

Fiscal Inaction as Monetary Support

Bonus: M-F Interactions in RANK vs HANK

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Main Question

Q: What fiscal framework stabilizes economy, supports CB's objectives?

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 - robust / based on empirically disciplined non-Ricardian effects

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- **Aside:** ε_t irrelevant in RANK, inflationary in HANK (especially with low τ_d)

Roadmap

- Baseline setup
 - OLG as a proxy for HANK; nests RANK as special case
- Parenthesis: **RANK**
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 - robust prediction with Ricardian hhs = **fiscal irrelevance**

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- **HANK** – positive analysis
 - **slow fiscal adjustment = powerful intertemp auto stabilizer**
 - stabilizes y , minimizes tax distortions
- HANK – normative analysis
 - when does CB prefers slow fiscal adjustment
- Quantitative evaluation (US)
 - significant gains from $\tau_d \approx 0$

Framework

- **AS:** a Phillips curve

$$\pi_t = \mathcal{P}(\{y_{t+k}\}) + u_t = \begin{cases} \kappa y_t + u_t & \text{some of the theory} \\ \text{standard or hybrid NKPC} & \text{quantitative} \end{cases}$$

$\Rightarrow$ deficits can be inflationary iff they drive c, y (or via tax distortions entering u)

- **AD:** perpetual youth OLG, with survival prob $\omega \in (0,1]$

simplifying assumptions: annuities; social fund; labor unions; no capital

$$c_t = \underbrace{(1 - \beta\omega)}_{\text{MPC}} \left(\underbrace{a_t}_{\text{assets}} + \underbrace{\mathbb{E}_t \left[\sum_{k=0}^{\infty} (\beta\omega)^k (y_{t+k} - t_{t+k}) \right]}_{\text{permanent income net of taxes}} \right) - \underbrace{\psi \mathbb{E}_t \left[\sum_{k=0}^{\infty} (\beta\omega)^k r_{t+k} \right]}_{= 0 \text{ with "neutral" MP}} - \sigma \tilde{e}_t$$

- $\omega = 1$ nests PIH / RANK
- $\omega < 1 \Rightarrow$ high MPC, high discounting; mimics borrowing constraints / HANK
- quantitative model: heterogeneity in wealth, MPCs

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- Add market clearing $\Rightarrow$ IKC; rewrite recursively $\Rightarrow$ a modified DIS

$$y_t = -\sigma r_t + y_{t+1} + \underbrace{\frac{(1-\beta\omega)(1-\omega)}{\omega} d_{t+1}}_{\text{wealth or liquidity effect}} - \sigma e_t$$

wealth or liquidity effect $\neq 0$ iff $\omega < 1$

Fiscal Policy

- Baseline: risk-free, one-period, real bonds (as in Barro etc)

- quantitative model: nominal and long-term debt

- Gov budget:

$$d_{t+1} = \beta^{-1}(d_t - s_t) \quad \text{w/} \quad s_t \equiv \text{tax}_t - \text{gov}_t - \frac{D^{ss}}{R^{ss} Y^{ss}} r_t$$

- plus no-Ponzi $\Rightarrow d_t = NPV(s_t)$

- **Fiscal Rule:**

$$s_t = \underbrace{\tau_y y_t}_{\text{automatic stabilizer}} + \underbrace{\tau_d d_t}_{\text{fiscal adjustment}}$$

τ_d : how fast taxes are hiked (or g is cut) in order to stabilize debt

Equilibrium

Definition. An equilibrium is a bounded path $\{r_t, y_t, \pi_t, d_t\}$ such that

- y_t satisfies IKC or DIS (consumer optimality + goods & asset market clearing)
- π_t satisfies Phillips curve (worker/firm optimality + labor market clearing)
- d_t satisfies gov's flow budget + FP rule (+ no-Ponzi)

How to think about MP:

- 4 variables, 3 equations $\Rightarrow$ CB chooses $\{r_t\}$, equilibrium maps $\{r_t\}$ to $\{y_t, \pi_t, d_t\}$

Caveats:

- CB instrument: real vs nominal rate
- Multiplicity: same $\{r_t\}$ consistent with multiple $\{y_t, \pi_t, d_t\}$
- Fiscal Dom: an “active” FP may necessitate a specific $\{r_t, y_t, \pi_t, d_t\}$, or else no equilibrium

Parenthesis: RANK fiscal dominance or fiscal irrelevance?

