South  $\times$  year). The resulting coefficient is larger in magnitude and preserves the negative sign ( $-0.307$ ), significant at the 5% level. In sum, this specification, allows for different trends in the US north and south in a flexible (non-parametric) way. Finally, in Column (6) we restrict the sample only to Southern states, and the coefficient remains very similar in magnitude, being significant at 10%. Across all specifications, the first stage F statistics indicate a strong instrument.

Table 2: 2SLS and First-stage estimates: TE provisions and political competition, using the share of population affected by voting restrictions as instrument

	State & Year FE (1)	With Controls (2)	State $\times$ Time Trend (3)	Lagged Dep. Var. (4)	South $\times$ year Interactions (5)	South States (6)
<b>Panel A: Second-Stage</b>	Dependent variable: Tax Expenditure Provisions					
Political competition standardized	-0.199*** (0.071)	-0.192*** (0.070)	-0.208** (0.087)	-0.220** (0.095)	-0.307** (0.133)	-0.317* (0.179)
<b>Panel B: First-Stage</b>	Dependent variable: Political Competition					
Population share (%) under voting restrictions	-0.655*** (0.078)	-0.616*** (0.077)	-0.320*** (0.096)	-0.369*** (0.106)	-0.275** (0.108)	-0.228** (0.104)
$R^2$	0.610	0.629	0.712	0.712	0.745	0.814
Mean of TEs	0.04	0.04	0.04	0.05	0.04	0.04
Observations	2,944	2,944	2,944	2,288	2,944	1,005
First Stage F-stat	71.24	65.70	11.19	12.11	6.54	6.41
Number of States	48	48	48	46	48	16
State and Year FE	✓	✓	✓	✓	✓	✓
Controls		✓	✓	✓	✓	✓
State-Specific Trends			✓	✓	✓	✓
Lagged Dep. Variable				✓	✓	
South $\times$ year interactions					✓	
Only South States						✓

Notes: Panel A displays the second-stage 2SLS coefficients from regressing the number of TE provisions on *political competition*, where political competition is instrumented by the population share living under voting-restrictions statutes. Panel B reports the corresponding first-stage estimates of the excluded instrument on political competition. All six columns include state and year fixed effects; columns accounts for: (1) fixed effects; (2) time-varying controls: population, governor party, total taxes, total spending, gross state income, capital stock, and an election-year indicator; (3) state-specific linear time trends; (4) one-year-lagged dependent variable; (5) interactions of a South dummy with year dummies; and (6) sample restricted to southern states only. Political competition is standardised to mean 0, variance 1. Standard errors, reported in parentheses, are clustered at the state level. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

The results consistently show that higher political competition leads to fewer TE provisions enacted. This implies lower rents to special interest groups and a simpler tax code. However, this corresponds to the average effect and therefore is not enough evidence to say that this pattern holds for both political parties. Further analysis to test the theoretical model’s prediction is conducted in Subsection 7.3.

## 7.2 Robustness

I carry out a set of robustness checks reported below, which confirm the baseline results. For this purpose, I use the most important specifications reported in Table 2.

### 7.2.1 Voter Turnout as Alternative Instrument

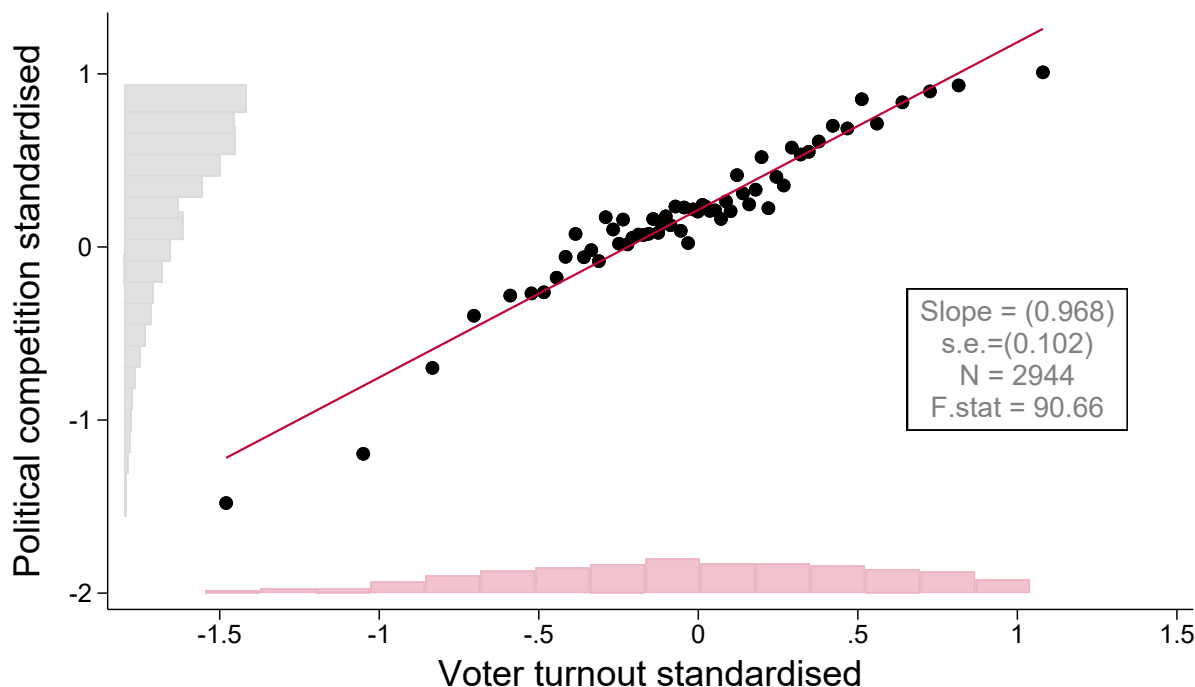
Until now, the instrument—the 1960 share of a state’s population subject to voting restrictions—exploits exogenous variation from the 1965 VRA. However, one may argue that the use of this federal law to capture the causal effect of political competition on TEs has some caveats. First, this federal shock primarily affected a small set of nine Southern states, limiting cross-state support. Second, identification is therefore local, meaning that the 2SLS coefficient recovers only the local average causal effect (LATE) for the states whose competition moved in response to the VRA. To address this caveat, I employ *voter turnout*—the share of the voting-age population that casts a ballot in statewide elections in year  $t$ —as an alternative instrument for political competition.

**Exogeneity of voter turnout:** One may be concerned that voter turnout itself is not exogenous. In fact, voter turnout can be influenced by many factors. First, it may be affected by individual characteristics such as education, income, place of residence, homeownership, and religiosity (Cantoni and Pons, 2022; Gerber et al., 2016; Hall and Yoder, 2022; Milligan et al., 2004). Second, contextual forces can also shape voter’s decision to participate in elections—neighborhood composition, media penetration, electoral campaigns, voting technologies, and voting rules such as voter-ID requirements (Cantoni and Pons, 2021; Gerber and Green, 2000; Perez-Truglia, 2018). However, to be a valid instrument, two conditions must be satisfied, relevance condition and exclusion restriction.

**Relevance condition:** Higher turnout may reduce the vote-share gap between parties and force incumbents to appeal to a broader electorate, thereby increasing political competition (Hansford and Gomez, 2010; Martinez and Gill, 2005; Nagel and McNulty, 1996). To be a valid instrument, voter turnout must be strongly correlated with political competition. The first-stage coefficient after regressing political competition on standardized voter turnout is positive and highly significant: Figure 8 reports a slope of 0.968 with a

standard error of 0.102, and the Kleibergen–Paap  $F$ -statistic is 90.66, well above conventional weak-instrument thresholds. This means that one standard deviation increase in turnout is associated with a 0.968 standard deviation increase in political competition.

Figure 8: First-stage: voter turnout and political competition



*Notes:* Figure shows a binned scatterplot of the relationship between voter turnout standardised and political competition standardised. Voter turnout is measured as the percentage (%) of the voting-age population that cast a ballot in a given contest. I include state-level turnout from gubernatorial, presidential, US Senate, and US House races. Standard errors are clustered at the state level.

In Appendix A.3, I provide further evidence showing that there is a strong negative (-0.444) and statistically significant association between the instrument used in table 2 — the share of population affected by the voting restrictions— and voter turnout. This suggests that states with higher disenfranchisement had significantly lower turnout.

**Exclusion restriction:** Conditional on a set of fiscal, demographic and political controls, as well as state and year fixed effects, same-year voter turnout should affect the complexity or number of TE provisions only through its impact on political competition. Turnout is largely driven by factors such as voter mobilization efforts, ballot access rules, and election salience, which plausibly do not directly affect how frequently TE legislation is passed, once contemporaneous controls are in place. Moreover, most state budgets and statutory changes are drafted before the general election takes place in November in the year of the contest, reducing concerns that TEs could influence turnout within the same year.

Table 3: 2SLS and First-stage estimates: TE provisions and political competition, using voter turnout as instrument

	State & Year FE (1)	With Controls (2)	State x Time Trend (3)	Lagged Dep. Var. (4)	South x year Interactions (5)	South States (6)
<b>Panel A: Second-Stage</b>	Dependent variable: Tax Expenditure Provisions					
Political competition standardized	-0.221* (0.131)	-0.272** (0.128)	-0.232** (0.103)	-0.218* (0.125)	-0.221* (0.126)	-0.443** (0.153)
<b>Panel B: First-Stage</b>	Dependent variable: Political Competition					
Voter turnout (%) standardized	0.968*** (0.102)	0.894*** (0.093)	0.536*** (0.090)	0.541*** (0.111)	0.487*** (0.087)	0.539*** (0.129)
$R^2$	0.634	0.646	0.745	0.719	0.761	0.823
Observations	2,944	2,944	2,944	2,288	2,944	1,005
First Stage F-stat	90.66	91.96	35.25	23.80	31.62	17.54
Number of States	48	48	48	46	48	16
State and Year FE	✓	✓	✓	✓	✓	✓
Controls		✓	✓	✓	✓	✓
State-Specific Trends			✓	✓	✓	✓
Lagged Dep. Variable				✓	✓	
South x year interactions					✓	
Only South States						✓

Notes: Panel A displays the second-stage 2SLS coefficients from regressing the number of TE provisions on *political competition*, where political competition is instrumented by voter turnout (%), the share of the voting-age population that casts a ballot in statewide elections. Panel B reports the corresponding first-stage estimates of the excluded instrument on political competition. All six columns include state and year fixed effects; columns accounts for: (1) fixed effects; (2) time-varying controls: population, governor party, total taxes, total spending, gross state income, and an election-year indicator; (3) state-specific linear time trends; (4) one-year-lagged dependent variable; (5) interactions of a South dummy with year dummies; and (6) sample restricted to southern states only. Political competition is standardised to mean 0, variance 1. Standard errors are clustered at the state level. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

Table 3 reports estimates for the two-stage least squares (Panel A) and first-stage (Panel B) using voter turnout as an alternative instrument for political competition. The results are consistent with Table 2: higher political competition leads to fewer TE provisions enacted overall. 2SLS estimates are negative, ranging from  $-0.22$  to  $-0.27$ , and are comparable to the baseline in Table 2 ( $-0.19$  to  $-0.32$ ). Voter turnout provides richer variation, reflected in stronger first-stage Kleibergen–Paap  $F$ -statistics across all specifications (17.5–92.0), well above conventional weak-instrument thresholds.

Table 8 in Appendix A reports a Wald estimator that instead of using a continuous measure for the instrument –share of population subject to voting restrictions– uses an indicator value equal to one for those states that were subject to voting restrictions before the 1960 CRA and zero otherwise (see Table A.1). The results are similar to those of Tables 2 and 3, both in terms of coefficient magnitudes ( $-0.22$  to  $-0.33$ ) and first-stage  $F$ -statistics.

This confirms that close elections lead to fewer TEs enacted in the aggregate. It is worth mentioning that this estimate is an average effect, considering that about two-thirds of the year-state observations in the sample are controlled by the Democratic party. It may be the case that the effect is driven mechanically by this fact. I shed light on this in the next section.

### 7.3 Do political parties legislate on TEs differently?

The second question I want to examine in the context of US states is whether political parties use different strategies when enacting tax expenditure provisions when elections are close. From our theoretical framework, Republican incumbents are more likely to increase the use of tax expenditures because they want to reduce the tax burden on the rich, but at the same time they want to confuse and hide from the median voters the fact that they are reducing the effective tax rate on the rich. This strategy aims to win as many median voters as possible in order to secure their seats. To empirically test this, I estimate the same equation 3 using the OLS estimation procedure, but now interacting political competition with the political party that controls the legislature over tax issues. As discussed in the previous section, I include state and year fixed effects to account for unique state-specific characteristics that may impact tax expenditure provisions and to address factors that affect all states similarly during each specific year. The equation I estimate is as follows:

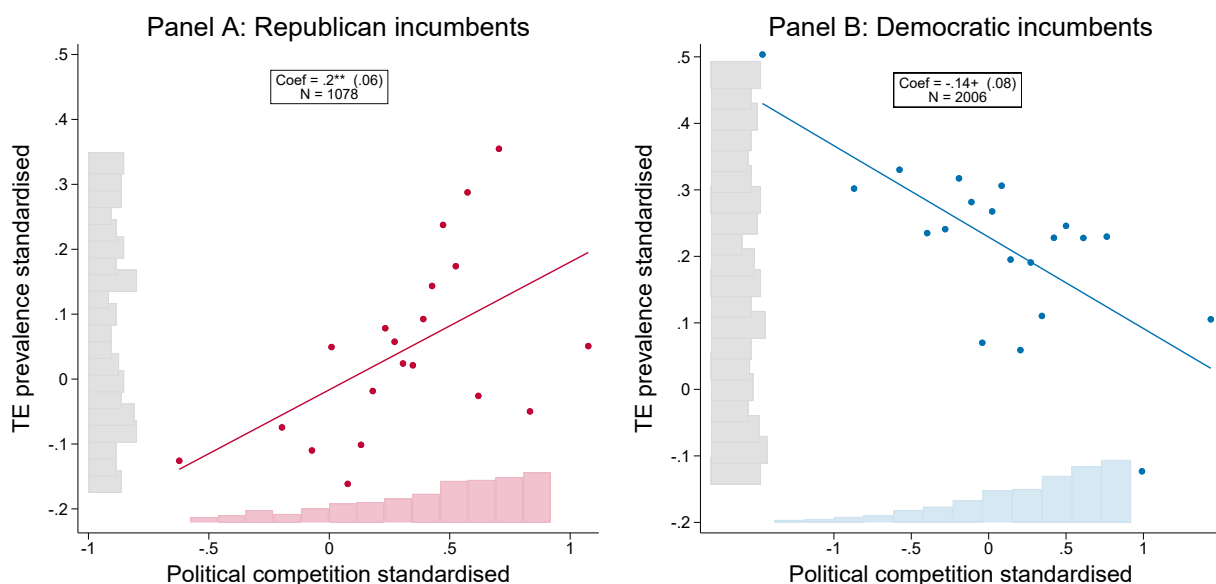
$$\text{TE provisions}_{st} = \beta_0 + \beta_1 PC_{st} + \beta_2 Rep_{st} + \beta_3 (Rep \times PC)_{st} + \beta_4 \mathbf{X}_{st} + \mu_t + \gamma_i + \epsilon_{st} \quad (6)$$

Where  $PC_{st}$  represents political competition in state  $i$  and year  $t$ .  $Rep_{st}$ : legislative Republican control over tax issues in state  $i$  and year  $t$ ,  $Rep \times PC_{st}$ : interaction term Republican control over the legislature  $\times$  political competition,  $\mathbf{X}_{st}$ : is a vector of control variables, which includes total taxes, total expenditures, income, population, tax rates, number of tax returns, indicator variables for gubernatorial election.  $\mu_t$  year fixed effects, capturing time-specific influences common to all states  $\gamma_i$  state fixed effects, capturing state-specific influences common to all years and  $\epsilon_{st}$  is the error term.

Before estimating equation 6, I present a binscatter plot that shows the relationship between political competition and tax expenditure provisions, separated by the political party in control of the legislature. Figure 9 shows the results for two panels. Panel A presents the binscatter for Republican-led legislatures. The positive and statistically significant coefficient (0.20, SE = 0.06) indicates that the higher the political competition the more likely are Republicans to increase TE provisions. This finding is consistent with the theoretical framework, which predicts that Republican legislators strategically increase the

use of tax expenditures to reduce the effective tax burden on the wealthy in an attempt to obfuscate the complexity and regressiveness of their fiscal policies in order to secure votes and win elections. Panel B presents the results for Democratic-controlled legislatures. The negative coefficient ( $-0.14$ ,  $SE = 0.08$ ) is statistically significant at 10%. It is also economically meaningful in magnitude and suggests that in legislatures under Democratic control, higher political competition increases the likelihood of legislating fewer tax expenditure provisions. This aligns with the prediction that Democrats reduce the use of tax expenditures in competitive settings to promote transparency and emphasize redistributive policies, revealing the actual policy to voters to win elections.

