Are Laffer Curves Flat?

Bridging Structural and Sufficient-Statistic Approaches

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Joint Committee on Taxation

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This research embodies work undertaken for the staff of the Joint Committee on Taxation, but as members of both parties and both houses of Congress comprise the Joint Committee on Taxation, this work should not be construed to represent the position of any member of the Committee. This work is integral to the Joint Committee on Taxation staff's work and its ability to model and estimate the macroeconomic effects of tax policy changes.

Top-Rate Changes in Federal Tax Policy

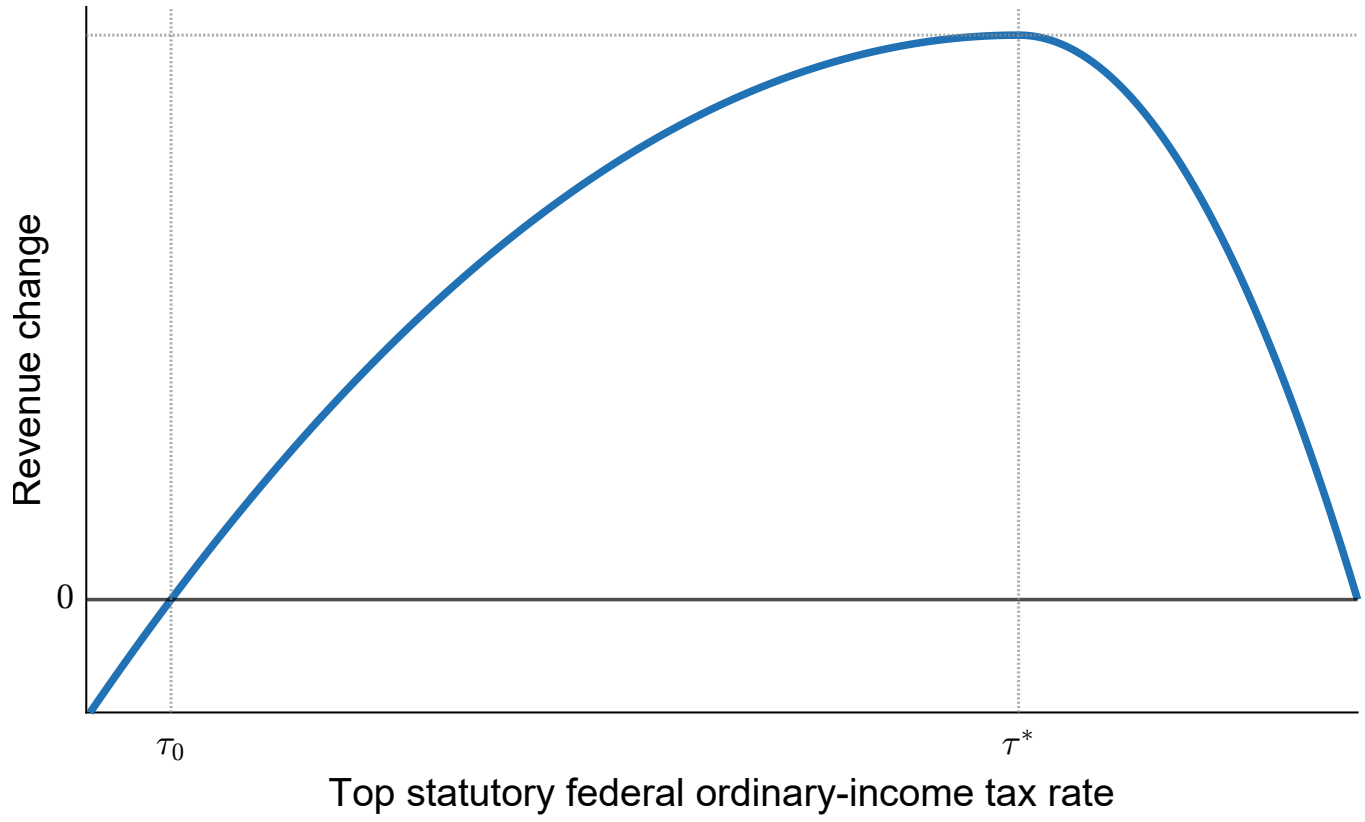
How does tax revenue respond to changes in the **top statutory federal ordinary-income tax rate?**

For this question, **positive analysis** traces revenue across top rates:

- Federal tax proposals consider **different top rates, with different budgetary effects**
- Evaluating alternative top rates requires knowing how revenue changes **across the range of possible rates**

Top-Rate Changes in Federal Tax Policy

How does tax revenue respond to changes in the **top statutory federal ordinary-income tax rate?**



τ^* shows **where revenue is maximized**...

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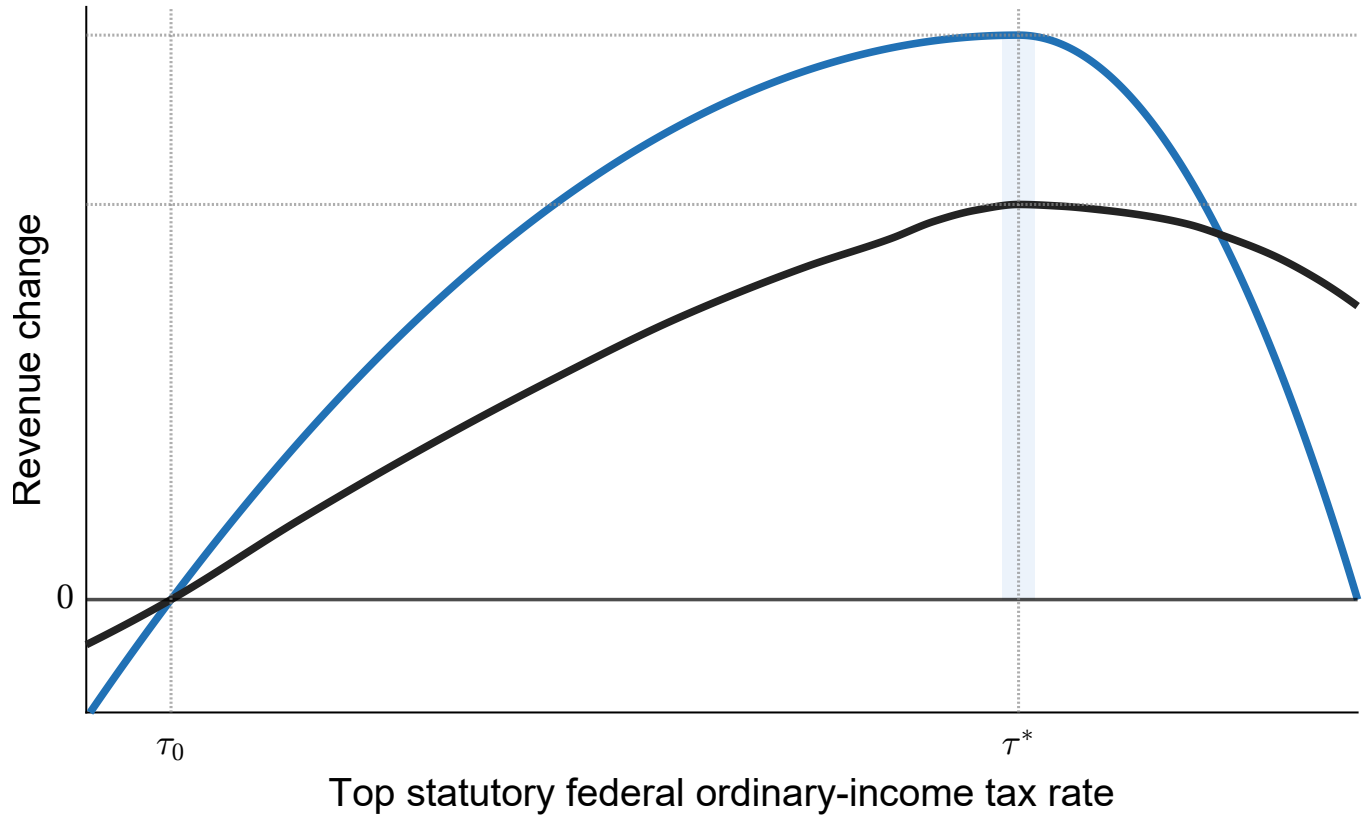

...but not **how much revenue can be raised**...