Angeletos, Lian, Wolf and Zhang (2026), "Monetary-Fiscal Interactions: A Reappraisal"

Deconstructing Fiscal Dominance in RANK

- $\pi = \Pi(y) \Rightarrow$ deficits inflation iff they stimulate hh spending
- Suppose $\omega = 1$ (RANK) and wlog let $\{r_t\} = 0$. Then:

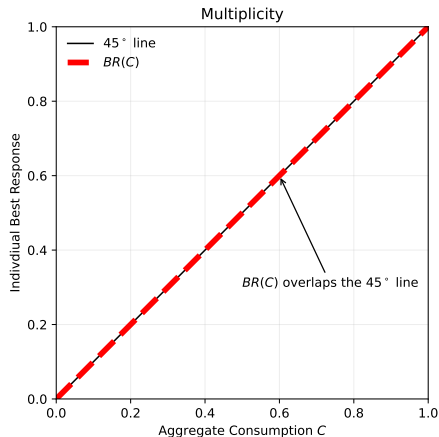
$$c_t = (1 - \beta) z_t + (1 - \beta) \mathbb{E}_t \sum_{k=0}^{\infty} \beta^k y_{t+k} \quad \text{with} \quad z_t \equiv \text{assets}_t - \mathbb{E}_t \sum_{k=0}^{\infty} \beta^k \text{taxes}_{t+k}$$

- In equilibrium, FP has no wealth effect (as in Barro):

$$\text{assets}_t = d_t = \mathbb{E}_t \sum_{k=0}^{\infty} \beta^k \text{taxes}_{t+k} \Rightarrow z_t = 0 \Rightarrow c_t = \underbrace{(1 - \beta) \mathbb{E}_t \sum_{k=0}^{\infty} \beta^k y_{t+k}}_{\text{permanent income}}$$

- Essence: fiscal deficits can matter only via **purely self-sustained fluctuations** in c, y
 - fiscal dominance = finance deficit, and support $\tau_d < 1 - \beta$, via a self-fulfilling boom
 - boom in c and resulting π substitute for missing tax adjustment

Multiplicity and FD in RANK



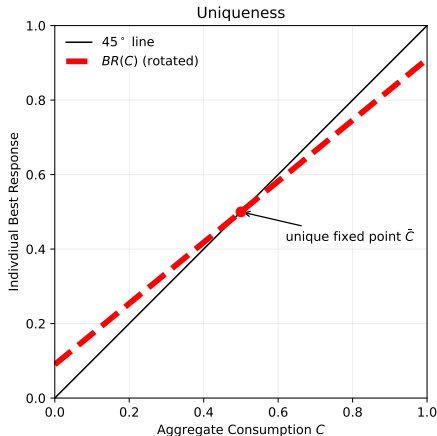
y demand-determined **always**
cumulative lifetime MPC = 1 } $\Rightarrow$ **continuum of equil**

$$y = c = y$$

$$\pi = \Pi(y)$$

- ✓ Different from Sargent & Wallace
 - real indeterminacy, not nominal
- ✓ Fiscal dominance leverages this mechanism
 - selects whatever point on the 45° line is necessary to substitute for missing tax adjustment

Refinement: flex-price outcomes at finite horizon



y is demand-determined **only up to** $H < \infty$
cumulative MPC up to H is now < 1 } $\Rightarrow$ **unique equil**

$$y = c = f(r)$$

$$\pi = \Pi(y)$$

- ✓ Ricardian equiv guaranteed
- ✓ Fiscal dominance impossible because
 - FP payoff irrelevant (no wealth/liquidity effect)
 - *infinitely-lasting* loops a fortiori arrested
- ✓ Monetary dominance even w/o Taylor principle