Figure 9: TE provisions and political competition by party legislative control



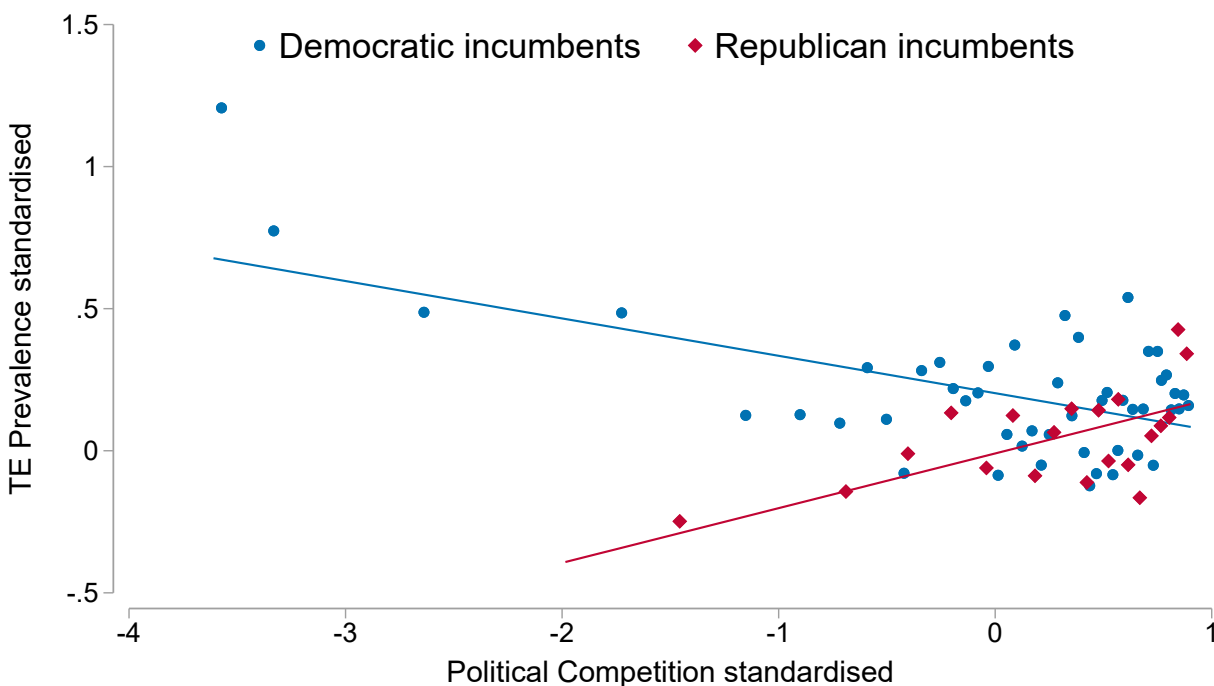
*Notes:* The figure shows binscatters that reflect the relationship between political competition and tax expenditure (TE) provisions, separated by party legislative control—Republicans (Panel A) and Democrats (Panel B). The outcome variable is the standardized TE provisions, and the treatment variable is standardized political competition. The regression in both panels includes controls for total expenditures, population, average income, total income, Democratic and Republican control, and an indicator variable that takes the value of 1 if the Governor is Democrat, and 0 otherwise, with state and year fixed effects. Standard errors are clustered at the state level. Histograms along the axes display the distributions of political competition and TE provisions. The red line in the Republican panel and the blue line in the Democrat panel represent the fitted regression line for each party’s respective legislative control.

In order to provide a clearer perspective on the magnitude of the differing responses of political parties to political competition in terms of using tax expenditure provisions as fiscal policy instrument, I present a binscatter plot that displays the regression lines for both political parties on the same graph. Figure 10 highlights two key insights. First, it reveals that the average tax expenditure provisions is higher for Democrats compared to Republicans, irrespective of the level of political competition. A possible explanation is



that the relationship between political competition and TE provisions for Democrats is not linear, in fact, it seems to have a U-shaped for. We know that Democrats aim to increase taxes on the rich for redistribution purposes. As a result, they tend to create a longer and more complex tax code, with tax expenditures playing a significant role in it. However, as political competition increases, the level of tax expenditure provisions for Republicans catches up to that of Democrats, as indicated by the convergence of the two lines in Figure 9. We can infer from the figure that when we move one standard deviation to the right -which is equivalent to increase political competition- the amount of TE provisions for Republicans is higher compared to the number of TE provisions for Democrats.

Figure 10: Tax expenditure provisions and political competition, by incumbent party



Notes: The figure shows a binscatter illustrating the relationship between political competition and tax expenditure provisions, separated by the incumbent party—Democrats (blue circles) and Republicans (red diamonds). The outcome variable is the standardized TE provisions, and the treatment variable is standardized political competition. The regression includes controls for total expenditures, population, average income, total income, Democratic and Republican control, and an indicator variable for Democratic governorship, with state and year fixed effects. Standard errors are clustered at the state level. The blue and red lines represent the fitted regression lines for Democratic and Republican incumbents, respectively.

Second, as political competition increases, Republicans enact more tax expenditures to benefit the wealthy. The rationale is that Republicans aim to reduce taxes on the rich. However, when political competition intensifies, they need to attract voters to improve their chances of winning the election. To achieve this, they announce higher taxes on the

rich while simultaneously reducing the effective tax burden on this group by introducing new TEs provisions. In other words, when elections are close, Republicans do not want to lose poor pro-Republican voters, who are disappointed by the fact that—regardless of the headline tax rate—there are many additional ways in the form of tax expenditures for the rich to avoid taxes. This dynamic explains this counterintuitive result.

As shown in Figure 4, TE provisions are, on average, more complex than any other type of provision. Therefore, the fact that Republicans enact more tax expenditure provisions as electoral competitiveness rises contributes to increase tax code complexity overall.

### 7.3.1 OLS Estimates

Table 4 reports the OLS estimates of equation 6 after regressing TE provisions on political competition, including an interaction term between political competition and an indicator variable for Republican control over the legislature or Republican Governor. The interaction term "Republican control  $\times$  political competition" is the coefficient of interest. It captures the differential effect of competition when the Republican party controls either the legislature (Panel A) or the governorship (Panel B) compared to the Democratic ones.

For legislative control in Panel A, the interaction term is positive and statistically significant in all specifications. In Column (1), which includes state and year fixed effects only, the coefficient is  $\beta = 0.296$  with a standard error of 0.120, significant at the 5% level. Adding the full set of state controls in Column (2) leaves the magnitude essentially unchanged ( $\beta = 0.290$ ,  $SE = 0.125$ ). Introducing state-specific linear time trends in Column (3) controls for any slow-moving unobserved factors that evolve within each state over time (for example, gradual political culture shifts or economic trends). This specification reduces the estimate to 0.209 (0.080), yet it remains significant at the 5% level. When South  $\times$  Year interactions are added in Column (4) the coefficient is almost identical (0.201, 0.086). By adding South $\times$ Year effects I allow a different year-to-year baseline trend for the southern states versus the rest of the states. Finally, restricting the sample to only the South states in Column (5) yields a larger point estimate of 0.294 but with a higher standard error (0.158), so the effect is now significant only at the 10% level.

Taken together, the results align with the theoretical expectation that Republican-controlled legislatures react to tighter electoral competition by expanding the number of TE provisions, thereby masking the true tax burden on high-income groups while appealing to the median voter to win elections.

Table 4: **Political competition and Tax Expenditure Provisions, OLS estimates**

	Dependent variable: Standardized TE provisions				
	State & Year FE (1)	With Controls (2)	State x Time Trend (3)	South x year Interaction (4)	South States (5)
Panel A: Legislative Control					
Political competition standardised	-0.118 (0.100)	-0.143 (0.098)	-0.041 (0.030)	-0.045 (0.034)	-0.019 (0.035)
Republican legislative control	-0.196* (0.111)	-0.273** (0.131)	-0.161* (0.095)	-0.179* (0.103)	-0.060 (0.180)
Republican control × political competition	0.296** (0.120)	0.290** (0.125)	0.209** (0.080)	0.201** (0.086)	0.294* (0.158)
$R^2$	0.269	0.309	0.408	0.428	0.495
Panel B: Governor's Party Control					
Political competition standardised	-0.144 (0.105)	-0.150 (0.099)	-0.050 (0.033)	-0.052 (0.038)	-0.081 (0.049)
Republican Governor	-0.012 (0.063)	-0.036 (0.059)	0.022 (0.046)	0.028 (0.044)	-0.043 (0.082)
Republican Governor × political competition	0.263** (0.104)	0.262** (0.106)	0.175** (0.084)	0.171** (0.084)	0.315** (0.160)
$R^2$	0.271	0.310	0.408	0.428	0.534
Observations	2,944	2,944	2,944	2,944	1,005
Number of States	48	48	48	48	16
State FE	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓
Controls		✓	✓	✓	✓
State Time Trends			✓	✓	✓
South x year interactions				✓	✓
Only South States					✓

*Notes:* OLS estimates with standard errors clustered at the state level. The outcome variable is a standardized measure of tax expenditure provisions, defined as the ratio of the total number of sentences classified as tax expenditures to the total number of sentences in the corpus of U.S. state statutes. Political competition is standardized and corresponds to the closeness of the election outcome measured by votes. All specifications are estimated over the period 1922-2020. 'FE' denotes fixed effects. Control variables are included at the state level and consist of population, an indicator variable that takes the value of 1 if the governor is a Democrat, and 0 otherwise, total taxes, total expenditures, total income, total capital, and an indicator variable that takes the value of 1 if there was an election during that year, and 0 otherwise. Results in Panel A use legislative control to indicate which party holds a majority. It is an indicator variable that takes the value of 1 when Republicans hold a majority in both chambers of the legislature—the State Senate and the State House—and 0 otherwise. Results in Panel B use the governor's party to indicate which party holds state control.

For gubernatorial Republican control in Panel B, in Column 1 with state and year fixed effects the interaction coefficient is 0.263 (0.104), significant at the 5% threshold, and it remains stable after adding controls in Column (2) (0.262, 0.106). Accounting for state-specific trends in Column (3) lowers the estimate to 0.175 (0.084), and adding South  $\times$  Year interactions in Column (4) produces 0.171 (0.084); both retain significance at the 5% level. When sample is restricted to southern states in Column 5, however, the coefficient rises markedly to 0.315 with a standard error of 0.160, at the 5% level of significance. Hence, the strategic enactment of TE provisions under close elections is not confined to legislatures: Republican governors, especially in the South, also expand TE provisions when electoral margins narrow. The evidence shows that, regardless of whether control is exercised through the legislature or the governor's office, competitive elections induce Republican policymakers to enact more TE provisions relative to their Democratic counterparts.

### 7.3.2 Voter Turnout as an Alternative Instrument for Political Competition

So far the VRA-based instrument isolates exogenous variation in political competition generated by the removal of historic voting restrictions, but it is ill-suited for examining partisan heterogeneity: prior to 1965 no southern state legislature was Republican-controlled, so the first stage offers little within-party variation. To overcome this limitation, I employ *voter turnout*—the share of the voting-age population that casts a ballot in statewide elections in year  $t$ —as an alternative instrument for political competition. See Section 7.2 for more details on the conditions that must be satisfied for this instrument to be valid.

**First-Stage Specification.** Since equation 6 includes an interaction of an endogenous variable, political competition (PC) with an exogenous dummy, Republican control (Rep), both PC and (PC  $\times$  Republican) are potentially endogenous (because PC is in both). The standard 2SLS solution is to provide two instruments: one for PC and one for the interaction. In practice, if Z (voter turnout) is an instrument for PC, then Z interacted with the Republican dummy can serve as an instrument for (PC  $\times$  Republican). This approach is grounded in IV theory. Essentially, I have two endogenous regressors, so I need at least two exogenous instruments. Here, Republican control is an exogenous variable in the sense of being included in the equation. The first stage equations are as follows:

$$\text{Political Competition}_{st} = \pi_0 + \pi_1 \text{Turnout}_{st} + \boldsymbol{\pi_2 X}_{st} + \alpha_s + \lambda_t + u_{st} \quad (7)$$

$$\text{Rep} \times \text{Political Competition}_{st} = \rho_0 + \rho_1 (\text{Rep} \times \text{Turnout}_{st}) + \boldsymbol{\rho_2 X}_{st} + \alpha'_s + \lambda'_t + v_{st} \quad (8)$$

Where  $\text{Turnout}_{st}$  is the standardized voter turnout rate in statewide races (guber-

natorial, presidential, U.S. Senate, and U.S. House). The fitted values  $\widehat{PC}_{st}$  replace the endogenous variable in the second-stage equation.

### 7.3.3 Second-Stage Equation

In the second stage, I use the predicted values of political competition from the first-stage equation to estimate its effect on TE provisions. The second-stage equation is specified as:

$$\text{TE provisions}_{st} = \beta_0 + \beta_1 \widehat{PC}_{st} + \beta_2 \text{Rep}_{st} + \beta_3 (\text{Rep} \times \widehat{PC})_{st} + \beta_4 \mathbf{X}_{st} + \delta_s + \phi_t + \epsilon_{st} \quad (9)$$

Where  $\text{TE provisions}_{st}$  denotes the measure of tax expenditures provisions,  $\widehat{PC}_{st}$  is the fitted value of political competition obtained from the first stage equation,  $\delta_s$  and  $\phi_t$  again represent state and year fixed effects,  $\beta_3$  is the coefficient of interest, capturing the causal effect of the gap between Republican control of the legislature and Democratic ones, when political competition is high on TE provisions,  $\epsilon_{st}$  is the error term. An important condition that must be satisfied is the exclusion restriction, which suggests that  $\text{Turnout}_{st}$  affects TE provisions *only* through political competition.

$$\text{Cov}(\text{Turnout}_{st}, \eta_{st}) = 0.$$

In Table 5, I report the 2SLS estimates using voter turnout as an instrument for political competition, reflecting our identification strategy to address potential endogeneity. The structure mirrors the baseline OLS specification, where TE provisions are regressed on political competition, an indicator for Republican control, and their interaction term, with specifications progressively adding controls and accounting for state-specific trends.

In Panel A, the main effect of political competition (captured by the coefficient on *political competition*) is negative and statistically significant in all columns, indicating that in non-Republican controlled legislatures, greater competition leads to fewer TE provisions. This reduces economic rents to interest groups and makes the tax code less complex, which is consistent with Besley et al. (2010) argument that political competition promotes pro-business policy choices. The Republican legislative control indicator itself is consistently negative and significant, showing that Republican-led legislatures enact fewer TE provisions when political competition is low. This suggests that when Republicans are certain to win elections, they decide to pursue their core small-government agenda more directly—by keeping the tax code simpler, without embedding benefits in the tax code through narrowly targeted TE provisions. So, the incentives to “hide” fiscal transfers in the form of exemptions and credits diminish once the party faces little threat of losing office, so the enactment of new TE provisions decreases.

Table 5: **Political competition and TE Provisions, 2SLS estimates**

	Dependent variable: Standardized TE provisions			
	State & Year FE (1)	With Controls (2)	State x Time Trend (3)	South x year Interaction (4)
Panel A: Legislative Control				
Political competition standardised	-0.314** (0.142)	-0.418*** (0.148)	-0.476*** (0.171)	-0.496** (0.189)
Republican legislative control	-0.334** (0.165)	-0.534*** (0.193)	-0.477** (0.184)	-0.463*** (0.172)
Republican control × political competition	0.744** (0.301)	0.896*** (0.301)	0.980*** (0.355)	0.925*** (0.336)
F-statistic	18.01	22.16	12.48	11.42
Panel B: Governor's Party Control				
Political competition standardised	-0.314** (0.125)	-0.238** (0.100)	-0.501*** (0.134)	-0.608*** (0.187)
Republican legislative control	-0.084 (0.113)	-0.172* (0.095)	-0.250* (0.135)	-0.291* (0.164)
Republican control × political competition	0.545* (0.299)	0.687*** (0.251)	0.904** (0.362)	1.018** (0.434)
F-statistic	14.01	13.9	12.61	12.3
Observations	2,944	2,944	2,944	2,944
Number of States	48	48	48	48
State FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Controls		✓	✓	✓
State-Specific Trends			✓	✓
South x year interactions				✓

*Notes:* 2SLS estimates using voter turnout as an instrument for political competition with standard errors clustered at the state level. The outcome variable is a standardized measure of TE provisions, defined as the ratio of the total number of sentences classified as TEs to the total number of sentences in the corpus of U.S. state statutes. Political competition is standardized and corresponds to the closeness of the election outcome measured by votes. All specifications are estimated over the period 1922-2020. 'FE' denotes fixed effects. F-Statistic corresponds to the Kleibergen-Paap test for weak identification. Control variables consist of population, an indicator variable that takes the value of 1 if the governor is a Democrat, and 0 otherwise, total taxes, total expenditures, total income, total capital, and an indicator variable that takes the value of 1 if there was an election during that year, and 0 otherwise. Panel A uses legislative control to indicate which party holds a majority. It is an indicator variable that takes the value of 1 when Republicans hold a majority in both chambers of the legislature—the State Senate and the State House—and 0 otherwise. Results in Panel B use the governor's party to indicate which party holds state control.

Where Republican legislative control is considered, the interaction term between *Republican legislative control* and *political competition* remains positive and statistically significant across all columns. In Column (1), which includes only state and year fixed effects, the interaction coefficient is  $\beta = 0.744$  with a standard error of 0.301, significant at the 5% level. The inclusion of a full set of state-level controls in Column (2) raises the coefficient slightly to 0.896 (0.301), significant at 1%. In Column (3), after introducing state-specific linear time trends, the estimate increases further to 0.980 (0.355), maintaining significance. Adding *South*  $\times$  *Year* interactions in Column (4) leaves the coefficient relatively unchanged at 0.925 (0.336). Throughout all specifications, these results confirm that Republican-controlled legislatures respond much more strongly to increases in political competition than their Democratic counterparts. Specifically, Republican legislatures expand TE provisions by nearly one standard deviation as competition intensifies.

In Panel B, for gubernatorial control, a similar pattern is observed. The interaction between *Republican governor* and *political competition* is positive and significant across all columns, though the magnitude is somewhat smaller than for legislatures. In Column (1) (state and year FE only), the interaction coefficient is 0.613 (0.339), significant at 10%. In Column (2), the coefficient is stable at 0.521 (0.307). Adding state-specific trends in Column (3) increases the interaction effect to 0.807 (0.390), and Column (4) with *South*  $\times$  *Year* interactions further increases it to 0.911 (0.432), significant at 5%. This suggests that Republican governors, like legislatures, expand TE provisions significantly when electoral competition intensifies. Taken together, these specifications confirm that the positive differential effect of competition on TE provisions under Republican control is robust to the inclusion of rich controls and alternative specifications. Furthermore, the main effect of political competition remains negative, highlighting that increases in competition tend to reduce TE provisions in Democratic or baseline states.