Top-Rate Changes in Federal Tax Policy

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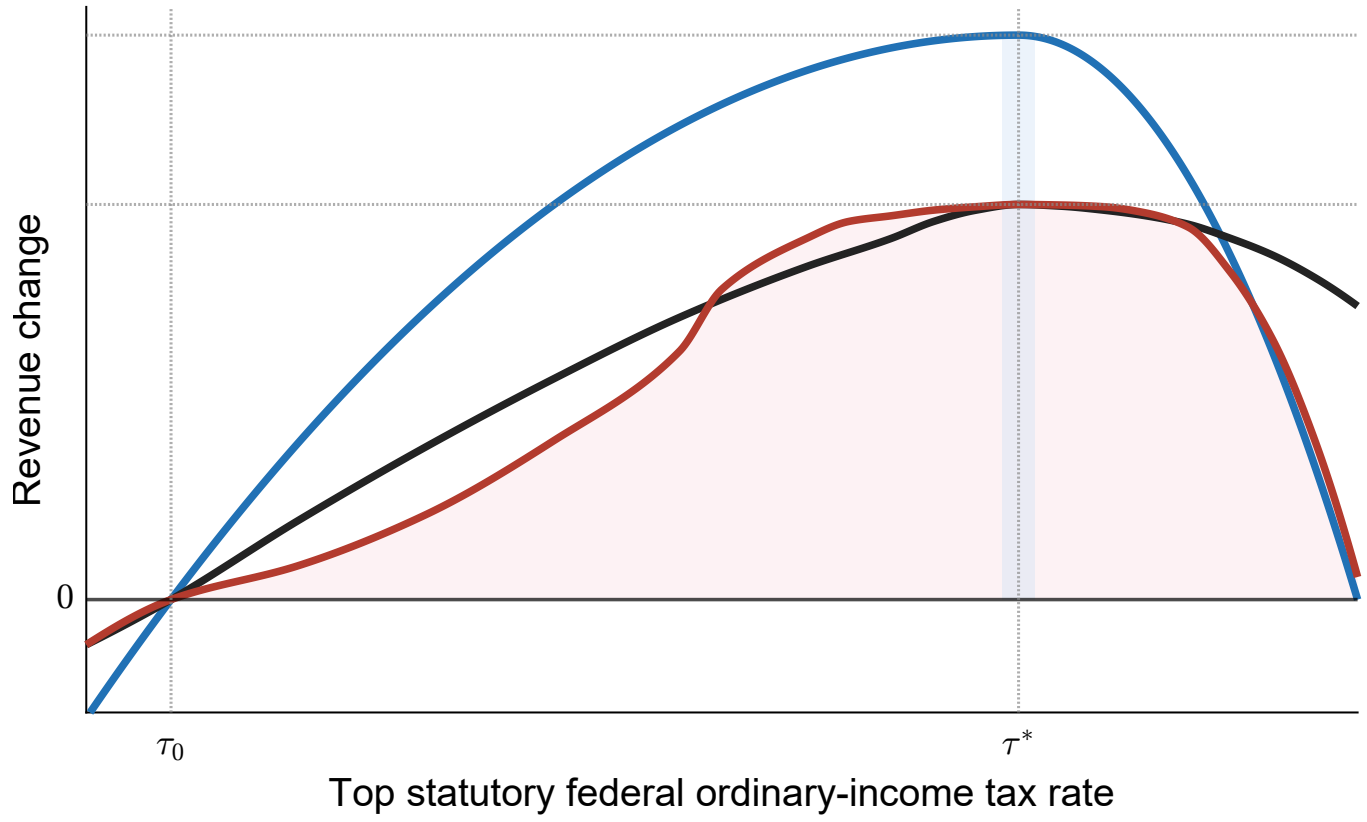


...or **how revenue changes over the range of rates.**

Top-Rate Changes in Federal Tax Policy

How does tax revenue respond to changes in the
top statutory federal ordinary-income tax rate?

For this question, a policy-relevant framework should be:

Criteria adapted from Diamond & Saez (2011)

1. **Empirically relevant:** Economic mechanisms and tax-system details relevant to the policy experiment
2. **Robust:** Conclusions that persist across modeling assumptions
3. **Implementable:** Policy variables that map to actual tax instruments

Existing Approaches: Limits to Policy Interpretation

1. **Sufficient-statistic frameworks:** Reduced-form formulas for τ^*
   - Benchmark uses **one taxable-income elasticity** (ETI)
   - Estimated ETIs may bundle an **unknown mix of behavioral responses**

   Benchmark: Saez (2001); Diamond & Saez (2011)

   Extensions: Piketty et al. (2014); Kleven (2026)

   Structural–Suff.-Stat. crosswalk: Badel & Huggett (2017); Badel et al. (2020)

2. **Structural macro models:** Trace out top-rate Laffer curves
   - Incorporate GE effects and other behavioral channels
   - Included behavioral channels and tax-system specification **differ across studies**

   Examples: Holter et al. (2019); Imrohoroglu et al. (2023); Uribe-Terán (2021)

   Broader Revenue Concepts and Flatness: Guner et al. (2016)

Existing Approaches: Limits to Policy Interpretation

1. **Sufficient-statistic frameworks:** Reduced-form formulas for τ^*
   - Benchmark typically collapses tax system to one base and "all-in" top rate— **not any statutory top rate/base**

2. **Structural macro models:** Trace out top-rate Laffer curves
   - Typically use **stylized tax functions** and **simplified income bases** deviating from actual top-rate exposure

Common Limitation: Standard implementations abstract from the top statutory federal rate and the income actually exposed to it

What We Do: A Policy-Relevant Top-Rate Framework

1. Use a **structural model** to estimate top-rate Laffer curves (Moore and Pecoraro 2023, 2021, 2020)
   - Incorporates detailed tax calculator that **explicitly models the actual top federal bracket** and tax base
   - **Within a single model**, compare against commonly-used alternative tax-system representations

2. Develop an **expanded sufficient-statistic framework**
   - Mapping to **actual federal top ordinary-income tax rate and full Laffer curve**
   - Use model-implied inputs to **transparently decompose** the estimated top-rate Laffer curve

Goal: Isolate and explain how common tax-system **simplifications alter estimated Laffer curves**

What We Find: Tax-System Representation Matters

1. **Structural model:** Realistic tax system $\rightarrow$ **flatter Laffer curve**
   - Smaller maximum revenue gain
   - Less revenue gain across the revenue-raising range
   - Conventional specifications misstate **federal top-rate income exposure**, exaggerating the resulting revenue response

2. **Expanded sufficient statistics:** Single ETI is **insufficient**
   - **Additional responses matter:** preferential income, base shifting, and other government revenues
   - Across preferred specifications for all federal revenue, **including these cross-responses reduces:**
     - Revenue-maximizing rate: About 54% $\rightarrow$ 47–52%
     - Maximum revenue gain: About \$100 billion $\rightarrow$ \$15–50 billion