From RANK to HANK

- Similar consumption function, modulo $\beta \mapsto \beta\omega$

$$c_t = \underbrace{(1 - \beta\omega) z_t}_{\text{wealth effect}} + \underbrace{(1 - \beta\omega) \mathbb{E}_t \sum_{k=0}^{\infty} (\beta\omega)^k y_{t+k}}_{\text{permanent income}}$$

- But now $z_t \neq 0$ (insofar as $\omega < 1$)

$$z_t = \underbrace{\mathbb{E}_t \sum_{k=0}^{\infty} \beta^k \text{taxes}_{t+k}}_{\text{private assets, gov debt}} - \underbrace{\mathbb{E}_t \sum_{k=0}^{\infty} (\beta\omega)^k \text{taxes}_{t+k}}_{\text{effective tax liability}}$$

- Deficits stimulate c_t by shifting taxes to future gen's or easing liquidity

HANK

what fiscal framework best supports CB

Key Questions

Positive Q: how does τ_d shape business cycle holding MP fixed?

Normative Q: how does optimal $\{r^*, y^*, \pi^*\}$ and resulting loss $\mathcal{L}^{CB}$ vary with τ_d ?

- *Policy Problem.* Taking (τ_d, τ_y) given, the Central Bank solves

$$\mathcal{L}^{CB} = \mathbb{E}_{\text{shocks}} \left[\min_{\text{set of equilibria}} \sum_{t=0}^{\infty} \beta^t \{ \lambda_y y_t^2 + \lambda_{\pi} \pi_t^2 + \lambda_r r_t^2 \} \right]$$

- *real-world rationale for r^2 :* triple mandate; financial stability, uncertainty about shocks/model/transmission
- *role in theory:* CB cannot achieve full first-best with either demand or supply shocks

Positive: the effect of τ_d for given $\{r\}$

Lemma. $\exists$ a unique equil and is s.t.

$$y_t = \sum_{s=0}^{\infty} \mathcal{Y}_{t,s} (r_s + e_s), \quad (1)$$

where $\mathcal{Y}_{t,s}$ is date- t response to one-off, date-0 news about date- s demand shock or rate hike.

Proposition. Holding $\{r\}$ fixed, slower fiscal adj stabilizes output:

- 1 The IRF coefficients $\mathcal{Y}_{t,s}$ increase with lower τ_d for all t, s .
- 2 Cumulative $\sum_{h=0}^{\infty} \beta^h \mathcal{Y}_{h,s}$ is < 0 , but increases with lower τ_d and $\rightarrow 0$ as $\tau_d \rightarrow 0$.

- Powerful dynamic auto stabilizer: NPV(y) perfectly stabilized
- Flip side: slower fiscal adj reduces MP effectiveness