In comparing OLS and IV estimates, a key finding is that the IV interaction coefficients ( $\beta_3$ ) are substantially larger in magnitude than their OLS counterparts (around 1.07 in IV vs. 0.31 in OLS for legislative control). This suggests that OLS estimates are biased downward, likely due to attenuation bias from measurement error in political competition<sup>9</sup> and potential omitted variable bias operating in the opposite direction of the true effect. In particular, measurement error in vote-share-based indices can attenuate OLS estimates toward zero, and omitted factors (e.g., underlying civic culture, media penetration, unionization rates, campaign contributions, etc) could bias results if they simultane-

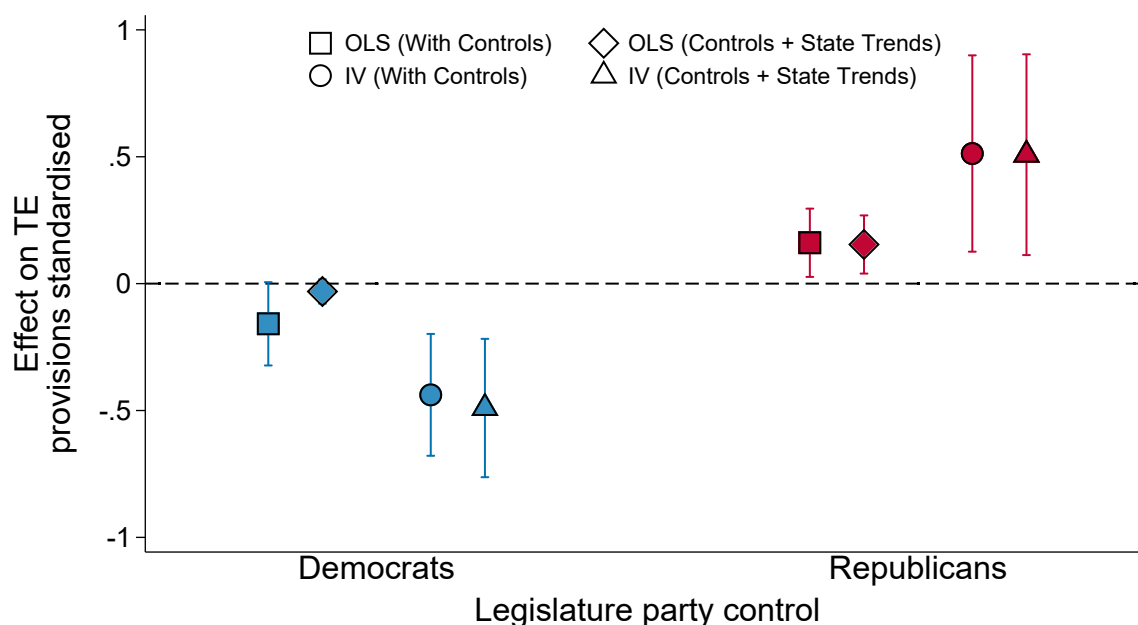
<sup>9</sup>See also Besley et al. (2010), who show that the measure of political competition varies sharply from one contest to the next. Instrumenting competition with voter turnout—exploiting the removal of voting restrictions under the VRA—helps to solve this measurement error and correct the resulting downward bias.



ously reduce TE provisions and increase competition. By using an instrument, I correct this attenuation and reveal that the true effect of competition on Republican fiscal policy is stronger than OLS would suggest.

Finally, figure 11 summarizes these results visually, showing the average marginal effect (slope) of political competition on TE provisions under Democratic and Republican control for our preferred specification (adding controls). The figure clearly illustrates that, for Democratic control, political competition induces legislators to enact fewer TE provisions both in OLS and IV estimates (negative marginal effects), whereas under Republican control, the marginal effect is positive in both methods and substantially larger under IV. The IV estimates (circles) display larger magnitudes and wider confidence intervals than the OLS (squares), reflecting the precision trade-off inherent in IV estimation, but also indicating a stronger causal effect once endogeneity is addressed. This visualization reinforces the narrative that electoral competition affects fiscal policies via TEs differently depending on party control and highlights the strategic responsiveness of Republican legislators to enact more TEs when facing electoral pressures.

Figure 11: Average marginal effect of political competition on TE provisions



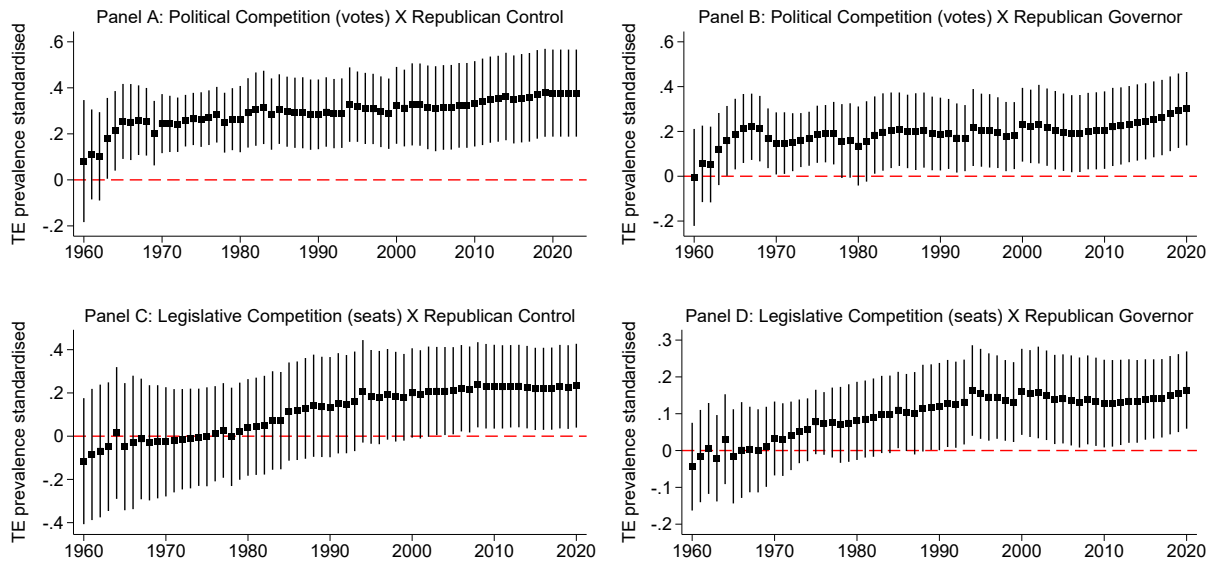
*Notes:* The graphs show the coefficient estimates that corresponds to the interaction between political competition and Republican control over the legislature from our preferred specification (column 2, adding controls) in tables 4 and 5. The Y-axis represent the effect of political competition on TE provisions, measure as the ratio of sentences classified as tax expenditures to the total number of sentences in a corpus of U.S. state statutes. All regressions include time and year fixed effects and the following controls: population, political competition, gross income product, total taxes, total expenditures, Democratic and Republican control, total income, total capital, and election years. Standard errors are clustered at the state level. The vertical lines in each graph indicate the 90% confidence intervals for the coefficient estimates.

## 7.4 Robustness: stability of the results

To verify whether the results presented in Tables 4 are stable over time, I conduct an exercise that consists of plotting the coefficient that corresponds to the interaction term "Republican control  $\times$  political/legislative competition" from 1960 to 2020. If the results from the tables were due to chance or a specific selection of the time period, then the coefficients would not be statistically different from zero for some periods.

Figure 12 shows that the coefficients for both political competition (votes) and legislative competition (seats) interacted with Republican control remain consistently positive across the time period. In Panels A and B, where political competition is measured by votes, the interaction term is statistically significant for most of the years after 1970. The size of the coefficients grows over time, particularly in Panel A, where Republican legislative control interacts with political competition. This result supports the hypothesis that Republicans strategically increase tax expenditure provisions under high political competition to appeal to swing voters and obscure the redistributive effects of their policies.

Figure 12: Coefficient estimates of the interaction Republican control  $\times$  political competition



*Notes:* The graphs show the coefficient estimates that corresponds to the interaction between different measures of political competition and control over the legislature/Governorship on the provisions of tax expenditures (TE) from 1922 through 2020. The outcome variable is TE provisions, measure as the ratio of sentences classified as tax expenditures to the total number of sentences in a corpus of U.S. state statutes. Each coefficient corresponds to a regression run from 1922 up to the specific year displayed on the graph. All regressions include time and year fixed effects and the following controls: population, political competition, gross income product, total taxes, total expenditures, Democratic and Republican control, total income, total capital, and election years. Standard errors are clustered at the state level. The vertical lines in each graph indicate the 90% confidence intervals for the coefficient estimates.

In Panels C and D, where legislative competition is measured by seats, the coefficients follow a similar pattern, though with greater variability compared to political competition (votes). In Panel C, the interaction term for Republican legislative control becomes statistically significant starting in the 1980s and continues to grow steadily until 2020. In Panel D, for gubernatorial Republican control, the coefficients are smaller and less consistent but remain positive and statistically significant in certain periods, particularly after 1990. This suggests that the strategic use of TEs by Republicans is robust over time but may vary slightly depending on whether competition is measured by votes or seats.

Overall, Figure 12 confirms that the observed relationship between Republican control, political and legislative competition, and TE provisions is not an artifact of the selected time period. Instead, it reflects a stable and persistent pattern over six decades, providing further evidence for the robustness of the results presented in the earlier tables.

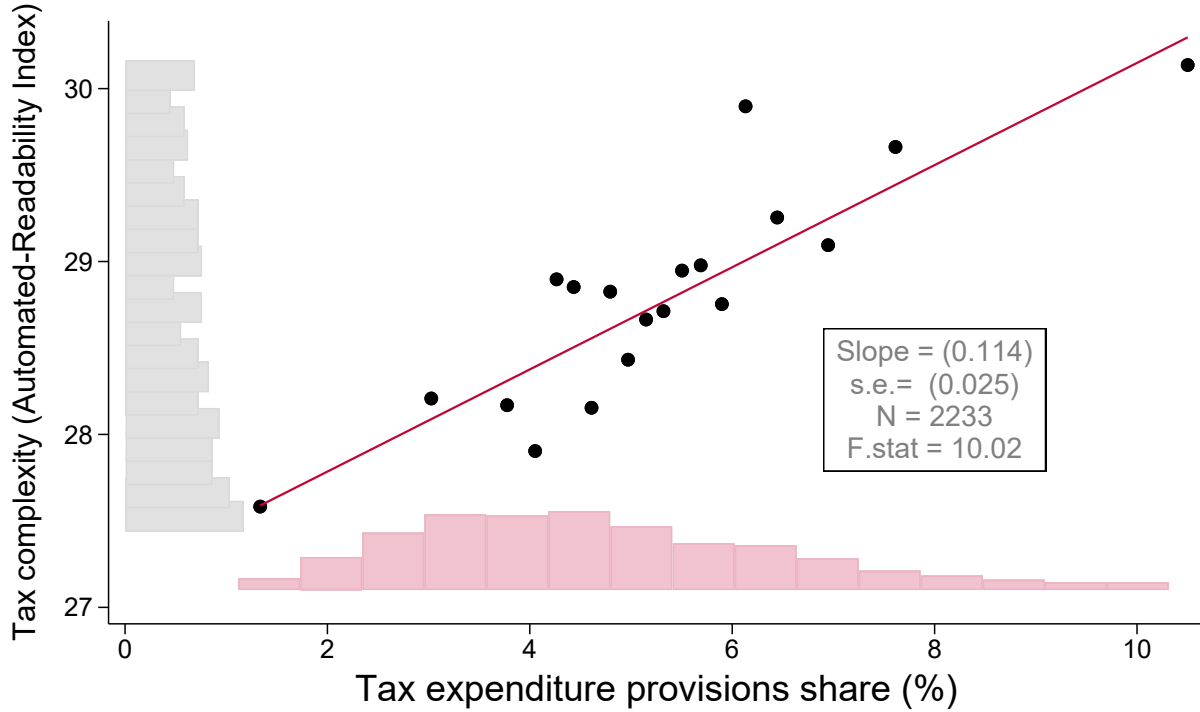
## 8 Mechanisms

In this section, I explore some mechanisms that could potentially explain the differences across political parties when legislating on TE provisions. First, I evaluate whether more TE provisions translate into a more complex tax code. To capture provisions that correspond to the tax code, I use a machine learning classification algorithm developed by [Ash et al. \(2021\)](#) that distinguishes tax from non-tax provisions with roughly 95% out-of-sample accuracy and then measure their complexity using the same readability metrics described in Appendix B. Later, I analyse how each political party's use of TE provisions contributes to changes in the complexity of the tax code. Finally, using campaign-contribution data from [Bonica \(2024\)](#) for 1980–2020, I explore how the role of donations on the enactment of TE provisions varies with the party in control of the state legislature.

### 8.1 TE provisions are positively associated with tax code complexity

To evaluate whether more TE provisions translate into greater tax code complexity, I regress tax code complexity—measured by the Automated Readability Index—on the share of TE provisions. Figure 13 shows that there is a positive and statistically significant association between the number of TE provisions and the complexity of the tax code. In particular, a 1 standard deviation increase in the share of tax expenditure provisions is associated with an increase of 0.114 standard deviations in the complexity of the tax code.

Figure 13: Binscatter TE provisions vs Tax code complexity



*Notes:* The figure plots a binned scatter of the relationship between the share of sentences in a state's tax code that are classified as tax-expenditure (TE) provisions (horizontal axis, in%) and the Flesch-Kincaid grade-level index of statutory language complexity (vertical axis). The solid red line is the OLS fit to the data points. Standard errors are clustered at the state level.

### 8.1.1 Complexity as a Political Strategy

In Section 7.3.2, I show that close elections encourage Republican-led legislatures to enact more TE provisions. I now ask whether this behaviour translates into greater statutory complexity. Table 6 reports the relationship between TE provisions and the complexity of the tax code, disaggregated by partisan control of the state legislature. When Republicans hold power (Panel A), the estimated coefficients range from 0.090 to 0.143, indicating a strong positive association. Under Democratic control (Panel B) the coefficients are smaller—0.042 to 0.072—and reach significance only in the most fully specified models. As TEs are more complex by nature (see Figure 4), this relationship is expected to hold under both parties. However, across all columns, the Republican estimates are roughly twice as large as the Democratic ones, reinforcing the claim that Republican majorities tend to expand tax-code complexity through the enactment of TE provisions.

Table 6: TE Provisions and tax code complexity by political party

	Dependent variable: Tax code complexity, standardised			
	State & Year FE (1)	With Controls (2)	State x Time Trend (4)	South x year Interactions (5)
<b>Panel A: Republican control over the legislature</b>				
Tax Expenditure provisions standardised	0.090** (0.044)	0.100** (0.047)	0.143*** (0.047)	0.143*** (0.049)
<i>Observations</i>	926	926	926	919
Number of States	43	43	43	42
$R^2$	0.478	0.502	0.629	0.632
<b>Panel B: Democratic control over the legislature</b>				
Tax Expenditure provisions standardised	0.053 (0.043)	0.054 (0.042)	0.070** (0.027)	0.072*** (0.026)
<i>Observations</i>	1,988	1,988	1,988	1,988
Number of States	48	48	48	48
$R^2$	0.539	0.548	0.653	0.669
State and Year FE	✓	✓	✓	✓
Controls		✓	✓	✓
State × Time trend			✓	✓
South x year interactions				✓

*Notes:* OLS estimates standard errors clustered at the state level. *Tax-code complexity* is computed for each state–year as the average Automated Readability Index of all sentences contained in that state’s classified tax provisions and then standardized to mean 0 and standard deviation 1. TE provisions is also standardised. Each column includes state and year FE. Column (2) additionally controls for state-level covariates: population, total taxes, total expenditures, total personal income, total capital outlays, a dummy for a gubernatorial election year, and a dummy for a Democratic governor. Column (3) accounts for linear state-specific linear time trends; column (4) further interacts a South dummy with year fixed effects to flexibly absorb differential post-1960 trajectories for the Southern states.

## 8.2 Campaign contributions and tax expenditures

Evidence suggests that TEs can serve as a tool of political influence and affect voting behavior (Bertrand et al., 2020; Rendleman and Yoder, 2020). In standard political economy models that combine vote seeking with organised interest influence, a party behaves as if it maximises a weighted sum of (a) expected electoral support and (b) the value of campaign contributions forthcoming from key organised groups (Coate and Morris, 1995; Grossman and Helpman, 1996). The mechanism I want to test is whether politicians in close elections face a trade-off: passing tax benefits for interest groups in exchange for campaign donations, versus legislating redistributive policies that benefit the poor in exchange for electoral support.

Given that close contests lead Republican-led legislatures to enact more TE provisions—that lower tax liabilities for favored groups—and the opposite pattern for Democratic-led legislatures, I expect that the impact of electoral competition on TEs is *conditional* on two additional factors: (i) which party controls the chambers and (ii) how much campaign money is in play. I expect electoral competition to influence the number of TEs enacted only when Republicans hold power. To test this, I use data for political donations from 1980-2020 from Database on Ideology, Money in Politics, and Elections (DIME) v4.0 (Bonica, 2024). For each two-year election cycle I (i) sum every contribution received by state-level candidates in a given state, (ii) divide by that state’s population in the corresponding year to obtain per-capita dollars, and (iii) take the natural logarithm to dampen the influence of very high-donation states such as California and New York.

Then, I use a triple interaction term between Republican control  $\times$  political competition  $\times$  donations, together with all lower-order interaction terms and the full set of controls from section 7.3. The coefficient on this triple term allows me to capture by how much does an extra unit of campaign money change the marginal effect of a close election on TE provisions being enacted when the legislature is in control of Republican, relative to when it is not. In other words, the triple interaction term tells me whether—and by how much—campaign contributions amplify or dampen the responsiveness of Republican-led chambers to electoral pressure, after netting out the same relationship in Democratic or divided chambers. Table 7 shows that electoral competition affects the number of tax-expenditure provisions only when two conditions hold at the same time: (i) Republicans control the legislature and (ii) campaign donations are above their average level. In all other cases the marginal effect of competition is statistically indistinguishable from zero.

Figure 14 plots the marginal effect of a one-standard-deviation increase in electoral competitiveness on the number of TE provisions, evaluated at different levels of per-capita campaign donations and separately for Republican- and Democratic-led legislatures.

The figure shows that closer elections have little effect on TE provisions in Democratic legislatures (blue bars are not distinguishable from zero across all donation levels). In contrast, in Republican controlled chambers, the marginal effect of political competition is increasingly positive as contributions rise: at one standard deviation, a one-standard deviation tighter race is associated with about 0.7 standard deviations more TE provisions, and the effect exceeds one full standard deviation at the highest observed donation levels.