Structural Model

Structural Model: Overview of OLG framework

Households

- Heterogeneous by age, labor productivity, marital status, and risk
- Endogenous consumption, saving, labor, residential decisions
- **Nonconvex budget sets**

Firms

- Representative firms for corporate and noncorporate sectors
- Finance operations with debt, equity, and retained earnings
- Generates **differential capital income**
- Endogenous investment, hiring, financing, and **sectoral allocation**

Government

- Taxes households and corporations / issues debt to finance outlays
- **Alternative tax-system representations** can be toggled

Two dimensions of the tax system can be varied within the model:
tax-base specification and **tax-liability calculation**

Structural Model: Tax System I - Tax Bases

Top-Rate Exposure by Tax-Base Specification

	Labor	Ordinary capital	Preferential capital
Conventional specifications			
Broad base	✓	✓	wrongly included
Narrow base	✓	wrongly excluded	×
Preferred specification			
True base	✓	✓	×

✓ = correctly included in top-rate-exposed base
× = correctly excluded from top-rate-exposed base

Ordinary capital: interest, noncorporate business income, nonqualified dividends, and short-term capital gains

Preferential capital: qualified dividends and long-term capital gains

Structural Model: Tax System II - Tax Liabilities

Conventional Specifications

Broad/Narrow Base + Tax Function

Smooth, reduced-form tax calculation

$$T(y) = y - \lambda_1 y^{1-\lambda_2}, \quad y \leq b$$
$$T'(y) = \tau, \quad y > b$$

- Two parameters calibrated to average and marginal tax rates
- Narrow base taxes capital separately at a proportional rate

VS.

Preferred Specification

True Base + Tax Calculator

Detailed statutory tax calculation

$$T = \mathcal{T}\left(\begin{smallmatrix} y, \text{choices,} \\ \text{characteristics} \end{smallmatrix}\right)$$

- Explicit brackets, deductions, credits, and surtaxes
- Taxes vary with income composition & household choices

Structural Model: Validating Top-Rate Exposure

Untargeted Moments - True Base

	Model	Tax Data
Tax units exposed to 37% rate	0.76%	0.72%
Top-rate-exposed ordinary income	$1.12T	$1.22T
Share of ordinary taxable income exposed	10.9%	11.7%
Ordinary share of top capital income	50%	49%

Notes: Exposure moments use 2022 IRS SOI; ordinary share computed from JCT Individual Tax Model.

Broad and narrow specifications match broad distributional tax patterns, but not the statutory tax-base structure

Structural Model: Policy Experiment

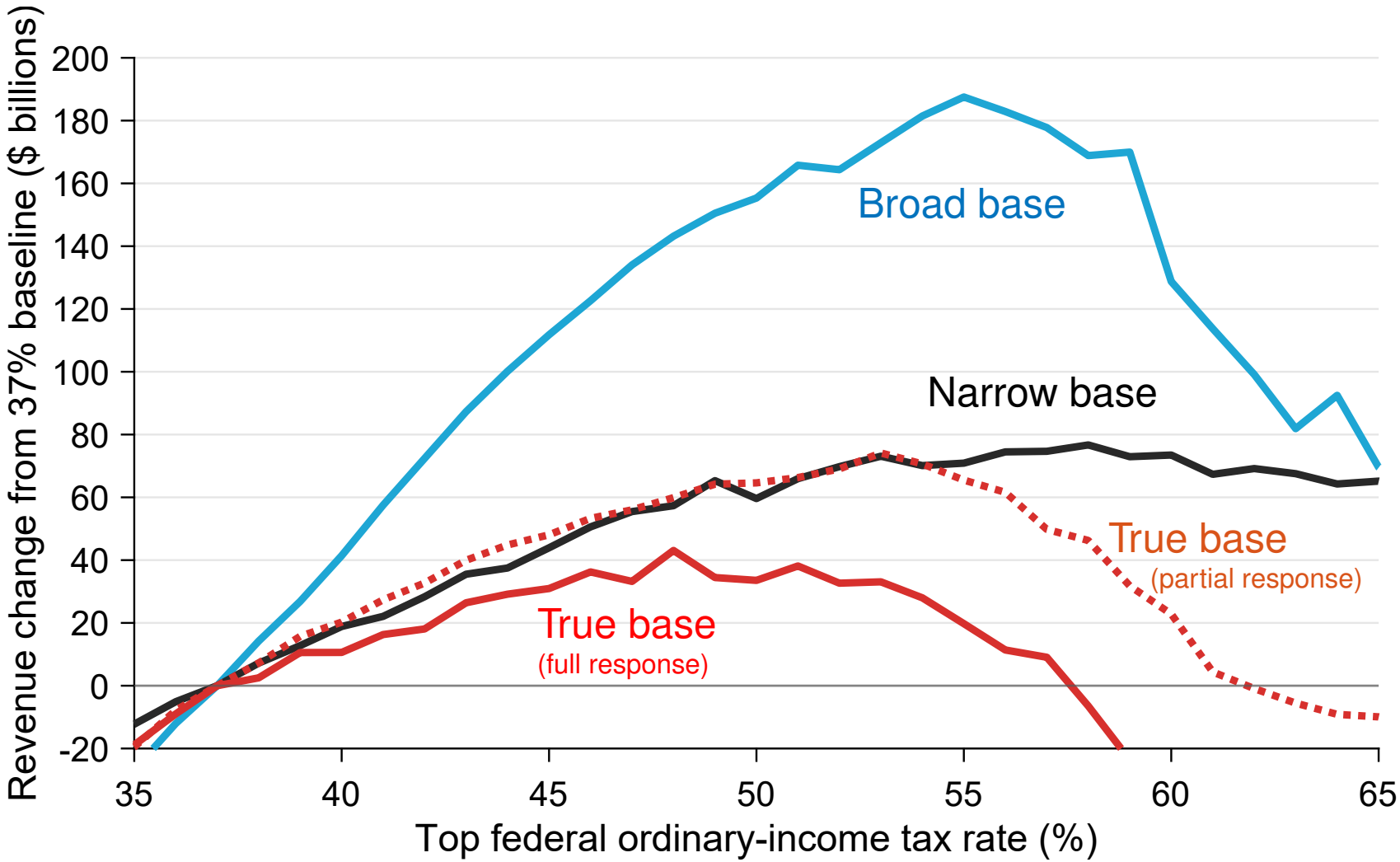
Starting from 2022 federal tax law:

- Vary the **top statutory federal ordinary-income tax rate** from its 37% baseline in **1 p.p. intervals**
- Hold **top-bracket thresholds** and all other **statutory tax provisions fixed**
- Compute the resulting **long-run steady state** at each rate under the preferred specification and two conventional specifications
- Express Laffer curves in **increasingly broad revenue concepts**

Preferred true-base firm-response sensitivity range:

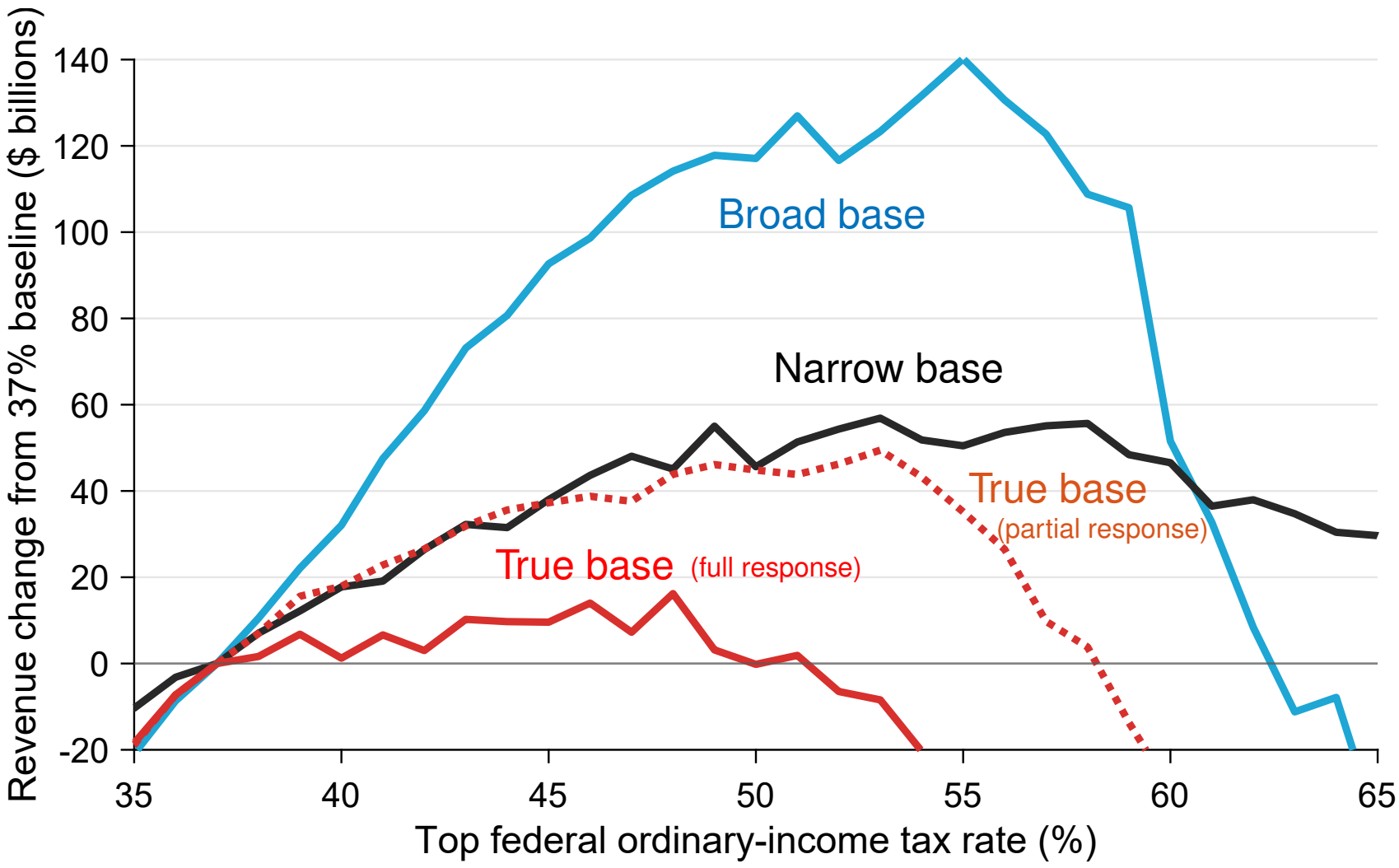
Partial-firm response	**Full-firm response**
Tax rates entering firms' decisions remain fixed	Firms internalize owners' taxes, allowing sectoral reallocation

Structural Laffer Curves: Fed. Individual Income Tax Revenue



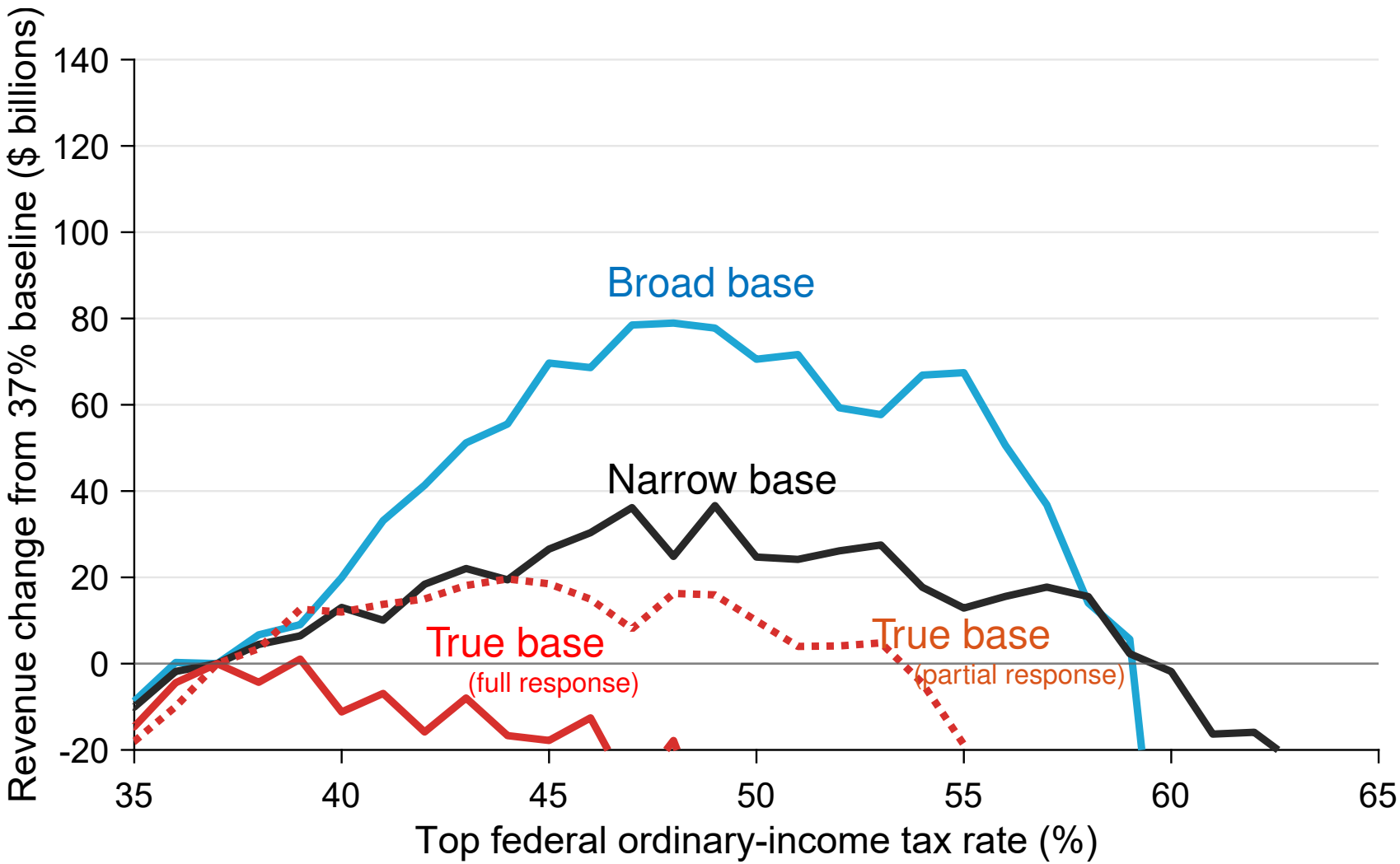
Full-firm responses further limit revenue gains

