Are Laffer Curves Flat?

Bridging Structural and Sufficient-Statistic Approaches

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Abstract

The top-rate Laffer curve peaks at the revenue-maximizing top tax rate, where tax losses from behavioral responses offset gains from higher rates. Prior studies largely overlook the curve's shape, relying on simplified tax functions or one elasticity. We use a structural general-equilibrium model to show that distinct tax bases, shifting across bases, and tax interactions reduce the revenue-maximizing top rate and associated revenue gains, yielding a "flat" Laffer curve. Around the revenue-maximizing rate, top-rate increases have relatively small revenue effects and mainly trade off GDP for tax progressivity. We map the model to a sufficient-statistic framework, with additional top-rate-varying elasticities.

JEL: D58, E27, H3, H21
Keywords: Laffer curve, revenue-maximizing tax rate, optimal taxation, top tax rate

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What does optimal actually mean?
Why is there a point where you can go no further?
— Karl Ove Knausgård, *The School of Night*

The top-rate Laffer curve shows the relationship between top tax rates and the associated tax revenue. Many studies seek to identify the revenue-maximizing tax rate at this curve's peak. Some rely on sufficient-statistic formulas that abstract from multiple tax bases, fiscal externalities, and general-equilibrium effects. Others employ structural macroeconomic models that include general-equilibrium effects and other behavioral channels but rely on simplifying assumptions about the tax system. In particular, taxes are usually approximated with tax bases that are either too broad or too narrow. These simplifying assumptions also differ across analyses, making cross-study comparisons difficult. More generally, focusing on *the* revenue-maximizing top tax rate can obscure the economic significance of the Laffer curve's shape. This paper addresses these limitations by using a structural model to identify the sufficient-statistic inputs needed for top-rate policy analysis, thereby bridging structural macroeconomic and sufficient-statistic approaches.

Using a structural general-equilibrium model with a detailed representation of U.S. federal taxes, we find that long-run top-rate Laffer curves are relatively "flat," implying the potential revenue gains from top-rate increases are smaller than benchmark specifications suggest. Mapping these model results into an expanded sufficient-statistic framework shows that the smaller revenue gains reflect responses across distinct tax bases and other fiscal externalities, and that the relevant sufficient statistics vary with the top tax rate. Absent other reforms, large changes in the top rate around the revenue-maximizing rate yield small long-run changes in revenue. Over this range of tax rates, the relevant policy choice is between tax progressivity and economic growth: an equity-efficiency tradeoff.

To be policy relevant, a top-rate Laffer curve should show how changes in the top rate of the federal ordinary-income tax affect tax revenue. A large share of top income, however, falls outside this tax base. Individual income taxed at the top 37% rate is composed of wage income and *ordinary* capital income, which includes interest and noncorporate (passthrough) business profits. In contrast, *preferential* capital income, from long-term capital gains and qualified dividends, is taxed at lower rates. The ordinary base is also reduced by deductions that depend on consumption choices or tax-preferred investment, by shifting to other tax bases, and by general-equilibrium effects. Top-rate changes also create fiscal externalities from taxpayers and bases outside the top bracket. This paper emphasizes that tax details, income shifting, general-equilibrium effects, and fiscal externalities all matter for top-rate policy analysis. Though we model U.S. policy, the broader lessons extend to countries with similar tax-system features: differential labor and capital tax rates, exclusions and deductions, and distinct corporate and noncorporate regimes (Milanez, 2017).

We capture these details in an overlapping generations model built to analyze tax legislation for the U.S. Congress (Moore and Pecoraro, 2020b, 2021, 2023) and calibrated with detailed administrative tax data covering very-high-income tax returns. The model improves on standard policy modeling in three ways. First, the model distinguishes between ordinary, preferential, and other tax bases—differences omitted by single tax-base approaches. Second, instead of using a simplified tax function, as in related studies, the model applies a detailed tax calculator. It captures tax brackets, filing statuses, number of dependents, housing tenure, tax credits, surtaxes, the Alternative Minimum Tax, itemized and standard deductions, the passthrough business deduction, and different tax bases (corporate, noncorporate, payroll, etc.). Third, the model captures a much broader set of tax-induced behavioral responses than standard approaches. Whereas "partial" firm responses hold business-level tax rates fixed as individual-level rates change, "full" firm responses capture the direct exposure of noncorporate businesses to individual income tax rate increases, which shifts real activity toward the corporate sector—or historically, in the opposite direction when individual rates fell (Auten et al., 2016; Dyrda and Pugsley, 2025). In addition, as ordinary tax rates rise, households endogenously shift toward tax-deductible charitable giving and tax-preferred housing investment. Incorporating these behavioral responses and institutional tax-system details to estimate the full shape of top-rate Laffer curves is this paper's first major contribution.

This paper's second major contribution is to bridge two separate literatures: the "micro" sufficient-statistic and "macro" structural-model approaches. The benchmark sufficient-statistic approach relies on a single-base elasticity input and applies to an all-in tax rate, rather than a specific statutory rate or actual tax base. We expand the benchmark sufficient-statistic formula to account for different tax bases, shifting across those bases, different levels of taxation (e.g., federal and state-local), and elasticities that vary with the top tax rate. These extensions better map the sufficient-statistic framework to real-world tax policy. Rather than simply augmenting the benchmark elasticity, we identify the additional sufficient-statistic objects needed to account for relevant behavioral margins and tax details. Our structural model generates inputs for our expanded sufficient-statistic equation, allowing us to represent the model's output in reduced form and bridge two otherwise distinct approaches (Chetty, 2009b). We also derive a revenue-maximizing top tax rate formula with five main behavioral channels and use the model to quantify its components. This exercise reveals that constant elasticities do not reproduce the structural model's Laffer curves; the sufficient-statistic analog requires behavioral elasticities that change with the top tax rate. These variable elasticities allow us to characterize the full Laffer curve in the current policy context. We then decompose how each additional behavioral margin contributes to flattening the Laffer curve. Collectively, these additional margins roughly double the federal revenue loss from behavioral responses relative to the benchmark single-base elasticity specification.

For the structural approach, we compare prior studies' simplified tax specifications with a detailed tax calculator that uses distinct tax bases consistent with tax law, which we refer to as the *true base*. Previous macroeconomic Laffer-curve analyses typically apply simplified tax functions to a base that is either too broad or too narrow. With a *broad base*, total income enters the tax function as a single base, applying the top rate to all income despite much of it qualifying for lower preferential rates. This approach is used in Guner et al. (2016), Imrohoroglu et al. (2023), and Di Nola et al. (2025). With a *narrow base*, only wage income enters the tax function, so no capital income is exposed to the top rate. This approach is used by Holter et al. (2019, 2023), Uribe-Terán (2021), and Kindermann and Krueger (2022). Because these specifications are rarely compared within the same model, it has been difficult to assess whether these simplifications are innocuous. We find that both departures from the true base can substantially overstate the revenue potential of higher top tax rates.

Our contributions directly address three limitations in the policy relevance of prior estimates. Diamond and Saez (2011, p. 166) argue that revenue-maximizing top tax rates "should be based on an economic mechanism that is empirically relevant... robust to changes in the modeling assumptions... [and] the tax policy prescription needs to be implementable." We address these criteria by using realistic tax bases in a detailed tax calculator, reconciling differences in prior studies, and explicitly modeling the actual top federal individual income tax bracket. As these model details more closely align with actual tax policy, the resulting top-rate Laffer curve becomes flatter. While we do not conduct a full welfare analysis, the flat portion of the curve highlights a policy tradeoff between tax progressivity and output. This implies that less emphasis should be placed on the precise revenue-maximizing rate, since top-rate changes over a wide range around the Laffer-curve peak yield only modest long-run revenue changes.

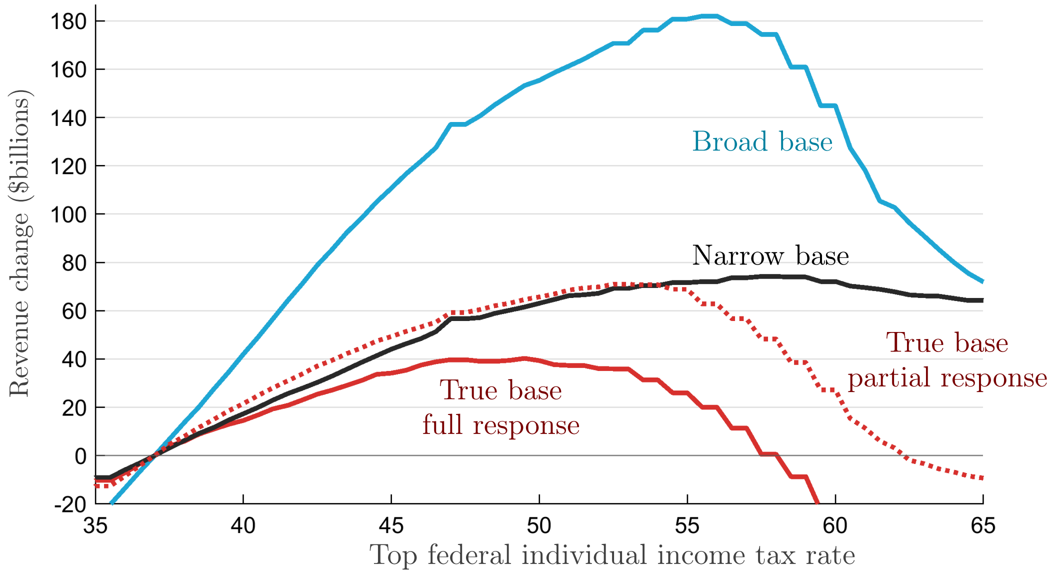
Previewing Our Results: We compare our model's Laffer curves to those from common "macro" approaches (i.e., different bases and tax functions) and the "micro" sufficient-statistic approach. Top-rate Laffer curves are estimated from steady-state (long-run) equilibria of our macroeconomic model. A higher top statutory federal individual income tax rate on ordinary income (x-axis) initially raises tax revenue (y-axis). But as the top rate rises, behavioral responses contract the tax base and yield inverse-U-shaped Laffer curves. These responses can include reduced labor and capital income in the ordinary base, reduced capital income in the preferential base, shifting of activity across corporate and noncorporate sectors, general-equilibrium price changes, and fiscal externalities. Including these responses flattens Laffer curves, implying smaller revenue-raising potential for top-rate-only reforms.

Figure 1 compares changes in federal individual income tax revenue under our approach and common macro specifications. Relative to the true tax base, the narrow base applies first-order behavioral responses only to wage income. This understates the exposed-base response, leaving investment largely unaffected and overstating the revenue-maximizing top rate as 58%. The broad base includes excess capital income and therefore overstates the exposed-base response, amplifying both initial revenue gains from higher tax rates and subsequent distortions, producing a steep rise to and decline beyond this curve's peak revenue gain of more than $180 billion.[1] Correcting for tax-base misspecification and incorporating institutional tax detail shows that these standard specifications overstate potential revenue gains. The true base with partial-firm responses yields a Laffer curve that follows the rise and fall of the broad-base curve but raises less than half as much revenue. Allowing for full-firm responses further flattens the curve, raising about $40 billion, or 0.2% of GDP, at a revenue-maximizing rate of 48%. We view the partial-response and full-response curves as a sensitivity range because firm responses to owners' tax changes are uncertain. These results show that a single model yields a wide range of revenue-maximizing rates when changing assumptions that receive little scrutiny.

[1] Figure 1 does not show the full revenue effects of replacing the true base with the narrow or broad bases. It shows only the effect on federal individual income tax revenue of changing the top rate after the current true base has already been replaced by another base while maintaining total revenue neutrality.

Figure 1: Top-rate Laffer curves

Macro bases: The Laffer curve is flatter with true tax base and sectoral shifts

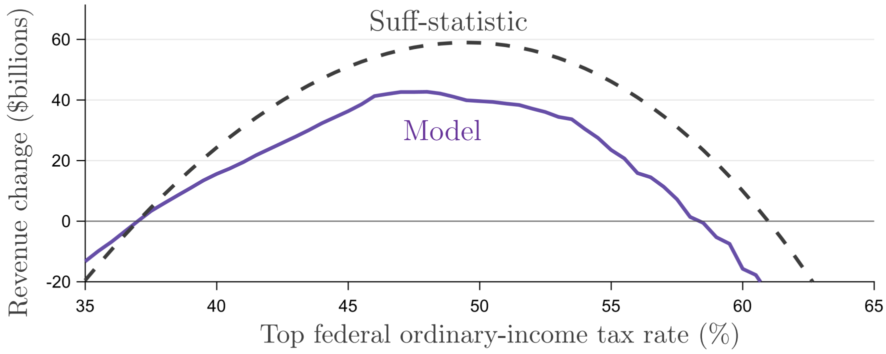


Note: Y-axis shows changes in total federal individual income taxes relative to the 37% top-rate baseline, with respect to x-axis changes in the top statutory federal individual tax rate on ordinary income (which excludes surtaxes of 0.9% on wages and 3.8% on passive investment income). The model is calibrated to the U.S. economy and tax provisions in 2022 and model Laffer curves are estimated for one-percentage-point intervals of the top rate. Results are smoothed over rolling four-percentage-point bins.

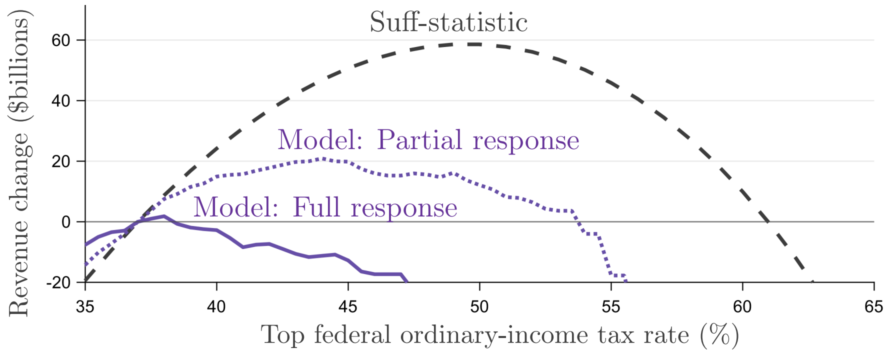
Figure 2A shows a benchmark sufficient-statistic Laffer curve and our partial-equilibrium curve in terms of total government revenue. These curves are comparable: both account for all forms of taxation (individual income, payroll, corporate, etc.), all levels of taxation (federal, state, and local taxes), and have roughly the same implied elasticities for income exposed to the top rate. Despite these similarities, the sufficient-statistic curve follows an inflexible parabola while the model captures additional shifting responses and top-bracket fiscal externalities that result in a modestly flatter curve. Compared to the sufficient-statistic curve, the partial-equilibrium curve shows about two-thirds of the potential revenue gains across a wide range of tax rates. This comparison provides a useful reference point, showing that our model's partial-equilibrium results closely track the benchmark sufficient-statistic approach, implying that the differences observed for the full model result from incorporating general-equilibrium effects, additional shifting, and fiscal externalities.

Figure 2: Top-rate Laffer curves

A: Sufficient-Statistic vs. Model: No Gen. Equilib. or Fiscal Externalities



B: Sufficient-Statistic vs. Model: General Equilib. & Fiscal Externalities



Note: Y-axis shows changes in all taxes relative to the 37% top-rate baseline, with respect to x-axis changes in top statutory federal individual tax rates on ordinary income (which excludes surtaxes of 0.9% on wages and 3.8% on passive investment income). The model is calibrated to the U.S. economy and tax provisions in 2022 and curves are estimated for one-percentage-point intervals of the top rate. Model results are smoothed over rolling three-percentage-point bins, evaluated at half-percentage-point intervals; sufficient-statistic curves use a Pareto coefficient of 1.5 and elasticity of 0.4.

Figure 2B repeats the comparison of Laffer curves across all taxes, but now shows our general-equilibrium curve, which captures full shifting responses and fiscal externalities. Relative to the sufficient-statistic curve, the general-equilibrium curve with partial-firm responses shows about one-third of the potential revenue gains in the middle of the curves. With full-firm responses, however, federal revenue gains are approximately offset by state and local revenue losses. Differences in the shape and height of our structural model's Laffer curves relative to the sufficient-statistic Laffer curve are not due to a larger single-base elasticity, as the ordinary-income elasticity is nearly the same across the curves. Rather, the benchmark sufficient-statistic approach omits the behavioral margins introduced by our structural model, which generate large revenue effects when changing the top rate.

The Laffer curve's shape also has implications for excess-burden calculations: as the curve flattens, a marginal top-rate increase raises less net revenue, increasing the deadweight loss per dollar of net revenue raised. This ratio becomes infinite at the Laffer peak. The benchmark single-base elasticity approach suggests that for taxpayers with income in the top bracket, a top-rate increase from 37% to 44% yields deadweight loss of roughly 56% of the revenue increase from ordinary income. As an illustrative application of our expanded sufficient-statistic framework, we show that accounting for multiple tax bases and fiscal externalities reduces the revenue denominator, mechanically raising the deadweight-loss ratio for top-rate-exposed taxpayers to about 250% of the net federal revenue increase.

1 Prior literature on revenue-maximizing top tax rates

1.1 Sufficient-statistic framework and empirical elasticities

Prominent sufficient-statistic estimates of "all-in" revenue-maximizing top tax rates (including U.S. federal, state, and local taxes) range from 46% to 73%. This range includes the current all-in top marginal tax rate on labor and capital income of roughly 50% (see Online Appendix A.2). This range also spans the revenue-maximizing rates from the different approaches in Figure 1.[2] This underscores the first-order importance of the margins we analyze: tax-base specifications, income shifting, general-equilibrium effects, and fiscal externalities.