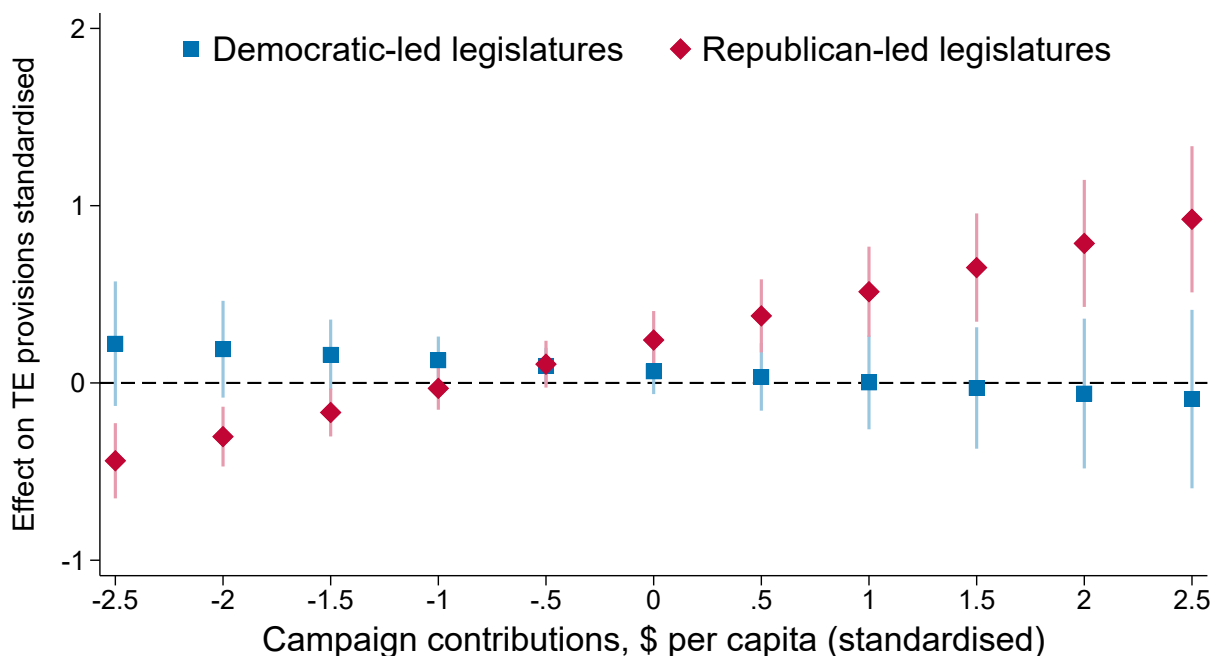
Table 7: **Political competition and TE Provisions, conditional on campaign donations**

	Dependent variable: Standardised TE provisions			
	State & Year FE (1)	With Controls (2)	State x Time Trend (3)	South x year Interaction (4)
Republican control × political competition × donations	0.586*** (0.141)	0.446*** (0.126)	0.255** (0.126)	0.273** (0.131)
Republican control × political competition	0.272* (0.156)	0.188 (0.150)	-0.015 (0.143)	0.008 (0.145)
Republican control × donations per-capita	0.021 (0.086)	0.066 (0.106)	0.098 (0.101)	0.158 (0.104)
Political competition × donations per-capita	-0.216** (0.095)	-0.129 (0.096)	-0.058 (0.072)	-0.056 (0.070)
Campaign donations per-capita	-0.026 (0.129)	0.065 (0.153)	0.030 (0.161)	0.052 (0.176)
Republican legislative control	-0.302** (0.134)	-0.333** (0.126)	-0.204 (0.146)	-0.204 (0.156)
Political competition standardised	0.007 (0.076)	0.042 (0.079)	0.100 (0.065)	0.085 (0.064)
Observations	978	978	978	978
$R^2$	0.287	0.327	0.401	0.418
Number of States	48	48	48	48
State FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Controls		✓	✓	✓
State-Specific Trends			✓	✓
South x year interactions				✓

*Notes:* OLS estimates with standard errors clustered at the state level. The outcome variable is a standardized measure of tax expenditure provisions, defined as the ratio of the total number of sentences classified as tax expenditures to the total number of sentences in the corpus of U.S. state statutes. All specifications are estimated over the period 1922-2020. 'FE' denotes fixed effects. Control variables are included at the state level and consist of population, an indicator variable that takes the value of 1 if the governor is a Democrat, and 0 otherwise, total taxes, total expenditures, total income, total capital, and an indicator variable that takes the value of 1 if there was an election during that year, and 0 otherwise. Results use legislative control to indicate which party holds a majority. It is an indicator variable that takes the value of 1 when Republicans hold a majority in both chambers of the legislature—the State Senate and the State House—and 0 otherwise.



Figure 14: Average marginal effect of political competition on TE provisions



*Notes:* Each point plots the estimated change (in standard-deviation units) in the number of TE provisions that is associated with a one-SD increase in political competition, evaluated at alternative levels of per-capita campaign contributions and separately for Republican-controlled legislatures (red diamonds) and Democratic/divided legislatures (blue squares). Vertical lines are 95 percent confidence intervals based on heteroskedasticity-robust standard errors clustered at the state level.

Underlying these asymmetric responses is the fact that the two parties solve qualitatively different optimisation problems. As discussed above, a party maximises a weighted sum of two factors (a) the expected electoral support and (b) the value of campaign contributions that come from interest groups. For Republicans, the weight on high-income contributors is large, and those contributors place high marginal value on targeted deductions and credits (TEs) that lower their effective tax rate while keeping statutory rates—and thus broad electoral salience—unchanged. Because affluent taxpayers also have more access to professional advice and, therefore, a superior tax literacy, the informational frictions that obscure the incidence of TEs do not limit their ability to capture these benefits. When an election becomes close, the party’s marginal utility from donor support rises faster than its marginal cost from any diffuse voter backlash, so the optimal response in such a case is to enact new and complex TE provisions. Complexity becomes a political tool for Republicans that helps them make TEs less visible to voters. As a result, the overall tax code increases its complexity.

For Democrats, this calculus reverses. Their key electoral group is lower- and middle-income voters who (a) receive little from most existing TEs, as evidence suggests (Burman et al., 2008); (b) are more sensitive to the visibility of redistribution, as salience experiments show lower-income voters react most strongly when fiscal costs are displayed up front (Chetty et al., 2009; Finkelstein, 2009) and (c) also face higher cognitive barriers (Abeler and Jäger, 2015; Bhargava and Manoli, 2015; Chetty et al., 2013). In their objective function, the expected vote component therefore prevails over the donor component whenever competition tightens. In response, they simplify the tax code by enacting fewer TEs and promoting more transparent tax policies, such as higher statutory taxes. This approach raises the perceived fairness and administrative simplicity for voters. Moreover, because lower salience tax breaks generate limited electoral returns for Democrats (their voters are often unaware of them), the party gains more from signalling fiscal transparency than from layering additional exemptions through TEs. Put differently, fiscal illusion, through the use of TEs, is an endogenous instrument whose deployment depends on the relative elasticities of donor finance and voter support to complexity.

## 9 Concluding remarks

In this paper, I build a novel dataset of TE provisions extracted from a corpus of 3.1 billion tokens of U.S. states legislation enacted between 1900 and 2020. I use this dataset to study how political competition shapes the enactment of TE provisions and whether the two major political parties pursue different strategies when enacting those provisions. I show that political competition does affect the way TE provisions are passed into law. On average, close elections tend to induce politicians to enact fewer TEs. However, this average effect masks important partisan heterogeneity—the sign of the effect depends on which party controls the state legislature. When state legislatures are controlled by Republicans, close elections lead to an increase in TE provisions enacted, making the tax code more complex and, therefore, contributing to a more regressive tax system. Political competition can intensify obfuscation when redistribution is politically costly. Because around two-thirds of the state-year observations in our sample are under Democratic control, the aggregate effect is mainly driven by Democratic-led legislatures, who enact fewer TE provisions in closely contested races. Taken these findings together, competitive elections can constrain fiscal opacity and discipline fiscal behaviour—unless redistribution that favors the rich becomes electorally costly, in which case Republican lawmakers enact more TEs to obscure the true tax burden on high-income groups in order to win elections.

I also provide descriptive evidence that informs the underlying mechanism by showing that TE provisions are written in a more complex language than other tax-related legislation, and their complexity has risen faster than the rest of the tax code. Given that Republican-led legislatures introduce more TEs when elections are close, I argue that Republicans use complexity as a political strategy. By doing so, they contribute twice as much as Democrats to the overall complexity of the tax code via TEs. Another important mechanism is that the effect of political competition on the number of TEs enacted is strongest and only present where campaign contributions are high, suggesting that money in politics magnifies the incentives to introduce opaque tax benefits that disproportionately benefit the wealthy, but only under Republican control.

Theoretically, I rationalize the main empirical findings by presenting a framework of obfuscation via TEs in which state politicians in US legislatures may strategically use TE legislation not only as a fiscal tool to achieve policy goals, but also as a way to confuse voters about the actual tax burden paid by the rich in order to maximize their probability of winning the next elections. In this framework, Republican incumbents enact more TE provisions under high political competition to reduce the effective tax burden on the wealthy while obscuring this from lower-income voters. In contrast, Democratic incumbents are expected to enact fewer TEs in competitive environments to promote transparency and make clear to voters their redistributive policies. This is a novel contribution to the fields of public economics and political economy, and it has important implications for better understanding the potential political reasons behind the complexity of the tax code and the role of tax benefits in shaping electoral behaviors.

Future research could extend the analysis of potential economic impacts of TEs to additional state-level outcomes, such as their effects on income and wealth inequality, public debt and budget deficits, internal migration flows, business investment decisions, and taxpayer behavior. In addition, it would be interesting to examine whether similar patterns are observed in other countries, federal systems, or levels of government.

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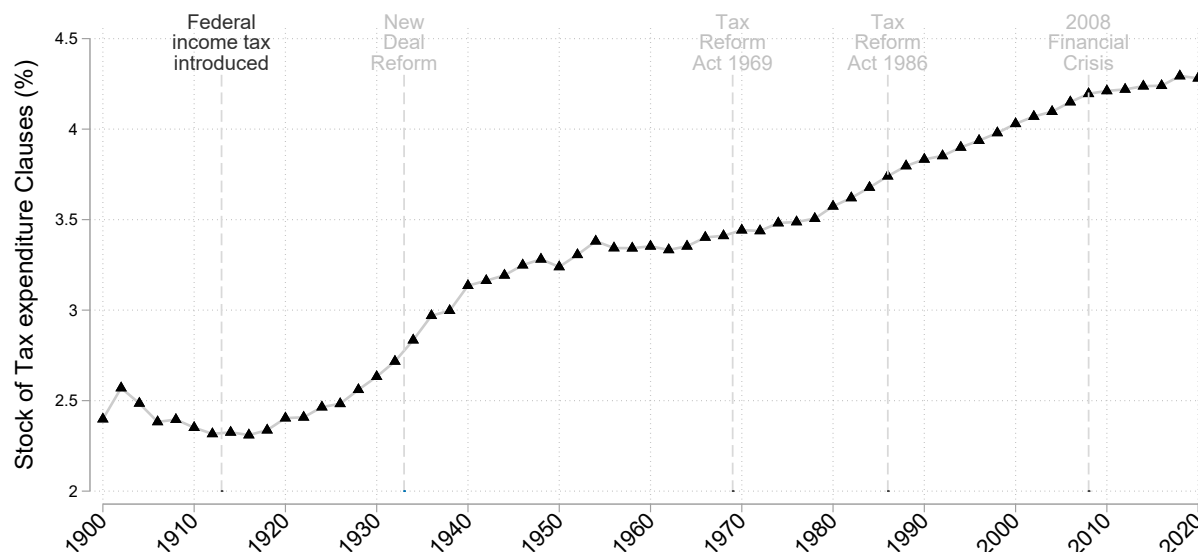
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## Additional Figures and Tables

Figure 15: Stock of tax expenditures provisions in U.S. State-Level Legislation (1900-2020)

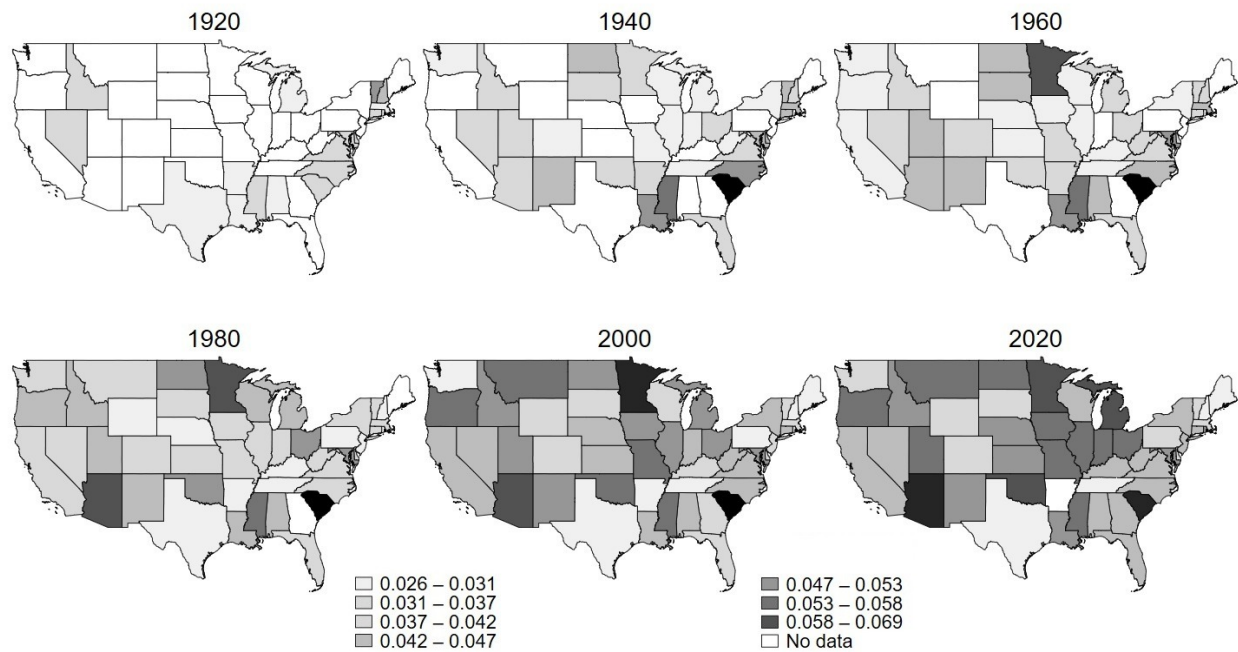


*Notes:* This graph depicts the provisions of tax expenditures (TE) in U.S. state-level legislation from 1900 to 2020. The variable "tax expenditure provisions" was calculated as the ratio of the total number of sentences classified as tax expenditures provisions to the total number of sentences in the corpus of U.S. state statutes extracted from the HeinOnline Library's "State Sessions Laws." This indicates the flow of tax expenditures provisions as it comes from newly written legislation every year. Tax expenditure clauses were classified using a combination of dictionary methods, involving predefined keywords related to tax expenditures (e.g., "credit", "deductions", "exclusions", "exemption", "rebate"), and text as data algorithms. Specifically, a fine-tuned BERT model (Bidirectional Encoder Representations from Transformers) was applied to classify each sentence as either tax expenditure-related or not. The fine-tuned BERT model was trained on labeled tax law sections, with a 90% accuracy rate in identifying tax-related clauses.

Figure 15 shows the cumulative percentage of tax expenditure clauses in state legislation, reflecting the stock of tax expenditure provisions over time. Unlike the flow, which captures annual additions, the stock accumulates over time as provisions remain in effect unless repealed. The stock remains relatively low until the 1930s, after which it begins a steady upward trajectory that continues throughout the 20th century. This long-term growth in the stock indicates that tax expenditure provisions have become an increasingly entrenched feature of state-level legislation. Together, these figures emphasize the distinction between the flow (newly introduced provisions) and stock (total existing provisions) of tax expenditures in U.S. state legislation, illustrating both the dynamics of policy introduction and how older provisions persist over time. Furthermore, Figure 16 illustrates the evolution of TE provisions across U.S. states by decade from 1920 to 2020. The maps shows important regional differences, with certain states consistently exhibiting higher

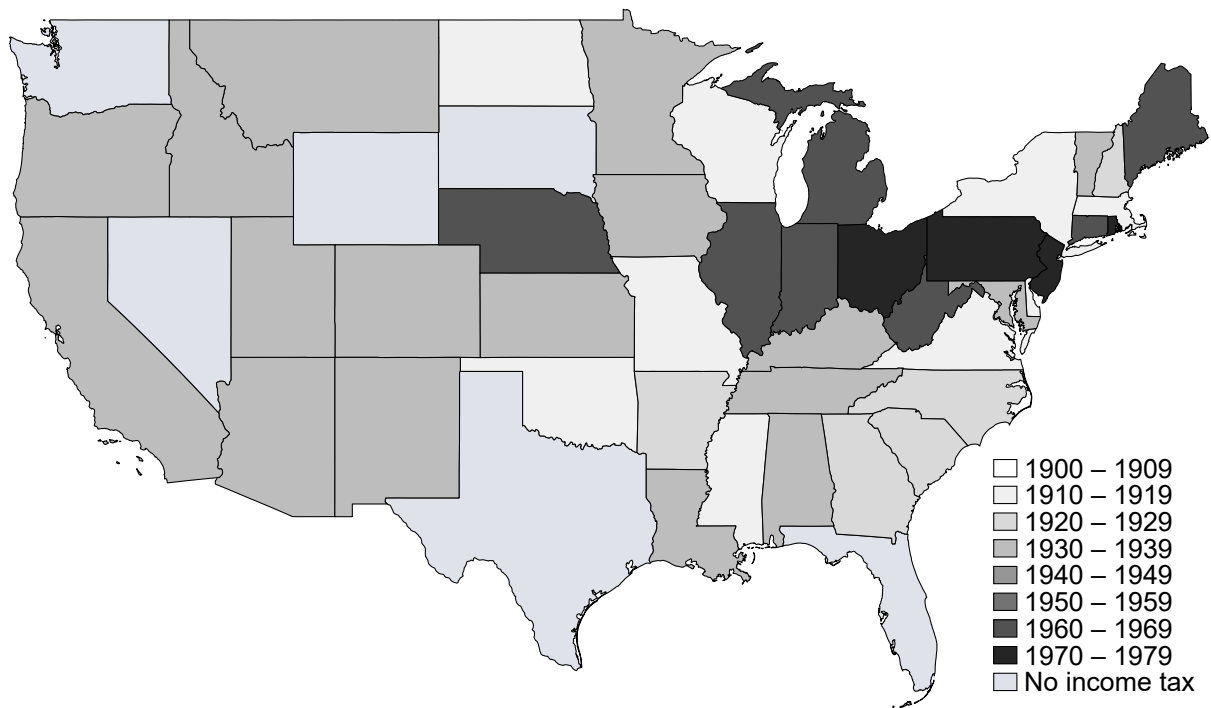
provisions. For instance, by 2020, states such as South Carolina, Arizona and Minnesota show some of the highest levels of TE provisions. The ranges of provisions expand over time, starting from 0.026 in 1920 and increasing to 0.069 by 2020, reflecting the gradual yet steady adoption and accumulation of TE provisions in state legislation over the century.

