Fiscal Drivers of r^*

Ludwig Straub Harvard

AMEC Symposium, Federal Reserve Bank of NY, March 2025

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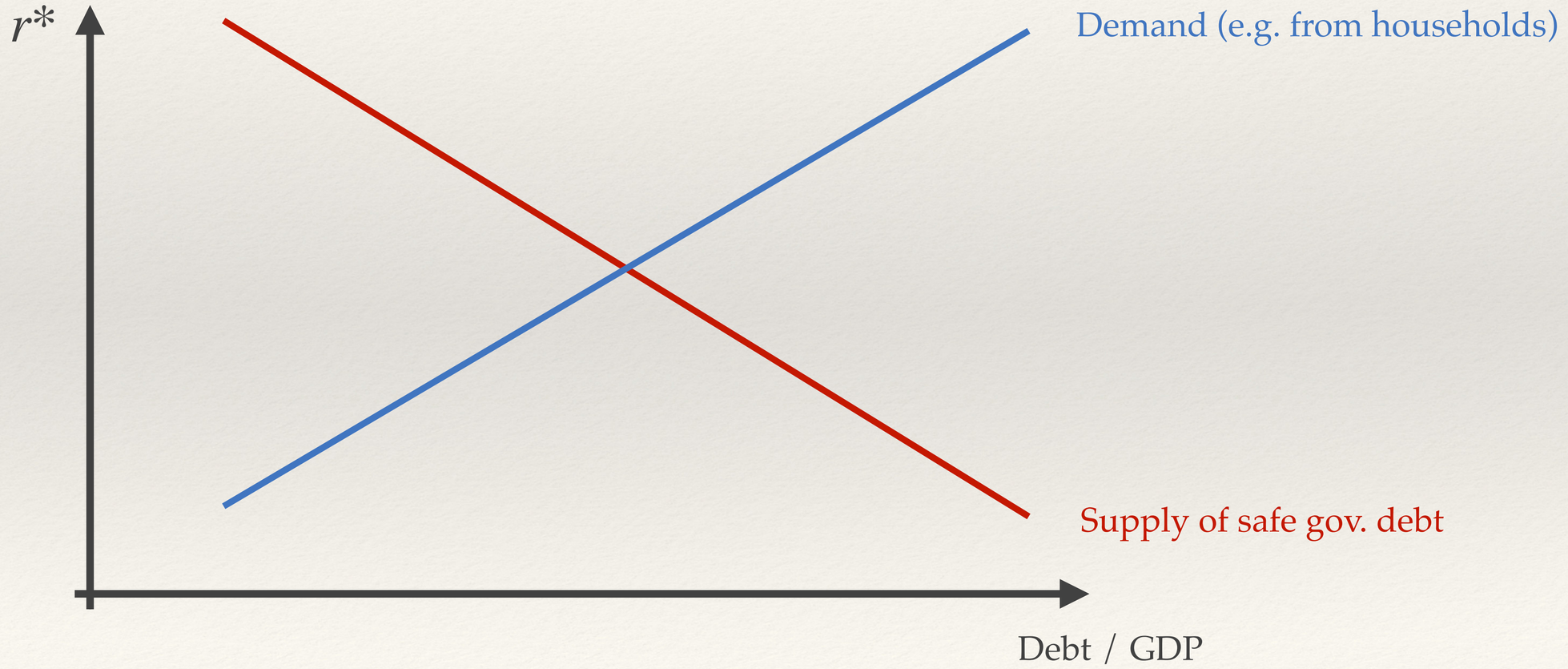
- Ricardian equivalence: transfers & debt don't matter

- Next: explore **role of fiscal policy in driving** *r**
  - long run
  - short to medium run

Fiscal policy and r* in the long run

- In long run, best way to think about *r** is via safe asset demand and supply



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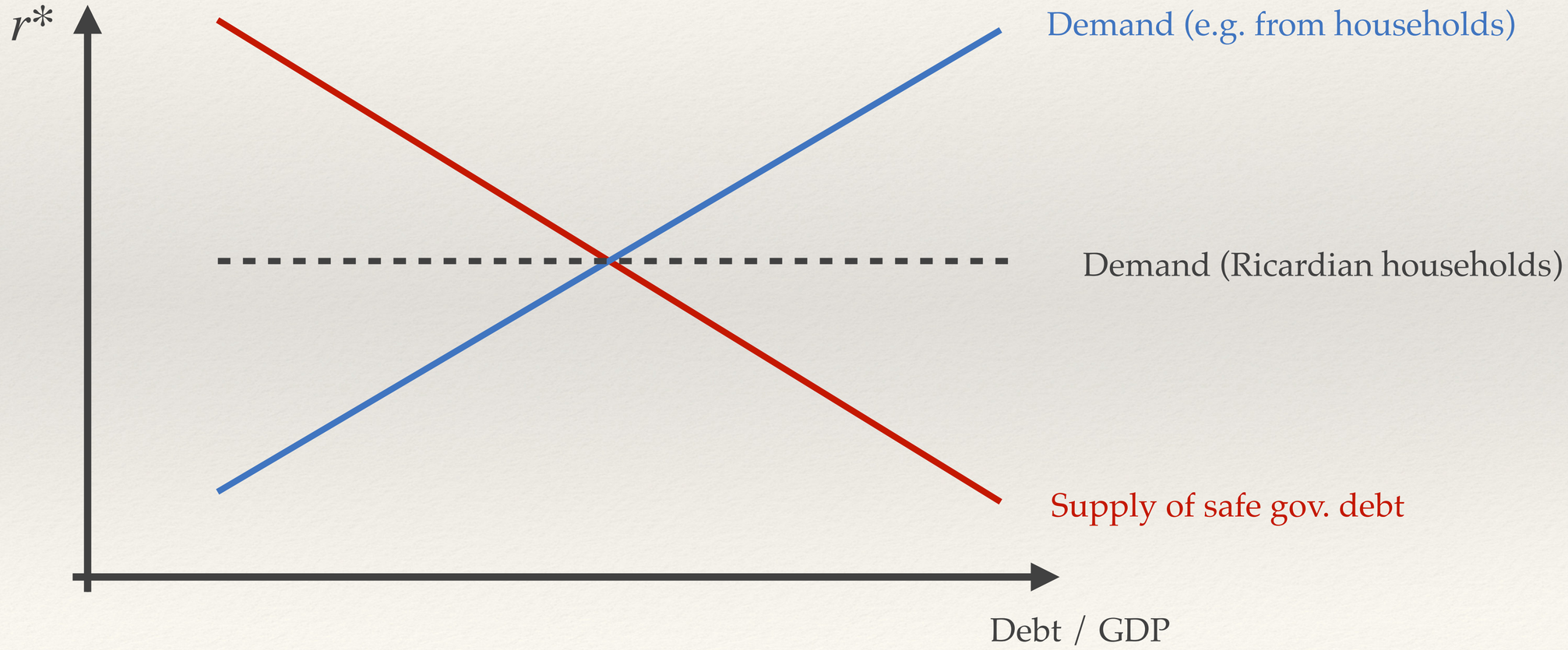