The benchmark sufficient-statistic approach relies on a top-rate-only framework, as in Diamond and Saez (2011). This formula uses two inputs: the high-income Pareto inequality parameter and the elasticity of taxable income with respect to the net-of-tax rate. With a Pareto parameter of 1.5 and an elasticity of 0.25, the framework yields an all-in revenue-maximizing top rate of 73%. This sufficient-statistic approach, however, is sensitive to the assumed elasticity of taxable income. High-income elasticity estimates almost always exceed 0.25 (Mathur et al., 2012). A more mid-range empirical estimate of 0.40—nearly matching our model's implied total taxable income elasticity (Online Appendix A.3)—reduces the sufficient-statistic revenue-maximizing rate to 63%. But Neisser (2021) argues that reported elasticities are downwardly biased. Saez (2004)

[2] We show Laffer curves by the top statutory individual federal income tax rate. To translate that to an "all-in" tax rate, as reported in the sufficient-statistic literature, one must add the roughly 13-percentage-point state-local tax wedge. See Online Appendix A.2.

estimates top 1% elasticities of 0.5–0.7 or higher, suggesting revenue-maximizing rates of 49%–57% or lower. Extensions capturing additional behavioral responses missing from empirical elasticities also suggest lower revenue-maximizing top rates: interstate mobility lowers it by 5 percentage points (Young et al., 2016) and much more for state-level taxes (Rauh and Shyu, 2024); income effects (Graber et al., 2025) or savings and consumption effects (Hellwig and Werquin, 2026) can lower it by 10 percentage points; human capital responses can lower it by over 20 percentage points (Badel et al., 2020); and externalities from innovation and new ideas can reduce it by about 80 percentage points (Jones, 2022).[3]

The empirical elasticity estimates applied in sufficient-statistic formulas have limitations beyond their incomplete capture of relevant behavior. Elasticity estimates rely on historical tax-rate changes that occurred alongside other policy reforms and under different tax systems and macroeconomic conditions (Slemrod and Kopczuk, 2002). Thus, although elasticities incorporate real behavioral responses—as well as avoidance, retiming, shifting, and evasion (Saez et al., 2012)—these responses vary across policy environments and over time. For example, estimated elasticities are sensitive to the relative tax treatment of corporate and noncorporate business income (Gordon and Slemrod, 2000), short-run vs. long-run responses (Giertz, 2010; Auten et al., 2016), how baseline income variability is isolated (Kawano et al., 2009), and the salience of the reform (Kleven and Schultz, 2014). Noncompliance, reporting requirements, and tax enforcement have changed over time (Bagchi and Dusek, 2021; Gorman et al., 2025). Estimated elasticities are often identified from reforms near the current top rate, which limits their validity if the Laffer curve peaks at substantially higher rates. These considerations help explain the wide range of empirical estimates and suggest that elasticities should not be treated as stable across policy environments or tax rates. In addition, individual-level elasticities vary widely, and a single aggregate elasticity obscures this heterogeneity (Karabarbounis, 2016; Kumar and Liang, 2020; Keane, 2022; Gamarra Rondinel et al., 2024; Becko and Sztutman, 2026). Thus, the benchmark sufficient-statistic framework's single elasticity is unlikely to characterize the current revenue-maximizing top tax rate, let alone the full shape of the top Laffer curve.

The sufficient-statistic approach must overcome various limitations to better model actual tax policy. First, benchmark sufficient-statistic estimates are stated in terms of an all-in tax burden, while changes to tax law apply to specific statutory rates and

[3] Accounting for sweat equity from entrepreneurship can lower the overall revenue-maximizing rate by nearly 30 percentage points (Bhandari et al., 2026).

bases. Second, the benchmark approach ignores alternative tax bases, such as those taxed at preferential rates (Sanz-Sanz, 2016). Accounting for shifting across separate bases lowers France's revenue-maximizing rate by 14 percentage points (Lefebvre et al., 2025), significantly flattens Spanish Laffer curves (Gamarra Rondinel et al., 2024), and drives Mejia (2026)'s finding that the U.S. income tax system was misaligned in the 1950s but reached near-optimality in the 1980s. Sufficient-statistic results can also be distorted by shifting across bases (Harju and Matikka, 2016), tax-base-dependent elasticities (Kopczuk, 2005), and tax-code nonconvexities (Dowd and Richards, 2021; Kaplow, 2024). Third, uncertainty regarding income distributions can affect optimal top tax rates (Mankiw et al., 2009; Bhandari et al., 2025). Finally, the sufficient-statistic approach can omit large fiscal externalities, as top-rate changes can affect revenues from top taxpayers' other tax bases and from those outside the top bracket (Sanz-Sanz, 2022). To capture fiscal externalities and address the sensitivity of sufficient-statistic parameters to institutional and distributional assumptions, we use a structural model calibrated with administrative data to analyze top-rate reforms in a realistic and stable tax-base environment.

Standard sufficient-statistic estimates may also fail to capture macroeconomic feedback, which matters because top-rate increases are typically estimated to decrease economic output (Mertens and Olea, 2018; Badel et al., 2020; Kindermann and Krueger, 2022; Di Nola et al., 2025). Kleven (2026) incorporates macro-dynamic effects, lowering the all-in revenue-maximizing top rate on labor income to about 50%. In a broader Laffer-curve setting, Morgavi (2026) estimates three-parameter Laffer curves including GDP effects and finds that the average personal income tax rate is on the wrong side of the Laffer curve in about half of OECD countries. Badel and Huggett (2017) also extend the sufficient-statistic approach to include general-equilibrium effects. However, they caution against using existing elasticity estimates to infer revenue-maximizing rates from their formula. When these objects cannot be estimated directly, a structural model provides one way to generate them. In the next section, we develop an expanded sufficient-statistic equation that addresses the benchmark formula's limitations and can be used to decompose the behavioral effects driving our structural model's results.

1.2 Macroeconomic Laffer Curves

Macroeconomic models have been used to quantify revenue-maximizing top tax rates in general equilibrium. These models can account for human capital accumulation and endogenous earnings profiles (Badel and Huggett, 2017; Badel et al., 2020), income dynamics

(Guner et al., 2016; Holter et al., 2019), tax evasion (Uribe-Terán, 2021), occupational choice (Bruggemann, 2021), entity shifting (Di Nola et al., 2025), entrepreneurship versus superstar earners (Imrohoroglu et al., 2023), and joint versus individual taxation (Holter et al., 2023). These models tend to yield all-in revenue-maximizing rates of about 48%–67%. Using a 13-percentage-point non-federal tax wedge, our all-in revenue-maximizing rate across all taxes of 52%–57% is within this range of prior estimates (Online Appendix A.2, Table A1).

Several studies also find relatively flat Laffer curves. Trabandt and Uhlig (2011) consider proportional taxation of labor and capital income in a representative-agent framework, and find limited potential revenue gains from raising taxes on aggregate capital income. Strulik and Trimborn (2012) extend that model to distinguish several capital tax bases (corporate, dividend, capital gains, etc.) and find that capital-tax Laffer curves can be flat. Badel et al. (2020) show that endogenous human capital flattens Laffer curves when using a narrow tax base, with higher top rates raising less than 0.1% of GDP at all levels of government. While our Laffer curves show similarly limited potential revenue gains, the flattening comes from different mechanisms: realistic tax bases, income shifting, tax interactions, and general-equilibrium fiscal externalities.

Despite existing macroeconomic analyses highlighting many behavioral channels, the effects of tax-system assumptions have been largely overlooked. One reason is that these models use simplified tax functions, which rely on a few parameters to characterize the complex tax system. The most commonly used tax-system representation is the two-parameter tax function popularized by Bénabou (2002), Guner et al. (2014), and Heathcote et al. (2017). Whereas this and similar representations simplify the tax system to a smooth function, our detailed tax calculator captures tax brackets as step functions, demographic heterogeneity, deductions contingent on tax-preferred investment and consumption choices, distinct tax bases, and shifting across tax bases.

2 Expanded Sufficient-Statistic Framework

The benchmark sufficient-statistic formula relies on a single elasticity, a single tax base, and a single tax rate. The elasticity compresses behavioral responses into one taxable-income elasticity, which can omit fiscal externalities and responses outside the measured base. The tax base abstracts from the different sources of income through which high-income taxpayers can respond, including shifting between ordinary, preferential, corporate, and other bases. The tax rate aggregates taxes across all levels of government, so it is appropriately considered an "all-in" rate. As a result, the benchmark formula does not correspond to any actual tax base or statutory tax rate.

In reality, the top federal ordinary-income rate applies to a specific legal tax base embedded in a broader system that includes preferential rates, passthrough business rules, corporate tax interactions, payroll taxes, state and local taxes, and income-shifting margins. Changes in the federal top ordinary rate also create fiscal externalities through cross-base responses, which include general-equilibrium spillovers to other bases and taxpayers outside the top bracket. In this section, we develop an expanded sufficient-statistic framework that explicitly models these institutional features and captures fiscal externalities.

The benchmark single-elasticity formula for the revenue-maximizing top tax rate is

$$\tau^*_{all} = \frac{1}{1 + ae}, \tag{2.1}$$

where a is the Pareto income-distribution coefficient and e is the elasticity of taxable income with respect to the net-of-tax rate for the all-in tax rate across all government taxes in steady state. As described in Online Appendix F.1, this formula results from the government choosing an all-in tax rate to maximize total tax revenue from a generalized tax base and set of top earners.

In contrast to the all-in rate in equation (2.1), our expanded framework takes the statutory top federal ordinary-income tax rate τ as the policy variable and holds other statutory tax rates fixed. We separately account for taxpayers whose ordinary income is exposed to the top rate and for revenue responses from other tax bases and other taxpayers. For the fixed top-rate-exposed group, $\mathcal{W}(\tau)$ and $\mathcal{K}(\tau)$ denote total pretax wage and capital income. We adopt the convention that, for tax-base objects, an overline denotes the portion used to construct the ordinary-income base directly or potentially exposed to the top ordinary-income tax rate. Thus, $\overline{\mathcal{W}}(\tau)$ is top-rate-exposed wage income. Since we explicitly account for shifting of ordinary capital income from the top bracket to preferential capital income, and vice versa, $\overline{\mathcal{K}}$ denotes *potentially* top-rate-exposed capital income and $\overline{\chi}$ denotes its ordinary-income share. Letting $m(\tau) \equiv 1 - x(\tau)$, where $x(\tau)$ is the top ordinary-income evasion rate,[4] the aggregate ordinary-income base directly

[4] Our model excludes additional evasion from tax-rate increases, but we include it here for completeness.

subject to the top rate is

$$\overline{\mathcal{B}}_o(\tau) \equiv m(\tau)\left(\overline{\mathcal{W}}(\tau) + \overline{\chi}(\tau)\overline{\mathcal{K}}(\tau)\right).$$

Total tax revenue can then be decomposed into four primary components:

$$T = \underbrace{T_o + \tau\overline{\mathcal{B}}_o}_{\substack{\text{exposed-group}\\ \text{ordinary taxes}}} + \underbrace{T_p}_{\substack{\text{exposed-group}\\ \text{preferential taxes}}} + \underbrace{T_{fed}}_{\text{other federal taxes}} + \underbrace{T_{sl}}_{\text{state-local taxes}}. \tag{2.2}$$

The first component is federal ordinary-income tax revenue from the top-rate-exposed group. It consists of T_o, the ordinary-income tax liability from top-rate-exposed taxpayers that is attributable to tax brackets below the top, and $\tau\overline{\mathcal{B}}_o$, the revenue directly attributable to the top-rate-exposed ordinary-income base.[5] The second component is preferential federal capital-income tax revenue from the exposed group, $T_p \equiv \tau_p(1-\overline{\chi})\overline{\mathcal{K}}$, where τ_p is the effective federal tax rate on preferential capital income for the exposed group. The remaining components, T_{fed} and T_{sl}, capture revenue from other federal taxes and state and local taxes. These include federal income taxes paid by taxpayers outside the exposed group; federal corporate, payroll, estate, and excise taxes; and state and local income, sales, property, and corporate taxes.

We differentiate equation (2.2) with respect to the top rate, allowing exposed wage income and potentially exposed capital income to be general functions of their underlying prices and quantities: $\overline{\mathcal{W}} = \overline{\mathcal{W}}\big(w(\tau), N(\tau)\big)$, and $\overline{\mathcal{K}} = \overline{\mathcal{K}}\big(r(\tau), A(\tau)\big)$, where w is the real wage rate, r is the real rate of return to capital, and N and A are the aggregate effective labor supply and aggregate financial assets of the exposed group. Total derivatives are denoted by $\overline{\mathcal{W}}' = \overline{\mathcal{W}}_w w' + \overline{\mathcal{W}}_N N'$ and $\overline{\mathcal{K}}' = \overline{\mathcal{K}}_r r' + \overline{\mathcal{K}}_A A'$.[6] Total revenue is maximized at

[5] For the top-rate-exposed group, T_o includes ordinary-income tax liability attributable to wage and ordinary capital income taxed below the top bracket. We treat these inframarginal ordinary-income taxes as fixed when varying the top rate.

[6] For expositional simplicity, these expressions display the primary quantity and price arguments. In the structural model, the tax bases may depend on additional endogenous variables that respond in general equilibrium. Such responses would add corresponding terms to the total derivatives $\overline{\mathcal{W}}'$ and $\overline{\mathcal{K}}'$ without altering the sufficient-statistic decomposition below.

the top rate τ satisfying:

$$\begin{aligned}
\underbrace{m(\overline{\mathcal{W}}+\overline{\chi}\overline{\mathcal{K}})}_{\text{mechanical effect}} = &-\underbrace{\tau m(\overline{\mathcal{W}}_N N' + \overline{\chi}\overline{\mathcal{K}}_A A')}_{\text{1. top ordinary-base response}} - \underbrace{\tau(\overline{\mathcal{W}}+\overline{\chi}\overline{\mathcal{K}})m'}_{\text{2. top evasion response}} \\
&- \underbrace{\tau m \overline{\mathcal{W}}_w w' + (\tau m \overline{\chi}\overline{\mathcal{K}}_r + \tau_p(1-\overline{\chi})\overline{\mathcal{K}}_r) r'}_{\text{3. top indiv. general-equilibrium response}} - \underbrace{\tau_p(1-\overline{\chi})\overline{\mathcal{K}}_A A'}_{\text{4. top preferential-base response}} \\
&- \underbrace{(\tau m - \tau_p)\overline{\mathcal{K}}\overline{\chi}'}_{\text{5. top shifting response}} - \underbrace{T'_{fed}}_{\text{6. federal externalities}} - \underbrace{T'_{sl}.}_{\text{7. state-local externalities}}
\end{aligned} \tag{2.3}$$

At this revenue-maximizing top rate τ, the mechanical effect of raising the tax rate is offset by seven composite responses. In practice, the benchmark sufficient-statistic formula in equation (2.1) summarizes only the first two responses (top ordinary-base and evasion responses) with a single elasticity for top-bracket federal individual taxable income. While this elasticity can be specified to implicitly capture a top general-equilibrium response on the top-rate-exposed base, the remaining channels require additional structure because they extend to bases not directly exposed to top ordinary-income tax rates (preferential, payroll, corporate, and state-local income taxes) and to taxpayers not subject to the top rate. Our approach is to model the preferential-income tax base for the top-rate-exposed group separately and allow for changes in the composition of their capital income that arise from shifts in real activity across the corporate and noncorporate sectors.[7]

To simplify notation, we define a set of three top-bracket ordinary-income elasticities, two top cross-base elasticities, and two aggregate cross-revenue elasticities. Let the top-bracket ordinary-income real elasticity be e_o^{real}, the top-bracket evasion elasticity be e_o^{evs}, the top-bracket general-equilibrium elasticity be e_o^{ge}, and the ordinary-income Pareto income-concentration coefficient be $a_o = \mu_o/(\mu_o - \underline{b}_o)$, where μ_o is the top-bracket's average ordinary income and $\underline{b}_o$ is the top-bracket threshold. Then:

$$\left.\frac{d\ln \overline{\mathcal{B}}_o(\tau)}{d\ln(1-\tau)}\right|_{\overline{\chi}} \equiv a_o(\tau)\left(e_o^{real}(\tau) + e_o^{evs}(\tau) + e_o^{ge}(\tau)\right). \tag{2.4}$$

These ordinary-income elasticities are defined conditional on a given ordinary-preferential composition of capital income. This is critical because both the top preferential-base

[7] Note that top-bracket individual-income-tax general-equilibrium effects exclude additional general-equilibrium effects in the preferential base, shifting, and fiscal externality terms. Equation (2.3) could be extended to model additional responses like "within" base shifting across components with different tax treatments, such as "paper avoidance" from reclassifying corporate costs (Heiser et al., 2025) or S corporation wages as profits (Auten et al., 2016).

response and the top shifting response are represented by cross-base elasticities that each imply different tax effects.