Structural Laffer Curves: All Federal Revenue



Other federal tax interactions shift every Laffer curve downward

Structural Laffer Curves: All-Government Revenue



Higher federal top rates also reduce **state-local revenue**

Structural Model: Top-Rate Laffer Curve Summary

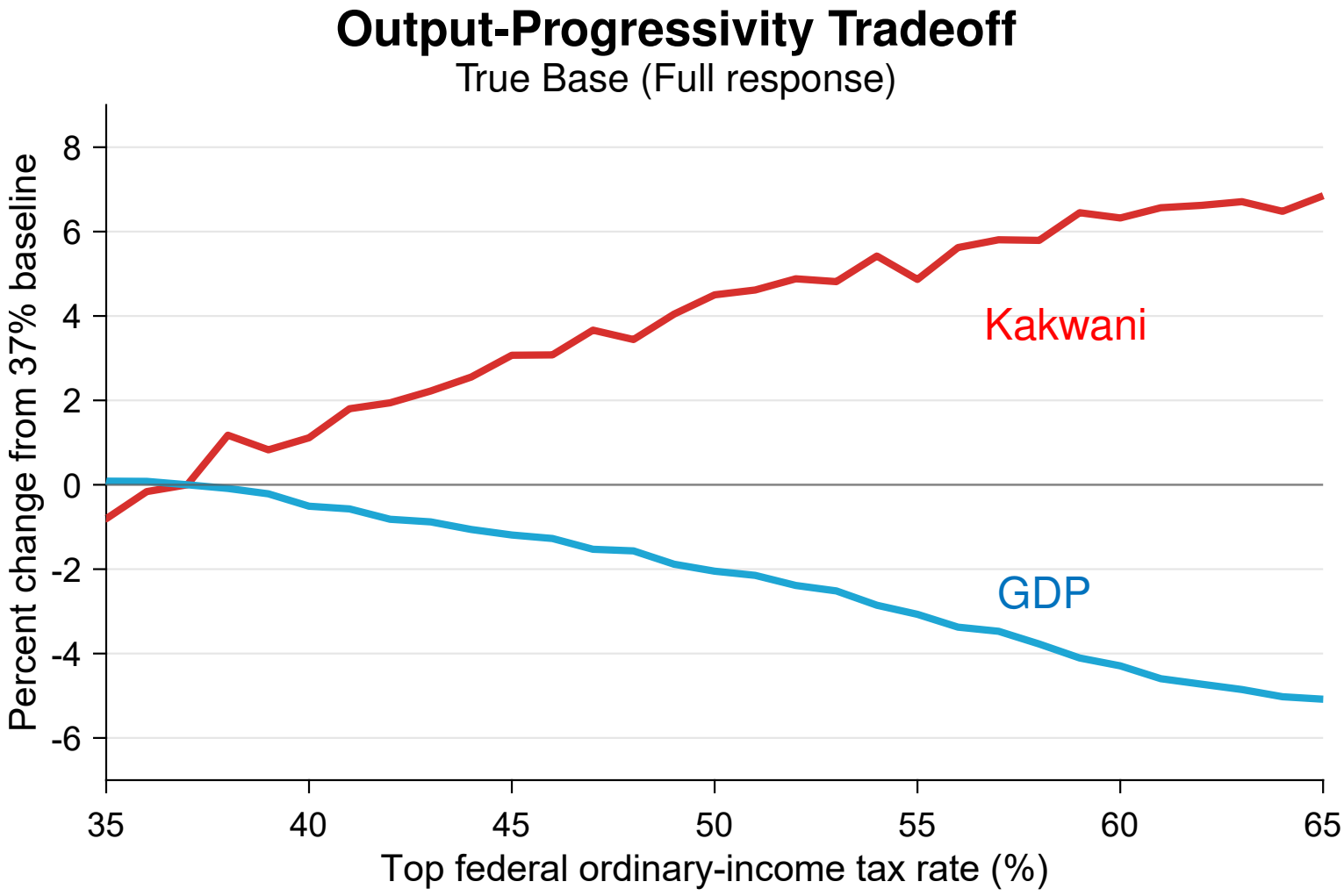
	All Federal Revenue			All-Government Revenue		
	Rev.-max. rate	**Peak gain ($bn)**	**Area**	**Rev.-max. rate**	**Peak gain ($bn)**	**Area**
Broad base	55%	140	326	48%	79	576
Narrow base	53%	57	201	49%	37	229
Preferred specification						
True base, partial response	53%	49	100	**44%**	**20**	**100**
True base, full response	48%	16	13	**39%**	**1**	≈ 0

Peak gain: increase in revenue at the revenue-maximizing rate

Area: positive revenue gains integrated over 37–80%, normalized within each revenue concept to true-base partial response $= 100$

Detailed fiscal accounting sharply reduces revenue potential

Structural Model: Implications of a Flat Laffer Curve



When revenue changes little with the top rate, higher rates primarily trade greater tax progressivity for lower output

Sufficient Statistics

Sufficient-Statistic Framework: Additional Response Margins

Benchmark

$$\tau^*_{\text{all}} = \frac{1}{1 + e_B}$$

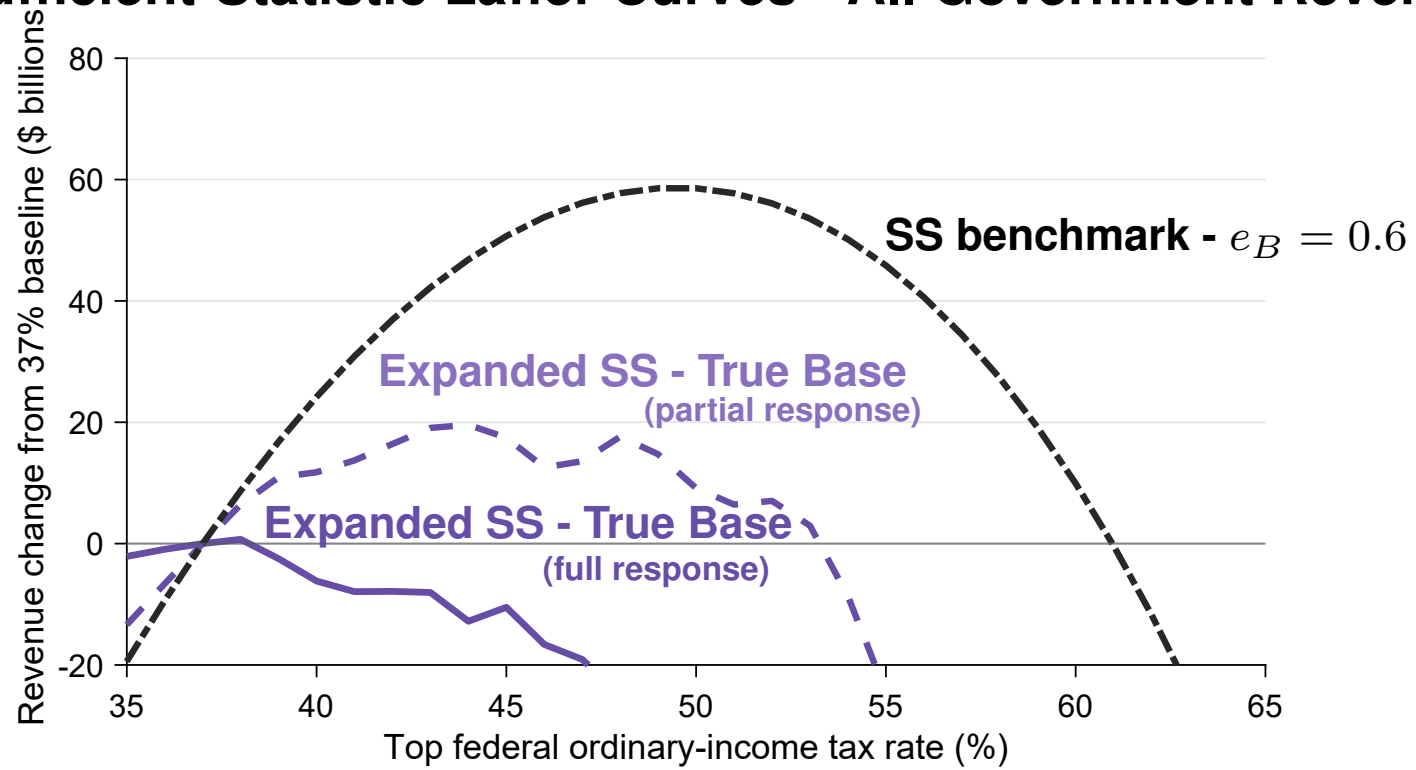
- Constant exposed-base (all-in) elasticity: e_B
- No fiscal externalities