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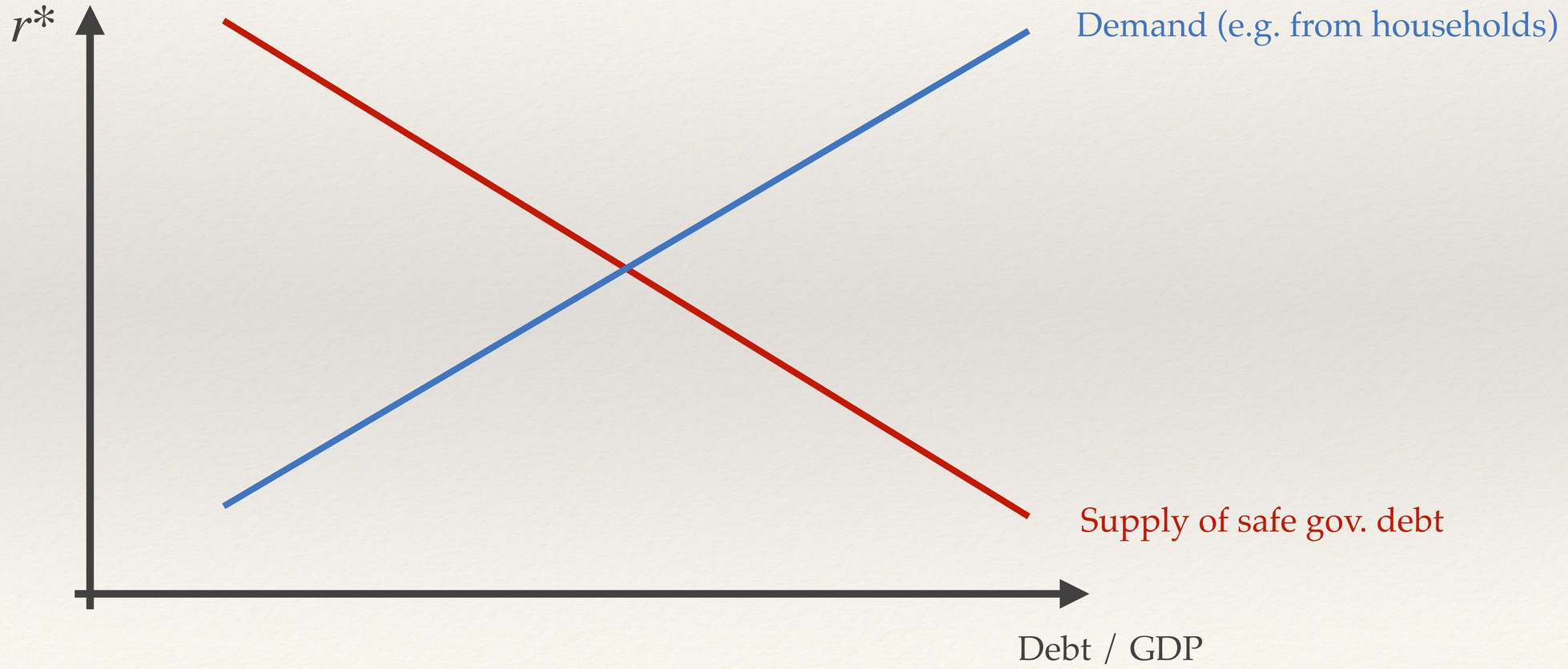