As detailed in Online Appendix F.2 and F.3, the remaining four responses are captured by cross-elasticities defined in net-of-tax-rate terms for top preferential-base responses (p), top capital-shifting responses (χ), federal fiscal externalities (fed), and state-local fiscal externalities (sl):

$$\varepsilon_p(\tau) \equiv \frac{d\ln \overline{\mathcal{K}}(\tau)}{d\ln(1-\tau)}, \qquad \varepsilon_\chi(\tau) \equiv \frac{d\ln \overline{\chi}(\tau)}{d\ln(1-\tau)}, \qquad \varepsilon_i(\tau) \equiv \frac{d\ln T_i(\tau)}{d\ln(1-\tau)}, \quad i \in \{fed, sl\}. \tag{2.5}$$

Each cross-elasticity is scaled by a corresponding ratio so that all terms are expressed relative to the top-rate-exposed ordinary-income base:

$$t_i(\tau) \equiv \frac{T_i(\tau)}{\overline{\mathcal{B}}_o(\tau)} \quad \text{for } i \in \{p, fed, sl\}, \qquad t_\chi(\tau) \equiv \frac{(\tau m - \tau_p)\overline{\chi}(\tau)\overline{\mathcal{K}}(\tau)}{\overline{\mathcal{B}}_o(\tau)}. \tag{2.6}$$

Dividing equation (2.3) by the ordinary-income top-rate tax base $\overline{\mathcal{B}}_o$, substituting the simplifying notation defined above, and rearranging to solve for the revenue-maximizing tax rate yields

$$1 = \frac{\tau^*}{1-\tau^*} a_o(e_o^{real} + e_o^{evs} + e_o^{ge}) + \frac{1}{1-\tau^*} \sum_{i=p,\chi,fed,sl} t_i \varepsilon_i, \tag{2.7}$$

which implies a revenue-maximizing ordinary-income top tax rate of

$$\tau^* = \frac{1 - t_p\varepsilon_p - t_\chi\varepsilon_\chi - t_{fed}\varepsilon_{fed} - t_{sl}\varepsilon_{sl}}{1 + a_o(e_o^{real} + e_o^{evs} + e_o^{ge})}. \tag{2.8}$$

where all sufficient-statistic components are evaluated at τ^*. Relative to the benchmark sufficient-statistic formula in equation (2.1), the expanded version has four additional terms in the numerator. These show why a single elasticity is insufficient: responses in other tax bases are valued at different tax rates — preferential-income, corporate, state, payroll, etc. — and therefore require separate cross-base and fiscal-externality terms.[8]

The expanded formula in equation (2.8) is most similar to that of Badel and Huggett (2017), who extend the sufficient-statistic approach to account for fiscal externalities from responses by taxpayers outside the top bracket and from other tax bases. Their framework

[8] While federal and state-local fiscal externalities each contain several subcomponents, it is sufficient for our purposes to collapse such responses into four mechanisms. Other federal taxes include six components: corporate taxes, estate taxes, non-top-bracket ordinary and preferential taxes, and top-bracket and non-top-bracket payroll and excise taxes. State and local taxes include three components: state corporate taxes as well as top-bracket and non-top-bracket components for other state-local taxes.

aggregates these effects into broad elasticity terms, whereas ours separately identifies preferential-income responses, shifting between ordinary and preferential bases, other federal revenues, and state-local revenues. Similarly, Kindermann and Krueger (2022) and Kleven (2026) present expanded sufficient-statistic formulas that account for certain fiscal externalities from those outside the top bracket. However, both expose only labor earnings to top rates. The equation in Swonder and Vergara (2025) for individual-level taxes limits cross-base elasticities to corporate profits, wages, and employment—missing noncorporate capital income (though they consider this margin when deriving optimal *corporate* tax rates). Our expanded sufficient-statistic formula also superficially resembles that in Piketty et al. (2014), but that formula excludes effects from different tax bases and only considers the rent-seeking portion of externalities, which Kleven (2026) notes is a minor portion. Like the benchmark formula, these alternative formulas have not been quantitatively mapped to an actual tax base or statutory tax rate, which limits their relevance for real-world policy analysis.

The generalized Laffer curve revenue equation with additional revenue components and cross-elasticities ε_i for preferential income responses, capital-income shifting, and federal and state-local revenue externalities, derived in Online Appendix F.3, is:

$$T(\tau) = T(\tau_B) + \int_{\tau_B}^{\tau} \overline{\mathcal{B}}_o(v) \left\{ 1 - \frac{v}{1-v}\overline{e}_o(v) - \sum_{i=p,\chi,fed,sl} \frac{\varepsilon_i(v) t_i(v)}{1-v} \right\} dv, \tag{2.9}$$

where $\overline{e}_o \equiv a_o(e_o^{real} + e_o^{evs} + e_o^{ge})$ and τ_B is the baseline (current law) top tax rate. As in Kindermann and Krueger (2022), we allow for sufficient-statistic inputs that vary with the top tax rate. The output of our structural model, which is presented in the next section, provides inputs to this reduced-form equation. This mapping transparently quantifies each mechanism introduced by our model using only the sufficient-statistic objects developed in this section. The expanded framework separates the taxable-income response from responses across other tax bases and fiscal externalities, showing why the benchmark single-tax-base formula is insufficient for actual federal top-rate reform even when the taxable-income elasticity itself is similar. These additional mechanisms appear as numerator terms in the expanded revenue-maximizing tax rate expression in equation (2.8) and as the third term in the revenue function in equation (2.9).

3 Overlapping Generations Model

The overlapping generations model is based on Moore and Pecoraro (2023), a heterogeneous-agent general-equilibrium model of the U.S. economy. Finitely-lived households optimize consumption, labor, and financial and housing assets. They are ex-ante heterogeneous by age, marital status, number of children, and labor productivity, allowing the model to reproduce observed distributions of income, wealth, and taxes. Temporary shocks to life-cycle labor-productivity paths provide ex-post heterogeneity, shifting some households into and out of the top tax bracket. Representative corporate and noncorporate (passthrough) firms optimize labor and capital using external financing. A financial intermediary distributes business income to households as ordinary income (passthrough business income, interest, short-term capital gains, nonqualified dividends) or preferential income (long-term capital gains and qualified dividends), a central distinction of our analysis.

Our preferred specification uses an income tax calculator within the model that reflects federal tax law in 2022. This includes a top ordinary rate of 37% and parallels current policy under the 2025 tax act, which extended most expiring provisions of the 2017 act. The tax calculator captures the difference between ordinary and preferential capital income and surtaxes, and factors related to marital status, number of dependents, housing tenure, state-and-local tax deduction caps, and passthrough business deductions. We next discuss the household problem, taxes, government, firms, and financial intermediaries. Additional model and calibration details are in the online appendix.

3.1 Households

3.1.1 Optimization Problem

Households of similar incomes pay different amounts of tax based on demographic characteristics, types of income, and savings and consumption choices. We capture this variation through several sources of household heterogeneity and choice variables. Households have a deterministic number of dependents based on their age j, marital status of single or married $f = \{s, m\}$, and permanent productivity type z. A household begins each year with real liquid financial (net) assets a_j and illiquid home equity h_j, and experiences a temporary labor productivity shock $\epsilon^z_{t,j}$. Households choose labor hours for one or two adults $\{n^1_j, n^2_j\}$ for working ages $j < R$, consumption of a composite good x_j, and savings that determine end-of-year financial assets a_{j+1} and housing equity h_{j+1}. The optimization problems for single and married household values $V_{t,j}^{f,z}$ are:

$$V_{t,j}^{s,z}(a_j, h_j, \epsilon_{t,j}^z) = \max_{\substack{a_{j+1},h_{j+1},x_j,\\ n_j^1\in\mathbb{N}}} U_{t,j}^{s,z}(x_j, n_j^1, \epsilon_{t,j}^z) + O_t(a_{j+1}, h_{j+1}) + \beta\pi_j \mathbb{E}_t V_{t+1,j+1}^{s,z}(a_{j+1}, h_{j+1}, \epsilon_{t+1,j+1}^z) \tag{3.1}$$

$$V_{t,j}^{m,z}(a_j, h_j, \epsilon_{t,j}^z) = \max_{\substack{a_{j+1},h_{j+1},x_j,\\ n_j^1,n_j^2\in\mathbb{N}}} U_{t,j}^{m,z}(x_j, n_j^1, n_j^2, \epsilon_{t,j}^z) + O_t(a_{j+1}, h_{j+1}) + \beta\pi_j \mathbb{E}_t V_{t+1,j+1}^{m,z}(a_{j+1}, h_{j+1}, \epsilon_{t+1,j+1}^z), \tag{3.2}$$

where $U_{t,j}^{f,z}$ and O_t give current utility from consumption and wealth consistent with a balanced growth path (Online Appendix C.1.2). Households have discount rate β and survive with probability $0 < \pi_j \leq 1$ until age J. The population grows at a gross rate Υ_P.

The real budget constraint applies each year:

$$p_t^x x_j + a_{j+1} + h_{j+1} \leq (1 + r_t)a_j + (1 - \delta^h)h_j + inh_{t,j}^{f,z} + i_{t,j}^{f,z}(\epsilon_{t,j}^z) - \mathcal{T}_{t,j}^{f,z} - \xi_j^h. \tag{3.3}$$

Left-hand side variables include consumption expenditures on the composite good $p_t^x x_j$, end-of-year financial assets a_{j+1}, and end-of-year owner-occupied housing assets h_{j+1}. The composite good captures tax-preferred consumption incentives by nesting with market goods the endogenous quantities of child care, home production, charitable giving, and owner-occupied or rental housing services (Online Appendix B.1). Right-hand side variables include the gross return to beginning-of-year financial assets $r_t a_j$, beginning-of-year owner-occupied housing wealth net of economic depreciation $(1 - \delta^h)h_j$, inheritances $inh_{t,j}^{f,z}$, earned income $i_{t,j}^{f,z}(\epsilon_{t,j}^z)$ that includes Social Security income, and net total taxes $\mathcal{T}_{t,j}^{f,z} = T_{t,j}^{f,z} - trs_t$, which deducts federal transfers (excluding Social Security, Medicare, and Medicaid). Distortionary taxes on labor income and capital income are modeled using either the detailed tax calculator or the tax functions specified in Section 3.2. The portfolio of assets implicit in a_j is endogenously determined by financial intermediaries. This allows the return on financial assets to be decomposed into "ordinary" ($r_t a_t^o$) and "preferential" ($r_t a_t^p$) capital income.

3.1.2 Income Process

Each adult in a working-age household chooses between part-time, full-time, or no work, so that $n_j \in \mathbb{N} \equiv \{n^{PT}, n^{FT}, 0\}$. Under this specification of labor indivisibility, labor supply choices follow an implicit reservation-wage framework in which supply elasticities are endogenous (Chang and Kim, 2006). Earned income equals the product of labor hours n_j, real wage rate w_t, and productivity $\mathrm{z}_j^{f,z}(1+\epsilon_{t,j}^z)$ for working ages, with Social Security income $ss_j^{f,z}$ added during retirement:

$$i_{t,j}^{f,z}(\epsilon_{t,j}^z) \equiv \begin{cases} n_j^1 w_t \mathrm{z}_j^{s,z}(1+\epsilon_{t,j}^z) + ss_j^{s,z} & \text{if} f = single \\ (n_j^1 + \mu^z n_j^2) w_t \mathrm{z}_j^{m,z}(1+\epsilon_{t,j}^z) + ss_j^{m,z} & \text{if} f = married, \end{cases} \tag{3.4}$$

where $0 < \mu^z \leq 1$ is an exogenous productivity wedge between spouses. Household productivity type z is permanent, while the deterministic component of labor productivity $\mathrm{z}_j^{f,z}$ varies by age and marital status and is subject to a temporary shock $\epsilon_{t,j}^z$ drawn from a non-Gaussian distribution $d(\mu_j^z, \sigma_j^z)$ that varies by age and productivity type.

3.2 Government

Federal and state-local governments collect tax revenues TX_t from households and corporations, and issue public debt B_t^G to finance non-valued public consumption C_t^G, productive capital expenditures I_t^G, and transfer payments to households TR_t.[9] The recursive budget constraint of the consolidated federal and state-local government can be expressed as:

$$I_t^G + C_t^G + TR_t \leq TX_t + B_{t+1}^G - (1+\rho_t)B_t^G. \tag{3.5}$$

To account for the time-to-build properties of public capital (Ramey, 2020; Leeper et al., 2010), public capital evolves according to:

$$G_{t+1} = (1-\delta^g)G_t + \sum_{s=1}^{S} \kappa_s^G I_{t-s+1}^G, \tag{3.6}$$

where δ^g is the rate of economic depreciation on public capital, S is the number of periods it takes for public capital investment to become fully productive, and $\sum_{s=1}^{S} \kappa_s^G = 1$. Total taxes collected by the consolidated government include taxes from corporations txl^c and households $T_{t,j}^{f,z}$:

$$TX_t = txl_t^c + \int_{\mathbb{Z}} \int_{\mathbb{J}} \sum_{f=s,m} T_{t,j}^{f,z} \; \Omega_{t,j}^{f,z} \; dj \; dz, \tag{3.7}$$

[9] This implies interest payments can change across steady states, even if the stock of debt is held constant. Federal and state-local governments are consolidated for exposition. State-local government policy variables are held fixed. We include state-local taxes to capture their distortionary impact on behavior and state-local public capital to capture their positive productivity impacts on private factors.

where $\Omega_{t,j}^{f,z}$ is the measure of households of age j, family type f, and productivity type z. In addition to Social Security payments $ss_{t,j}^{f,z}$, households receive lump-sum transfer payments from the government trs_t. Aggregate government transfers are therefore:

$$TR_t = \int_{\mathbb{Z}} \int_{\mathbb{J}} \sum_{f=s,m} \left(ss_{t,j}^{f,z} + trs_t \right) \Omega_{t,j}^{f,z} \; dj \; dz. \tag{3.8}$$

3.2.1 Individual Taxation

A household's total taxes $T_{t,j}^{f,z}$ are federal taxes $fed_{t,j}^{f,z}$ plus state-local taxes $slt_{t,j}^{f,z}$:

$$T_{t,j}^{f,z} = fed_{t,j}^{f,z} + slt_{t,j}^{f,z}. \tag{3.9}$$

Individual federal taxes include federal income taxes, payroll taxes associated with the Social Security system $prt_{t,j}^{f,z}$, lump-sum federal excise taxes $exc_{t,j}^{f,z}$, and estate taxes $est_{t,j}^{f,z}$:

$$fed_{t,j}^{f,z} = fiit_{t,j}^{f,z} + prt_{t,j}^{f,z} + exc_{t,j}^{f,z} + est_{t,j}^{f,z}. \tag{3.10}$$

3.2.2 Economic vs. Reported Income

We account for differences between personal economic income and adjusted gross income by scaling the former to be consistent with income reported in administrative tax data using the calibration-ratio procedure described in Online Appendix C.3.4. This accounts for three main differences: how income is reported (accounting differences such as accelerated tax depreciation relative to economic depreciation), avoidance (non-taxable compensation such as employer-provided insurance), and evasion (income misreporting). Denoting scaled variables with a hat, reported adjusted ordinary income $\hat{ord}_{t,j}^{f,z} \equiv \hat{i}_{t,j}^{f,z} + r_t \hat{a}_j^o$, plus adjusted preferential income $\hat{pci}_{t,j} \equiv r_t \hat{a}_j^p$, equals adjusted gross income:

$$agi_{t,j}^{f,z} = \hat{ord}_{t,j}^{f,z} + \hat{pci}_{t,j}^{f,z}. \tag{3.11}$$

The model is calibrated to administrative tax data and therefore includes baseline income misreporting at the current top tax rate. This misreporting is consistent with IRS tax gap estimates (Online Appendix C.3.4). As the adjustments denoted above scale proportionally with true income, they do not capture *marginal* increases in rates of evasion and avoidance through income reclassification. At high tax rates, accounting for these effects should further reduce estimated revenues (Uribe-Terán, 2021; Di Nola et al., 2025).

3.2.3 Tax Calculator

Under the tax calculator, ordinary income taxes $oit_{t,j}^{f,z}$ plus preferential income taxes $pct_{t,j}$ equal a household's total federal individual income taxes:

$$fiit_{t,j}^{f,z} = oit_{t,j}^{f,z} + pct_{t,j}^{f,z}, \tag{3.12}$$

where:

$$oit_{t,j}^{f,z} = \boldsymbol{\tau}(\hat{ord}_{t,j}^{f,z} - ded_{t,j}^{f,z}) - crd_{t,j}^{f,z} - tra_{t}^{f,z} + sro_{t,j}^{f,z}, \tag{3.13}$$

$$ded_{t,j}^{f,z} = \boldsymbol{d}\left(\hat{i}_{t,j}^{f,z}, \hat{ord}_{t,j}^{f,z}, \hat{pci}_{t,j}^{f,z}, h_j, x_j\right), \tag{3.14}$$

$$crd_{t,j}^{f,z} = \boldsymbol{c}\left(\hat{i}_{t,j}^{f,z}, \hat{ord}_{t,j}^{f,z}, ded_{t,j}^{f,z}, \hat{pci}_{t,j}^{f,z}\right), \tag{3.15}$$

$$pct_{t,j}^{f,z} = \boldsymbol{q}\left(\hat{ord}_{t,j}^{f,z}, \hat{pci}_{t,j}^{f,z}\right) + srp_{t,j}^{f,z}. \tag{3.16}$$

Bolded symbols denote generalized functions. The function $\boldsymbol{\tau}$ represents the entire ordinary income tax schedule, where the effective marginal ordinary tax rate depends on adjusted ordinary income $\hat{ord}_{t,j}^{f,z}$ less deductions $ded_{t,j}^{f,z}$. Deductions depend not only on ordinary and preferential income, but also on the amount of labor income, housing wealth h_j, and consumption $p_t^x x_j$. Ordinary income taxes are reduced by credits $crd_{t,j}^{f,z}$ and demographic-specific transfers $tra_t^{f,z}$ that align average labor income tax rates, correcting residual differences between the calculator and empirical data. Credits are functions of labor income, ordinary taxable income, and preferential income. The ordinary income tax includes $sro_{t,j}^{f,z}$, the 0.9% Additional Medicare surtax on high wages and the 3.8% net investment income surtax. Preferential capital income taxes $pct_{t,j}^{f,z}$ depend on total taxable income and include surtaxes $srp_{t,j}^{f,z}$.