Illustration for a contractionary shock

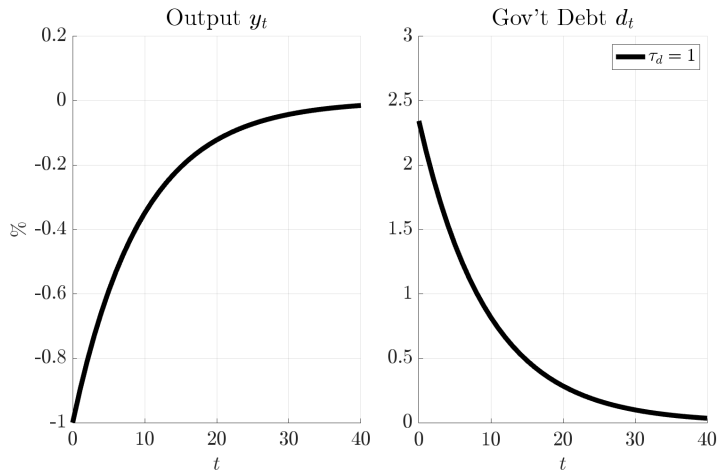
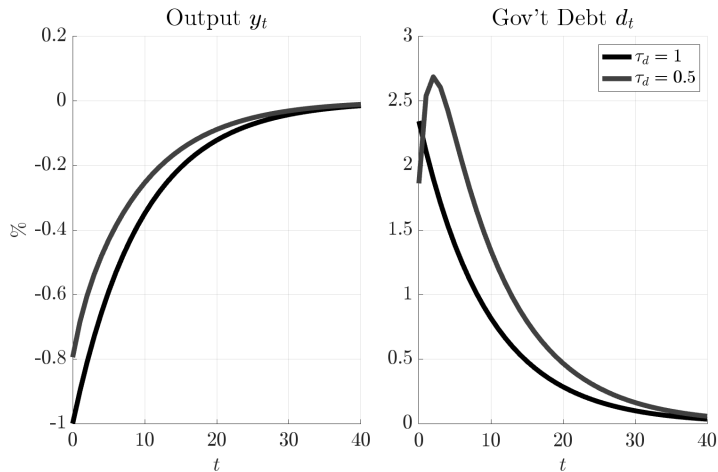
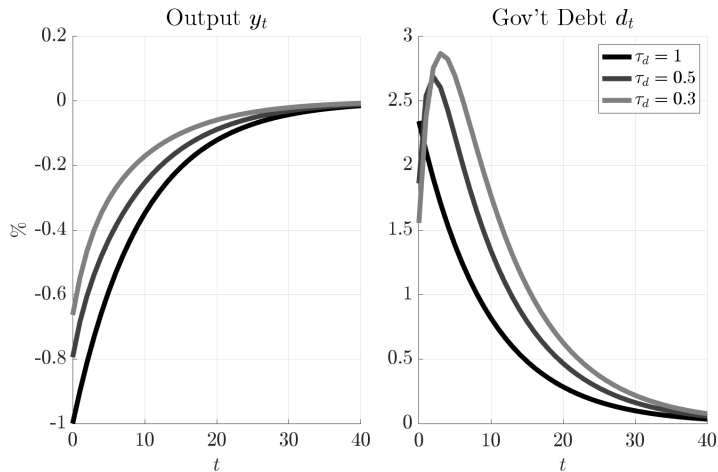


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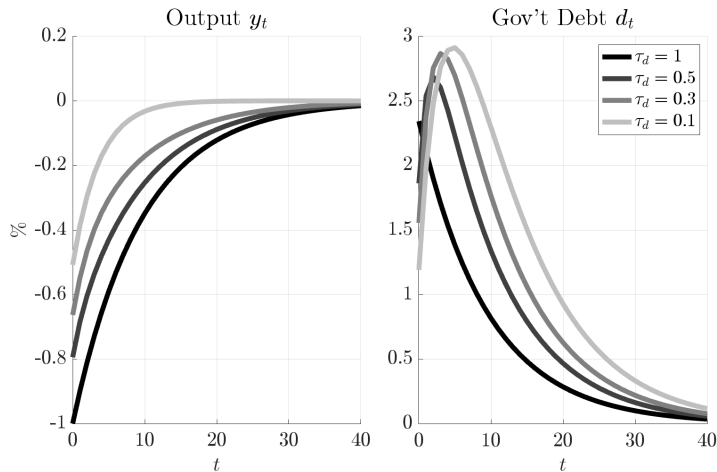
$\tau_d \downarrow \Rightarrow \left\{ \begin{array}{l} \text{postpone tax hikes} \\ \text{"forward guidance" about future private wealth/liquidity} \end{array} \right\} \Rightarrow y \uparrow$