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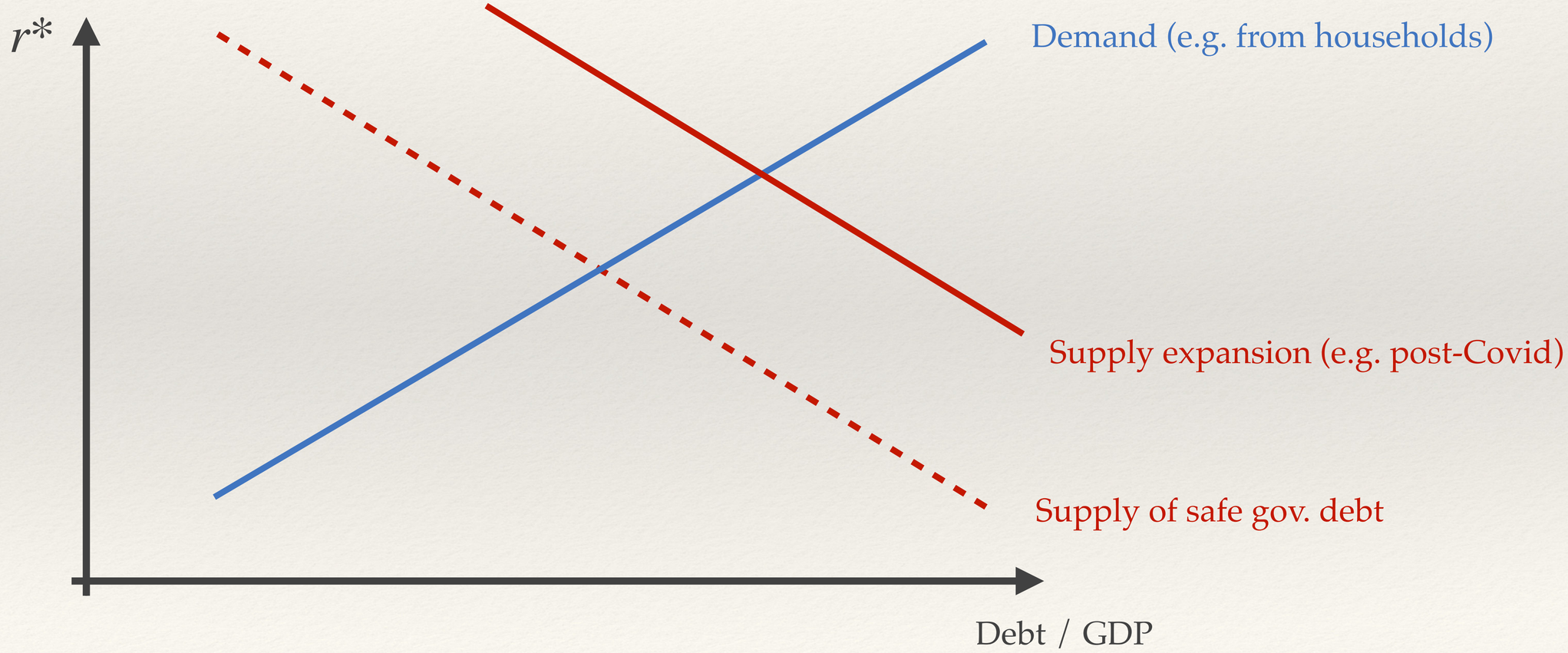

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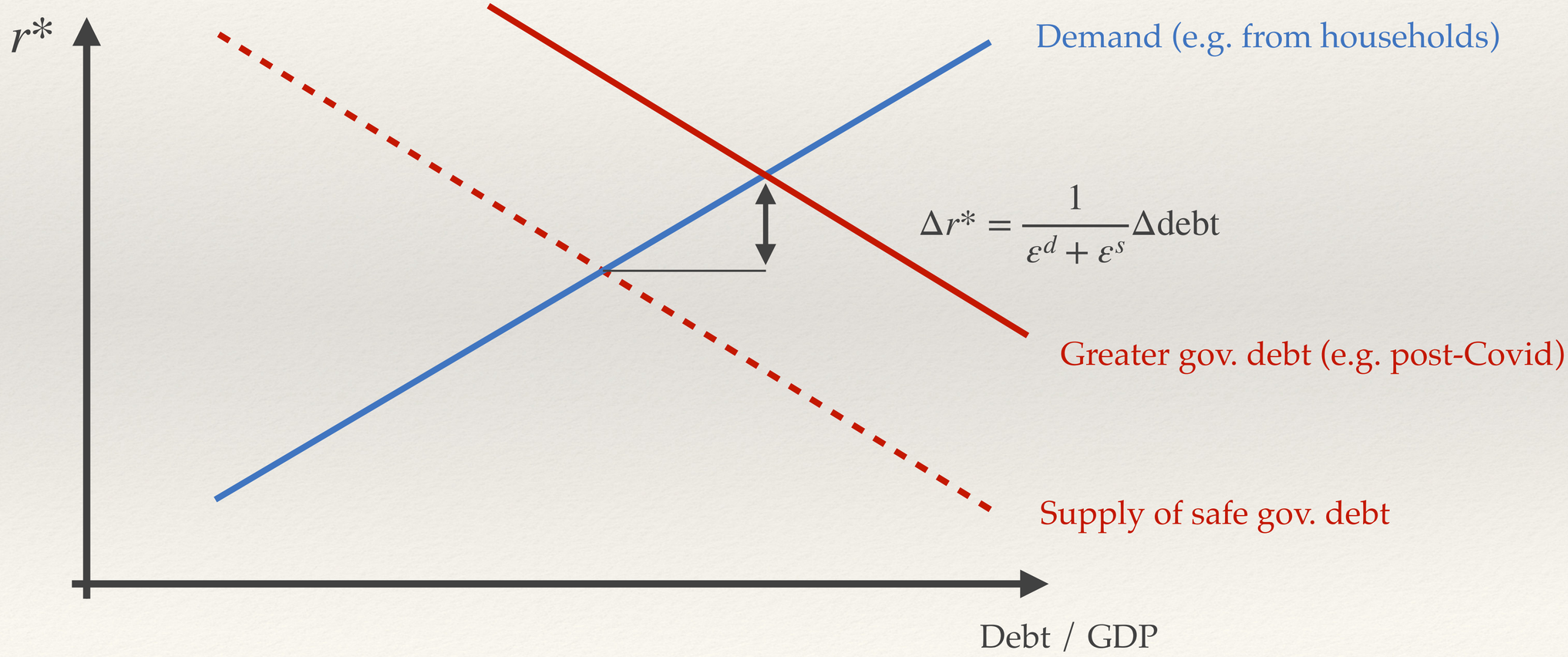