3.2.4 Tax Functions

To contrast with prior work, we compare our model's internal tax calculator with commonly used simplified tax functions. There are two main versions of federal individual income tax functions. The first, the *tax function with a broad base*, applies the top ordinary-income tax rate to all adjusted gross income:

$$fiit_{t,j}^{f,z}(agi_{t,j}^{f,z}) = \begin{cases} agi_{t,j}^{f,z} - \lambda_1^f (agi_{t,j}^{f,z})^{1-\lambda_2^f} & \text{if } agi_{t,j}^{f,z} \leq \underline{\mathrm{b}}^f \\ \underline{\mathrm{b}}^f - \lambda_1^f (\underline{\mathrm{b}}^f)^{1-\lambda_2^f} + \tau(agi_{t,j}^{f,z} - \underline{\mathrm{b}}^f) & \text{if } agi_{t,j}^{f,z} > \underline{\mathrm{b}}^f, \end{cases} \tag{3.17}$$

where $\underline{\mathrm{b}}^f$ is the top-bracket threshold and τ is the federal top statutory rate.

The second common tax function, the *tax function with a narrow base*, applies the top ordinary tax rate only to adjusted wage income $\hat{i}^{f,z}_{t,j}$, and taxes adjusted capital income $r_t\hat{a}_j$ separately using an effective capital income tax rate τ^a for all ages:

$$fiit^{f,z}_{t,j}(\hat{i}^{f,z}_{t,j}, r_t\hat{a}_j) = \begin{cases} \hat{i}^{f,z}_{t,j} - \lambda^f_1(\hat{i}^{f,z}_{t,j})^{1-\lambda^f_2} + r_t\hat{a}_j\tau^a & \text{if } \hat{i}^{f,z}_{t,j} \leq \underline{\mathrm{b}}^f \\ \underline{\mathrm{b}}^f - \lambda^f_1(\underline{\mathrm{b}}^f)^{1-\lambda^f_2} + \tau(\hat{i}^{f,z}_{t,j} - \underline{\mathrm{b}}^f) + r_t\hat{a}_j\tau^a & \text{if } \hat{i}^{f,z}_{t,j} > \underline{\mathrm{b}}^f. \end{cases} \tag{3.18}$$

The tax-function parameter values, λ^f_1 and λ^f_2, differ across tax bases. Their calibration is detailed in Online Appendix E; Figure E1 compares taxes across tax functions and the calculator. In summary, the broad-base function taxes all capital income as ordinary, and therefore *overestimates* the tax base. The narrow-base function omits all capital income from the ordinary income tax base, and therefore *underestimates* the tax base.

3.3 Firms

Output is produced to maximize firm value across two perfectly competitive sectors, corporate and noncorporate, indexed by $q = \{c, n\}$, and used for consumption, savings, or investment. Production follows a constant-returns-to-scale Cobb-Douglas function with effective labor, private capital, and public capital, implying decreasing returns in private inputs, which allows for an interior solution:

$$Y^q_t = (G_t)^g (K^q_t)^\alpha (\mathcal{A}_t N^q_t)^{1-\alpha-g} \quad \text{for} \quad q = c, n, \tag{3.19}$$

where G_t and K^q_t are beginning-of-period public and private capital, N^q_t is effective labor, and $\mathcal{A}_t$ is labor-augmenting technology that evolves identically within each sector according to $\mathcal{A}_{t+1} = \Upsilon_A \mathcal{A}_t$. Each firm's capital evolves according to:

$$K^q_{t+1} = (1 - \delta^K)K^q_t + I^q_t \quad \text{for } q = c, n, \tag{3.20}$$

where δ^K is the economic rate of depreciation on private capital and I^q_t is investment for each sector.

Both firms may finance operations with bonds and hire labor in perfectly competitive markets. However, corporate and noncorporate firms face distinct incentive effects when the individual-level top tax rate changes. These differences can generate reallocation between sectors. Corporate and noncorporate firms primarily differ in their profit distribution rules, tax treatment, and new equity issuance:

1. **Distribution of Profits:** Corporate firms distribute a chosen share of after-tax profits as dividends, while noncorporate firms distribute all profits to their owners.

2. **Tax Treatment:** At the individual level, qualified corporate dividends and long-term capital gains may qualify for preferential tax rates. In contrast, noncorporate distributions (after the passthrough income deduction) are treated as ordinary income and subject to full statutory tax rates. Corporate firms remit entity-level corporate income taxes, while noncorporate firms do not pay an entity-level tax, as profits are passed directly to owners and taxed at the individual level. Noncorporate firms are therefore referred to as *passthrough* businesses.

3. **New Equity Issuance:** Only the corporate firm is assumed to be able to issue new shares of equity, while the noncorporate firm relies solely on debt financing.

In a financial market equilibrium, the real after-tax return on the equity value of each sector's representative firm $R_t^q V_t^q$ equals the sum of the after-tax change in firm value and net distributions:

$$V_t^c R_t^c = (1 - \tau_t^g) \underbrace{(V_{t+1}^c - V_t^c - shr_t)}_{gns_t^c} + (1 - \tau_t^d) div_t \tag{3.21}$$

$$V_t^n R_t^n = (1 - \tau_t^g) \underbrace{(V_{t+1}^n - V_t^n)}_{gns_t^n} + dst_t - txl^n, \tag{3.22}$$

where τ_t^g is the aggregate accrual-equivalent tax rate on capital gains gns_t^q, τ_t^d is an aggregate effective marginal tax rate on corporate dividends div_t, and txl^n represents taxes paid on noncorporate distributions dst_t. Pre-tax capital gains differ across sectors because the corporate firm can issue or buy back equity shares shr_t.

The objective function for the representative firm in each sector can be obtained by rearranging (3.21) and (3.22) for V_t^q and solving forward:

$$V_t^c(K_t^c) = \max_{N_t^c, K_{t+1}^c} \frac{(1 - \tau_t^d) div_t - (1 - \tau_t^g) shr_t}{(R_t^c + 1 - \tau_t^g)} + \beta_t^c V_{t+1}^c(K_{t+1}^c) \tag{3.23}$$

$$V_t^n(K_t^n) = \max_{N_t^n, K_{t+1}^n} \left(\frac{dst_t - txl^n}{R_t^n + 1 - \tau_t^g} \right) + \beta_t^n V_{t+1}^n(K_{t+1}^n), \tag{3.24}$$

where $\beta_t^q \equiv (1-\tau_t^g)/(R_t^q + 1 - \tau_t^g)$ for $q = c, n$. Each firm faces a sector-specific cash-flow constraint which is a function of firm earnings ern_t^q, debt issuance $B_{t+1}^q - B_t^q$, and investment I_t^q, but differs by the corporate firm's ability to issue new equity shr_t, profit distributions (div_t vs. dst_t), and the corporate entity-level tax txl_t^c:

$$ern_t^c + B_{t+1}^c - B_t^c + shr_t = div_t + I_t^c + txl_t^c \tag{3.25}$$

$$ern_t^n + B_{t+1}^n - B_t^n = dst_t + I_t^n. \tag{3.26}$$

The left-hand side variables of the cash-flow restrictions represent current-period resources available to the firm while the right-hand side variables represent outlays. Earnings for firms in both sectors are defined as production of output Y_t^q, less wages paid to labor input $w_t N_t^q$, and interest paid on debt $i_t B_t^q$:

$$ern_t^q \equiv Y_t^q - w_t N_t^q - i_t B_t^q \quad \text{for} \quad q = c, n. \tag{3.27}$$

The noncorporate firm does not issue new equity to finance operations, and therefore noncorporate distributions can be determined as a residual of their cash-flow restriction. Since the corporate firm may issue new equity, corporate dividend policy must be specified to fully determine external financing choices. As in Zodrow and Diamond (2013), we assume that corporate dividends are an exogenous fraction $\varkappa^d$ of after-tax earnings:

$$div_t = \varkappa^d (ern_t^c - txl_t^c). \tag{3.28}$$

We make leverage choice endogenous as in Barro and Furman (2018) by allowing firms to choose the debt-capital ratio that maximizes the value of the interest-deduction tax shield subject to convex leverage costs. This allows us to express the beginning-of-period stock of debt, B_t^q, as an optimal ratio of capital $\boldsymbol{\varkappa}_t^{b,q}$:

$$B_t^q = \boldsymbol{\varkappa}_t^{b,q} K_t^q \quad \text{for } q = c, n, \tag{3.29}$$

where $\boldsymbol{\varkappa}_t^{b,q}$ depends on the marginal value of the interest deduction.[10]

Taxes for the representative corporate and noncorporate firm, txl_t^q, take the form:

$$txl_t^q = \tau_t^q \left(Y_t^q - ded_t^q\right) - crd_t^q + slt_t^c \left(\boldsymbol{I}_{q=c}\right) \quad \text{for } q = c, n,$$

[10] Letting $\kappa i_t B_t$ be the amount of interest expenses deductible at rate τ_t^q, and leverage costs be $\frac{1}{\phi_1}\left(\frac{B_t}{K_t}\frac{1}{\phi_2}\right)^{\phi_1} K_t \phi_2$, the optimal debt-capital ratio is $\varkappa_t = \phi_2 \left(\kappa i_t \tau_t^q\right)^{1/(\phi_1 - 1)}$.

where τ_t^q is an aggregate effective federal marginal tax rate on net business income, ded_t^q are federal deductions from gross income, crd_t^q is a credit against gross federal taxes, and $slt_t^c(\boldsymbol{I}_{q=c})$ are state-local taxes that are positive only for the corporate firm. Allowable federal deductions for firms include wage expense, a portion of interest expense, tax depreciation of capital, and state-local taxes for the corporate sector:

$$ded_t^q = w_t N_t^q - \kappa^q i_t B_t^q - \left(\varrho^q I_t^q + \hat{\delta}^q da_t^q\right) - slt_t^c\left(\boldsymbol{I}_{q=c}\right) \quad \text{for } q = c, n,$$

where κ^q is the portion of interest expense allowed as a deduction, ϱ^q is the capital investment expense ratio, $\hat{\delta}^q$ is the tax depreciation rate of capital, and $da_t^q \equiv (1 - \hat{\delta}^q)da_{t-1}^q + (1 - \varrho^q)I_t^q$ represents current depreciation allowances.

For estimating our Laffer curves, the primary difference between the "partial" and "full" firm specifications is whether firms internalize changes in owners' individual income tax rates. Under partial-firm responses, the effective tax rates entering firms' decisions are held fixed as the top individual rate changes, so the noncorporate share of business output remains nearly constant. Under full-firm responses, firms instead internalize the higher personal tax liabilities faced by their owners, shifting activity toward the corporate sector and further eroding the ordinary-income base. Locally, our full-firm-response specification implies that a 10-percentage-point increase in the top personal income tax rate raises the corporate share of business output by roughly 0.5–0.6 percentage points, closely matching Liu (2014)'s estimate from historical variation in state tax rates. However, full internalization of individual tax changes may overstate the real response. Goodman et al. (2025) find little evidence that the passthrough-business deduction changed physical investment, nonowner wages, or employment. We therefore interpret the partial- and full-firm specifications as a sensitivity range for the strength of this channel, with the range between the two true-base curves as our preferred result.

3.4 Financial Intermediaries

While each household chooses its own allocation of financial and housing assets, all financial assets are pooled into an investment fund managed by perfectly competitive and identical financial intermediaries. For simplicity, financial intermediaries are assumed to be two-period-lived and operate in overlapping cohorts without investment risk. At the beginning of period t, a newly active intermediary cohort takes as given a predetermined aggregate deposit base D_t, which includes both the current stock of financial assets held by living households and the financial-asset portion of estates from decedent households.

Aggregate deposits are allocated across a representative portfolio that contains corporate and noncorporate equity and bonds, V_t^q and B_t^q for $q = c, n$, government bonds, B_t^G, and rental housing, H_t^r, which is managed by financial intermediaries rather than through a separate housing market.

The beginning-of-period portfolio feasibility condition for the current cohort is:

$$D_t = \sum_{q=c,n} (V_t^q + B_t^q) + B_t^G + H_t^r, \qquad \forall t. \tag{3.30}$$

For a given portfolio allocation, portfolio asset income is:

$$Inc_t \equiv div_t + dst_t + \sum_{q=c,n} (gns_t^q + i_t B_t^q) + (p_t^r - \delta^r) H_t^r + \rho_t B_t^G, \qquad \forall t. \tag{3.31}$$

Corporate and noncorporate equity earns dividends and distributions $div_t + dst_t$, while accruing net capital gains gns_t^c and gns_t^n. Corporate and noncorporate bonds yield a pretax rate of return i_t, while government bonds yield a low, "safe" pretax rate of return:

$$\rho_t \equiv \varpi i_t + \varsigma \exp\left(\frac{B_t^G}{\sum_q Y_t^q}\right), \qquad \forall t. \tag{3.32}$$

where $\varpi < 1$ determines how the safe-asset return covaries with the interest rate on debt i_t, and ς determines the return's response to changes in the debt-GDP ratio. Rental housing yields a net-of-depreciation return $(p_t^r - \delta^r)$. For a given portfolio allocation, the pretax rate of return on deposits is:

$$r_t = \frac{Inc_t}{D_t} \quad \forall t \tag{3.33}$$

The equilibrium definition specifies the aggregate consistency condition that maps portfolio asset income into the return credited in household budget constraints. This condition accounts for the timing of household deposit choices, estate accounting, and the market value of the intermediary portfolio carried across cohorts.

For optimal aggregate portfolio allocation, financial intermediaries are assumed to internalize the average tax consequences of households, and invest across private assets to equalize marginal after-tax rates of return. The no-arbitrage condition determines how the composition of ordinary versus preferential capital income varies with business activity, and how changes to individual-level taxation affect aggregate portfolio choice:

$$R_t^q = (1 - \tau_t^i) i_t^q = (1 - \tau_t^r)(p_t^r - \delta^r) \quad \forall t, q = c, n. \tag{3.34}$$

The after-tax rate of return on equity, R_t^q, equals that on private bonds $(1 - \tau_t^i) i_t^q$ and rental housing net of economic depreciation and taxes on rental housing $(1 - \tau_t^r)(p_t^r - \delta^r)$. The after-tax return to equity itself is a function of the aggregate accrual-equivalent tax rate on capital gains τ_t^g and the household-level effective marginal tax rate on distributed profits from each sector $\tau_t^{q,hh}$.

3.5 Equilibrium

The model is specified so that, when expressed in trend-stationary form, aggregates are constant and the economy exhibits a steady-state general-equilibrium balanced growth path. Partial and general equilibrium are formally defined in Online Appendix D. In both cases, the economy is initialized in a steady-state general equilibrium associated with decision rules that are the solutions to households' and firms' optimization problems; economic aggregates that are consistent with household and firm behavior; prices that facilitate cross-sector factor-price equalization and clearing in factor, asset, and goods markets; and policy aggregates that are consistent with government budget constraints. For partial equilibrium Laffer curves, households reoptimize at each top tax rate while prices and non-household aggregate objects are held fixed at their baseline steady-state general-equilibrium values. For general equilibrium Laffer curves, households and firms reoptimize and prices adjust to clear all markets.

3.6 Calibration

The initial steady state is calibrated to approximate the 2022 U.S. economy and tax law with a 37% top tax rate, which is the baseline for our policy experiments in this paper. Calibration procedures are detailed in Online Appendix C. To make initial steady states for the *broad base* and *narrow base* tax function specifications consistent with our preferred specification (which allows for direct comparison of the respective Laffer curves), we calibrate them with the same economic and tax targets, as discussed in Online Appendix E. Selected non-tax parameter values and associated steady-state targets, as calibrated for our preferred *true base* specification using the tax calculator, are summarized in Table C2. Aggregate economic targets are summarized in Tables C3 and C4. Aggregate tax targets are summarized in Tables C5 and C6. Model moments reported in these tables reflect the initial steady state of the true base specification.

Table 1: Distributions: Income and tax shares (%) and summary statistics

Income Percentile Class	Income				Federal Indiv. Income Taxes			
	Data	True Base	Broad Base	Narrow Base	Data	True Base	Broad Base	Narrow Base
0–20	2	2	2	2	-2	-4	-2	-2
20–40	6	6	6	6	-3	-3	-3	-2
40–60	11	10	10	10	2	1	-2	*
60–80	19	16	16	16	11	7	3	6
80–90	15	14	15	14	14	12	10	12
90–95	11	12	12	12	13	14	15	15
95–99	15	21	21	22	23	32	37	34
99–100	21	18	18	18	44	39	45	35
Gini/Kakwani	0.60	0.62	0.62	0.62	0.24	0.26	0.30	0.27
Income Percentile Class	**Federal Taxes**				**All Taxes**			
	Data	True Base	Broad Base	Narrow Base	Data	True Base	Broad Base	Narrow Base
0–20	*	-1	*	*	1	1	1	3
20–40	1	1	1	1	2	3	3	3
40–60	7	5	4	5	7	7	7	7
60–80	16	14	11	13	17	15	14	14
80–90	16	16	14	16	16	14	14	14
90–95	13	14	14	15	13	14	14	14
95–99	19	25	28	26	18	25	26	27
99–100	28	25	28	23	26	21	22	20
Kakwani	0.12	0.16	0.19	0.16	0.10	0.09	0.10	0.09

Note: * denotes shares between -0.5 and 0.5 percent. Income is expanded fiscal income, including wage income, capital income in AGI, employer portion of payroll taxes (allocated to employees), Social Security benefits, and corporate taxes. Corporate taxes are allocated similarly to Joint Committee on Taxation (2013), with 25% allocated by wages and the rest by capital ownership (no adjustment for foreign ownership). Summary statistics are the Gini coefficient for income and the Kakwani index for taxes; the latter is the tax concentration index (taxes bottom-coded at zero) less the income Gini. Source: Model and data from the Individual Tax Model of the Joint Committee on Taxation (2023).