Figure 16: Tax Expenditure provisions Across U.S. States by Decade (1920–2020)



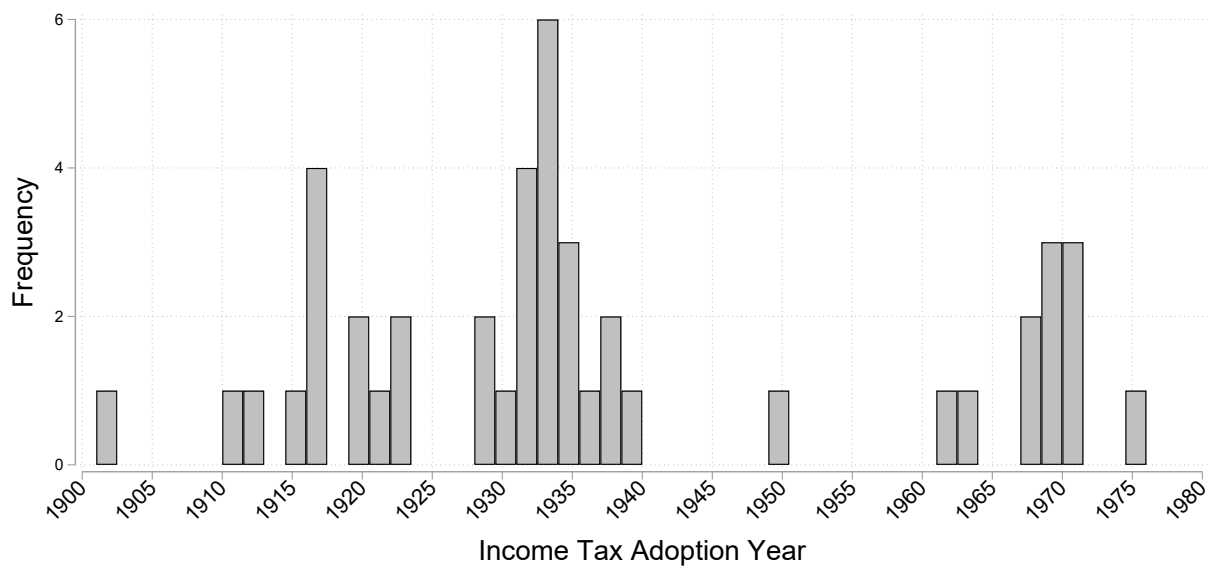
*Notes:* This figure presents maps showing the provisions of tax expenditure clauses across U.S. states in selected decades from 1920 to 2020. Each state is shaded according to the proportion of tax expenditure clauses, with darker shades indicating higher provisions. The legend at the bottom of each map provides the range of tax expenditure provisions, expressed as a percentage, for each shade category. States with no data are left unshaded.

Figure 17: Decades when States introduced Personal Income Tax (PIT)



Notes: Notes: This figure shows U.S. states shaded by the decade in which each state introduced an individual income tax, with darker shades representing more recent decades. States shaded in gray have not introduced an individual income tax. Data taken from ([Cassidy et al., 2024](#))

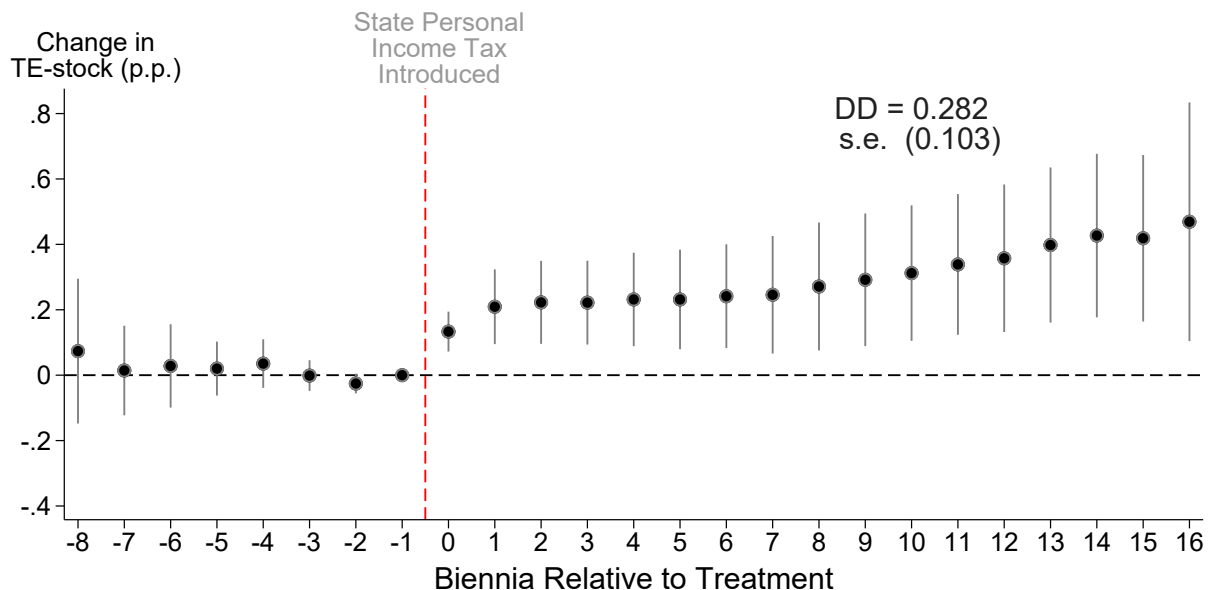
Figure 18: States that introduced Personal Income Tax (PIT)



Notes: This figure shows the distribution of U.S. states by the year they introduced a personal income tax, with frequency represented on the y-axis. The x-axis indicates the specific years of income tax adoption from 1900 to 1980.

An empirical exercise to validate our measure of tax expenditure provisions, is to implement an event study approach to examine whether the staggered introduction of personal income tax in U.S. states (see Figures 17 and 18) is associated with an increase in tax expenditure provisions. Figure 19 presents the results. As the graph suggests, before the adoption of income tax, the trends in TE provisions are parallel between treated states (those that introduced personal income tax) and control states (late adopters and states that never adopted personal income tax), indicating similar behavior in TE provisions across groups. However, following the introduction of income tax in treated states, there is a statistically and economically significant increase in the provisions of TE clauses. This upward trend suggests that the adoption of personal income tax is associated with a rise in the use of tax expenditures.

Figure 19: Event study for the introduction of PIT in U.S states on TE provisions



*Source:* Event study examining the effect of the introduction of personal income tax in U.S. states on the provisions of tax expenditure (TE) clauses. The y-axis represents the share of TE clauses as a percentage, while the x-axis shows biennium relative to the introduction of state income tax, marked by the red dashed line at time 0. Ninety-five percent confidence intervals are constructed for standard errors clustered at the state level.



# ONLINE APPENDIX

## Appendix A Wald-DID Estimator

Table 8 reports a Wald estimator that instead of using a continuous measure for the instrument (Share (%) of population subject to voting restrictions) uses an indicator value equal to one for those states that were subject to voting restrictions before the 1960 CRA and zero otherwise (see Table A.1). Panel A reports the reduced form estimates derived from running the following equation:

$$\text{TE provisions}_{st} = \alpha_2 + \beta_1(\text{South}_s \times \text{Post}_t) + \mathbf{X}_{s,t} \boldsymbol{\theta} + \omega_s + \mu_t + \nu_{s,t}$$

Where  $\text{South}_s$  indicates states affected by voting restrictions before 1965 and  $\text{Post}_t$  is an indicator variable that takes the value of 1 for years after the introduction of CRA 1960, and zero otherwise.  $\omega_s$  and  $\mu_t$  are state and year fixed effects.  $\mathbf{X}_{s,t}$  is a vector of control variables, which includes total taxes, total spending, total income, number of tax returns, population, an indicator for gubernatorial party affiliation, number of words in TE legislation and indicator variable that takes the value of 1 if there was an election that year, and zero otherwise. Panel B reports on the first stage (see event study in Figure 7), which is calculated as follows:

$$\text{Political Competition}_{st} = \alpha_1 + \delta_1(\text{South}_s \times \text{Post}_t) + \mathbf{X}_{s,t} \boldsymbol{\gamma} + \omega_s + \mu_t + \varepsilon_{s,t}$$

Finally, the 2SLS (Wald) estimator is calculated from the following:

$$\hat{\beta}_{\text{Wald-DID}} = \frac{\text{Effect of CRA on TE provisions}}{\text{Effect of CRA on Political Competition}} = \frac{\text{Reduced-Form Coefficient}}{\text{First-Stage Coefficient}} = \frac{\beta_1}{\delta_1}$$

From Table 8, the results are qualitatively similar to those in Tables 2 and 3, both in terms of coefficient magnitudes ( $-0.22$  to  $-0.33$ ) and first-stage  $F$ -statistics. This confirms that higher political competition causes fewer TE provisions to be enacted, thereby simplifying the tax code and reducing rents to interest groups. It is worth mentioning that the main estimate is an average effect, considering that about two-thirds of the year-state observations in the sample are controlled by the Democratic party. It may be the case that the effect is driven mechanically by this fact. I will shed light on this in the next section.

Table 8: Wald difference-in-differences (Wald-DiD) estimator

	State & Year FE (1)	With Controls (2)	State x Time Trend (3)	South x year Interactions (4)
<b>Panel A: Reduced form</b>	Dependent variable: Tax Expenditure Provisions			
South Treated states $\times$ Post CRA 1960 ( $\beta_1$ )	-0.458* (0.257)	-0.466* (0.250)	-0.283** (0.123)	-0.307* (0.163)
$R^2$	0.270	0.274	0.373	0.394
<b>Panel B: First-Stage</b>	Dependent variable: Political Competition			
South Treated states $\times$ Post CRA 1960 ( $\delta_1$ )	2.029*** (0.276)	1.980*** (0.279)	1.137*** (0.237)	0.924*** (0.338)
$R^2$	0.603	0.615	0.729	0.744
<b>Panel C: Second-Stage</b>	Dependent variable: Tax Expenditure Provisions			
Ratio: $\Omega = (\beta_1/\delta_1)$	-0.226** (0.078)	-0.235** (0.077)	-0.249** (0.088)	-0.332* (0.096)
$R^2$	0.610	0.628	0.625	0.661
Observations	2,944	2,944	2,944	2,944
First Stage F-stat	54.001	50.544	23.086	7.574
Number of Clusters	48	48	48	48
State and Year FE	✓	✓	✓	✓
Controls		✓	✓	✓
State-Specific Trends		✓	✓	✓
South x year interactions				✓

*Notes:* The table reports a Wald difference-in-differences (Wald-DiD) estimates. In all columns the treatment dummy equals 1 in state-years in which the federal reform applied and 0 otherwise. Column (1) contains only state and year fixed effects; Column (2) adds the full set of controls (log population, governor-party dummy, total taxes, total expenditures, state income, capital stock, and election-year indicator); Column (3) augments the specification with state-specific linear time trends; Column (4) additionally allows for South  $\times$  year interactions to capture different trends in the US north and south in a flexible (non-parametric) way. All standard errors clustered by state. \*\*\*p<0.01; \*\*p<0.05; \*p<0.1.

## Appendix B Measuring complexity: proxy for obfuscation

In order to measure the complexity of the tax expenditure-related clauses, I use a set of readability measures widely used in the linguistic and political science literature. These measures take into account the number of difficult words, total number of characters and the total number of words a text may contain. Their formulas are as follows:

- **Flesch-Kincaid Grade Level:** readability measure designed to indicate how difficult a passage in English is to understand. It presents a score as a U.S. grade level, making it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts.

$$FKC = 0.39 \left( \frac{\text{Total Words}}{\text{Total Sentences}} \right) + 11.8 \left( \frac{\text{Total Syllables}}{\text{Total Words}} \right) - 15.59$$

The formula is a combination of two measures: (1) the average number of words in a sentence, which is represented by the term  $\frac{\text{Total Words}}{\text{Total Sentences}}$ . This term is an indicator of how difficult a sentence is, as it measures the average sentence length. (2) the average number of syllabus in a word, which is represented by the term  $\frac{\text{Total Syllables}}{\text{Total Words}}$ . This term is an indicator of how difficult a word is, as it measures the average number of syllabus per word. It is important to bear in mind that the values of the coefficients in the formula — 0.39 (proxy for sentence complexity) and 11.8 (proxy for word complexity) — are empirically calculated based on a multiple regression statistical procedure from a set of readability studies. They are tailored to match the formula's output with the typical U.S. high school grade level ([Kincaid et al., 1975](#)).

- **Automated-Readability Index (ARI):** is a readability measure for English texts, designed to gauge the understandability of a text. It produces an approximate representation of the US grade level needed to comprehend a text.

$$ARI = 4.71 \left( \frac{\text{Characters}}{\text{Words}} \right) + 0.5 \left( \frac{\text{Words}}{\text{Sentences}} \right) - 21.43$$

- **Dale-Chall Readability Score:** is a readability measure that provides a numeric gauge of the comprehension difficulty that readers come upon when reading a text. It uses a list of 3000 words that groups of fourth-grade American students could reliably understand, considering any word not on that list to be difficult.

$$DCR = 0.1579 \times \left( \frac{\text{Difficult Words}}{\text{Total Words}} \right) \times 100 + 0.0496 \times \left( \frac{\text{Total Words}}{\text{Total Sentences}} \right)$$

- **Flesch Reading Ease:** higher scores indicate material that is easier to read; lower numbers mark passages that are more difficult to read.

$$FRE = 206.835 - 1.015 \left( \frac{\text{Total Words}}{\text{Total Sentences}} \right) - 84.6 \left( \frac{\text{Total Syllables}}{\text{Total Words}} \right)$$

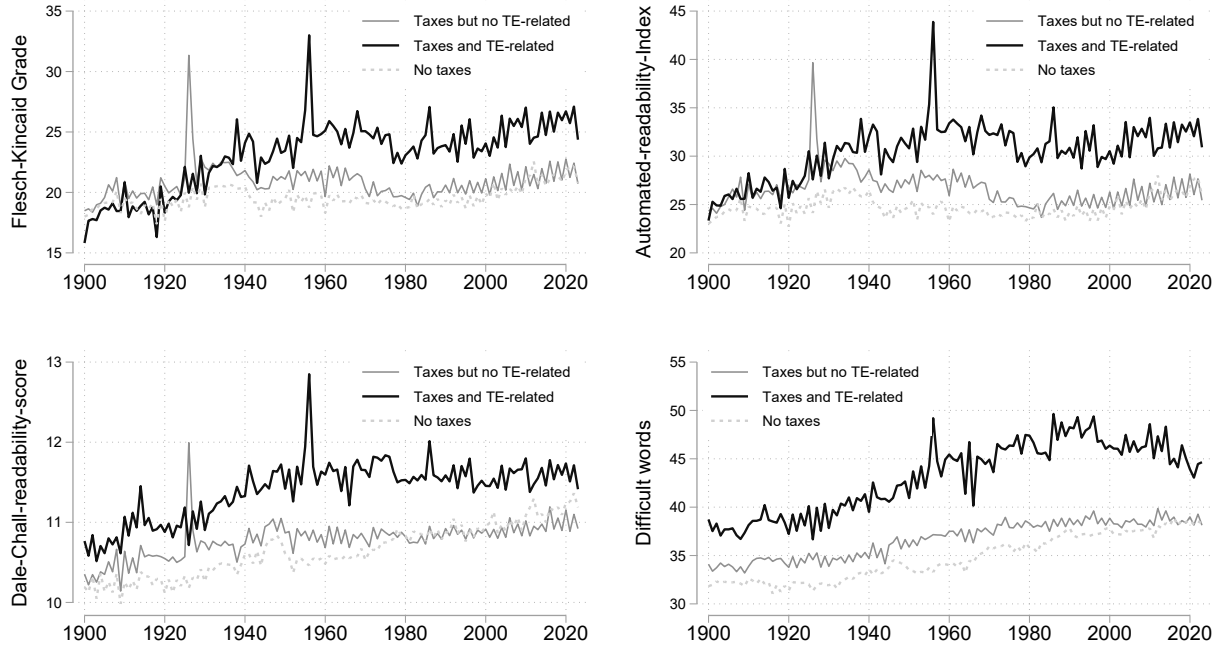
In Figure A.1, I present the results for each readability measure for the entire country over the period 1900-2022. The first observation is that tax expenditure-related clauses are, on average, more complex compared to non-tax expenditure clauses (which include other tax-related clauses as well as any other clauses that may be present in the legislation, such as health, criminal justice, education, insurance, etc.).

I also observe that the four measures are highly correlated in some way (see Table 9), with the Automated Readability Index being the mirror of the Flesch-Kincaid score. In fact, the correlation between them is 0.98. Because of this, in the next section of the paper, I may use either of these two measures interchangeably, and the results will still hold. Among the readability variables, the one that is least correlated with the others is the difficulty of words, which reflects the number of words considered difficult according to a predefined list by the Python library Textstat. I include and plot the bin-scatter of the 'difficulty of words' measure in the main specification to validate the results.