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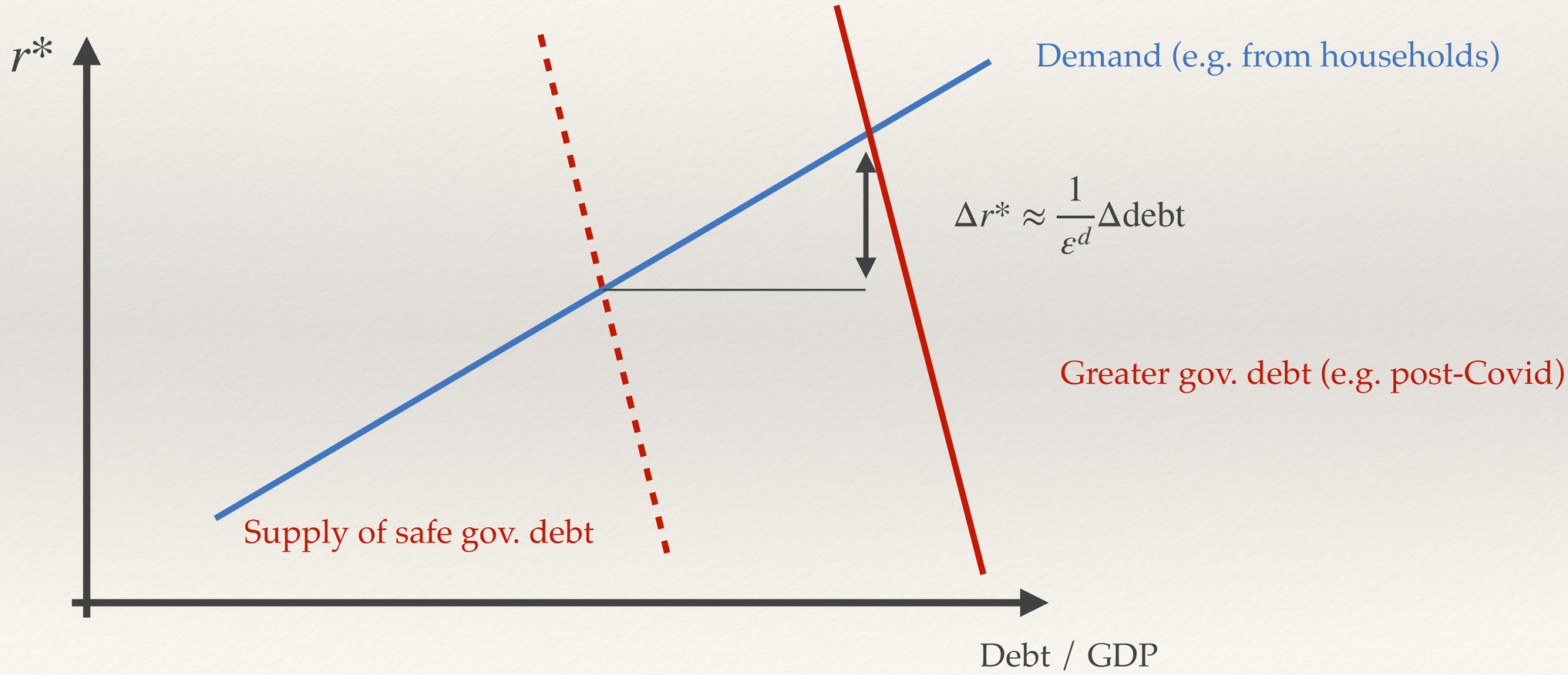

How sensitive is r^* to gov. debt?

- Why does higher debt lead to higher r^*? (Why is $\varepsilon^d < \infty$?)
  - starts exhausting demand for safe & liquid assets (lower convenience yield)
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- Reduced-form way to model these: "bonds in utility function" $u(c) + v(b)$

$$r^* = \rho + g - v'(b) \qquad \text{Sensitivity:} \quad \varphi = \frac{\partial r^*}{\partial \log b} = -v''(b)\, b$$

How large is the sensitivity φ ?

- Hard to estimate! Review literature in appendix of Mian Straub Sufi (2024)
- Range: $\varphi = 1.2$ - 2.2% (= 12-22 bps per 10% higher debt). Anecdotal evidence:

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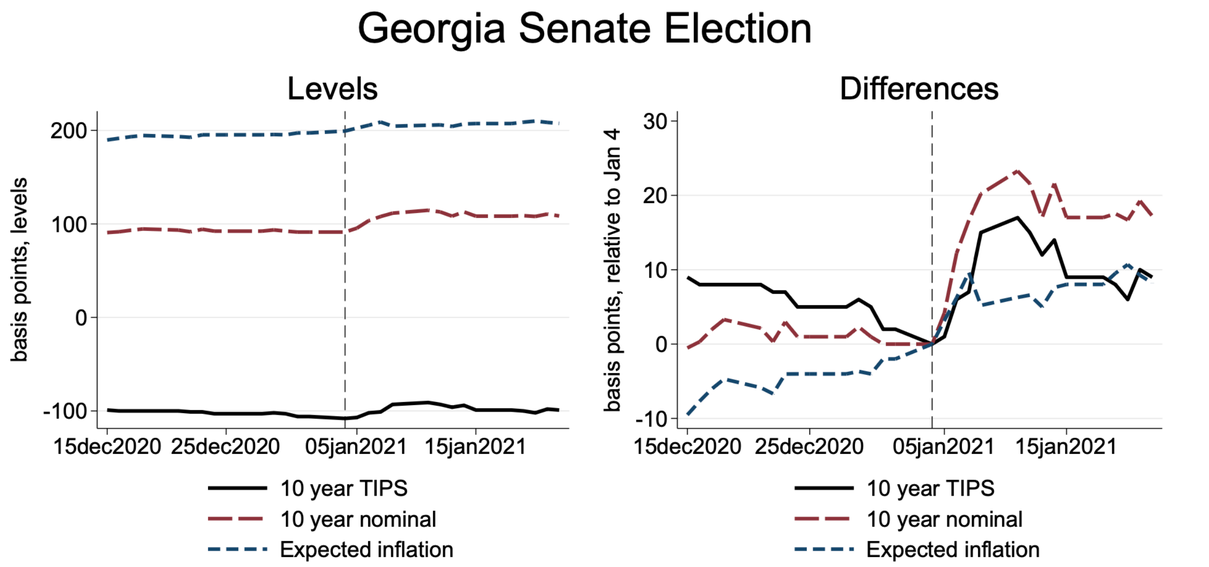
Figure A.9: The change in real interest rates around the January 5th, 2021 Georgia run-off election.