3.7 Income and Tax Distributions in Initial Steady State

Table 1 compares the distributions of income and taxes in tax data with those implied by our model in the initial steady-state equilibrium. These income shares, which are not targeted moments, are similar across model tax specifications and broadly consistent with the data. While broad- and narrow-base tax functions can reproduce the distributional pattern of taxes observed in the data, this hides substantial dispersion in taxes at similar levels of income (Online Appendix Figure E1), causing the tax functions to misspecify tax incentives (Moore and Pecoraro, 2020b, 2021).

Central to our top-rate Laffer curves is the share of tax units with income exposed to the top federal statutory ordinary-income tax rate of 37% and the amount of top-rate-exposed income they report. In our true-base tax-calculator specification, 0.76% of households are exposed to the top rate, and their top-rate-exposed income accounts for 10.9% of total ordinary taxable income. In the IRS Statistics of Income (SOI) data, 0.72% of individual income tax returns in 2022 and 0.68% in 2023 had income taxed at the top rate. This top-rate-exposed income accounted for 11.7% of ordinary-rate taxable income in 2022 and 10.7% in 2023. In levels, the model implies $1.12 trillion of top-rate-exposed ordinary taxable income, compared with $1.22 trillion in the 2022 SOI data and $1.11 trillion in the 2023 SOI data expressed in 2022 dollars.[11]

4 Flat Laffer Curves, Realistic Taxes, and Interactions

We highlight three implications of using a more detailed representation of taxes and behavioral responses. First, the resulting Laffer curves are relatively flat—revenue gains are limited, and even substantial top tax rate changes around the revenue-maximizing rate have only modest effects on tax revenues. Over this range of tax rates, the central policy tradeoff is between tax progressivity and output. We refer to this as an equity-efficiency tradeoff, though without conducting a full welfare analysis. Second, interactions between federal individual income taxes and other taxes further flatten Laffer curves, reducing the revenue-raising potential of top-rate-only reforms and shifting the revenue-maximizing rate to the left. Third, commonly used simplified tax functions can misstate the relevant distortions because they fail to accurately represent income tax bases as legally defined.

4.1 Estimating the Laffer Curve

Under 2022 federal tax law, the top statutory rate of 37% applies to ordinary income exceeding $539,900 for single tax units and $647,850 for married households. We hold these thresholds constant, and income above them is taxed at the top rate for tax functions and the tax calculator. The real top-bracket threshold has remained near current levels (sometimes lower) for about half a century, even as top rates changed dramatically. Our approach of varying top rates against fixed brackets therefore approximates an important aspect of long-run U.S. tax policy. For each tax specification, we compute steady states in one-percentage-point intervals for the top rate. Because tax revenues change across steady states, we maintain long-run fiscal balance by adjusting federal investment spending, consumption spending, and transfers proportionally to their observed shares.

[11] Authors' calculations from IRS Statistics of Income, Publication 1304, Tables 1.1 and 3.6.

Optimizing behavior in the model gives rise to inverted-U-shaped Laffer curves. Tax-rate increases are offset by tax-base erosion from real responses, such as lower labor and investment that reduce GDP, as well as avoidance and shifting responses that move income toward preferentially taxed or tax-exempt sources and reallocate activity across business sectors. We focus on steady-state responses and exclude capital-gains realization timing changes. Because firm responses to owners' tax incentives are uncertain, we report both partial- and full-response true-base Laffer curves, viewing these as a sensitivity range.

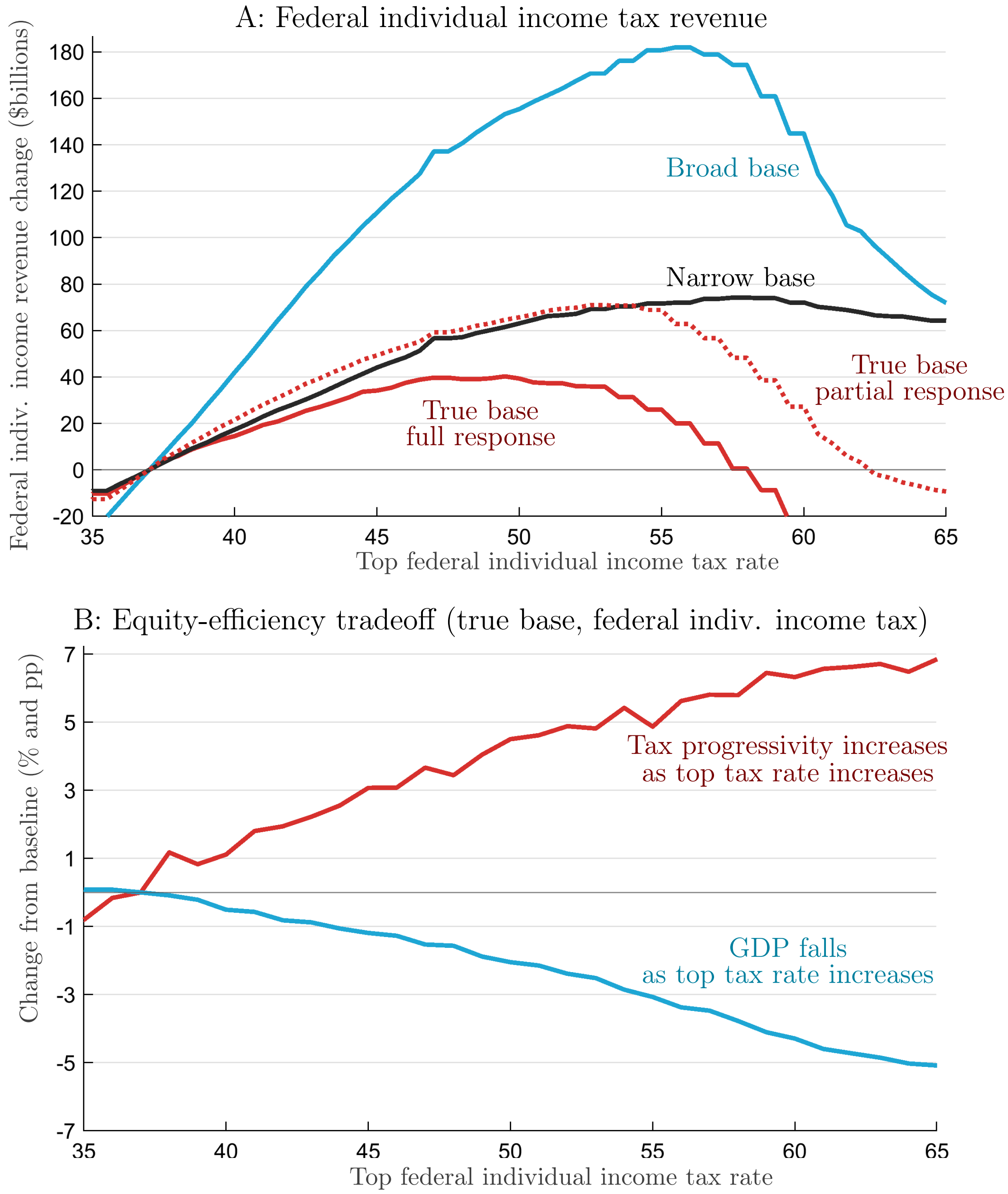
4.2 Realistic Taxes Matter

Simplified tax functions do not distinguish between ordinary and preferential tax bases. Under current law, certain forms of capital income—long-term capital gains and qualified dividends—are taxed at lower rates than ordinary income. Abstracting from this preferential treatment by including all capital income as subject to the ordinary statutory top rate makes the tax base too broad relative to current law. Conversely, allowing only labor income to have top-rate exposure excludes a substantial portion of capital income that is taxed at ordinary rates, leaving the tax base too narrow. In contrast, our tax calculator aligns tax bases with actual tax law: ordinary capital income is taxed jointly with labor income using ordinary statutory income tax rates, while preferential capital income constitutes a separate tax base subject to lower rates. The tax calculator also captures other relevant tax policy features for top earners, including itemized deductions (and relevant caps), surtaxes, and the Alternative Minimum Tax.

Figure 3A shows how federal individual income tax revenues change as the top tax rate varies. The minor lack of smoothness in the curves arises from discrete labor choices and tax-provision nonconvexities in the model (Brumm et al., 2025). We consider the broad, narrow, and true tax bases. For all bases, revenue is unchanged at the present-law top rate of 37% and revenue decreases with lower top rates. For higher rates, each tax base implies a different combination of potential revenue gains and revenue-maximizing top rates. The tax function with a broad base, where the top tax rate applies to all labor and capital income, overstates the first-order interaction between labor and capital income taxes because preferential capital income is incorrectly included in the ordinary tax base. Consequently, the distortions from higher statutory tax rates are amplified, causing the broad-base Laffer curve to quickly reach a high peak at a top federal tax rate of 55%. The narrow-base tax function, where the top rate applies only to labor income, has no first-order interaction between taxes on labor and capital income. Therefore, the distortions caused by higher statutory tax rates are muted, allowing the narrow-base Laffer curve to rise gradually until the top federal tax rate reaches 58%.[12]

[12] This comparison helps reconcile Kindermann and Krueger (2022)'s narrow-base results and Guner et al. (2016)'s broad-base results. Imrohoroglu et al. (2023) find little effect of changing bases, possibly because their tax functions are calibrated to different initial revenues and include entrepreneurial responses.

Figure 3: Laffer curves and equity-efficiency tradeoff



Note: Only federal individual income tax revenues are considered here. In Panel A, y-axis shows changes in total federal individual income tax revenue (in billions of 2022 dollars) relative to the 37% top-rate baseline, with respect to x-axis changes in the top statutory federal individual tax rate on ordinary income (which ignores surtaxes of 0.9% on wages and 3.8% on passive investment income). In Panel B, y-axis shows percentage changes in the level of GDP and percentage-point (pp) changes in the Kakwani index relative to the 37% top-rate baseline, with respect to x-axis changes. The model is calibrated to the U.S. economy and tax provisions in 2022 and results are estimated for one-percentage-point intervals of the top rate. Oscillations come from discrete labor and tax-schedule nonconvexities (Brumm et al., 2025).

Table 2: **Flatness measures across levels of revenue and tax bases**

Curve	τ^*	Peak (\$bn)	Area
Panel A: Federal individual income taxes			
Tax function, Broad base	0.55	188	856
Tax function, Narrow base	0.58	77	488
Tax calculator, True base (partial)	0.53	74	221
Tax calculator, True base (full)	0.48	43	100
Panel B: All federal taxes			
Tax function, Broad base	0.55	140	437
Tax function, Narrow base	0.53	57	270
Tax calculator, True base (partial)	0.53	49	134
Tax calculator, True base (full)	0.48	16	18
Panel C: All taxes (federal, state, and local)			
Tax function, Broad base	0.48	79	219
Tax function, Narrow base	0.49	37	87
Tax calculator, True base (partial)	0.44	20	38
Tax calculator, True base (full)	0.39	1	0

Note: Peak is the revenue increase at the revenue-maximizing top rate. Area is computed for positive revenue amounts over a top-rate grid from 37–80% and normalized so that the tax-calculator true-base full-response federal-individual-income-tax row equals 100. For the true-base model curves, the partial- and full-response specifications bracket our preferred estimate.

To compare Laffer curves, we define two measures of "flatness." Each measure captures a different aspect of a curve. The first, *peak* height, measures the dollar-based revenue gain at the revenue-maximizing top tax rate relative to current policy. The second is the *area* under the Laffer curve over the positive-revenue range above the current top rate, normalized so that the true-base, top-bracket, federal-individual-income-tax area (with full response) equals 100.

With these measures, the tax calculator with a true base shows a flatter curve. In Table 2A, the tax functions with broad and narrow bases peak at \$188 billion and \$77 billion. The latter is similar to the true-base partial-response curve's peak of \$74 billion (0.3% of GDP) and about twice the full-response curve's peak of \$43 billion (0.2% of GDP). Because we interpret the partial- and full-response curves as a sensitivity range, our preferred federal-individual-income-tax gain lies between these two values. Similarly, the areas of the broad and narrow bases are roughly nine and five times higher than the true-base full-response curve's area. Relative to the narrow and broad bases, the true base not only implies smaller revenue gains, but also a lower revenue-maximizing top rate.

4.3 Tax Progressivity vs. Output: Equity-Efficiency Tradeoff

If the top rate is in the range where the Laffer curve is relatively flat, the policy tradeoff centers on tax progressivity versus output. Figure 3B shows a summary of the equity-efficiency tradeoff for the true base with full-firm responses: tax progressivity rises with the top tax rate but GDP falls from behavioral responses. Tax progressivity is measured using the Kakwani index, a Lorenz-curve-based statistic of progressivity across the full income distribution (Splinter, 2020). For context, the tax progressivity gains are modest—going from a top rate of 37% to 60% increases income tax progressivity by only one-half of the 1985–2015 increase estimated by Splinter (2019)—while the approximate 4% decrease in steady-state GDP is substantial.[13] Online Appendix Figure H1 shows the responses of aggregate capital and effective labor.

4.4 Interactions with Other Taxes Imply Flatter Laffer Curves

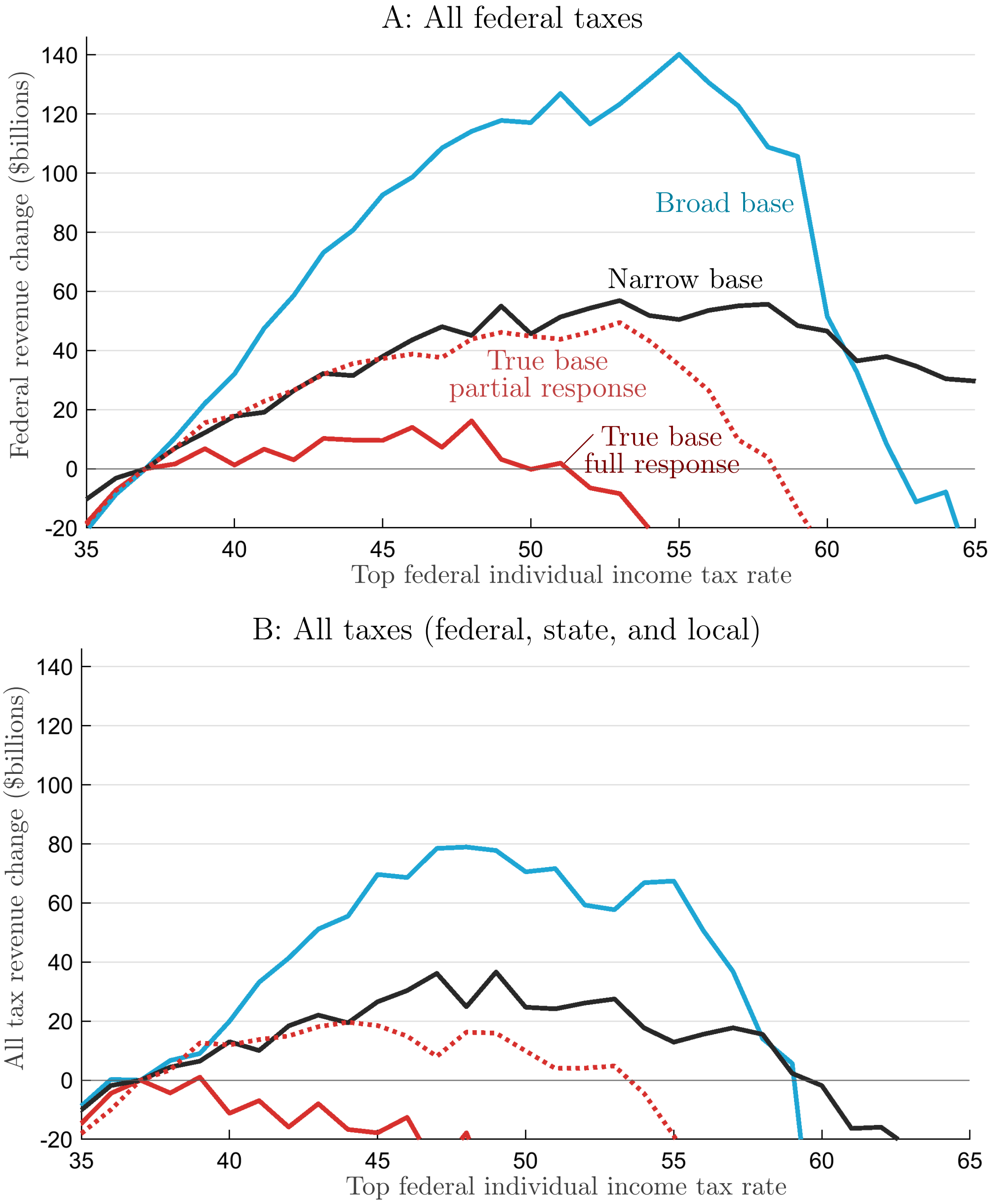
For purposes of estimating top-rate Laffer curves, additional taxes matter (Badel and Huggett, 2017). Considering other federal taxes besides individual income taxes, as well as state and local taxes, captures additional behavioral responses that affect federal income tax revenues and other revenue sources. These interactions result in flatter Laffer curves.