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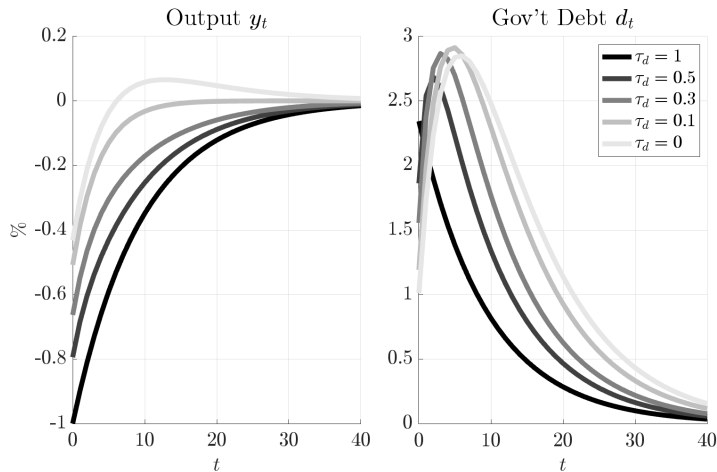
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Normative: effect of τ_d along optimal MP

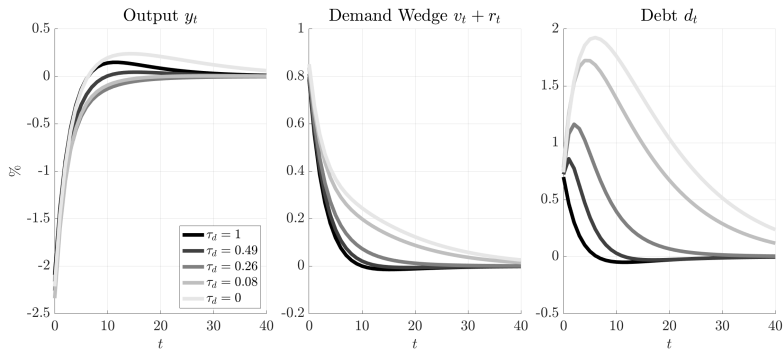
■ Strategy:

- use envelope to get $\frac{\partial \mathcal{L}_{CB}}{\partial \tau_d} = F\left(\{r^*, y^*, \pi^*\}; \left\{\frac{\partial \mathcal{Y}_{t,s}}{\partial \tau_d}\right\}\right)$
- use earlier result about $\frac{\partial \mathcal{Y}_{t,s}}{\partial \tau_d}$ plus properties of optimum to sign $\frac{\partial \mathcal{L}_{CB}}{\partial \tau_d}$
- proofs for simplified cases; logic more generally

■ Results (when tax adjustment is lump-sum)

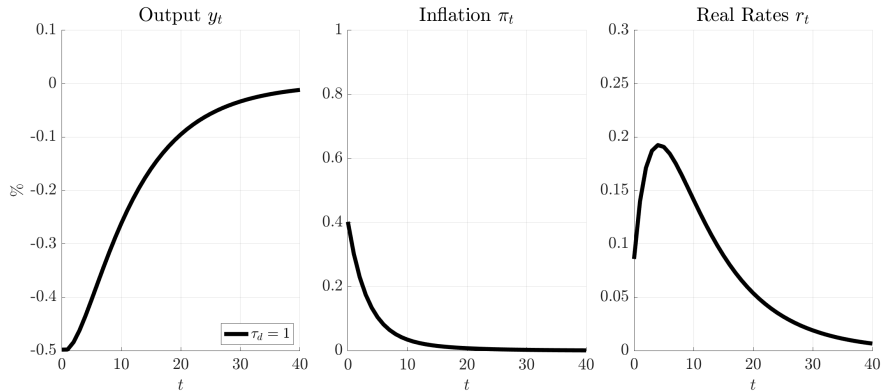
- 1 For **demand** shocks: best $\tau_d = 0$ or ≈ 0 [provided τ_y not too large]
- 2 For **supply** shocks: best $\tau_d = 1$ or ≈ 1