Mian Straub Sufi (2024)

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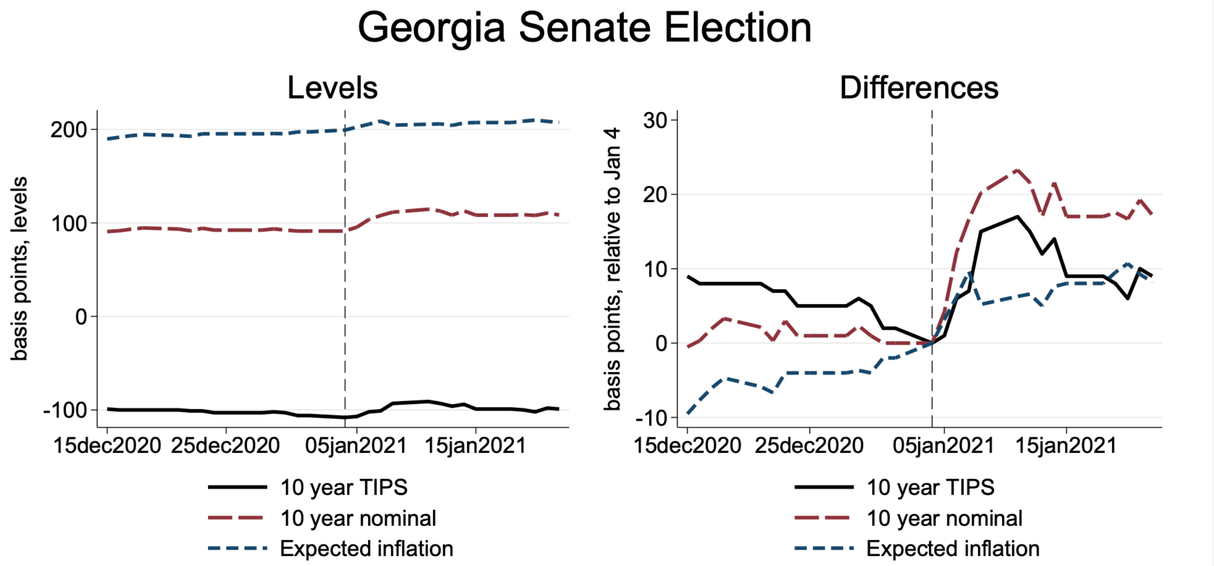

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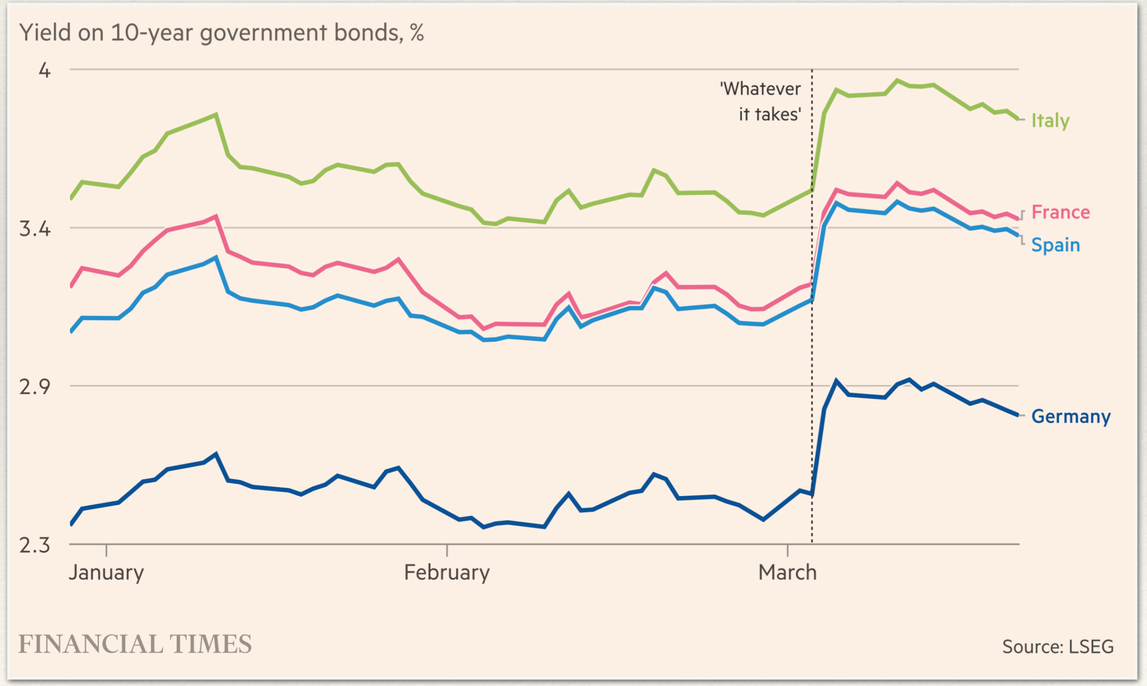