Figure 4A shows that all curves flatten when moving from accounting only for federal individual income taxes (as in Figure 3) to also accounting for federal payroll, corporate, excise, and estate taxes. The downward shifts in the curves imply more limited potential revenue gains when considering the effects of corporate and other federal taxes. The true-base, partial-response Laffer curve's peak revenue and area both fall by nearly half. The true-base, full-response Laffer curve's peak revenue falls from $43 billion to $16 billion (less than 0.1% of GDP) and the area is one-fifth as large (Table 2).

Figure 4B shows that accounting for state and local taxes further flattens Laffer curves. Considering interactions across all taxes, total government revenue changes little, as the distortions from higher top federal rates erode state and local tax bases. The true-base, partial-response Laffer curve suggests that increasing the top rate seven percentage points to its revenue-maximizing rate of 44% (corresponding to an all-in top rate of about 57%) raises total revenues by $20 billion, or 0.1% of GDP. With full-firm responses, however, higher top rates raise essentially no revenue. At top rates just above 39%, total government revenue declines because state-local revenue losses more than offset federal revenue gains. This illustrates how federal top-rate increases can partly crowd out state-local tax revenue, a mechanism highlighted by the fiscal competition surrounding the federal cap on state and local tax deductions (Comey et al., 2025).

[13] Our GDP declines resemble other estimates. For a 13-point top-rate increase, our estimated 2% GDP decline approximates Di Nola et al. (2025)'s 2.3% with evasion and Badel et al. (2020)'s 1.0%.

Figure 4: Policy Interactions Further Flatten Laffer Curves: All Federal Taxes and All Government Taxes



Note: Top panel includes all major federal taxes: individual income, payroll, corporate, excise, and estate taxes. Bottom panel includes all major taxes from federal, state, and local governments (e.g., non-federal income, property, corporate, and sales taxes). Y-axis shows changes in these taxes (in billions of 2022 dollars) relative to the 37% top-rate baseline, as x-axis changes the top statutory federal individual tax rate on ordinary income (which excludes surtaxes of 0.9% on wages and 3.8% on passive investment income). These Laffer curves reflect the same policy change as the Laffer curve in Figure 3 but also account for a larger set of general-equilibrium responses to other tax bases. The model is calibrated to the U.S. economy and tax provisions in 2022 and curves are estimated for one-percentage-point intervals of the top rate. For the true-base model curves, the partial- and full-response specifications bracket our preferred estimate. Oscillations come from discrete labor and tax-schedule nonconvexities (Brumm et al., 2025).

4.5 Tax Bases vs. Tax Functions

Differences in tax bases and tax functions both contribute to the gap between misspecified and true-base Laffer curves. Simplified tax functions apply to bases that are either too broad or too narrow, whereas our tax calculator models the actual tax system using a "Goldilocks" true tax base. Thus, the results above combine two differences: tax-base and tax-function effects. To decompose these, we construct counterfactual tax calculators with partial-firm responses and misspecified broad or narrow bases.

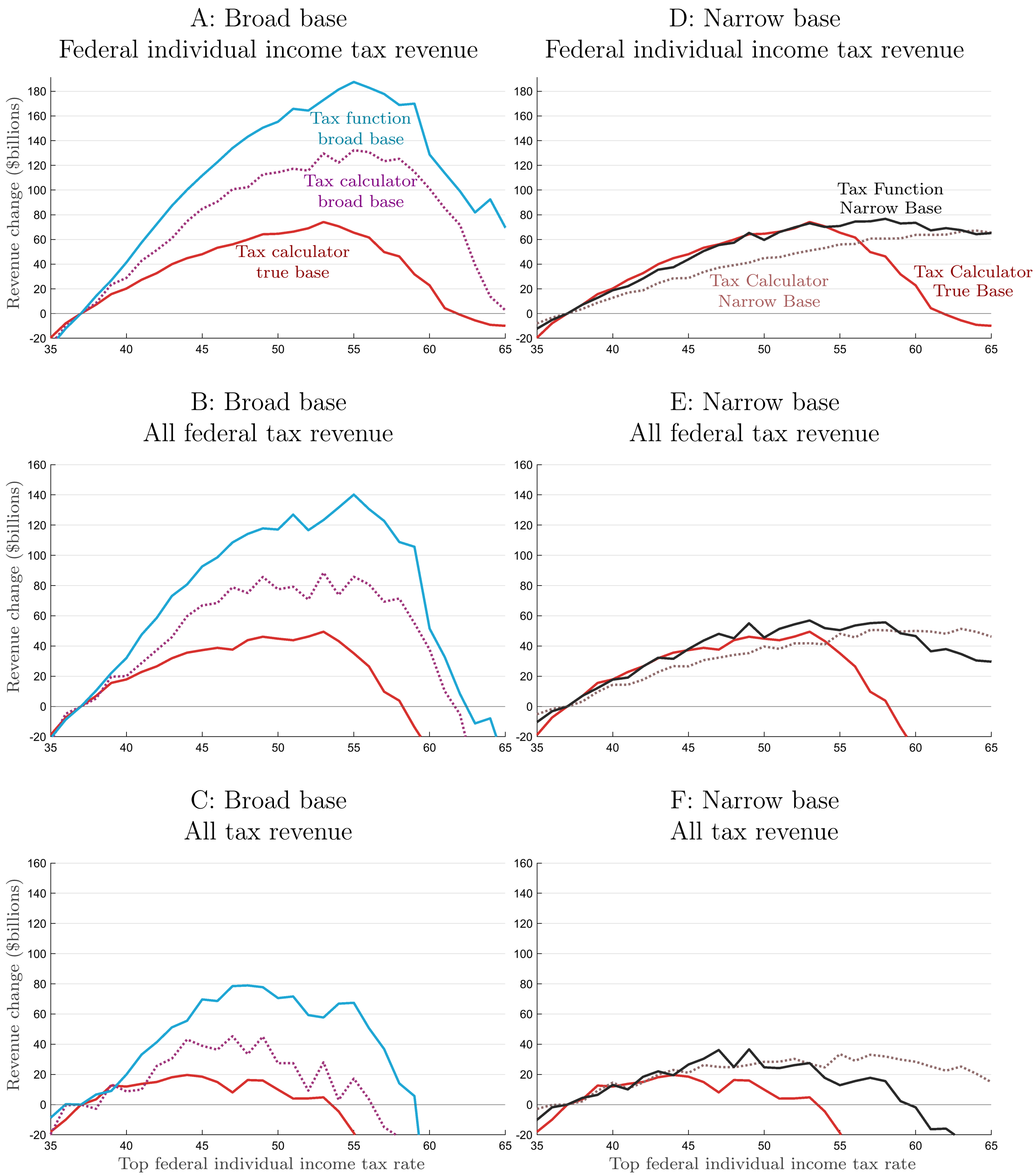
For the broad base, tax-function effects and tax-base effects each account for about half of the deviation from the true-base tax-calculator curve. Figures 5A–C show that applying the broad base, by treating all capital income as ordinary while using the tax calculator, moves the dashed-line curves about halfway toward the broad-base curve using a tax function. The broad-base Laffer curves rise steeply because the larger base abstracts from preferential rates, and then decline sharply as behavioral responses are amplified. For the narrow base, the effects are more nuanced, as seen in Figures 5D–F. At top rates below 55%, this base misspecification lowers the Laffer curve. At higher tax rates, the narrow base raises the curve because behavioral distortions are more muted.[14]

5 Mapping the Model to Sufficient Statistics

Using our macroeconomic model, we estimate the taxable-income elasticities and cross-elasticities that can be used as inputs to the expanded sufficient-statistic framework developed in Section 2. We use partial-equilibrium Laffer curves as a diagnostic case, showing that sufficient-statistic curves constructed from constant arc elasticities do not reproduce the model's Laffer curves over the full range of top rates. Partial equilibrium is useful because it provides the closest model analogue to the benchmark sufficient-statistic formula, excluding general-equilibrium effects and fiscal externalities from taxpayers outside the top bracket. We then explain how variable elasticities and cross-elasticities are used to trace model-implied sufficient-statistic curves, and carry out the mapping and decomposition using the general-equilibrium model and full-firm responses.

[14] The broad-base and narrow-base curves only show the effects of changing top rates after moving to substantially different baseline tax policies. Moving to a narrow tax base would reduce baseline revenue significantly, which is not included in these Laffer curves.

Figure 5: Tax calculator mimics tax functions when aligning tax bases



Note: Y-axis shows changes in relevant tax revenue (in billions of 2022 dollars) relative to baseline revenues at the top statutory federal individual tax rate on ordinary income of 37%. Ordinary income includes all wages and capital income in the broad base, but only wages in the narrow base. Tax calculators apply deductions, brackets, surtaxes, and credits to the relevant base. For the narrow base, capital income receives a single average tax rate in the tax function and (misspecified) tax calculator. All three curves have partial-firm responses (incomplete sectoral shifting). Top panels include only federal individual income taxes. Middle panels include all major federal taxes: individual income, payroll, corporate, excise, and estate taxes. Bottom panels include all major taxes from federal, state, and local governments. Each Laffer curve reflects the same policy change but accounts for different general-equilibrium responses according to the tax base. The model is calibrated to the U.S. economy and tax provisions in 2022 and curves are estimated for one-percentage-point intervals of the top rate.

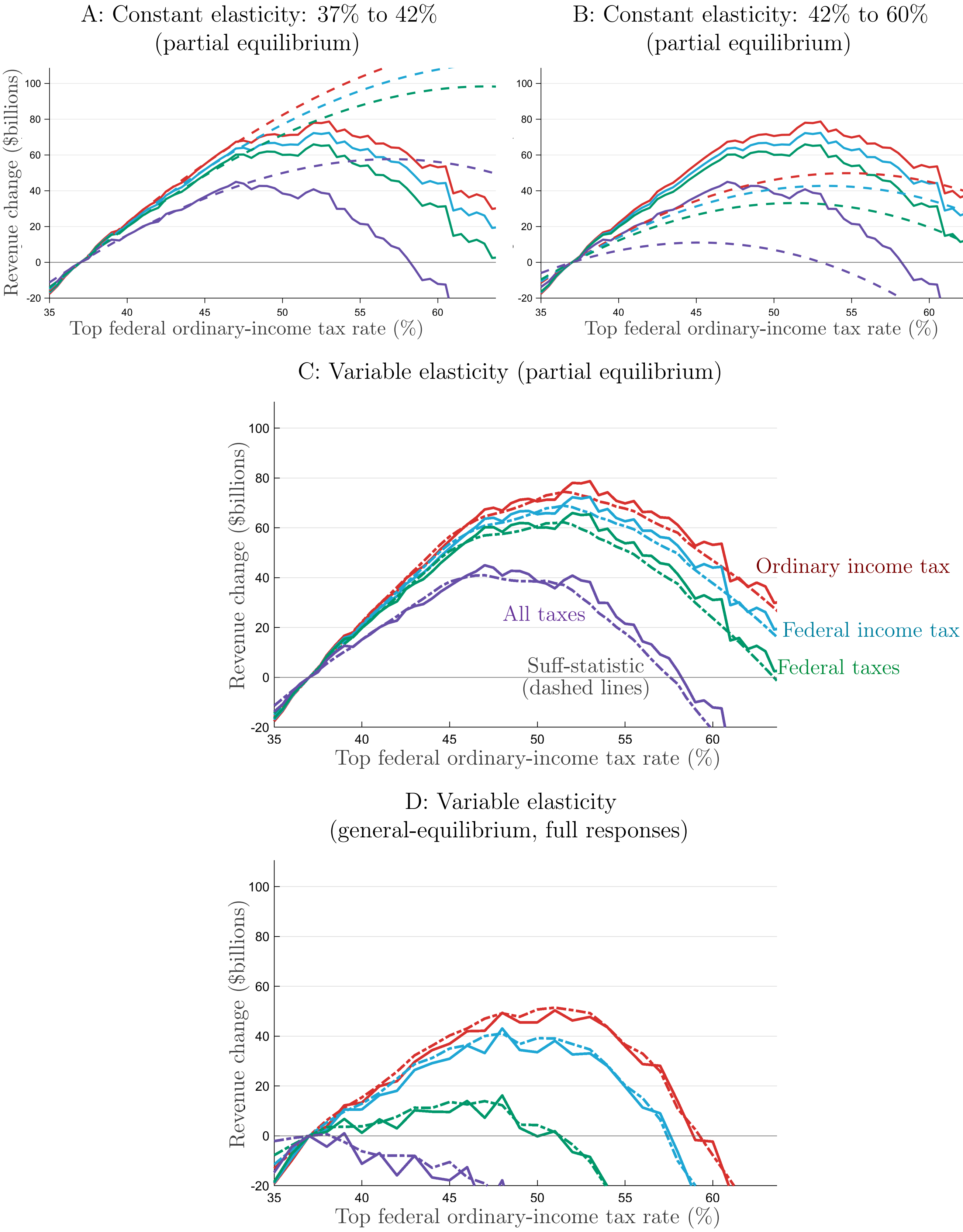
The benchmark sufficient-statistic formula uses a conventional elasticity of taxable income, estimated over top-earner total income, multiplied by a Pareto coefficient. The Pareto term converts the conventional elasticity into the implied response of top-rate-exposed income (see Online Appendix A.3). In the model, we observe this exposed ordinary-income base, and directly estimate the top-bracket exposed-income elasticity. To estimate the elasticity, we perturb the current tax rate, for example, by increasing the top rate from 37% to 42%, and measure the change in exposed taxable income (for the relevant base) after households reoptimize. The arc elasticity of taxable income across two top rates is computed as:

$$\left(\frac{TI_2 - TI_1}{(TI_1 + TI_2)/2}\right) / \left(\frac{(1-\tau_2) - (1-\tau_1)}{((1-\tau_1) + (1-\tau_2))/2}\right) \tag{5.1}$$

where τ_1 and τ_2 are the beginning and end federal statutory top marginal ordinary-income tax rates, while TI_1 and TI_2 are top-rate-exposed taxable income at the beginning and end of the tax-rate range. The elasticity used in the expanded sufficient-statistic framework is aggregated over top-bracket households. The additional cross-elasticities are estimated similarly.

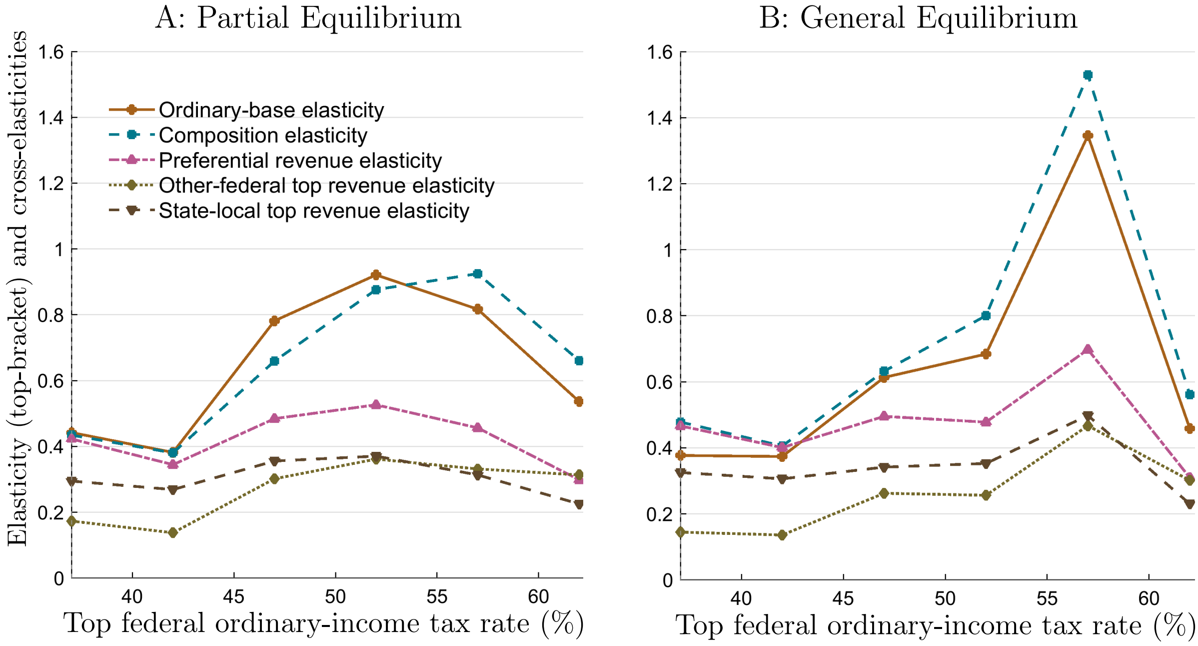
Figure 6 shows that elasticities are sensitive to the tax-rate range. Panels A and B show partial-equilibrium Laffer curves for ordinary income taxes (top curves), all individual income taxes, all federal taxes, and all government taxes (bottom curves). For partial-equilibrium Laffer curves, households reoptimize at each top tax rate while prices and non-household aggregate objects are fixed at their baseline steady-state values. Panel A shows sufficient-statistic (dashed-line) curves based on equation (2.9) with constant elasticities estimated between 37% and 42%. These fit the model (solid-line) curves only near the current tax rate and rise far above the model at higher tax rates. As in general equilibrium, broadening the revenue measure also flattens the partial-equilibrium Laffer curves. Panel B instead computes constant elasticities over a higher range that includes the curve peaks: 42% to 60%. This also fails to match the model, with the constant-elasticity curves below the model curves for many tax rates. These constant-elasticity specifications do not reproduce the model's Laffer curves across the full range of top rates.