Table 9: Pairwise Correlation Coefficients

Readability measures	Automated Readability Index	Dale-Chall Readability Score	Flesch-Kincaid Grade Level	Difficulty Words
Automated Readability Index	1			
Dale-Chall Readability Score	0.87	1		
Flesch-Kincaid Grade Level	0.98	0.85	1	
Difficulty Words	0.41	0.45	0.40	1

Figure A.1: Complexity by type of provisions



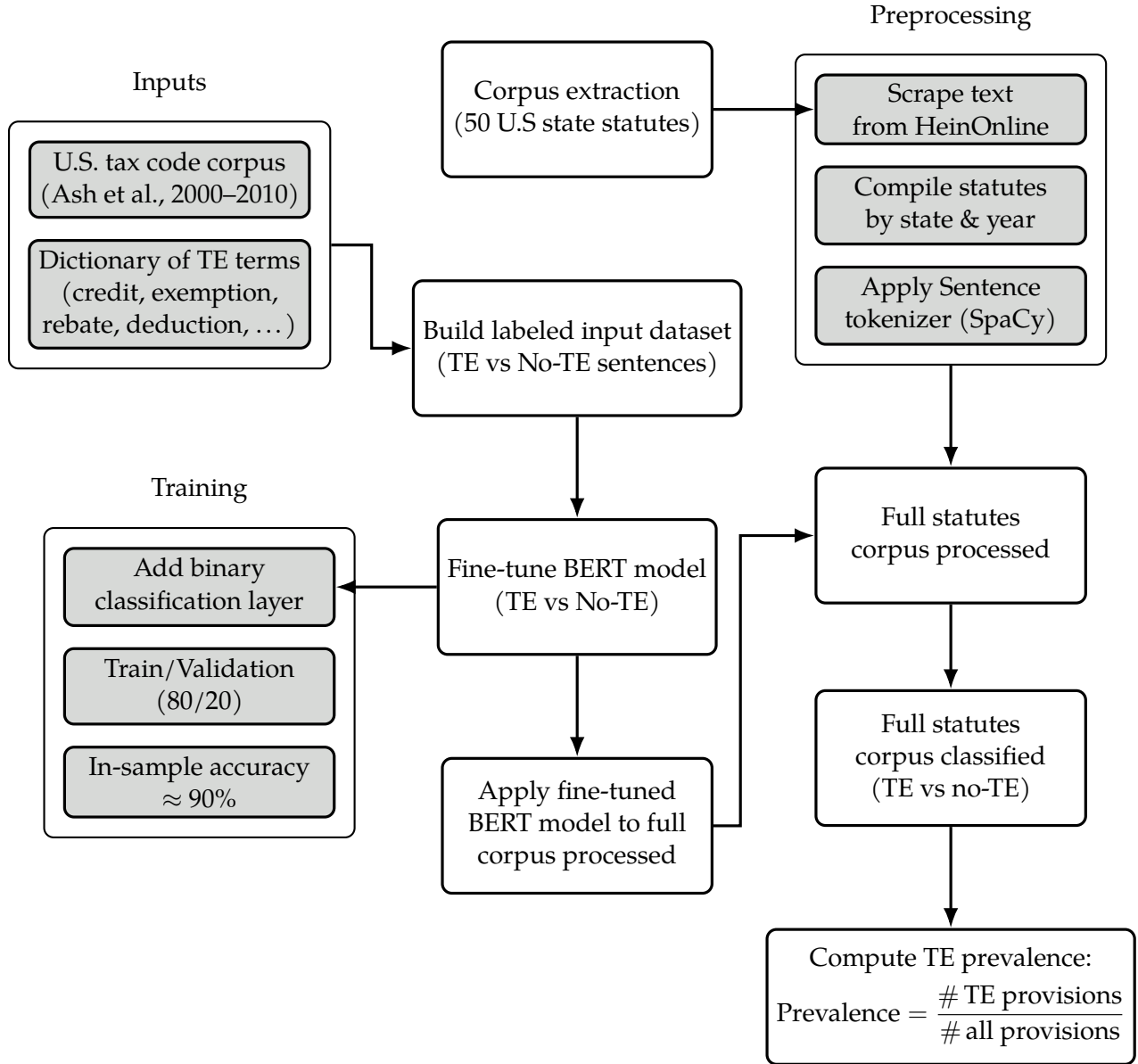
Notes: Figure displays the complexity of legislative provisions over time, categorized by type. Complexity is measured across four readability indices: Flesch-Kincaid Grade, Automated Readability Index, Dale-Chall Readability Score, and the count of Difficult Words. Each panel compares clauses classified as 'Taxes and TE-related' (black line), 'Taxes but no TE-related' (dark gray line), and 'No taxes' (light gray line).

Table A.1: Share of population subject to voting restrictions in 1960 (treated states)

State	Share (%)
Alabama	100.0
Arizona	3.4
Georgia	100.0
Louisiana	100.0
Mississippi	100.0
North Carolina	40.5
South Carolina	100.0
Texas	100.0
Virginia	100.0

Notes: The table shows the share (%) of counties from each of the nine southern states that were affected by the voting restrictions in 1960. This is taken from [Besley et al. \(2010\)](#). A similar strategy has also previously been used by ([Husted and Kenny, 1997](#)).

Figure A.2: Tax Expenditure Classification Pipeline



## Appendix C Deriving party predictions

Recall that parties choose  $\hat{\tau}$  and the number of TEs (complexity)  $\eta$ , where

$$t \equiv \beta(a, \eta) \hat{\tau}, \quad \beta(a, \eta) = 1 - a \|\eta\|, \quad \mathbb{E} \left[ \frac{\partial \beta}{\partial \eta_i} \right] = -\bar{a} \frac{\eta_i}{\|\eta\|} < 0.$$

The objective is

$$\max_{\hat{\tau}, \eta} \sigma \lambda + (1 - \sigma) \Pi(\beta \hat{\tau}) - \frac{\nu_P}{2} (t - t_P)^2 - \frac{c}{2} \|\eta\|^2,$$

where  $\Pi(x) \equiv \mathbb{E}_y[\pi(x, y)]$  and under the linear specification  $\Pi'(x) = B > 0$ .

**Target effective tax:** Differentiating w.r.t.  $\hat{\tau}$  and using  $\partial t / \partial \hat{\tau} = \beta$  gives

$$(1 - \sigma) \Pi'(\beta \hat{\tau}) \beta - \nu_P (t - t_P) \beta = 0 \implies (1 - \sigma) \Pi'(\beta \hat{\tau}) = \nu_P (t - t_P).$$

With  $\Pi'(x) = B$ , the *vote-policy tradeoff* pins down the target effective tax:

$$\boxed{t^* \equiv \beta \hat{\tau} = t_P + \frac{(1 - \sigma) B}{\nu_P}} \quad (10)$$

Competition (low  $\sigma$ ) pulls  $t^*$  toward voters' tastes (since  $B > 0$ ). As  $\sigma \rightarrow 1$ ,  $t^* \rightarrow t_P$ .

**Direction of complexity/TEs:** Differentiating w.r.t.  $\eta_i$  and using  $\partial t / \partial \eta_i = \hat{\tau} \partial \beta / \partial \eta_i$  yields

$$(1 - \sigma) \Pi'(\beta \hat{\tau}) \hat{\tau} \frac{\partial \beta}{\partial \eta_i} - \nu_P (t - t_P) \hat{\tau} \frac{\partial \beta}{\partial \eta_i} - c \eta_i = 0.$$

Taking expectations over  $a$  and factoring  $\eta_i$ , we obtain

$$\eta_i \left\{ -\bar{a} \frac{\hat{\tau}}{\|\eta\|} \left[ (1 - \sigma) B - \nu_P (t - t_P) \right] - c \right\} = 0. \quad (11)$$

Define

$$\Delta \equiv (1 - \sigma) B - \nu_P (t - t_P).$$

For any interior  $\eta \neq 0$  the *sign* of  $\Delta$  governs the direction:

$$\Delta > 0 \Rightarrow \text{increase TEs (raise } \|\eta\|) \text{ to lower } \beta \text{ and lower } t;$$

$$\Delta < 0 \Rightarrow \text{cut TEs (lower } \|\eta\|) \text{ to raise } \beta \text{ and raise } t.$$

Using (10),  $\Delta = \nu_P (t^* - t)$ : complexity moves to push  $t$  toward  $t^*$ .

**How headline taxes and TEs co-move:** Totally differentiate  $t = \beta\hat{\tau}$ :

$$dt = \beta d\hat{\tau} + \hat{\tau} d\beta. \quad \Rightarrow \quad \text{If } dt = 0 : \quad \beta d\hat{\tau} = -\hat{\tau} d\beta. \quad (12)$$

Adding TEs raises complexity and *reduces*  $\beta$  ( $d\beta < 0$ ), so (12) implies  $d\hat{\tau} > 0$ . Thus, a party can raise the headline rate while reducing it with *more TEs* so the *effective* tax  $t$  is held fixed.

**Republican prediction,  $t_R$  low.** From (10), the Republican target is

$$t_R^* = t_R + \frac{(1 - \sigma)B}{\nu_R}.$$

With more competition (low  $\sigma$ ),  $t_R^*$  increases slightly but remains low because  $t_R$  is low. To stay near a low  $t_R^*$  while appealing to voters who reward the appearance of taxing the rich (since  $B > 0$ ):

- Use (12): *increase* TEs (raise  $\|\eta\|$  so  $d\beta < 0$ ) and *increase*  $\hat{\tau}$  so that  $t = \beta\hat{\tau}$  remains close to  $t_R^*$ .
- From (11), when  $t < t_R^*$  (e.g., after raising  $\hat{\tau}$  insufficiently),  $\Delta > 0$  and the optimal response is to *add* TEs (increase  $\|\eta\|$ ), which pushes  $t$  back down toward  $t_R^*$ .

In competitive settings (low  $\sigma$ ), Republicans choose higher headline taxes and more TEs (greater complexity) so that the effective tax on the rich remains low, near  $t_R^*$ .

**Democratic prediction:  $t_D$  high.** From (10), the Democratic target is

$$t_D^* = t_D + \frac{(1 - \sigma)B}{\nu_D},$$

which is high and rises with competition. To move  $t$  up to  $t_D^*$ :

- *Raise*  $\hat{\tau}$  and *reduce* TEs (lower  $\|\eta\|$  so  $d\beta > 0$ ), thereby increasing  $t = \beta\hat{\tau}$ .
- From (11), when  $t > t_D^*$  (overshooting),  $\Delta < 0$  and the optimal response is to *cut* TEs less (or set  $\eta = 0$ ) and adjust  $\hat{\tau}$ , given the cost  $c$ .

In competitive settings (low  $\sigma$ ), Democrats choose higher headline taxes and fewer TEs (less complexity / more transparency) so that the effective tax on the rich is high, near  $t_D^*$ .



## Appendix D Deriving $\Pi'(x) = B > 0$

**Individual voting rule.** For swing voters, the probability of supporting the incumbent is linear in the *effective* tax on the rich:

$$\pi(x, y) = z(y) + (\alpha(y) - z(y))x, \quad x \equiv \beta(a, \eta) \hat{\tau} \in [0, 1].$$

Holding income  $y$  fixed, the marginal effect of  $x$  is

$$\frac{\partial \pi(x, y)}{\partial x} = \alpha(y) - z(y).$$

**Aggregation.** Define the average (over the income distribution) vote response

$$\Pi(x) \equiv \mathbb{E}_y[\pi(x, y)] = \underbrace{\mathbb{E}[z(y)]}_{\text{intercept}} + \underbrace{\mathbb{E}[\alpha(y) - z(y)]}_B x.$$

Hence

$$\Pi'(x) = B \equiv \mathbb{E}[\alpha(y) - z(y)].$$

**Plugging the linear forms.** With

$$z(y) = \frac{y + y_0}{\bar{y} + y_0} \quad \text{and} \quad \alpha(y) = 1 - \rho y \quad \text{with} \quad \rho < \frac{1}{\bar{y}},$$

we have

$$\alpha(y) - z(y) = \left(1 - \rho y\right) - \frac{y + y_0}{\bar{y} + y_0}.$$

Differentiating w.r.t.  $y$  gives

$$\frac{d}{dy} [\alpha(y) - z(y)] = -\rho - \frac{1}{\bar{y} + y_0} < 0,$$

so  $\alpha(y) - z(y)$  is strictly decreasing in income and crosses zero exactly once at  $y = y^*$  defined by

$$\alpha(y^*) - z(y^*) = 0 \quad \Longleftrightarrow \quad 1 - \rho y^* = \frac{y^* + y_0}{\bar{y} + y_0} \quad \Longleftrightarrow \quad y^* = \frac{\bar{y}}{1 + \rho(\bar{y} + y_0)}.$$

Hence  $\alpha(y) - z(y) > 0$  for  $y < y^*$  and  $\alpha(y) - z(y) < 0$  for  $y > y^*$ .

**When is  $B > 0$ ?** By definition,

$$B = \mathbb{E}[\alpha(y) - z(y)] = \mathbb{E}[1 - \rho y] - \mathbb{E}\left[\frac{y + y_0}{\bar{y} + y_0}\right] = 1 - \rho \mathbb{E}[y] - \frac{\mathbb{E}[y] + y_0}{\bar{y} + y_0}.$$

Equivalently, since  $\alpha(y) - z(y)$  is strictly decreasing and single-crossing at  $y^*$ ,  $B > 0$  whenever the income distribution places (weakly) more mass below  $y^*$  than above it (e.g., if the median income  $m \leq y^*$ ). Economically, because lower-income voters are more supportive of higher effective taxes on the rich (they have larger  $\alpha(y) - z(y)$ ), and most voters are non-rich, the average slope  $B$  is positive, implying

$$\Pi'(x) = B > 0.$$

Table A.2: Examples of Tax Expenditure provisions

State	Year	Legislative Provision (Raw Text)	ARI
Oregon	1943	"Gross income also includes salaries and compensation of all employees of this state or any political subdivision, district, or municipality thereof; and of all officials and judges, notwithstanding that such officials or judges hold constitutional offices and their compensation or salaries are not subject to being diminished during their terms of office. ( 2 ) "Gross income does not include the following items, which shall be exempted from taxation under this act: (a) Interest, dividends and/or other income realized prior to January 1, 1939, which otherwise is taxed by this state as income of the taxpayer under the intangibles income tax act of 1931, as amended. ( b ) Amounts received under a life insurance contract paid by reason of the death of the insured, whether in a single sum or otherwise (but if such amounts are held by the insurer under an agreement to pay interest thereon, the interest payments shall be included in gross income).	28.7
California	1993	1216 (B) A net operating loss carryover shall be a deduction only with respect to income attributed to the business activities of the taxpayer within the enterprise zone (as defined in Section 7073 of the Government Code) determined in accordance with the provisions of Article 2 (commencing with Section 25120) of Chapter 17, modified for purposes of this section as follows: (i) For each income year beginning on or after January 1, 1991, and ending on or before December 31, 1996, income shall be apportioned to the enterprise zone by multiplying total income from the business by a fraction, the numerator of which is the property factor plus the payroll factor, and the denominator of which is 2. ( ii ) "The enterprise zone shall be substituted for "this state." ( c ) A taxpayer engaged in the conduct of a trade or business within the Los Angeles Revitalization Zone designated pursuant to Section 7102 of the Government Code. (	28.0
Missouri	2018	Any amount of net operating loss taken against federal taxable income but disallowed for Missouri income tax purposes pursuant to this subdivision after June 18, 2002, may be carried forward and taken against any income on the Missouri income tax return for a period of not more than twenty years from the year of the initial loss; and (5) For nonresident individuals in all taxable years ending on or after December 31, 2006, the amount of a any property taxes paid to another state or a political subdivision of another state for which a deduction was allowed on such nonresidents federal return in the taxable year unless such state, political subdivision of a state, or the District of Columbia allows a subtraction from income for property taxes paid to this state for purposes of calculating income for the income tax for such state, political subdivision of a state, or the District of Columbia.	80.2
Kansas	2014	a) For taxable years beginning after December 31, 2011, a taxpayer may elect to take an expense deduction from Kansas net income before expensing or recapture allocated or apportioned to this state for the cost of the following property placed in service in this state during the taxable year: (1) Tangible property eligible for depreciation under the modified accelerated cost recovery system in section 168 of the Internal Revenue Code, as amended, but not including residential rental property, nonresidential real property, any railroad grading or tunnel bore or any other property with an applicable recovery period in excess of 25 years as defined under section 168(c) or (g) of the Internal Revenue Code, as amended; and (2) computer software as defined in section 197(e)(3)(B) of the Internal Revenue Code, as amended, and as described in section 197(e)(3)(A)(i) of the Internal Revenue Code, as amended, to which section 167 of the Internal Revenue Code, as amended, applies.	81.6
Illinois	2006	This subparagraph (K) is exempt from the provisions of Section 250; (L) An amount equal to those dividends included in such total that were paid by a corporation that conducts business operations in a federally designated Foreign Trade Zone or Sub-Zone and that is designated a High Impact New matter indicated by italics deletions by <del>strikeout 4325 PUBLIC ACT 94-1021 Business located in Illinois</del> ; provided that dividends eligible for the deduction provided in subparagraph (K) of paragraph 2 of this subsection shall not be eligible for the deduction provided under this subparagraph (L); (M) For any taxpayer that is a financial organization within the meaning of Section 304(c) of this Act, an amount included in such total as interest income from a loan or loans made by such taxpayer to a borrower, to the extent that such a loan is secured by property which is eligible for the Enterprise Zone Investment Credit or the River Edge Redevelopment Zone Investment Credit.	82.5
Nevada	2007	For a business to qualify pursuant to NRS 360.750 for a partial abatement from the taxes imposed by this chapter, the Commission on Economic Development must determine that, in addition to meeting the other requirements set forth in subsection 2 of that section: (a) If the business is a new business in a county whose population is 100,000 or more or a city whose population is 60,000 or more: (1) The business will make a capital investment in the county of at least \$50,000,000 if the business is an industrial or manufacturing business or at least \$2,000,000 if the business is not an industrial or manufacturing business; and (2) The average hourly wage that will be paid by the new business to its employees in this State is at least 100 percent of the average statewide hourly wage as established by the Employment Security Division of the Department of Employment, Training and Rehabilitation on July 1 of each fiscal year.	41.3

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Table A.2 — Examples of Tax Expenditure provisions

State	Year	Legislative Provision (Raw Text)	ARI
Kansas	2009	If any materials purchased under such a certificate are found not to have been incorporated in the building or other project or not to have been returned for credit or the sales or compensating tax otherwise imposed upon such materials which will not be so incorporated in the building or other project reported and paid by such contractor to the director of taxation not later than the 20th day of the month following the close of the month in which it shall be determined that such materials will not be used for the purpose for which such certificate was issued, the political subdivision, district described in subsection (s), hospital or public hospital authority, school, educational institution or the contractor contracting with the department of corrections for a correctional institution concerned shall be liable for tax on all materials purchased for the project, and upon payment thereof it may recover the same from the contractor together with reasonable attorney fees.	82.5
Utah	1995	pt ien exemptions; and (iii) the benefits of the [exemption] exemptions to the state; (16) sales of tooling, special tooling, support equipment, and special test equipment used or consumed exclusively in the performance of any aerospace or electronics industry contract with the United States government or any subcontract under that contract, but only if, under the terms of that contract or subcontract, title to the tooling and equipment is vested in the United States government as evidenced by a government identification tag placed on the tooling and equipment or by listing on a government-approved property record if a tag is impractical; (17) intrastate movements of freight by common carriers; (18) sales of newspapers or newspaper subscriptions; (19) tangible personal property, other than money, traded in as full or part payment of the purchase price, except that for purposes of calculating sales or use tax upon vehicles not sold by a vehicle dealer, trade-ins are limited to other vehicles only.	83.3
West Virginia	2004	AN ACT to amend and reenact §11-15-9 of the code of West Virginia, 1931, as amended; to amend and reenact §11-15B-2, §11-15B-2a, §11-15B-15, 11-15B-30, 11-15B-32 and §11-15B-36 of said code; and to amend said code by adding thereto three new sections, designated § 11-15B14a, § 11-15B19 and § 11-15B-20, all relating generally to consumers sales and service tax; clarifying that exemption from tax for durable medical goods, mobility enhancing equipment and prosthetic devices purchased with prescription was not intended to be repealed when house bill 3014 was enacted during the two thousand three regular session of the Legislature; deleting language made obsolete when that bill was enacted; making technical corrections in streamlined sales and use tax administration act; updating certain definitions used in that act; providing sourcing rules and definitions for telecommunications services and retail floral sales based on streamlined sales and use tax agreement; clarifying application of hold harmless rule; deleting obsolete language; and specifying effective date.	84.7
Virginia	1999	From July 1, 1995, through June 30, 4999 2001, food and other tangible personal property purchased in connection with program activities by an organization exempt from taxation under § 501 (c) (3) of the Internal Revenue Code and organized exclusively for the purpose of operating and maintaining a summer recreational camp and related facilities for use by mentally handicapped citizens of the Commonwealth within the boundaries of the Eleventh Planning District established pursuant to § 15.2-4203. Effective retroactive to January 1, 1995, through June 30, 4999 2001, tangible personal property purchased for use or consumption by, or sold by, a nonprofit charitable organization exempt from taxation under § 501 (c) (3) of the Internal Revenue Code and organized and operated primarily to restore, cultivate, and enhance wilderness lands and wildlife habitat, including water resources, within Virginia and to educate and foster good relations between all citizens of the Commonwealth regarding the restoration of damaged lands.	43.8
Virginia	1994	Tangible personal property purchased for the use or consumption of a nonstock corporation, exempt from taxation under § 501 (c) (3) of the Internal Revenue Code, whose principal activity is conducted on real property owned by any city in the Commonwealth, organized exclusively for the purpose of operating, managing, promoting and improving a public park and museum for recreational and educational purposes. Tangible personal property purchased for charitable or educational purposes by an organization exempt under § 501 (c) (3) of the Internal Revenue Code and organized exclusively (i) to care for the spiritual needs of American Indians, (ii) to communicate to the non-Indian the values, customs, philosophy and special needs of the American Indian, (iii) to meet the urgent needs of American Indians through nationwide charitable distribution programs, and (iv) to encourage awareness of American Indian arts, crafts and customs provided such property is distributed by the organization through its nationwide charitable distribution program.	44.4
California	2003	Existing law provides that an exemption claim is not required with respect to a supplemental assessment that results from a change in ownership of property of a purchaser that has been granted the college, cemetery, church, religious, exhibition, veterans' organization, free public libraries, free museums, or welfare exemption on either the current roll or the roll being prepared and is being put to the same use after purchase, so long as a timely application for exemption is filed on or before the next tax lien date. This bill would make technical amendments to clarify that, in the case of a supplemental assessment due to a change in ownership of property, an application for an exemption claim is not required to be filed until the filing date for the following lien date, if the purchaser of the property currently owns or uses property that has been granted an exemption and if the purchased property will be used for the same exempt purposes.	42.1