Recent reform of German debt brake

Fiscal policy and r^* in the short run

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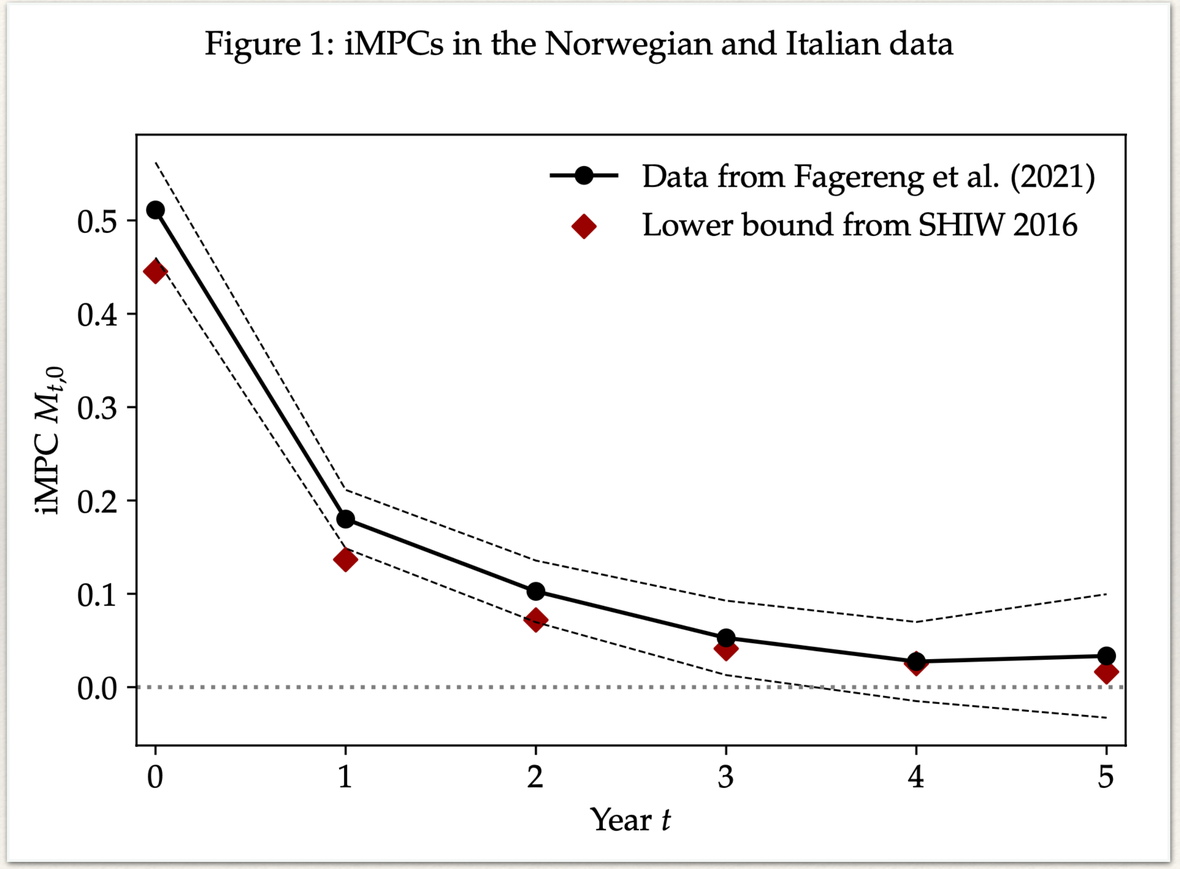
- Short run effect on $r^* \gg$ long run effect!
- Example raises broader questions:
  - Why is short-run $\gg$ long run?
  - What even is r^* in the short run?
  - And how long is the “short run”?

Fiscal policy and r* in the short run

- Next: put some numbers on this! (Caveat: proof of concept)
- Strategy:
  - Figure out effect of fiscal stimulus on output
  - Figure out effect of monetary policy on output
  - Obtain interest rate path that stabilizes fiscal stimulus → r^*

Fiscal stimulus and output

- Most households don't spend fiscal stimulus right away (especially when large!)
- They spend some (captured by MPC), but also save some to spend later
  - these delayed consumption responses are captured by "intertemporal MPCs"
- Can be captured in modern HANK models



Auclert Rognlie Straub (2024)

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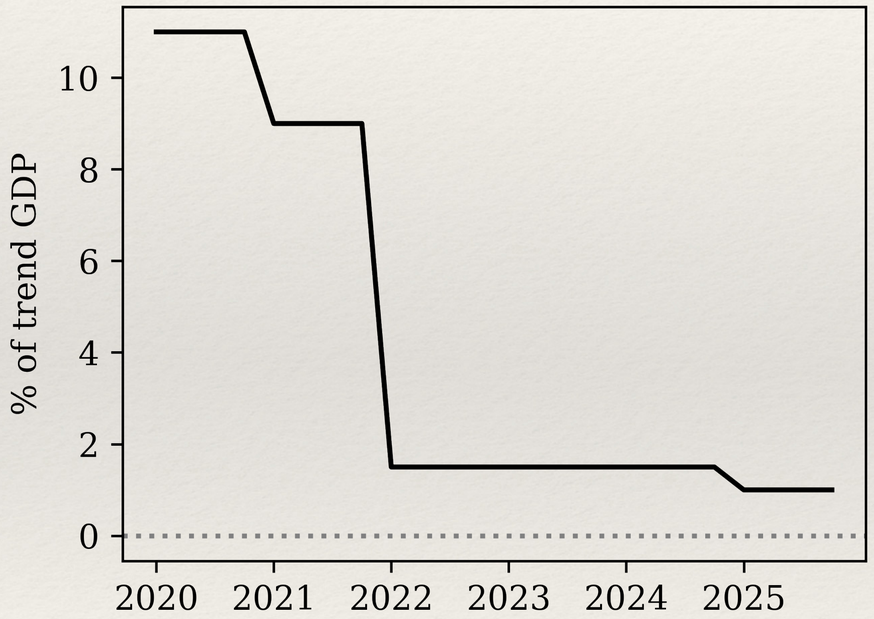
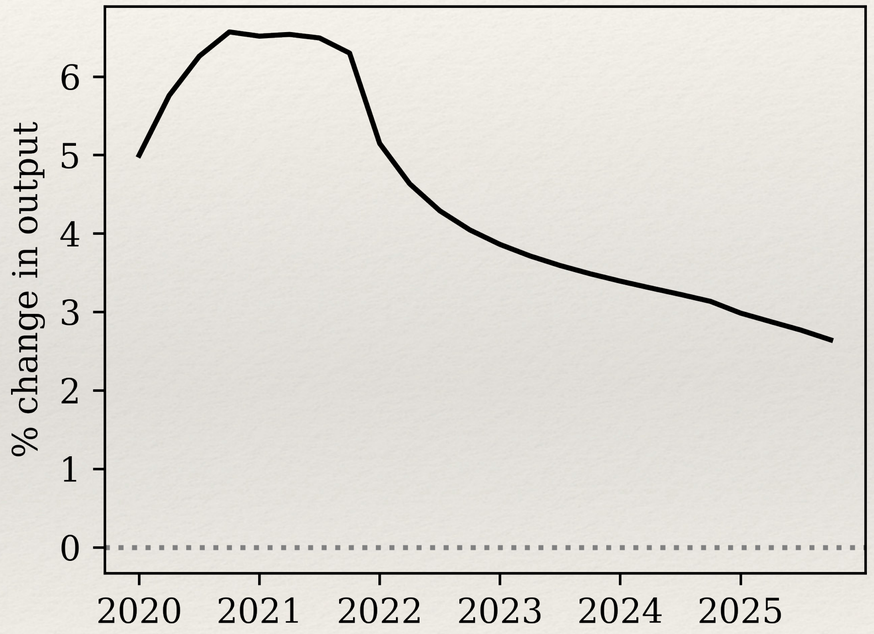