Figure 6: Sufficient-statistic Laffer curves: Constant vs. variable elasticities



Note: Composition cross-elasticity is for base shifting. Y-axis shows changes in various tax revenues (in billions of 2022 dollars) relative to the 37% top-rate baseline, as the x-axis changes the top statutory federal individual tax rate on ordinary income (which excludes surtaxes of 0.9% on wages and 3.8% on passive investment income). The model is calibrated to the U.S. economy and tax provisions in 2022. Online Appendix F derives formulas that trace sufficient-statistic Laffer curves.

Figure 7: Variable ordinary-income elasticity (top-bracket only) and cross-elasticities



Note: Y-axis shows the top-rate-exposed ordinary-income elasticity and arc cross-elasticities, both with respect to x-axis changes in the top statutory federal individual tax rate on ordinary income. To convert the exposed-ordinary-income elasticity to a conventional all-income elasticity, divide by the Pareto coefficient. PE and GE arc elasticities are computed using 3-percentage-point forward and 2-percentage-point forward arcs, respectively, and interpolated over 5-percentage-point increments. The model is calibrated to the U.S. economy and tax provisions in 2022.

An alternative approach is to allow the elasticities to vary with the top tax rate. Panel C shows that the expanded sufficient-statistic curves can reproduce the partial-equilibrium model when using such variable elasticities. Panel D shows the same finding for general-equilibrium Laffer curves. These general-equilibrium Laffer curves are the true-base Laffer curves with full-firm responses in Section 4, which allow households and firms to reoptimize and prices to adjust to clear all markets at every top tax rate.

Given the importance of variable elasticities, Figure 7 shows the model-implied partial- and general-equilibrium elasticities consistent with our expanded sufficient-statistic Laffer curves. The cross-elasticities are defined with respect to the top federal ordinary-income net-of-tax rate: ε_p measures the response of potentially top-rate-exposed capital income, ε_χ measures the response of its ordinary-income share, and ε_{fed} and ε_{sl} measure the corresponding other-federal and state-local revenue responses. The ordinary-base elasticity shown here is larger than conventional all-income elasticities because it is a top-bracket elasticity that only considers income exposed to the top rate; converting it to a conventional elasticity requires dividing by the Pareto coefficient. At the same time, because our ordinary-base elasticity excludes cross-base shifting, it may be smaller than an empirical elasticity that includes shifting across bases.

As the top tax rate rises from the current rate to 50%, there is an increase in the ordinary-income elasticity and all cross-elasticities (preferential income, composition shifting, other federal taxes, and state-local taxes). An ordinary-base elasticity that increases with the top tax rate is consistent with the broad pattern in the empirical taxable-income-elasticity literature. For the early 1990s, when top rates went from 28% to 39.6%, Giertz (2010) estimates high-income elasticities of roughly 0.2 to 0.5. For the 1986 reform, which reduced the top rate from 50% to 28%, Auten and Carroll (1999) estimate elasticities of around 0.7, though Feldstein (1999) estimates higher values. For the early 1980s, when the top rate fell from 70% to 50%, Lindsey (1987) estimates high-income elasticities generally of roughly 1.6 or higher. Although these estimates come from different policy environments, the approximate doubling of empirically estimated elasticities when tax rates rise from around 40% to above 50% is consistent with our estimates in Figure 7. Note that cross-elasticity levels do not map directly into their revenue effects because the relevant tax bases differ. For example, the state-local tax cross-elasticity is about one-tenth as large as the base-shifting cross-elasticity, but its revenue effect is several times larger because it applies to a much broader revenue base.

Estimating the full Laffer curve with variable elasticities requires inputs at multiple tax rates. Because revenue effects compound as the top-rate increases, the expanded sufficient-statistic Laffer curve is estimated by integrating over the variable elasticities as shown in the generalized Laffer-curve equation (2.9). To map this to our structural model's output, which is estimated over a discrete one-percentage-point tax-rate grid, we express the generalized Laffer curve in terms of incremental tax changes, as described in Online Appendix F.3 for equation (F.20). Letting ΔT_k denote the incremental total revenue change when the top ordinary-income tax rate is increased across adjacent rates τ_{k-1} and τ_k, this is computed as

$$\Delta T_k = \left(\tau_k \overline{\mathcal{B}}_{o,k} - \tau_{k-1} \overline{\mathcal{B}}_{o,k-1}\right) + \sum_{i \in \{p,\chi,fed,sl\}} t_{i,k} \varepsilon_{i,k} \frac{\overline{\mathcal{B}}_{o,k} - \overline{\mathcal{B}}_{o,k-1}}{\overline{e}_{o,k}}. \tag{5.2}$$

The first term in parentheses is the change in top-bracket ordinary-income tax revenue between the beginning and end of the tax-rate interval, $\tau_k \overline{\mathcal{B}}_{o,k} - \tau_{k-1} \overline{\mathcal{B}}_{o,k-1}$. The final term sums the induced revenue changes for the other sufficient-statistic components, indexed by $i \in \{p, \chi, fed, sl\}$. For the general-equilibrium results reported below, $\overline{e}_{o,k}$ and $\varepsilon_{i,k}$ are estimated using two-percentage-point forward arcs and applied over one-percentage-point revenue increments.

Total revenue changes, computed on a one-percentage-point tax-rate grid, are shown in Table 3 for all federal taxes with full-firm responses. Comparing the last two columns shows that this reduced-form approach closely matches the model output, with both reaching the Laffer-curve peak at 47–48%. The average revenue changes below the peak in columns 7–11 provide policy-relevant estimates. The mechanical revenue gain is \$11 billion per percentage-point tax increase. The standard exposed-base elasticity response offsets \$3.5 billion per percentage point, or about 32% of the mechanical gain, close to the 30% average offset implied by the single-base sufficient-statistic calculations in Hendren and Sprung-Keyser (2020) for the 1993 and 2013 top-rate increases. Beyond the exposed-base response, preferential-income responses offset \$0.8 billion, base-shifting responses offset \$0.4 billion, and other federal tax effects offset \$4.9 billion per percentage point, with much of this coming from lower capital income reducing corporate tax revenue. These estimates show that each additional mechanism has a material effect, and that their combined effect more than doubles the behavioral offset implied by the single-base elasticity approach. Online Appendix Tables H4 and H5 show these calculations for all taxes, for both partial and full-firm responses.

In addition to capturing behavioral responses omitted from the benchmark formula, the variable elasticities capture increasing responsiveness as the top rate rises from the current 37% to the Laffer-curve peak. Applying the variable elasticities to our expanded sufficient-statistic framework, evaluated around the revenue-maximizing rate of the revenue function, allows for a decomposition of behavioral responses. We repeat equation (2.8) below, rewriting it using our top-bracket-exposed ordinary-income elasticity $\overline{e}_o$ in the denominator. This elasticity combines various components (real and general-equilibrium) and implicitly includes the Pareto coefficient a_o. The four numerator components, which

Table 3: Expanded sufficient-statistic revenue changes, all federal taxes

	Top-bracket elasticity	Cross-elasticity (revenue wrt top rate)				Revenue change by component (only for increment from 37% or prior row)							Laffer curve ($B)	
Top tax rate(%) (1)	Ordinary income (2)	Prefer. income (3)	Base shifting (4)	Other federal (5)	State & local (6)	Mechan. (7)	Ordinary income (8)	Prefer. income (9)	Base shifting (10)	Other federal (11)	State & local (12)	Total (13)	Total cumul. (14)	Model cumul. (15)
38	0.38	0.47	0.48	0.08	—	11	-3	-0.8	-0.3	-4	—	4	4	2
39	0.44	0.45	0.51	0.13	—	11	-3	-0.8	-0.4	-7	—	0	4	7
40	0.50	0.51	0.55	0.11	—	11	-4	-1.0	-0.4	-6	—	0	4	1
41	0.40	0.42	0.51	0.10	—	11	-3	-0.8	-0.4	-5	—	1	5	7
42	0.33	0.27	0.44	0.09	—	11	-3	-0.5	-0.4	-5	—	2	8	3
43	0.37	0.40	0.41	0.06	—	11	-3	-0.8	-0.4	-3	—	4	11	10
44	0.56	0.52	0.48	0.08	—	11	-5	-1.0	-0.4	-5	—	0	11	10
45	0.45	0.32	0.45	0.06	—	11	-4	-0.7	-0.4	-3	—	2	14	10
46	0.56	0.50	0.49	0.09	—	11	-5	-1.0	-0.5	-5	—	-1	13	14
47	0.68	0.40	0.69	0.02	—	11	-6	-0.8	-0.7	-1	—	1	14	7
48	0.61	0.50	0.63	0.07	—	10	-6	-1.0	-0.7	-5	—	-2	12	16
49	0.59	0.70	0.58	0.16	—	10	-6	-1.5	-0.7	-10	—	-8	5	3
50	0.53	0.41	0.62	0.05	—	10	-5	-0.9	-0.7	-3	—	0	4	0
51	0.60	0.47	0.62	0.08	—	10	-6	-1.1	-0.8	-5	—	-3	1	2
52	0.65	0.55	0.76	0.09	—	10	-7	-1.2	-0.9	-6	—	-5	-3	-6
53	0.68	0.48	0.80	0.11	—	10	-7	-1.1	-1.0	-7	—	-7	-10	-8
54	0.85	0.49	0.92	0.12	—	10	-10	-1.2	-1.2	-9	—	-11	-21	-20
55	0.91	0.56	1.08	0.11	—	10	-10	-1.3	-1.4	-8	—	-11	-32	-30
56	0.85	0.56	0.94	0.07	—	9	-10	-1.4	-1.3	-5	—	-9	-41	-43
Avg. below peak	**0.44**	**0.43**	**0.48**	**0.09**	—	**11.0**	**-3.5**	**-0.8**	**-0.4**	**-4.9**	—	**1.4**	—	—
Avg. above peak	**0.70**	**0.51**	**0.76**	**0.09**	—	**10.0**	**-7.3**	**-1.2**	**-0.9**	**-5.9**	—	**-5.4**	—	—

Note: Column (2) reports the elasticity of the top-bracket-exposed ordinary-income base with respect to the federal ordinary-income net-of-tax rate. This is the Pareto-adjusted top-base response, ae_o; to express it as a conventional elasticity of total ordinary income for top taxpayers, divide by the Pareto coefficient. Columns (3)–(5) report cross-elasticities with respect to the same federal ordinary-income net-of-tax rate. These cross-elasticities are not applied to the top ordinary-income base in column (2). Instead, each is applied to the relevant start-of-increment revenue exposure for that component. For preferential income, the relevant exposure is preferential-income tax revenue. For base shifting, the relevant exposure is the ordinary-preferential tax-rate gap multiplied by the amount of top capital income that can shift across tax bases. For other federal revenue effects, the reported cross-elasticity summarizes several component-specific federal revenue responses as a weighted average. Thus, the other-federal entry should be read as an effective aggregate cross-elasticity, not an elasticity of a single tax base. Elasticities and cross-elasticities are computed using 2-percentage-point forward arcs, while revenue changes are applied over one-percentage-point tax-rate increments. Revenue changes are in billions of dollars and are shown for the increment from the row above. Columns (14) and (15) report cumulative revenue changes relative to the 37% baseline for the xSS curve and the model curve, respectively. *Source:* Authors' calculations.

summarize a dozen modeled channels, are combined as a single wedge Φ in the numerator.[15]

$$\tau^* = \frac{1 - t_p\varepsilon_p - t_\chi\varepsilon_\chi - t_{fed}\varepsilon_{fed} - t_{sl}\varepsilon_{sl}}{1 + a_o(e_o^{real} + e_o^{evs} + e_o^{ge})} = \frac{1-\Phi}{1+\bar{e}_o}. \tag{5.3}$$

Table 4's first row reports the revenue-maximizing rate from the benchmark sufficient-statistic approach. It uses the same inputs as Figure 2: a total-ordinary-income elasticity of 0.4 and a Pareto coefficient of 1.5, producing a top-bracket elasticity of 0.60. This value is close to our model's variable elasticities when evaluated at top rates around 50%. The benchmark approach, however, omits the additional revenue-loss mechanisms captured by the expanded formula. The expanded sufficient-statistic components reported in rows two through five of Table 4 reproduce the revenue-maximizing rates for the sufficient-statistic curves in Figure 6D. Moving from the benchmark formula to progressively broader revenue concepts lowers the formula-implied revenue-maximizing rate from 63% in the single-elasticity benchmark to 51% for federal ordinary-income taxes, 48% for federal individual income taxes, 47% for all federal taxes, and 38% for all taxes. The decline reflects the cumulative numerator wedge from preferential-income responses, base shifting, other federal fiscal externalities, and state-local fiscal externalities.

The share of the numerator wedge attributable to each additional mechanism is computed by dividing that mechanism's contribution by the total numerator wedge. For all federal taxes under full-firm responses, the preferential-income response and base shifting jointly account for $(0.04 + 0.02)/0.24 = 25\%$ of the total numerator wedge, with the remaining 75% attributable to other federal fiscal externalities. In the partial-firm-response decomposition, reported in Online Appendix Table H1, preferential-income responses and base shifting jointly account for roughly $(0.03 + 0.03)/0.14 = 43\%$ of the wedge. Although the preferential-income and base-shifting mechanisms make the same combined level contribution of 0.06 under both specifications, their relative contribution is smaller under full-firm responses. This occurs because firms internalize the individual-level tax changes faced by their owners, increasing the distortions from higher top rates and generating larger fiscal externalities through other federal revenues.

[15] The notation distinguishes top-bracket ordinary-income elasticities for real responses e_o^{real}, evasion e_o^{evs}, and general-equilibrium effects e_o^{ge}. Cross-elasticities capture preferential-base responses (p), composition-shifting responses (χ), and fiscal externalities (fed and sl), with each term scaled by a corresponding ratio t. Online Appendix Tables H2 and H3 show the sub-components of "other federal" and "state-local" elasticities.

Table 4: Expanded sufficient-statistic revenue-maximizing rates (general equilibrium, full-firm responses)

	Top-bracket elasticity:	Cross-elasticity: ε (revenue wrt top rate)				Component numerator wedge $t_i\varepsilon_i$				Numer. wedge	Rev-max rate (%)
	Denomin.	Prefer. inc.	Base shift	Other federal	State local	Prefer. inc.	Base shift	Other federal	State local		
Sufficient-statistic	0.60	—	—	—	—	—	—	—	—	—	63
Federal ord-inc. tax	0.64	—	0.73	0.10	—	—	0.07	0.09	—	0.16	51
Federal income tax	0.58	0.53	0.61	0.13	—	0.06	0.03	0.15	—	0.24	48
Federal taxes	0.63	0.53	0.63	0.09	—	0.04	0.02	0.18	—	0.24	47
All taxes	0.44	0.48	0.51	0.11	0.06	0.04	0.02	0.25	0.15	0.45	38

Note: The sufficient-statistic row uses a conventional all-income elasticity of 0.4 multiplied by a Pareto coefficient of 1.5. For the model-based rows, the revenue-maximizing rate is from the corresponding expanded sufficient-statistic revenue curve. Elasticities are 3-percentage-point local averages around that peak, computed from 2-percentage-point forward arcs. The denominator column reports the Pareto-adjusted top ordinary-income elasticity, excluding base shifting. Other-federal and state-local entries are effective aggregate elasticities. The numerator-wedge columns show each mechanism's contribution to the total numerator wedge. *Source:* Authors' calculations.

This decomposition provides a consistent sufficient-statistic representation of the structural model's results, mapping the model's mechanisms into the behavioral and fiscal channels that flatten the Laffer curve. Because the cross-elasticities are generated within a common equilibrium environment, they are jointly consistent—a central strength of our bridge approach. Estimating these objects separately from historical reforms would be difficult because reforms typically change multiple policy parameters at once. These elasticities are also specific to the top-rate-only policy change analyzed here. The expanded formula is therefore best understood as an interpretive bridge: it identifies the sufficient-statistic objects that govern the Laffer curve, while still requiring a structural model to estimate them in this setting.

6 Efficiency costs of increasing top tax rates

The preceding analysis focuses on the revenue gains from increasing the top tax rate. A complementary question is how the associated distortions compare to the revenue gains. We illustrate this with a standard elasticity-based deadweight-loss calculation that applies our expanded sufficient-statistic framework to measure broader net revenue changes. Deadweight loss measures the efficiency cost of taxation beyond the resource transfer to the government. When a higher top tax rate induces households or firms to reduce real activity, incur costly avoidance, or bear other real resource costs, the private loss exceeds the dollars collected by the government. The ratio of this excess burden to the net revenue increase determines a measure of the marginal cost of public funds, which generally equals one plus this deadweight-loss-to-revenue ratio.

The benchmark single-base deadweight loss formula from Feldstein (1999) shifted the analysis of tax distortions to the broad set of responses captured by the elasticity of taxable income (ETI). Chetty (2009a) clarified that not every taxable-income response creates deadweight loss. Real responses and costly avoidance reduce welfare beyond collected revenue, but costless evasion or shifting reduces revenue without increasing deadweight loss. Saez et al. (2012) make the related point that the ETI is not a sufficient statistic when responses include avoidance, evasion, shifting, or externalities.