Expanded framework

$$\tau^* = \frac{1 - \Phi(\tau^*)}{1 + e_o(\tau^*)}$$

- Exposed-base (federal) elasticity: $e_o(\tau^*)$
- Additional cross-responses: $\Phi(\tau^*)$

Sufficient-Statistic Laffer Curves - All Government Revenue



$(\tau_{\text{all}} \approx \tau + 0.13)$

Sufficient-Statistic Framework: Revenue Accounting

All-Government Revenue:

$$T(\tau) = \underbrace{T_o}_{\substack{\text{inframarginal} \\ \text{top revenue}}} + \underbrace{\tau \overline{B}_o(\tau, \bar{\chi})}_{\text{top ordinary}} + \underbrace{\tau_p B_p(\tau, \bar{\chi})}_{\text{top preferential}} + \underbrace{T_{\text{fed}}(\tau)}_{\text{other federal}} + \underbrace{T_{\text{sl}}(\tau)}_{\text{state-local}}$$

$\bar{\chi}$: ordinary share of potentially-exposed top capital income

Revenue Derivative:

$$T'(\tau) = \underbrace{\overline{B}_o}_{\text{mechanical}} + \underbrace{\tau \left.\frac{\partial \overline{B}_o}{\partial \tau}\right|_{\bar{\chi}}}_{\text{ordinary-base response}} + \underbrace{\tau_p \left.\frac{\partial B_p}{\partial \tau}\right|_{\bar{\chi}}}_{\text{preferential-base response}}$$

$$+ \underbrace{\left(\tau \frac{\partial \overline{B}_o}{\partial \bar{\chi}} + \tau_p \frac{\partial B_p}{\partial \bar{\chi}}\right) \bar{\chi}'}_{\text{shifting between bases}} + \underbrace{T'_{\text{fed}}}_{\text{other federal}} + \underbrace{T'_{\text{sl}}}_{\text{state-local}}$$

Sufficient-Statistic Framework: Defining Sufficient Statistics

Map each revenue margin into a sufficient-statistic object:

$$T'(\tau) = \overline{B}_o \left[1 - \frac{1}{1-\tau} \left(\underbrace{\tau e_o}_{\text{ordinary}} + \underbrace{t_p \varepsilon_p}_{\text{preferential}} + \underbrace{t_\chi \varepsilon_\chi}_{\text{shifting}} + \underbrace{t_{\text{fed}} \varepsilon_{\text{fed}}}_{\text{other federal}} + \underbrace{t_{\text{sl}} \varepsilon_{\text{sl}}}_{\text{state-local}} \right) \right]$$

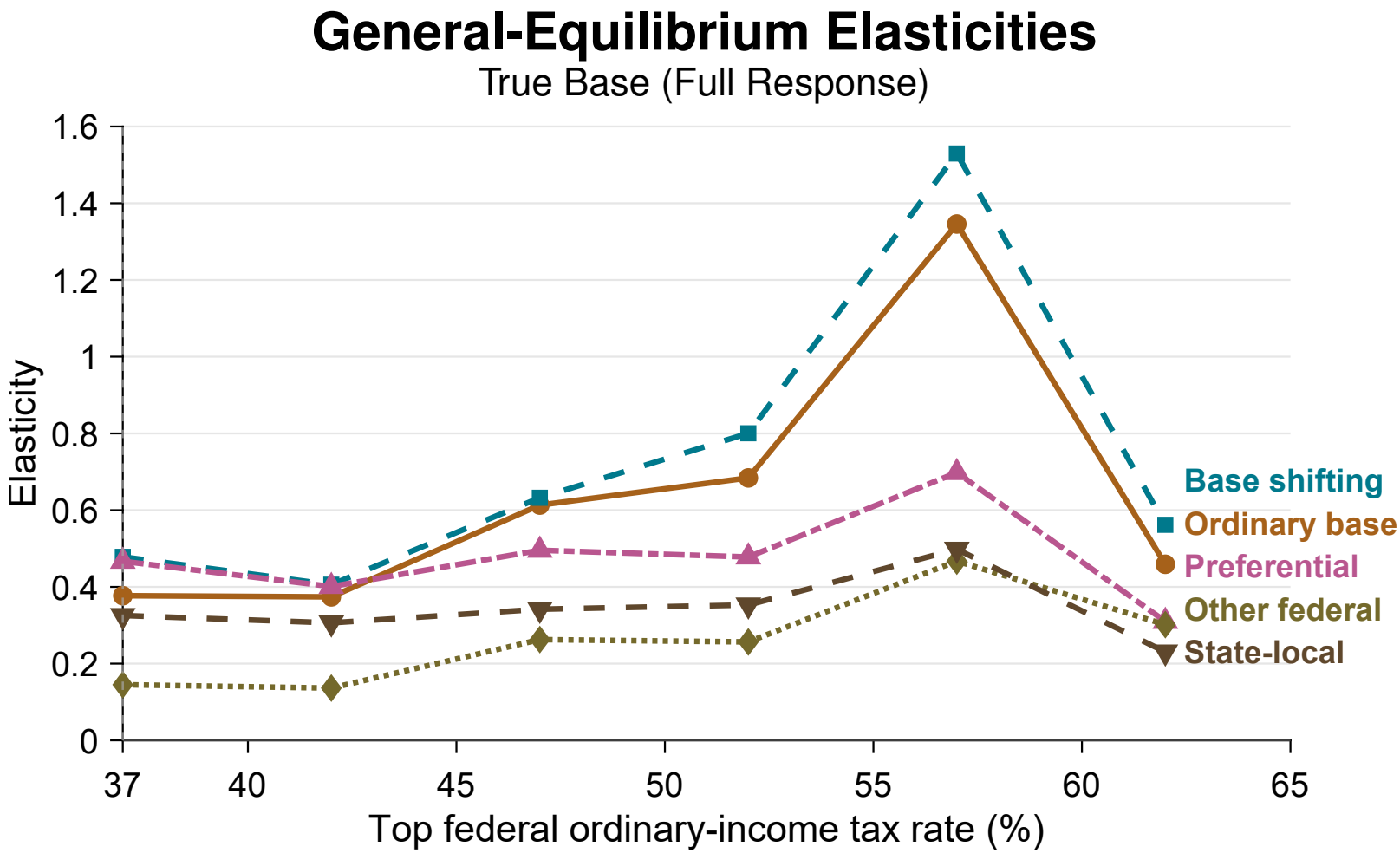
Each sufficient-statistic object is dependent on the top rate, τ