Demand Shocks: AR(1) example



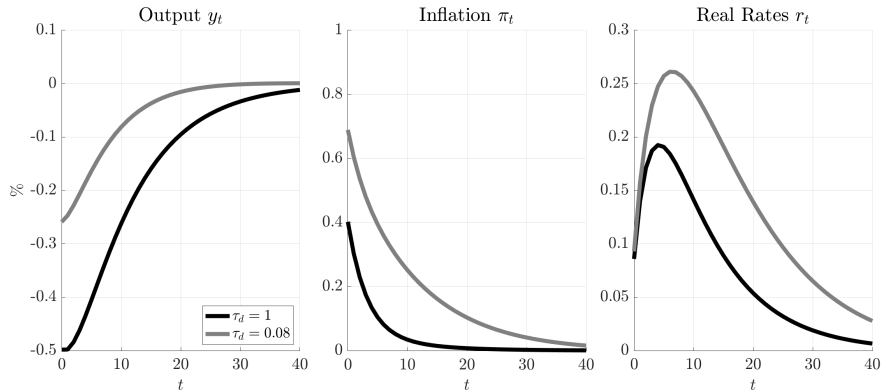
- CB stabilizes y via both concurrent cuts & forward guidance
- lower τ_d substitutes both roles $\Rightarrow$ *more* (y, π) stabilization with *less* MP action
 - in principle, “too much” dyn stabilization possible if $\tau_d = 0$ and τ_y too large

Supply Shocks



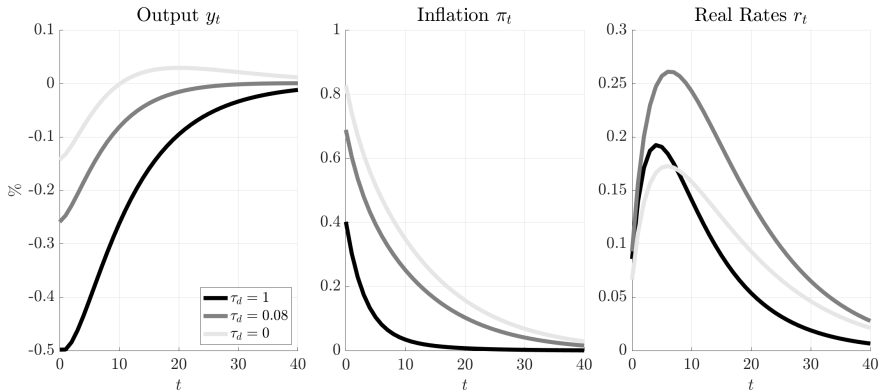
- CB leans against π pressures by hiking r and reducing y
- by stabilizing y , lower τ_d destabilizes π and may even “demoralize” the CB

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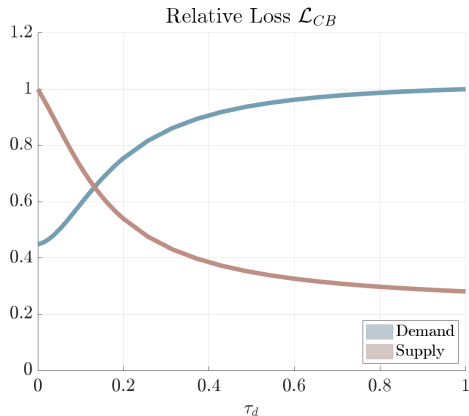
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$\mathcal{L}(\tau_d)$: Demand vs Supply Shocks



Takeaway: CB prefers $\tau_d = 0$ for AD shocks and $\tau_d = 1$ for AS shocks

Distortionary Fiscal Adjustment

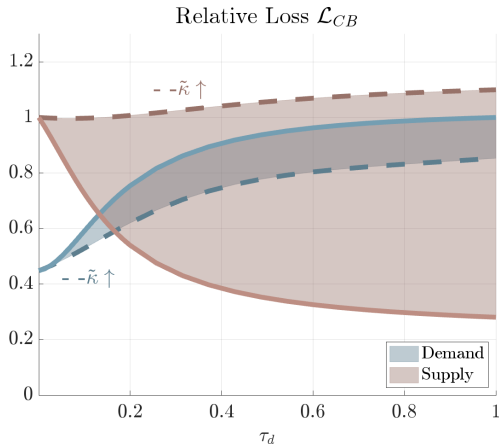
- So far: Lump-sum tax hikes $\Rightarrow \tau_d$ operated only via AD (IKC)