Note. Primary deficits minus 2% (pre-Covid level), assumed constant across quarters within the year

Output response



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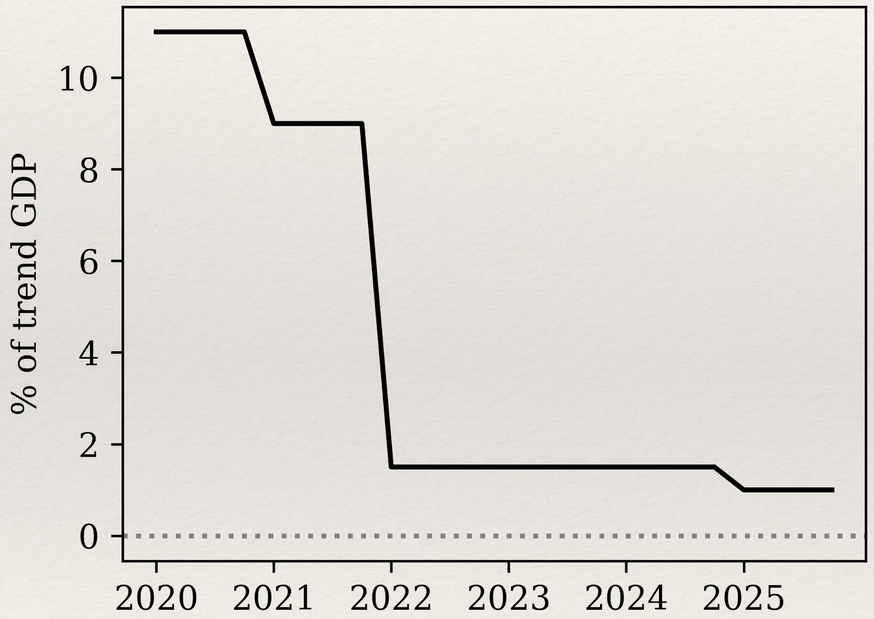

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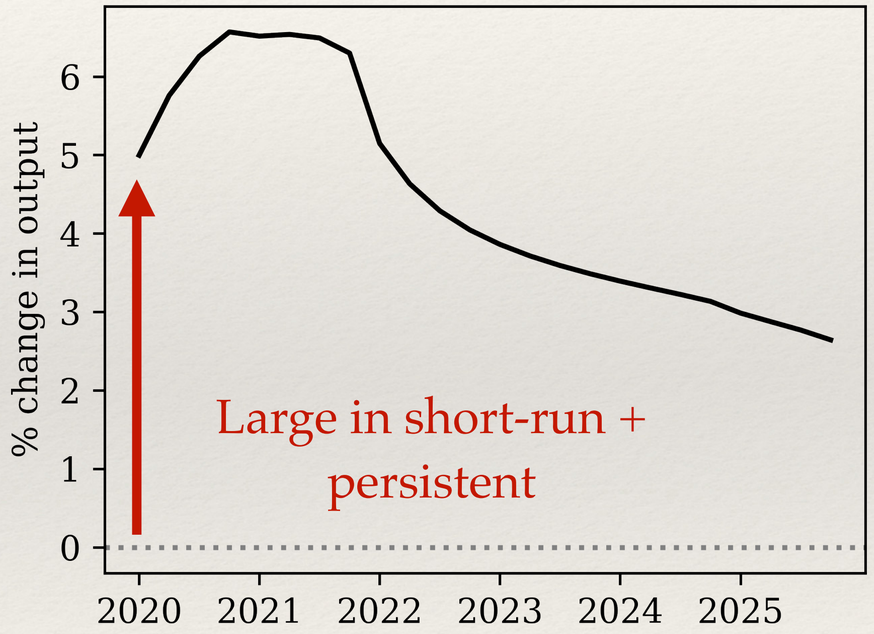