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Table A.2 — Examples of Tax Expenditure provisions

State	Year	Legislative Provision (Raw Text)	ARI
Hawaii	1955	ACT 219 TAX Exemptions, PATRICK JOSEPH MCCABE ACT 220 An Act Relating to Exemptions from Taxation, Exempting from Taxation under Chapter 94, Revised Laws of Hawaii 1945, All Property Actually and Solely Used in the Growing and Processing of Sandalwood, and Exempting from Taxation under Chapters 94 and 101, Revised Laws of Hawaii 19,15, All Property Actually and Solely Used or to be Used in the Manufacture of Pulp and Paper from Bagasse Fibre, and the Value and Gross Proceeds of Sales of such Products in so far as the Grower, Processor, or Manufacturer is Concerned. Be it Enacted by the Legislature of the Territory of Hawaii: SECTION i. All property in the Territory, both real and personal, actually and solely used, whether by the owner or a lessee thereof, in connection with the growing and processing of sandalwood (santalum), shall be exempt from all property taxes for a period of five (5) years from December 31, 1954.	28.1
New York	2013	a) Within thirty days of the date that the authority designates a project operator or other person to act as agent of the authority for purposes of providing financial assistance consisting of any sales and compensating use tax exemption to such person, the agency shall file a statement with the department of taxation and finance relating thereto, on a form and in such manner as is prescribed by the commissioner of taxation and finance, identifying each such agent so named by the authority, setting forth the taxpayer identification number of each such agent, giving a brief description of the property and/or services intended to be exempted from such taxes as a result of such appointment as agent, indicating the authority's rough estimate of the value of the property and/or services to which such appointment as agent relates, indicating the date when such designation as agent became effective and indicating the date upon which such designation as agent shall cease.	82.4
New York	1945	apartment hot water and a bathroom containing water closet facilities or a bathroom an( a water closet, except in so far as the gross cubic area of the building is increased thereby, shall be exempt from taxation for local purposes during construction and upon completion for a period not to exceed ten years after the taxable status date immediately following the completion thereof, provided that construction is started after January first, nineteen hundred forty-five and completed before December thirty-first, nineteen hundred forty-six, that heat furnished through a central heating system and hot water and a bathroom containing water closet facilities or a bathroom and water closet are provided within each apartment, and further l)provided that in no case shall such alterations and improvements be exempted to an extent greater in valuation than the valuation of the land and previously existing dwelling appearing on the assessment rolls after the taxable status date immediately preceding the commencement of such alterations and improvements.	84.9
Mississippi	1990	The right of a person to an annuity, a retirement allowance or benefit, or to the return of contributions, or to any optional benefit or any other right accrued or accruing to any person under the provisions of Articles 1 and 3, the system and the moneys in the system created by said articles, are hereby exempt from any state, county or municipal ad valor-em taxes, premium taxes, privilege taxes, property taxes, sales and use taxes or other taxes not so named, except state income taxes for amounts received in the excess aggregate sum of Six Thousand Dollars (\$6,000.00) for any taxable year, not with Chapter 522 STATE OF MISSISSIPPI, 1990 standing any other provision of law to the contrary, and exempt from levy and sale, garnishment, attachment or any other process whatsoever, and shall be nonassignable except as in the cited articles specifically otherwise provided. Section 25-11-319, Mississippi Code of 1972, is amended as follows: 25-11-319.	28.7
Michigan	1937	Sections ten and eleven of act number one hundred forty-seven of the public acts of nineteen hundred thirty-five, entitled "An act authorizing the acquisition, improvement, construction, operation and maintenance of certain public works by the state; providing for the creation of the state bridge commission; authorizing the issuance of revenue bonds of the state payable solely from earnings to pay the cost of such works; making such bonds exempt from taxation and making them eligible for certain investments; providing for the collection of fees, rents, tolls and other charges for the payment of such bonds and for the cost of maintenance, operation and repair of the works; declaring that no debt of the state shall be incurred in the exercise of any of the powers granted by this act; and providing for condemnation, are hereby amended to read as follows: State bridge commission; trust indenture, collateral security and surety bonds, expenses. Trust indenture.	80.3
Virginia	1986	CHAPTER 261 An Act to authorize the issuance of Commonwealth of Virginia Higher Educational Institutions Bonds, subject to the provisions of Section 9 (c) of Article X of the Constitution of Virginia in an amount not exceeding \$42,465,000 for the purpose of providing funds with any other available funds for paying the cost of acquiring, constructing and equipping revenue-producing capital projects at institutions of higher learning of the Commonwealth; to authorize the Treasury Board, by and with the consent of the Governor, to fix the details of such bonds and to provide for the sale of such bonds at public or private sale; to provide for the pledge of the net revenues of such capital projects and the full faith, credit and taxing power of the Commonwealth for the payment of the principal of and the interest on such bonds; and to provide that such bonds shall be exempt from all taxation by the Commonwealth and any political subdivision thereof.	82.1

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Table A.2 — Examples of Tax Expenditure provisions

State	Year	Legislative Provision (Raw Text)	ARI
Pennsylvania	1977	1977-30A A SUPPLEMENT HB 1255 To the act of November 30, 1965 (P.L.X43, No.355), entitled "An act providing for the establishment and operation of Temple University as an instrumentality of the Commonwealth to serve as a State-related university in the higher education system of the Commonwealth; providing for change of name; providing for the composition of the board of trustees; terms of trustees, and the power and duties of such trustees; providing for preference to Pennsylvania residents in tuition; providing for public support and capital improvements: authorizing appropriations in amounts to be fixed annually by the General Assembly: providing for the auditing of accounts of expenditures from said appropriations: authorizing the issuance of bonds exempt from taxation within the Commonwealth: requiring the President to make an annual report of the operations of Temple University," making appropriations for carrying the same into effect, providing for a basis for payments of such appropriation and providing a method of accounting for the funds appropriated.	45.3
Iowa	1992	Claimant" means either one of the following a person filing a claim for credit or reimbursement under this division who has attained the age of sixty-five eighteen years on or before December 31 of the base year or who is a surviving spouse having attained the age of fifty-five years on or before December 3, "W, or who is totally disabled and was totally disabled on or before December 31 of the base year, and was domiciled in this state during the entire base year, and is domiciled in this state at the time the claim is filed or at the time of the person's death in the case of a claim filed by the executor or administrator of the claimant's estate and, in the case of a person who is not disabled and has not reached the age of sixty-five, was not claimed as a dependent on any other person's tax return for the base year.	77.4
Maine	1983	Sale price" shall not include allowances in cash or by credit made upon the return of merchandise pursuant to warranty, or the price of property returned by customers when the full price thereof is refunded either in cash or by credit, nor shall "sale price"include the price received for labor or services used in installing or applying or repairing the property sold, if separately charged or stated nor shall "sale price"include an amount charged or collected, in lieu of a gratuity or tip, as a specifically stated service charge, when said amount is to be disbursed by a hotel, motel, restaurant or other eating establishment to its employees as wages, nor shall a sales tax be charged or collected on the value in money of meals and all lodging provided to employees at their place of employment when the amount of said value in money is allowed as a credit towards the wages of said employees. "	79.8
Indiana	1947	That any person who shall have served in the military or naval forces of the United States during any of its wars, and who shall have been honorably discllar'eld therefrom, and who is disabled with a service collul(ted disability of ten per cent or more, as evidenced 1y a letter or certificate from the Veterans' Administration, or its successor, and the widow of any such person who shall have served in the military or naval forces of the United States during any of its wars, shall have the amount of two thousand dollars deducted from his or her taxable property: Provided, That this said exemption shall not bar recipient thereof from receiving benefits from any other exemption, or exemptions which he or she may be entitled to under the laws of the State of Indiana. Whereas an emergency exists for tile immediate taking effect of this act, the same shall be in full force and effect from and after its passage.	41.5

Table A.3: Examples of Tax-Related, but Non-Tax-Expenditure (Non-TE) Provisions

State	Year	Legislative Provision (Raw Text)	ARI
Georgia	1981	However, said city may obligate itself to pay the amounts required under any contract entered into with the authority from funds received from taxes to be levied and collected for that purpose to the extent necessary to pay the obligations contractually 3317 3318 LOCAL AND SPECIAL ACTS AND RESOLUTIONS, VOL. 11 incurred under this section, and from any other source; and the obligation to make such payments shall constitute a general obligation and a pledge of the full faith and credit of the obligor but shall not constitute a debt of the obligor within the meaning of Article IX, Section VII, Paragraph I of the Constitution of the State of Georgia; and, when such obligation is made to make such payments from taxes to be levied for that purpose, then the obligation shall be mandatory to levy and collect such taxes from year to year in amount sufficient to fulfill and fully comply with the terms of such obligation. Trust agreement.	41.7
California	2022	The Legislature further finds that the exceptions established by this subdivision to the general prohibition against tied interests must be limited to their express terms so as not to undermine the general prohibition, and intends that this section be construed accordingly. ( b)(1) The department may issue a special on-sale beer and wine license to any nonprofit theater company that has been in existence for at least eight years, that for at least six years has performed in facilities leased or rented from a local county fair association, and that is exempt from the payment of income taxes under Section 23701d of the Revenue and Taxation Code and Section 501(c)(3) of the Internal' Revenue Code of the United States. ( 2) Theater companies holding a license under this subdivision may, subject to Section 25631, sell and serve beer and wine to ticket holders only during, and two hours * * * before, a bona fide theater performance of the company.	28.7
Louisiana	1989	It is further the intent and purpose of this Section that the forfeiture and sale of the automobile, truck, boat, conveyance, vehicle, or other means of transportation shall operate as a penalty for the violation of this Chapter by illegal transportation; and the payment of the tax due at the moment of seizure or thereafter shall not operate to prevent, abate, discontinue, or defeat the forfeiture and sale of the said property. D. All funds collected from the said seized and forfeited property shall be paid into the state treasury and credited to the same fund or funds which would receive credit for the tax on the product illegally transported. E. The court shall fix the fee of the attorney representing the owner when appointed by the court, at a nominal sum not to exceed ten percent, which shall be taxed as costs and shall be paid out of the proceeds of the sale of said property. §	26.9
Alabama	1947	Fixing Amount of assessment constitutes lien; superiority of such liens :-At such meetings or any adjourned meeting, the commission shall proceed by resolution to fix the amount of the assessment against each lot or tract of land described and included in said assessment roll, and all such assessments, from the date of such order or resolution, shall be and constitute a lien on the respective lots or parcels of land upon which they are levied superior to all other liens, except those of the state and county for taxes. The governing body shall have no power to reduce or abate an assessment made for public improvements after such assessment shall have been made final, unless an appeal shall have been taken from such assessments within the time prescribed by law, except as provided in the following section, but this provision shall not effect the power of such governing body to split such an assessment between two or more parties. Section 26.	42
Colorado	1947	There shall be levied and assessed upon all taxable property within this state, both real and personal, in the years 1947 and 1948, in addition to all other levies for the Colorado State Hospital, at Pueblo, a tax of .03876 mill on each and every dollar of assessed valuation, and there shall be levied and assessed upon all taxable property within this State, both real and personal, in the years 1949, 1950, 1951, 1952, 1953, 1954, 1955 and 1956, in addition to all other levies for the Colorado State Hospital, at Pueblo, a tax of .38768 mill on each and every dollar of assessed valuation; said taxes to be assessed and collected in the same manner and at the same time as is now or may hereafter be provided by law for the assessment and collection of other revenues, and when so collected shall be paid by the State Treasurer to the credit of the appropriation hereby made.	26.4
Louisiana	1990	Remittance of percentage of taxes collected to fund; membership; salary deductions; deficiency in fund; credit B. Membership: (1) Each sheriff, including the criminal and civil sheriff for the parish of Orleans, shall be eligible to become a member of the Sheriffs' Pension and Relief Fund; and each deputy, including the criminal and civil deputies of the parish of Orleans, and the criers of the several divisions of the Civil District Court for the parish of Orleans, who is found by the board's physician to be physically fit, and whose monthly salary including state supplemental pay, is not less than four hundred dollars, if employed prior to January 1, 1991, and not less than five hundred fifty dollars, if employed subsequent to December 31, 1990, and who, on the date of the filing of his application to become a member, is between eighteen and fifty years of age, shall be eligible to become a member of the Sheriffs' Pension and Relief Fund.	42

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Table A.3 — Examples of Tax-Related, but Non-Tax-Expenditure (Non-TE) Provisions

State	Year	Legislative Provision (Raw Text)	ARI
Virginia	1932	The sums to be paid by itinerant vendors or itinerant auctioneers shall be for such privilege, a specific tax of two hundred dollars per month or fraction thereof and to be granted for a period of time of not less than one month, which shall be assessed and collected as other license taxes; but shall not be in lieu of the merchant's licenses on purchases or county, city or town license taxes or levies. Said license to be renewed monthly during the continuance of said sale, and shall be a personal privilege and shall not be transferable nor shall there be any abatement in any instance of the tax upon such license by reason of the fact that such person or persons so licensed shall have exercised such license for any period of time less than for which it was granted. The license shall at all times be kept publicly exposed by the licensee on his business premises.	26.2
Connecticut	1999	(d) For purposes of this section, receipts allocated to principal or income must be reduced by the amount distributed to a beneficiary from principal or income for which the trust receives a deduction in calculating the tax. NEW) (a) A fiduciary may make adjustments between principal and income to offset the shifting of economic interests or tax benefits between income beneficiaries and remainder beneficiaries which arise from: (1) Elections and decisions, other than those described in subsection (b) of this section, that the fiduciary makes from time to time regarding tax matters; (2) An income tax or any other tax that is imposed upon the fiduciary or a beneficiary as a result of a transaction involving or a distribution from the estate or trust; or (3) The ownership by an estate or trust of an interest in an entity whose taxable income, whether or not distributed, is includible in the taxable income of the estate or trust, or a beneficiary. (	42.1
Washington	1973	(1) Every employer making a payment of wages or salaries earned in this state shall deduct and withhold a tax in such amount as shall be prescribed in tables promulgated by the department to reasonably reflect the tax liability of the employee under this Title, and which shall be computed by the department in such a manner as to result as closely as possible in annual withholding of the taxpayer's annual tax liability. Every employer making a deduction and withholding as outlined above, shall furnish to the employee a record of the amount of tax withheld from such employee on forms to be prescribed upon request and furnished by the department. Remittance of taxes withheld shall be made at such times and in such manner as are prescribed by regulations to be prescribed by the department, which regulations insofar as practicable shall be in conformity with the provisions of the Internal Revenue Code and regulations adopted thereunder. (	28.4
Illinois	1994	"Qualified organization": (a) a charitable, religious, fraternal, veterans, labor or educational organization or institution organized and conducted on a not-for-profit basis with no personal profit inuring to anyone as a result of the operation and which is exempt from federal income taxation under Sections 501(c)(3), 501(c)(4), 501(c)(5), 501(c)(8), 501(c)(10) or 501(c)(19) of the Internal Revenue Code; (b) a veterans organization as defined in Section 1 of the "Bingo License and Tax Act", approved July 22, 1971, as amended, organized and conducted on a not-for-profit basis with no personal profit inuring to anyone as a result of the operation; or (c) An auxiliary organization of a veterans organization. "Fraternal organization": A civic, service or charitable organization in this State except a college or high school fraternity or sorority, not for pecuniary profit, which is a branch, lodge or chapter of a national or State organization and exists for the common business, brotherhood, or other interest of its members. "	44.2
Illinois	1980	Accumulated contributions shall mean the amounts including the interest credited thereon contributed by or on behalf of the employee for age and service and widow's annuity to the date of his withdrawal or death, whichever first occurs, including any amounts contributed for him as salary deductions while receiving duty disability benefits, and, if not otherwise included, any accumulations from sums contributed by him and applied to any pension fund superseded by this fund. The acceptance of such refund in lieu of widow's annuity, on the part of a widow, shall not deprive a child or children of the right to receive a child's annuity as provided for in Sections 8-158 and 8-159 of this Article, and neither shall the payment of child's annuity in the case of such refund to a widow reduce the amount herein set forth as refundable to such widow electing a refund in lieu of widow's annuity. ( 8-173) Sec. Financing Tax levy. (	28
Indiana	1951	Should any inventory or schedule disclose any property upon which the sheriff might have made a levy and sale to satisfy, or partially satisfy, any warrant, the failure of the sheriff to make such levy and/or sale shall constitute misfeasance in office, and shall subject the sheriff to liability upon his official bond, to the State of Indiana, in an amount equal to the amount which might have been collected-upon the said warrant had such CHAPTER 279 levy and/or sale been made. Such liability upon the part of the sheriff shall constitute a debt due to the State of Indiana, and may be recovered in any suit instituted by the attorney general in the name of the State of Indiana, for that purpose. The liability for any tax, interest, penalties, and damages imposed by this act shall not be subject to any of the provisions of the exemption laws of the State of Indiana for the relief of debtors.	27