- Now: Distortionary $\Rightarrow \tau_d$ operates also via AS (Phillips curve)

$$\pi_t = \kappa y_t + \tilde{\kappa} \underbrace{\tau_d d_t}_{\text{tax hikes}} + u_t + \beta \mathbb{E}_t \pi_{t+1}$$

- In RANK and HANK alike: $\downarrow \tau_d$ helps smooth tax distortion
- Only in HANK: $\downarrow \tau_d \Rightarrow \downarrow NPV(\text{tax distortion}) \Rightarrow$ help stabilize π
- Tilts the balance in favor of low τ_d even with cost-push shocks

$\mathcal{L}(\tau_d)$ with distortionary fiscal adjustment



When distortions are large enough, CB prefers $\tau_d = 0$ for both shocks

Quantitative Evaluation

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- Use a mix of **theory** & **empirics** to arrive at two “sufficient statistics”
 - 1 Use richer model to get **macro causal effects** of interest rates & taxes
 - many hh types, hybrid NKPC, long-term nominal debt
 - disciplined by emp. evidence on iMPCs and Phillips curve
 - 2 Estimate **business cycle co-movements** in U.S. time series [= Wold representation]
- Map these two inputs into $\mathcal{L}(\tau_d)$.
 - use causal effects both to strip the old policies
 - recover non-policy shocks
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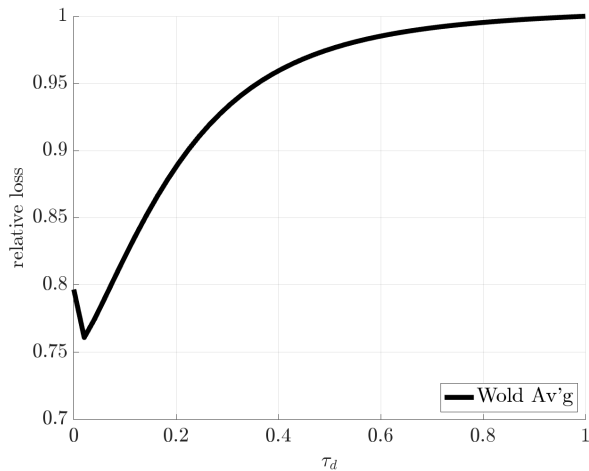
[see Caravello-McKay-Wolf, 2025]

Quantitative Evaluation

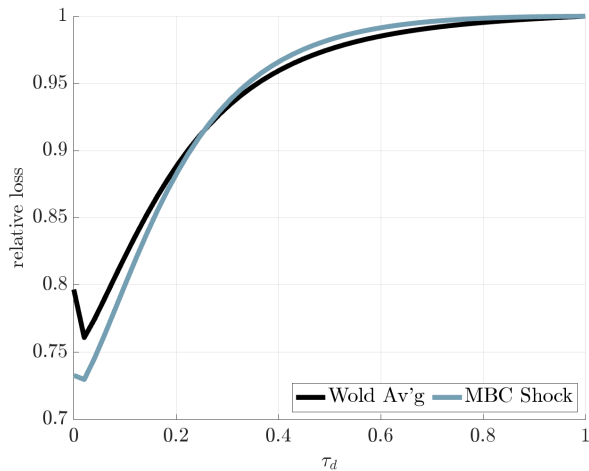
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[see Caravello-McKay-Wolf, 2025]
- Appeal: transparency — results ultimately driven by
 - strong, front-loaded spending response (high MPC)
 - “main business cycle shock” $\approx$ AD shock (Angeletos-Collard-Dellas, 2020)