Our expanded sufficient-statistic framework can be applied to standard ETI-based deadweight-loss calculations for top-rate-exposed households.[16] Our results imply that the single-base formula is insufficient for measuring the revenue-change denominator, which must account for cross-base effects. For a top-rate increase from 37% to 44%, using our model's estimate of the ordinary-taxable-income elasticity in the benchmark single-base ETI formula implies deadweight loss for top-rate-exposed households of about 56% of revenue raised from ordinary income.[17] This benchmark ratio is close to the roughly 51% simple average implied by the Hendren and Sprung-Keyser (2020) calculations for the 1993 and 2013 top-rate increases. However, evaluating the same tax change using total federal revenue effects accounting for preferential-income responses, base shifting, and other federal revenue effects mechanically reduces the revenue denominator and increases the deadweight-loss-to-revenue ratio for top-rate-exposed households to over 250% of the net federal revenue increase. Thus, as with the revenue decomposition in Section 5, the higher deadweight-loss-to-revenue ratio in the expanded framework reflects the revenue losses from preferential income, base shifting, and other federal fiscal externalities, while the benchmark ordinary-income calculation remains close to conventional estimates.

The higher deadweight-loss-to-revenue ratio reflects the accounting consequence of a flatter federal Laffer curve but is not a complete welfare evaluation for top-rate-exposed households. A full welfare analysis would value the fiscal adjustments used to absorb additional federal revenue, such as lump-sum transfers and public capital, and capture non-fiscal effects on utility from changes to relative factor prices. In the aggregate, these effects may offset efficiency losses through their benefit to households outside of the top bracket. Similar macroeconomic models show that general-equilibrium responses depend on fiscal-use assumptions (Moore and Pecoraro, 2020a, 2023).

[16] Auerbach (1985) notes that the Harberger-triangle-based calculations underlying this approach do not generally recover the true excess burden when tax changes alter relative factor prices, create cross-tax effects, or finance valued uses of revenue. Treating the difference between the top-rate-exposed group's consumption equivalent variation and increased taxes as the true excess burden within our macroeconomic model, this approximation omits about one-fifth of the exposed-group's deadweight loss.

[17] We choose a 7-percentage-point increase as an example because 44% is below the revenue-maximizing top rate for the Laffer curve evaluated here. At the peak, the marginal deadweight loss per additional dollar of revenue is infinite (Hendren and Sprung-Keyser, 2020). Calculations are in Online Appendix G.

7 Conclusion

The Laffer curve literature abstracts from important policy details. It focuses on the revenue-maximizing top rate, relies on simplified tax functions, and typically omits interactions across different taxes. We show that a more detailed representation of the tax system fundamentally alters the Laffer curve's shape, the implied revenue-maximizing top rate, and potential revenue gains from increasing the top rate. This is because revenue gains from top-rate increases depend on details of the underlying tax system. The income subject to the top rate depends on itemized deductions, the top-rate threshold, and tax-base definitions—and shifting across different tax bases can significantly affect the Laffer curve's shape. Our expanded sufficient-statistic decomposition shows that this flattening is not driven by a larger ordinary-income elasticity: preferential-income responses, shifting across tax bases, and fiscal externalities enter as distinct revenue margins and materially reduce the revenue gains from higher top rates.

Our estimates isolate the effects of changing the top ordinary-income tax rate while holding the rest of the tax system fixed. They are not policy recommendations for top ordinary income tax rates. Nor do we evaluate other reforms targeting high-income taxpayers, such as corporate tax increases, deduction limitations, tax-rate increases for preferential income (CBO, 2024), increased enforcement (Keen and Slemrod, 2017), or taxation of wealth (Moore and Pecoraro, 2023). Rather, we highlight which tax details are most critical for modeling the effects of top-rate changes. Still, our model does not capture all potential responses. Additional responses that would further limit estimated revenue gains from increasing the top tax rate include international shifting, retiming of asset sales and compensation, estate and trust planning, use of qualified small business stock exclusions, and changes in entrepreneurship. Accounting for these additional behavioral channels points to useful extensions.

Our findings have three main implications. First, standard approaches using simplified tax functions and generalized tax bases can distort policy conclusions. Laffer curves estimated with more realistic taxes are flatter, suggesting that top rate increases yield relatively smaller revenue gains. Second, changes in the federal top ordinary-income rate affect revenues beyond the ordinary-income base to which the rate directly applies. Responses in preferential income, shifting across tax bases, and other federal and state-local revenues further flatten Laffer curves. Third, when the Laffer curve is relatively flat, the relevant tradeoff is between tax progressivity and output, rather than an opportunity to raise substantially more revenue.

References

Auerbach, A. J. (1985). The theory of excess burden and optimal taxation. In A. J. Auerbach and M. Feldstein (Eds.), *Handbook of Public Economics*, Volume 1, Chapter 2, pp. 61–127. Amsterdam: Elsevier.

Auten, G. and R. Carroll (1999). The effect of income taxes on household income. *Review of Economics and Statistics 81*, 681–693.

Auten, G., D. Splinter, and S. Nelson (2016). Reactions of high-income taxpayers to major tax reforms. *National Tax Journal 69*(4), 935–964.

Badel, A. and M. Huggett (2017). The sufficient statistics approach: Predicting the top of the Laffer curve. *Journal of Monetary Economics 87*, 1–12.

Badel, A., M. Huggett, and W. Luo (2020). Taxing top earners: A human capital perspective. *Economic Journal 130*(629), 1200–1225.

Bagchi, S. and L. Dusek (2021). The effects of introducing withholding and third-party reporting on tax collections: Evidence from the U.S. state personal income tax. *Journal of Public Economics 204*, 104537.

Barro, R. J. and J. Furman (Spring, 2018). Macroeconomic effects of the 2017 tax reform. *Brookings Papers on Economic Activity*.

Becko, J. S. and A. Sztutman (2026). Efficiency criteria, income taxation, and heterogeneous elasticities. *American Economic Review 116*(5), 1876–1913.

Bénabou, R. (2002). Tax and education policy in a heterogeneous-agent economy: What levels of redistribution maximize growth and efficiency. *Econometrica 70*(2), 481–517.

Bhandari, A., J. Borovicka, and Y. Yao (2025). Robust bounds on optimal tax progressivity. *NBER Working Paper 34218*.

Bhandari, A., D. Evans, E. McGrattan, and Y. Yao (2026). Income taxes and entrepreneurship. *Working Paper*.

Bruggemann, B. (2021). Higher taxes at the top: The role of entrepreneurs. *American Economic Journal: Macroeconomics 13*(3), 1–36.

Brumm, J., C. Krause, L. Kotlikoff, and J. Zanger (2025). The global life-cycle optimizer —analyzing fiscal policy's potential to dramatically distort labor supply and saving. *Working Paper, accessed from https://kotlikoff.net/wp-content/uploads/2025/11/*GLO_Nov12_2025*.pdf*.

CBO (2024). Options for reducing the deficit: 2025 to 2034. Congressional Budget Office.

Chang, Y. and S.-B. Kim (2006). From individual to aggregate labor supply: A quantitative analysis based on a heterogeneous agent macroeconomy. *International Economic Review 47*(1), 1–27.

Chetty, R. (2009a). Is the taxable income elasticity sufficient to calculate deadweight loss? The implications of evasion and avoidance. *American Economic Journal: Economic Policy 1*(2), 31–52.

Chetty, R. (2009b). Sufficient statistics for welfare analysis: A bridge between structural and reduced-form methods. *Annual Review of Economics 1*, 451–488.

Comey, M., B. Gallagher, and W. Gorman (2025). Salt cap workarounds. Working paper.

Di Nola, A., G. Kocharkov, A. Scholl, A.-M. Tkhir, and H. Wang (2025). Taxation of top incomes and tax avoidance. *International Economic Review 66*(3), 983–1018.

Diamond, P. and E. Saez (2011). The case for a progressive tax: From basic research to policy recommendations. *Journal of Economic Perspectives 25*(4), 165–190.

Dowd, T. and Z. Richards (2021). Contextualizing elasticities for policymaking: Capital gains and revenue-maximizing tax rates. Working paper.

Dyrda, S. and B. Pugsley (2025). The rise of pass-throughs: an empirical investigation. *Economic Journal 135*(665), 387–403.

Feldstein, M. (1999). Tax avoidance and the deadweight loss of the income tax. *Review of Economics and Statistics 81*(4), 674–680.

Gamarra Rondinel, A., J. F. Sanz-Sanz, and M. Arrazola (2024). The individual Laffer curve: Evidence from the spanish income tax. *Empirical Economics 67*(6), 2719–2769.

Giertz, S. H. (2010). The elasticity of taxable income during the 1990s: New estimates and sensitivity analyses. *Southern Economic Journal 76*(2), 406–433.

Goodman, L., K. Lim, B. Sacerdote, and A. Whitten (2025). How do business owners respond to a tax cut? examining the 199A deduction for pass-through firms. *Journal of Public Economics 242*, 105293.

Gordon, R. and J. Slemrod (2000). Are 'real' responses to taxes simply income shifting between corporate and personal tax bases? In *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, pp. 240–288. Russell Sage Found.

Gorman, W., J. McGuire, and D. Splinter (2025). Who evades taxes? The distribution of the U.S. tax gap. *Forthcoming in the Proceedings of the 15th Annual IRS-TPC Research Conference on Tax Administration*.

Graber, M., M. Havarstein, M. Mogstad, G. Torsvik, and O. L. Vestad (2025). Substitution and income effects of labor income taxation. *NBER Working Paper 34987*.

Guner, N., R. Kaygusuz, and G. Ventura (2014). Income taxation of U.S. households: Facts and parametric estimates. *Review of Economic Dynamics 17*(4), 559–581.

Guner, N., M. Lopez-Daneri, and G. Ventura (2016). Heterogeneity and government revenues: Higher taxes at the top? *Journal of Monetary Economics 80*, 69–85.

Harju, J. and T. Matikka (2016). The elasticity of taxable income and income-shifting: What is 'real' and what is not? *International Tax and Public Finance 23*(4), 640–669.

Heathcote, J., K. Storesletten, and G. L. Violante (2017). Optimal tax progressivity: An analytical framework. *Quarterly Journal of Economics 132*(4), 1693–1754.

Heiser, E., M. Love, and J. Mortenson (2025). Tax avoidance through corporate accounting: Insights for corporate tax bases. *Journal of Public Economics 244*(105336).

Hellwig, C. and N. Werquin (2026). Using consumption data to derive optimal income and capital tax rates. *Working Paper*.

Hendren, N. and B. Sprung-Keyser (2020). A unified welfare analysis of government policies. *Quarterly Journal of Economics 135*(3), 1209–1318.

Holter, H. A., D. Krueger, and S. Stepanchuk (2019). How do tax progressivity and household heterogeneity affect Laffer curves? *Quantitative Economics 10*(4), 1317–1356.

Holter, H. A., D. Krueger, and S. Stepanchuk (2023). Until the IRS do us part: (Optimal) taxation of households. *Working Paper*.

Imrohoroglu, A., C. Kumru, J. Jan, and A. Nakornthab (2023). Revisiting taxes on high incomes. *Review of Economic Dynamics 51*, 1159–1184.

Joint Committee on Taxation (2013). Modeling the distribution of taxes on business income. *JCX-14-13*.

Joint Committee on Taxation (2023). Estimating changes in the federal individual income tax: Description of the individual tax model for 2023. *JCX-48-23*.

Jones, C. I. (2022). Taxing top incomes in a world of ideas. *Journal of Political Economy 130*(9), 2227–2274.

Kaplow, L. (2024). Optimal income taxation. *Journal of Economic Literature 62*(2), 637–738.

Karabarbounis, M. (2016). A road map for efficiently taxing heterogeneous agents. *American Economic Journal: Macroeconomics 8*(2), 182–214.

Kawano, L., C. Weber, and A. Whitten (2009). Estimating the elasticity of broad income for high-income taxpayers. *Working Paper, Available at https://ssrn.com/abstract=2852048*.

Keane, M. P. (2022). Recent research on labor supply: Implications for tax and transfer policy. *Labour Economics 77*, 102026.

Keen, M. and J. Slemrod (2017). Optimal tax administration. *Journal of Public Economics 152*(C), 133–142.

Kindermann, F. and D. Krueger (2022). High marginal tax rates on the top 1 percent? Lessons from a lifecycle model with idiosyncratic income risk. *American Economic Journal: Macroeconomics 14*(2), 319–366.

Kleven, H. (2026). Externalities and the taxation of top earners. *NBER Working Paper 33345*.

Kleven, H. J. and E. A. Schultz (2014). Estimating taxable income responses using Danish tax reforms. *American Economic Journal: Economic Policy 6*(4), 271–301.

Kopczuk, W. (2005). Tax bases, tax rates and the elasticity of reported income. *Journal of Public Economics 89*(11-12), 2093–2119.

Kumar, A. and C.-Y. Liang (2020). Estimating taxable income responses with elasticity heterogeneity. *Journal of Public Economics 188*, 104209.

Leeper, E. M., T. B. Walker, and S.-C. S. Yang (2010). Government investment and fiscal stimulus. *Journal of Monetary Economics* (57), 1000–1012.

Lefebvre, M.-N., E. Lehmann, and M. Sicsic (2025). Estimating the Laffer tax rate on capital income: Cross-base responses matter! *Scandinavian Journal of Economics 127*(2), 460–489.

Lindsey, L. B. (1987). Individual taxpayer response to tax cuts: 1982–1984: With implications for the revenue maximizing tax rate. *Journal of Public Economics 33*, 173–206.

Liu, L. (2014, June). Income taxation and business incorporation: Evidence from the early twentieth century. *National Tax Journal 67*(2), 387–418.

Mankiw, G. N., M. Weinzierl, and D. Yagan (2009). Optimal taxation in theory and practice. *Journal of Economic Perspectives 23*(4), 147–174.

Mathur, A., S. Slavov, and M. Strain (2012). Should the top marginal income tax rate be 73 percent? *Tax Notes Nov. 19*, 905–915.

Mejia, J. (2026). Ramsey alignment and the postwar tax system. *Working Paper*.

Mertens, K. and J. L. M. Olea (2018). Marginal tax rates and income: New time series evidence. *Quarterly Journal of Economics 133*(4), 1803–1884.

Milanez, A. (2017). Legal tax liability, legal remittance responsibility and tax incidence: Three dimensions of business taxation. *OECD Taxation Working Papers, No. 32*.

Moore, R. and B. Pecoraro (2020a). Dynamic scoring: An assessment of fiscal closing assumptions. *Public Finance Review 48*(3), 340–353.

Moore, R. and B. Pecoraro (2020b). Macroeconomic implications of modeling the Internal Revenue Code in a heterogeneous-agent framework. *Economic Modelling 87*, 72–91.

Moore, R. and B. Pecoraro (2021). A tale of two bases: Progressive taxation of capital and labor income. *Public Finance Review 49*, 335–391.

Moore, R. and B. Pecoraro (2023). Quantitative analysis of a wealth tax for the United States: Exclusions and expenditures. *Journal of Macroeconomics 78.*

Morgavi, H. (2026). Are taxes too high? a machine-learning approach to Laffer curve estimation. *Public Sector Economics 59*(2), 287–319.

Neisser, C. (2021). The elasticity of taxable income: A meta-regression analysis. *Economic Journal 131*(640), 3365–3391.

Piketty, T., E. Saez, and S. Stantcheva (2014). Optimal taxation of top labor incomes: A tale of three elasticities. *American Economic Journal: Economic Policy 6*(1), 230–271.

Ramey, V. A. (2020). Economic consequences of infrastructure investment. *NBER Working Paper 27625*.

Rauh, J. and R. Shyu (2024). Behavioral responses to state income taxation of high earners: Evidence from California. *American Economic Journal: Economic Policy 16*(1), 34–86.

Saez, E. (2004). Reported incomes and marginal tax rates, 1960-2000: Evidence and policy implications. In J. Poterba (Ed.), *Tax Policy and the Economy, 18*, pp. 117–174. MIT Press.

Saez, E., J. Slemrod, and S. H. Giertz (2012). The elasticity of taxable income with respect to marginal tax rates: A critical review. *Journal of Economic Literature 50*(1), 3–50.

Sanz-Sanz, J. F. (2016). The Laffer curve in schedular multi-rate income taxes with non-genuine allowances: An application to Spain. *Economic Modelling 55*, 42–56.

Sanz-Sanz, J. F. (2022). A full-fledged analytical model for the Laffer curve in personal income taxation. *Economic Analysis and Policy 73*, 795–811.

Slemrod, J. and W. Kopczuk (2002). The optimal elasticity of taxable income. *Journal of Public Economics 84*(1), 91–112.

Splinter, D. (2019). Who pays no tax? the declining fraction paying income taxes and increasing tax progressivity. *Contemporary Economic Policy 37*(3), 413–426.

Splinter, D. (2020). U.S. tax progressivity and redistribution. *National Tax Journal 73*(4), 1005–1024.

Strulik, H. and T. Trimborn (2012). Laffer strikes again: Dynamic scoring of capital taxes. *European Economic Review 56*(6), 1180–1199.

Swonder, D. L. and D. Vergara (2025). A sufficient statistics approach to optimal corporate taxes. NBER working paper 34517.

Trabandt, M. and H. Uhlig (2011). The Laffer curve revisited. *Journal of Monetary Economics 58*(4), 305–327.

Uribe-Terán, C. (2021). Higher taxes at the top? The role of tax avoidance. *Journal of Economic Dynamics and Control 129*, 104–187.

Young, C., C. Varner, I. Z. Lurie, and R. Prisinzano (2016). Millionaire migration and taxation of the elite: Evidence from administrative data. *American Sociological Review 81*(3), 421–446.

Zodrow, G. R. and J. W. Diamond (2013). Dynamic overlapping generations computable general equilibrium model and the analysis of tax policy: The Diamond-Zodrow model. In P. B. Dixon and D. W. Jorgenson (Eds.), *Handbook of Computable General Equilibrium Modeling*, Volume 1A, Chapter 11, pp. 743–813. Elsevier.