- **Behavioral responses:** Net-of-tax-rate elasticity (e) or cross-elasticity (ε)
- **Scale factors:** Constructed so that product ($t\varepsilon$) reproduces raw derivative term

Additional-response wedge is then:

$$\Phi(\tau) \equiv t_p(\tau)\varepsilon_p(\tau) + t_\chi(\tau)\varepsilon_\chi(\tau) + t_{\text{fed}}(\tau)\varepsilon_{\text{fed}}(\tau) + t_{\text{sl}}(\tau)\varepsilon_{\text{sl}}(\tau)$$

Sufficient-Statistic Framework: Rate-Dependent Elasticities



Sufficient-statistic objects **cannot be treated as constants**

Sufficient-Statistic Framework: Obtaining the Laffer Curve

Start with revenue derivative in sufficient-statistic form:

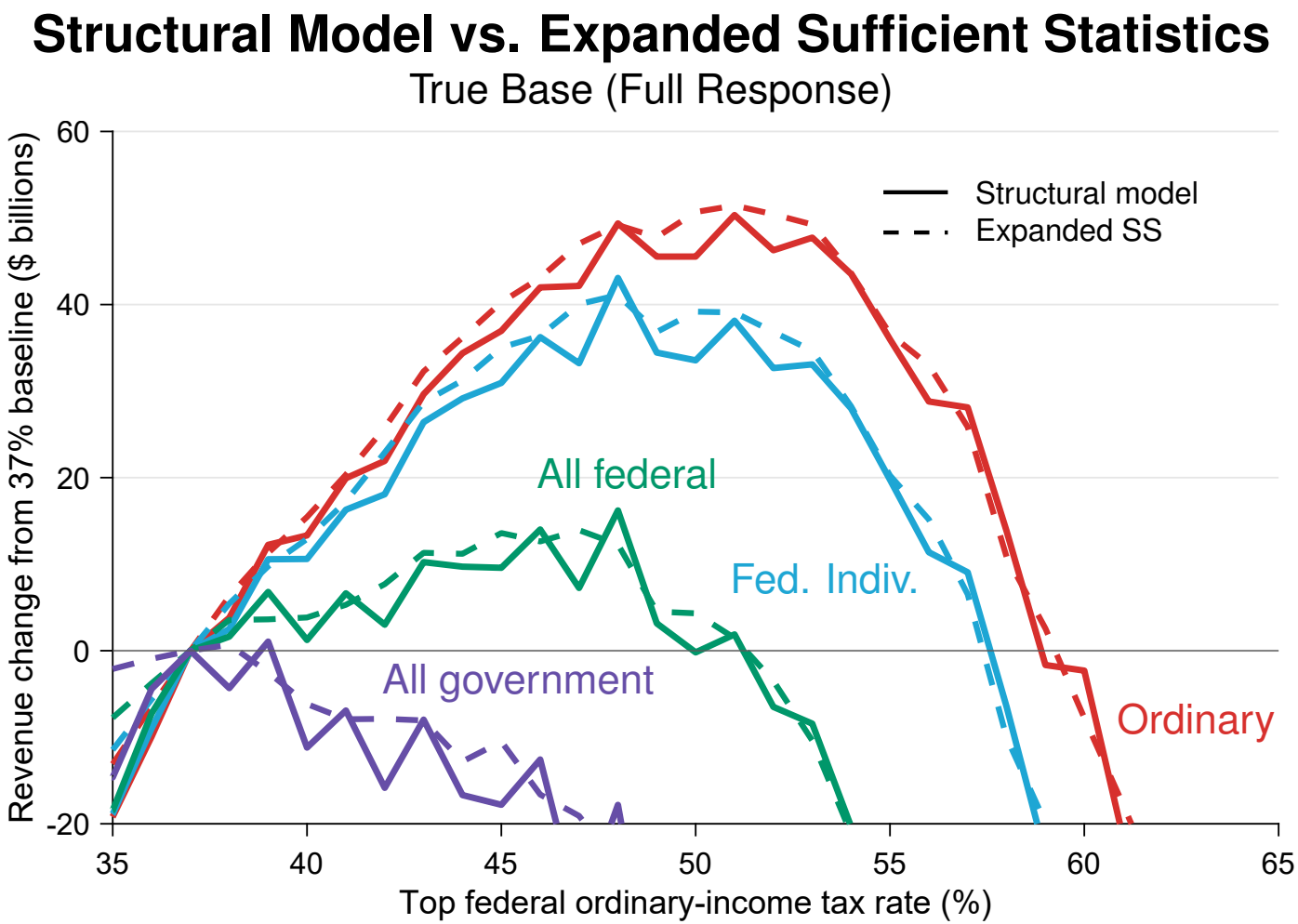
$$T'(\tau) = \overline{B}_o \left[1 - \frac{1}{1-\tau} \left(\underbrace{\tau e_o}_{\text{ordinary}} + \underbrace{t_p \varepsilon_p}_{\text{preferential}} + \underbrace{t_\chi \varepsilon_\chi}_{\text{shifting}} + \underbrace{t_{\text{fed}} \varepsilon_{\text{fed}}}_{\text{other federal}} + \underbrace{t_{\text{sl}} \varepsilon_{\text{sl}}}_{\text{state-local}} \right) \right]$$

To recover Laffer curve:

- **Integrate** from baseline top rate $\tau_0 \to \tau$
- **Net out** baseline tax revenue:

$$T(\tau) - T(\tau_0) = \int_{\tau_0}^{\tau} \overline{B}_o(v) \left[1 - \frac{1}{1-v} \left(v e_o(v) + \sum_{m \in \{p, \chi, \text{fed}, \text{sl}\}} t_m(v) \varepsilon_m(v) \right) \right] dv$$

Sufficient-Statistic Framework: Laffer Curve



Correctly-specified **sufficient-statistic representation matches structural Laffer curves**

Sufficient-Statistic Framework: Revenue-Maximizing Rate

Start with revenue derivative in sufficient-statistic form:

$$T'(\tau) = \overline{B}_o \left[1 - \frac{1}{1-\tau} \left(\underbrace{\tau e_o}_{\text{ordinary}} + \underbrace{t_p \varepsilon_p}_{\text{preferential}} + \underbrace{t_\chi \varepsilon_\chi}_{\text{shifting}} + \underbrace{t_{\text{fed}} \varepsilon_{\text{fed}}}_{\text{other federal}} + \underbrace{t_{\text{sl}} \varepsilon_{\text{sl}}}_{\text{state-local}} \right) \right]$$

To obtain rev.-max top rate, set $T'(\tau^*) = 0$ and solve for τ^*:

$$\tau^* = \frac{1 - t_p(\tau^*)\varepsilon_p(\tau^*) - t_\chi(\tau^*)\varepsilon_\chi(\tau^*) - t_{\text{fed}}(\tau^*)\varepsilon_{\text{fed}}(\tau^*) - t_{\text{sl}}(\tau^*)\varepsilon_{\text{sl}}(\tau^*)}{1 + e_o(\tau^*)}$$

Standard benchmark is recovered under a single-base, all-in-rate collapse

$$\underbrace{t_m(\tau)\varepsilon_m(\tau) = 0 \; \forall m,}_{\substack{\text{shut down} \\ \text{additional margins}}} \qquad \underbrace{(\tau, \overline{B}_o, e_o) \longrightarrow (\tau_{\text{all}}, \overline{B}, e_B),}_{\substack{\text{single base and} \\ \text{all-in rate}}} \qquad \underbrace{e_B = ae}_{\substack{\text{benchmark} \\ \text{all-in elasticity}}}$$

$$\tau^*_{\text{all}} = \frac{1}{1 + e_B} = \frac{1}{1 + ae}$$

Sufficient-Statistic Framework: Decomposition of τ^*

From Single-Base Benchmark to Expanded Sufficient Statistics

True Base (Full Response)

Component	All federal	All government
Benchmark single-base elasticity, $e_B = ae$	—	**0.60**
Benchmark single-base rev.-max. rate, τ^*	—	**50%** (63% all-in)
Expanded-SS exposed-base elast., $e_o(\tau^*)$	**0.63**	**0.44**

Benchmark

$$\tau^*_{\text{all}} = \frac{1}{1 + e_B}$$

Expanded framework

$$\tau^* = \frac{1 - \Phi(\tau^*)}{1 + e_o(\tau^*)}$$

Expanded-SS components are evaluated locally around each column's expanded-SS revenue-maximizing rate.