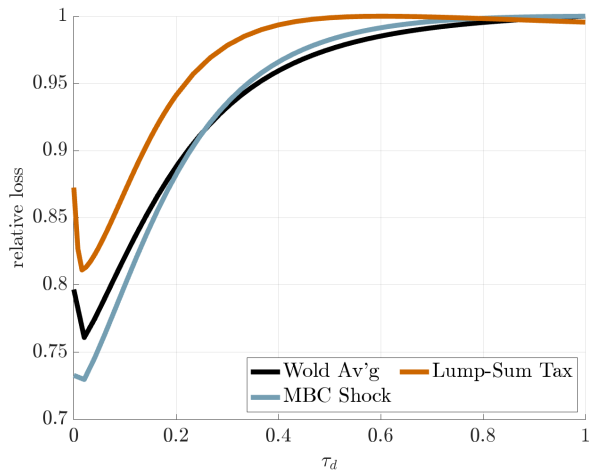
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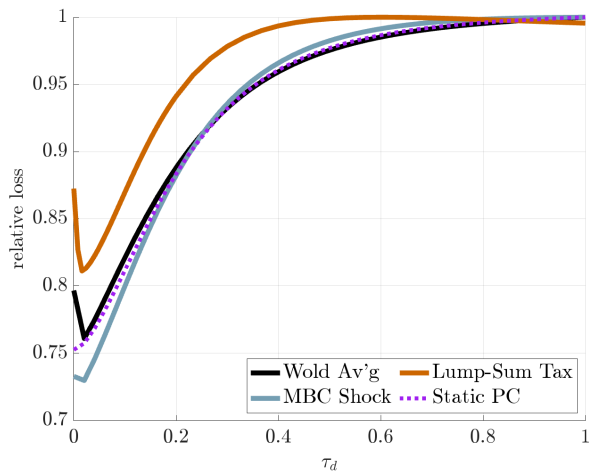
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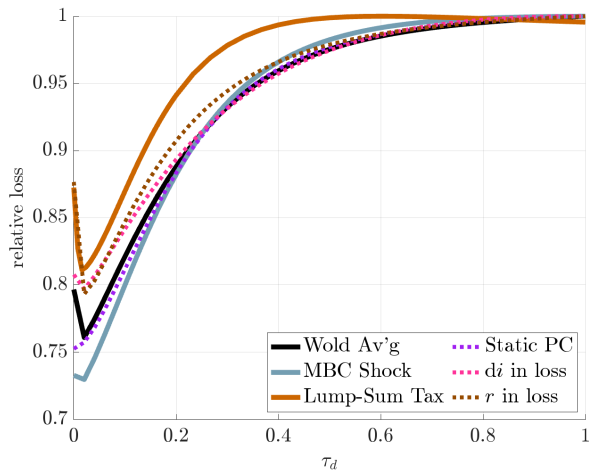
Quantitative evaluation



Quantitative evaluation



Quantitative evaluation



Conclusions [1/2]

Broader Methodological Points

Takeaway 1. “Right” foundations for M-F interactions within NK framework:

(i) non-Ricardian hhs (ii) refinement “LR is supply determined”

- *Combination* is what it takes for MP and FP to matter
 - only via “fundamental”, short-run effects, disciplined by micro evidence
 - and not via hard-to-test assumptions about “beliefs at infinity”

[Angeletos, Lian, Wolf & Zhang, 2026]

Conclusions [2/2]

(Robust) Implications of Non-Ricardian Behavior

- 1 Steepens Keynesian cross and changes PE-GE split
[Auclert, Straub & Rognlie, 2024; Kaplan, Moll & Violante, 2018; Werning, 2015; ...]
- 2 **Allows cyclical deficits to finance themselves — and austerity to backfire** [ALW 2024]
- 3 **Allows fiscal inaction over BC to support CB's dual mandate** [ALW 2026]
- 4 Informs gov's optimal supply of private liquidity over business cycle
[Aguiar, Amador & Arellano, 2024, 2025; Angeletos, Collard & Dellas, 2022; ...]
- 5 Liberates FTPL-like predictions from controversies – but also important differences
[ALW 2025; Rachel & Ravn, 2026]
- 6 Amplifies effects of bounded rationality, arrests power of FG [Angeletos, Guerreiro & Zhang, 2025; Angeletos & Lian, 2018; Auclert, Straub & Rognlie, 2020, 2026; Farhi & Werning, 2019;...]
- 7 Changes quantity-vs-price effects of global shocks [Lian, Mukhin, Wolf, 2026]

Takeaway 2. For some Qs, Non-Ricardian channel more crucial than “H” in HANK

Thank You!