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Table A.3 — Examples of Tax-Related, but Non-Tax-Expenditure (Non-TE) Provisions

State	Year	Legislative Provision (Raw Text)	ARI
Indiana	2002	With respect to an appeal filed under section 12 of this chapter, the local government tax control board may recommend that a civil taxing unit receive any one (1) or more of the following types of relief: (1) Permission to the civil taxing unit to reallocate the amount set aside as a property tax replacement credit as required by IC 6-3.5-1.1 for a purpose other than property tax relief. However, whenever this occurs, the local government tax control board shall also state the amount to be reallocated. ( 2) Permission to the civil taxing unit to increase its levy in excess of the limitations established under section 3 of this chapter, if in the judgment of the local government tax control board the increase is reasonably necessary due to increased costs of the civil taxing unit resulting from annexation, consolidation, or other extensions of governmental services by the civil taxing unit to additional geographic areas or persons.	28.4
Arizona	1991	Pay thirty-eight and eight one-hundredths per cent to the counties in this state by averaging the following proportions: (a) The proportion that the assessed valuation used to determine secondary property taxes of each county, after deducting that part of the assessed valuation which is exempt from taxation at the beginning of the month for which the amount is to be paid, bears to the total assessed valuations used to determine secondary property taxes of all the counties after deducting that portion of the assessed valuations which is exempt from taxation at the beginning of the month for which the amount is to be paid. Property of a city or town which is not within or contiguous to the municipal corporate boundaries and from which water is or may be withdrawn or diverted and transported for use on other property is deemed to be taxable property in the county for purposes of determining assessed valuation in the county under this subdivision. (	42.1
California	1988	If approved by the State Board of Control, the excess amount collected or paid shall be credited on any amounts then due from the person from whom the excess amount was collected or by whom it was paid under this part, and the balance shall be refunded to the person, or his or her successors, administrators, or executors. 1029 ] STATUTES OF 1988 3357 However, in the case of a determination by the board that an amount not to exceed fifty thousand dollars (\$50,000) was not required to be paid under this part, the board without obtaining the approval of the State Board of Control may credit the amount on any amounts then due and payable under this part from the person by whom the amount was paid and may refund the balance to the person or his or her successors, administrators, or executors. Section 43452 of the Revenue and Taxation Code is amended to read: 43452. (	26.2
Mississippi	1990	(2) The proceedings authorizing any bonds and any security agreement securing bonds may provide that in the event of default in payment of the principal of or interest on such bonds, or in the performance of any agreement contained in such proceedings or security agreement, such payment and performance may be enforced by mandamus or by appointment of a receiver in equity with such powers as may be necessary to enforce the obligations thereof. No breach of any such agreement shall impose any pecuniary liability upon the county or any charge upon its general credit or against its taxing powers. ( 3) The trustee under any security agreement or any depository specified by such agreement may be such persons or corporations as the governing body shall designate; provided that they may be residents of Mississippi or nonresidents of Mississippi or incorporated under the laws of the United States or the laws of other states of the United States.	28.5
Maine	1931	The tax on polls shall not exceed, at any one assessment, the sum of one dollar to any one person in any one year. Assessment. Upon a certificate being filed with the overseers of said corporation by the clerk thereof, of the amount of money raised at any meeting for the purposes aforesaid, it shall be the duty of said overseers, as soon as may be, to assess said amount upon the estates and polls of persons residing in the territory aforesaid, and upon the estates of nonresident proprietors thereof, and the overseers shall certify and deliver to the treasurer or collector of said corporation, whose duty it shall be to collect the same in like manner as county and town taxes are, by law, collected by towns, and said corporation shall have the same power to direct the mode of collecting said taxes as towns have in the collection of town taxes. 416 SEBASCO MOSQUITO ABATEMENT DISTRICT.	26.9
Arkansas	1920	... avails himself of this indulgence, the deferred installments of the assessed benefits shall bear interest at the rate of six per cent per annum, and shall be payable only in installments as levied. The levy of the assessment may be made by way of proportional amounts of the total assessed benefits, and interest need not be calculated until it is necessary to do so to avoid exceeding the total amount of benefits and interest, or the interest may be first collected. SECTION 15. The amount of the taxes herein provided for shall be annually extended upon the tax books of the county, and collected by the collector of the county along with other taxes, and for his services in making such collection the collector shall receive a commission of one per cent; and the same shall, by the collector, be paid over to the depository of the district at the same time he pays over the county funds.	26.8

*Continued on next page*

Table A.3 — Examples of Tax-Related, but Non-Tax-Expenditure (Non-TE) Provisions

State	Year	Legislative Provision (Raw Text)	ARI
Mississippi	2019	(g) Service performed in any calendar quarter in the employ of any organization exempt from income tax under the Internal Revenue Code, 26 USCS Section 501(a) (other than an organization described in 26 USCS Section 401(a)), or exempt from income tax under 26 USCS Section 521 if the remuneration for such service is less than Fifty Dollars (\$50.00). ( h) Service performed in the employ of a school, college, or university if such service is performed: (i) By a student who is enrolled and is regularly attending classes at such school, college or university, or (ii) By the spouse of such a student if such spouse is advised, at the time such spouse commences to perform such service, that (A) The employment of such spouse to perform such service is provided under a program to provide financial assistance to such student by such school, college, or university, and (B) Such employment will not be covered by any program of unemployment insurance.	41.8
California	1957	If (1), the taxpayer has, within the period preassessment scribed in Section 26073 agreed in writing, under the provisions of Chapter 20, Article 1, to extend the time within which the Franchise Tax Board may propose an additional assessment, or, (2) the taxpayer has agreed with the United States Commissioner of Internal Revenue for an extension, or renewals thereof, of the period for proposing and assessing deficiencies in federal income tax for any year, the period within which a claim for credit or refund may be filed, or credit or refund allowed or made if no claim is filed, shall be the period within which the Franchise Tax Board may issue a notice of proposed additional assessment under such circumstances. The provisions of this section shall apply to any claim filed, or credit or refund allowed or made, before the execution of such agreements. Section 26161 of the Revenue and Taxation Code is amended to read: Lien 26161.	28.3
Illinois	1979	(b) Corporations. ( 1) In general. In the case of a corporation, base income means an amount equal to the taxpayer's taxable income for the taxable year as modified by paragraph (2). ( 2) Modifications. The taxable income referred to in paragraph (1) shall be modified by adding thereto the sum of the following amounts: (A) An amount equal to all amounts paid or accrued to the taxpayer as interest during the taxable year to the extent excluded from gross income in the computation of taxable income; (B) An amount equal to the amount of tax imposed by this Act to the extent deducted from gross income in the computation of taxable income for the taxable year; (C) In the case of a regulated investment company or real estate investment trust, an amount equal to the excess of (i) the net long-term capital gain for the taxable year, over (ii) the amount of the 1967 PUBLIC ACT 81-444.	26.6
Connecticut	1984	Except for unpaid real estate taxes the collection of which was, or is, deferred under the provisions of section 12-174, and any predecessor and successor thereto, which unpaid real estate taxes continue to be subject to the provisions of such deferred collection statutes, the delinquent portion of the principal of any tax shall be subject to interest at the rate of eighteen per cent per annum from the time when it became due and payable until the same is paid, subject to a minimum interest charge of two dollars which any municipality, by vote of its legislative body, may elect not to impose, and provided, in any computation of such interest, under any provision of this section, each fractional part of a month in which any portion of the principal of such tax remains unpaid shall be considered to be equivalent to a whole month. Each addition of interest shall become, and shall be collectible as, a part of such tax.	41.3
Georgia	1903	ad valorem tax, the mayor and council shall have authority to levy a special tax upon all business, trades, hotels and boarding-houses carried on in said town; to provide by ordinance for the return of all real and personal property for taxation; to double-tax defaulters: to prescribe the time when the same shall be due, and shall have the power to enforce the same by execution; to try all nuisance within the city and to abate the same; to define what shall constitute a nuisance; to cause any nuisance likely to endanger the health of the town to be abated in a summary manner; to take up and impound dogs, horses, mules, cattle or hogs running at large, and to pass such ordinances as may be deemed necessary for the regulation of stock and other animals within the town, and to require owners of lots fo drain the same and to fill excavations depressions. PART III.-TITLE 1.-MUNICIPAL CORPORATIONS. Nunez, Town of Incorporated.	41.3
Kansas	1995	(b) All orders of garnishment issued in this state for the purpose of attaching funds, credits or indebtedness held by a bank, savings and loan association, credit union or finance company shall include the defendant's address and tax identification number, if known, and shall specify the amount of funds, credits or indebtedness to be withheld by the garnishee, which shall be 1/2 times the amount of the plaintiffs claim or 1/2 times the amount of the judgment, as stated in the written direction of the party seeking the order. ( c) The forms provided by law for an order of garnishment attaching funds, credits or indebtedness held by a bank, savings and loan association, credit union or finance company shall include the following statement: "If you hold any funds, credits or indebtedness belonging to or owing the defendant, the amount to he withheld by you pursuant to this order of garnishment is not to exceed \$ (amount stated in direction)	41.9

## Appendix E Additional Figures

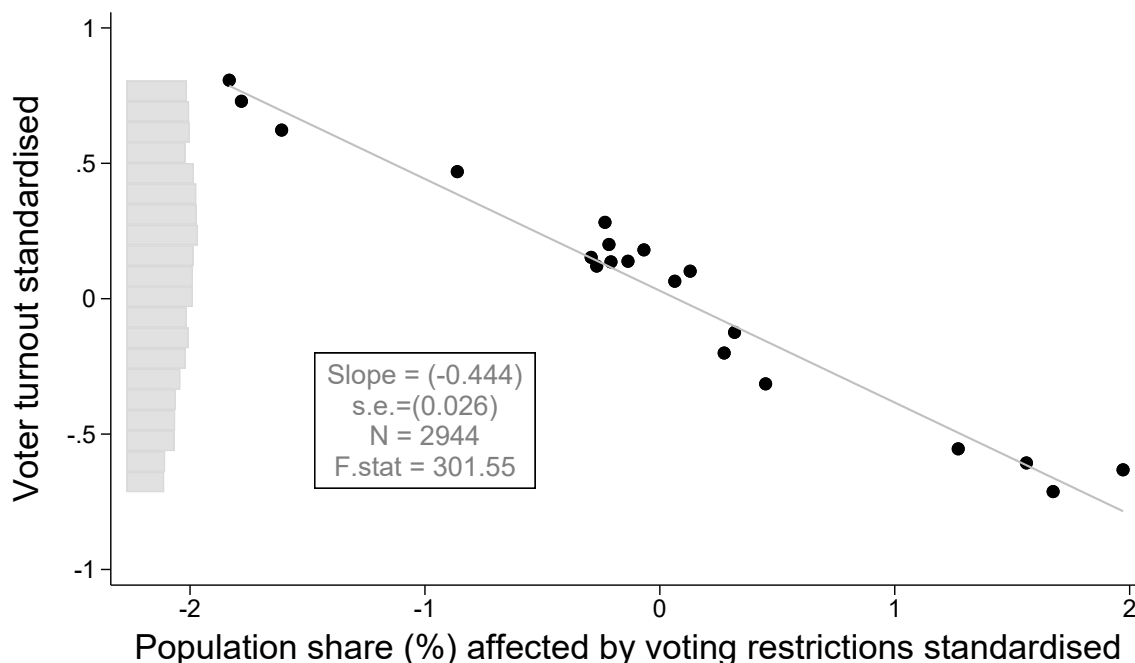
Table A.4: Tax Expenditures Relative to Revenues, Spending and GDP (FY/CY 2024)

Government level	Figures in billions of current USD						
	TE Cost (1)	Tax Revenue (2)	Share (%) (2)	Total Spending (4)	Share (%) (5)	Country GDP (6)	Share (%) (7)
Federal	1,800	4,919	36.6	6,752	26.7	29,185	6.2
State	1,000	1,479	67.6	2,714 <sup>†</sup>	36.8	29,185	3.4
Total	2,800	6,398	43.8	9,466	29.6	29,185	9.6

Notes: TE = Tax Expenditure. Federal TE cost from Joint Committee on Taxation (FY2024); state TE cost from Volcker Alliance (2024). Federal tax revenue and spending are FY2024 Treasury/OMB final figures. State tax revenue is Census State Government Tax Collections (USTOTLTAX) for CY2024. State total spending is BEA series W765RC1A027NBEA, latest observation CY2023<sup>†</sup>. GDP is BEA GDPA, CY2024. All figures converted to billions; shares computed from the raw totals.

<sup>†</sup>Latest available year for the series at the time of writing.

Figure A.3: Voter turnout and share of population affected by VRA



Notes: Figure shows a binned scatterplot of the relationship between the share of population affected by voting restrictions and voter turnout. Voter turnout is measured as the percentage (%) of the voting-age population that cast a ballot in a given contest. I include state-level turnout from gubernatorial, presidential, US Senate, and US House races. Standard errors are clustered at the state level.

Table A.5: Correlation Matrix: political and legislative competition

Variable	Legislative Competition	Political competition	Political competition (Governor)
Legislative competition	1.000		
Political competition	0.681	1.000	
Political competition (Governor)	0.514	0.778	1.000

Notes: **Legislative\_comp**: Measure of party competition in the state legislature (Besley data). Calculated as  $k_{st} = -|seat\_share\_dem - 0.5|$ . **Political competition**: Normalized competition measure provided by Snyder, who collected election results for a broad set of directly elected state executive offices, ranging from U.S. representatives, over the governorship, to down-ballot officers, such as Lieutenant Governor, Secretary of State, Attorney General, etc.  $k_{st} = -|d_{st} - 0.5|$  Where  $d_{st}$  denotes the average vote share (%) of the **Democrats** in state  $s$  at time  $t$ . **Political competition\_governor**: political competition for the governor's office using vote share for governor. Calculated as  $k_{st} = -|vote\_share\_governor\_dem - 0.5|$ .

Figure A.4: Example of Session Laws Library, Volume I, 2017. Alabama State.

The screenshot displays the HeinOnline Session Laws Library interface for Alabama, 2017, Volume 1. The interface includes a search bar at the top, navigation tabs for 'Contents' and 'Cite', and a table of contents on the left. The table of contents lists various acts and their page numbers, such as 'Title Page', 'Preface', 'State of the State Address', and several acts numbered 2017-1 through 2017-7. The main preview area on the right shows the title 'PASSED AT THE REGULAR SESSION, 2017 VOL. 1' and the Alabama Great Seal. Below the seal, it lists the Governor (KAY IVEY) and the President Pro Tem of the Senate (DEL MARSH), Speaker of the House (MAC McCUTCHEON), Speaker Pro Tem of the House (VICTOR GASTON), Secretary of the Senate (PATRICK HARRIS), and Clerk of the House (JEFF WOODARD).

Source: author's compilation based on HeinOnline Library.

Figure A.5: Example of Session Laws Library, Volume I, 2021. Utah State.

General Session - 2021		Ch. 428
<p><b>CHAPTER 428</b>  <b>H. B. 86</b>  Passed March 1, 2021  Approved March 11, 2021  Effective May 5, 2021  (Retrospective operation to January 1, 2021)</p> <p><b>SOCIAL SECURITY TAX AMENDMENTS</b></p> <p>Chief Sponsor: Walt Brooks  Senate Sponsor: Wayne A. Harper  Cosponsors: Nelson T. Abbott  Carl R. Albrecht  Stewart E. Barlow  Kera Birkeland  Steve R. Christiansen  James A. Dunnigan  Steve Eliason  Craig Hall  Stephen G. Handy  Karianne Lisonbee  A. Cory Maloy  Kelly B. Miles  Jefferson Moss  Merrill F. Nelson  Val L. Peterson  Candice B. Pierucci  Susan Pulsipher  Adam Robertson  Mike Schultz  Travis M. Seegmiller  Rex P. Shipp  V. Lowry Snow  Robert M. Spendlove  Jeffrey D. Stenquist  Jordan D. Teuscher  Mike Winder</p>		<p><b>ENACTS:</b>  59-10-1042, Utah Code Annotated 1953</p> <hr/> <p><i>Be it enacted by the Legislature of the state of Utah:</i></p> <p><b>Section 1. Section 59-10-1002.2 is amended to read:</b></p> <p><b>59-10-1002.2. Apportionment of tax credits.</b></p> <p>(1) A nonresident individual or a part-year resident individual that claims a tax credit in accordance with Section 59-10-1017, 59-10-1018, 59-10-1019, 59-10-1022, 59-10-1023, 59-10-1024, <del>or</del> 59-10-1028, or 59-10-1042 may only claim an apportioned amount of the tax credit equal to:</p> <p>(a) for a nonresident individual, the product of:</p> <p>(i) the state income tax percentage for the nonresident individual; and</p> <p>(ii) the amount of the tax credit that the nonresident individual would have been allowed to claim but for the apportionment requirements of this section; or</p> <p>(b) for a part-year resident individual, the product of:</p> <p>(i) the state income tax percentage for the part-year resident individual; and</p> <p>(ii) the amount of the tax credit that the part-year resident individual would have been allowed to claim but for the apportionment requirements of this section.</p> <p>(2) A nonresident estate or trust that claims a tax credit in accordance with Section 59-10-1017, 59-10-1020, 59-10-1022, 59-10-1024, or 59-10-1028 may only claim an apportioned amount of the tax credit equal to the product of:</p> <p>(a) the state income tax percentage for the nonresident estate or trust; and</p> <p>(b) the amount of the tax credit that the nonresident estate or trust would have been allowed to claim but for the apportionment requirements of this section.</p> <p><b>Section 2. Section 59-10-1019 is amended to read:</b></p> <p><b>59-10-1019. Definitions -- Nonrefundable retirement tax credit.</b></p> <p>(1) As used in this section:</p>
<p><b>LONG TITLE</b></p> <p><b>General Description:</b>  This bill provides for an individual income tax credit for certain social security benefits.</p> <p><b>Highlighted Provisions:</b>  This bill:</p> <ul style="list-style-type: none"> <li>▶ defines terms;</li> <li>▶ enacts a tax credit for social security benefits that are included in the claimant's federal adjusted gross income;</li> <li>▶ provides that an individual who claims the tax credit for social security benefits may not also claim the retirement tax credit;</li> </ul>		

Source: authors' compilation based on HeinOnline Library.