Sufficient-Statistic Framework: Decomposition of τ^*

From Single-Base Benchmark to Expanded Sufficient Statistics

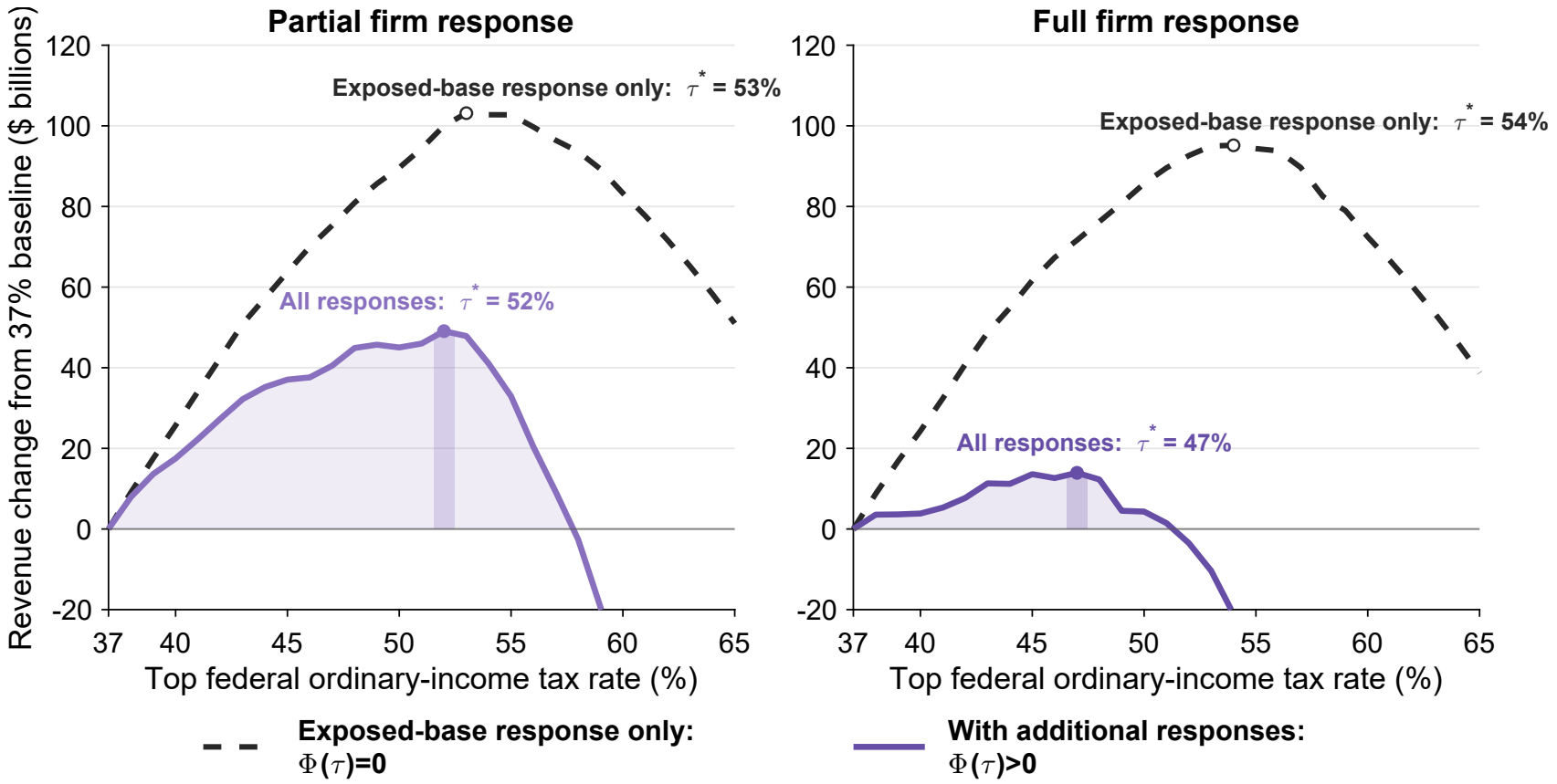
True Base (Full Response)

Component	All federal	All government
Benchmark single-base elasticity, $e_B = ae$	—	**0.60**
Benchmark single-base rev.-max. rate, τ^*	—	**50%** (63% all-in)
Expanded-SS exposed-base elast., $e_o(\tau^*)$	**0.63**	**0.44**
Additional revenue-response margins		
Preferential income, $t_p(\tau^*)\varepsilon_p(\tau^*)$	0.04	0.04
Base shifting, $t_\chi(\tau^*)\varepsilon_\chi(\tau^*)$	0.02	0.02
Other federal, $t_{\text{fed}}(\tau^*)\varepsilon_{\text{fed}}(\tau^*)$	0.18	0.25
State-local, $t_{\text{sl}}(\tau^*)\varepsilon_{\text{sl}}(\tau^*)$	—	0.15
Total additional-response wedge, $\Phi(\tau^*)$	**0.24**	**0.45**
Expanded-SS rev.-max. rate, τ^*	**47%**	**38%**
Structural-model rev.-max. rate, τ^*	**48%**	**39%**

Expanded-SS components are evaluated locally around each column's expanded-SS revenue-maximizing rate.

Sufficient-Statistic Framework: Effect of Additional Margins

Expanded SS Laffer Curves - All Federal Revenue



Across partial and full firm responses, additional margins reduce τ^* by **1–7 p.p.**, peak height by **52–85%**, and positive area by **69–94%**

Conclusion

1. **Tax-system representation matters for Laffer-curve shape**
   - Conventional specifications expose too much or too little income to the federal statutory top income tax rate

2. **Structural & sufficient-stat. approaches are complementary**
   - Rate-dependent, model-implied sufficient statistics reproduce the structural top-rate Laffer curve

3. **Higher top rates have limited federal revenue potential**
   - Relevant responses extend across tax bases, taxpayers, and broader federal fiscal effects
   - We do not consider other reforms – corporate tax rates, deductions, or preferential-income rates – that can also affect revenue from high-income households.

The policy-relevant object is the **Laffer curve's shape**—**not** only the **location of its peak**

Appendix Slides

Tax Provisions Explicitly Modeled in ITC

- Statutory Tax Schedules for Ordinary Income
- Statutory Tax Schedules for Preferential Capital Income
- Alternative Minimum Tax
- Standard Deduction
- Home Mortgage Interest Deduction
- Charitable Giving Deduction
- State & Local Tax Deductions
- Qualified Business Income Deduction
- Child Tax Credit
- Earned Income Tax Credit
- Dependent Care Tax Credit
- Premium Tax Credit
- OASDI and Medicare Tax
- Net Investment Income Tax
- Additional Medicare Tax