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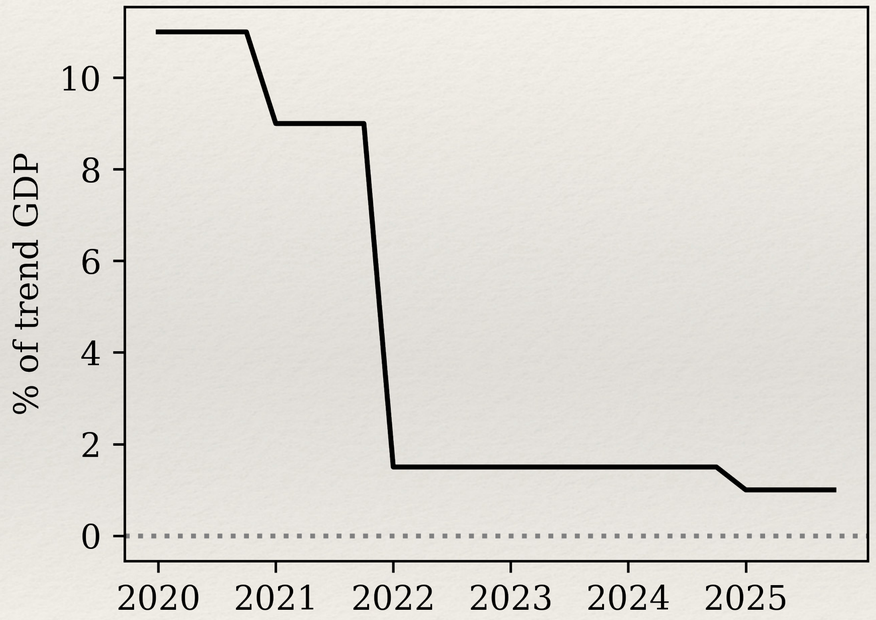

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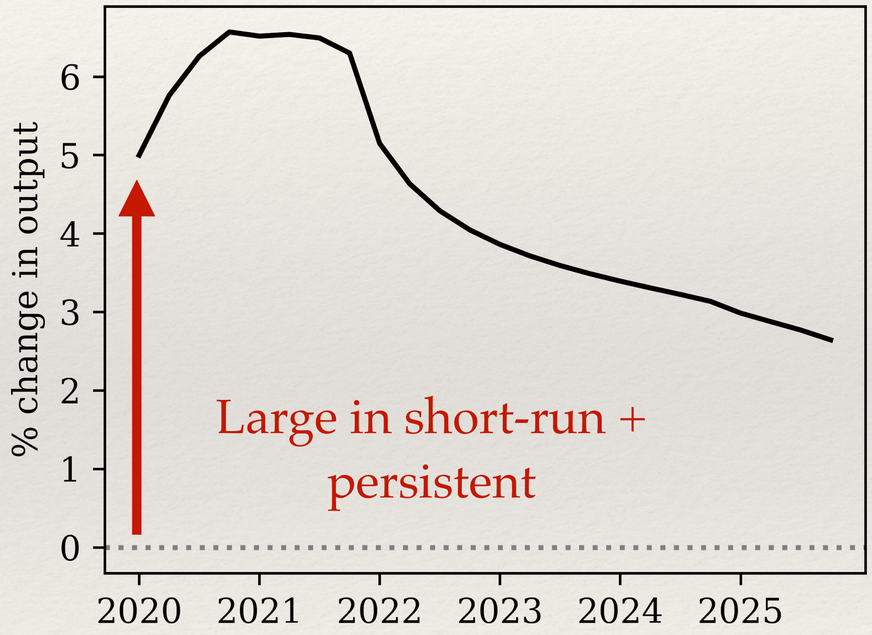

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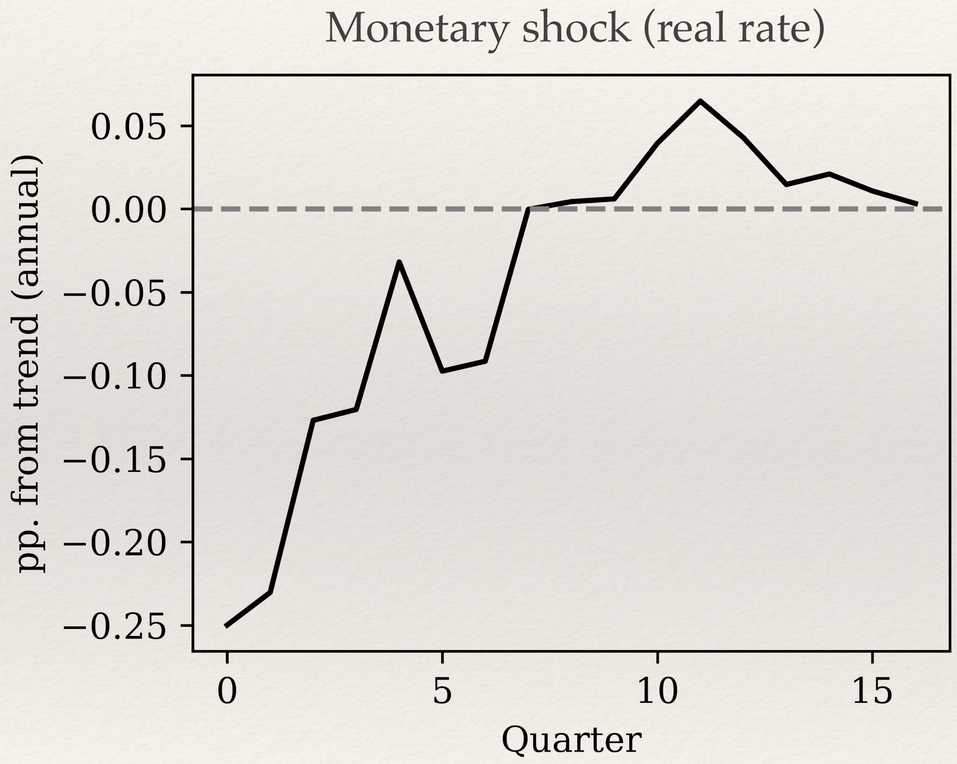
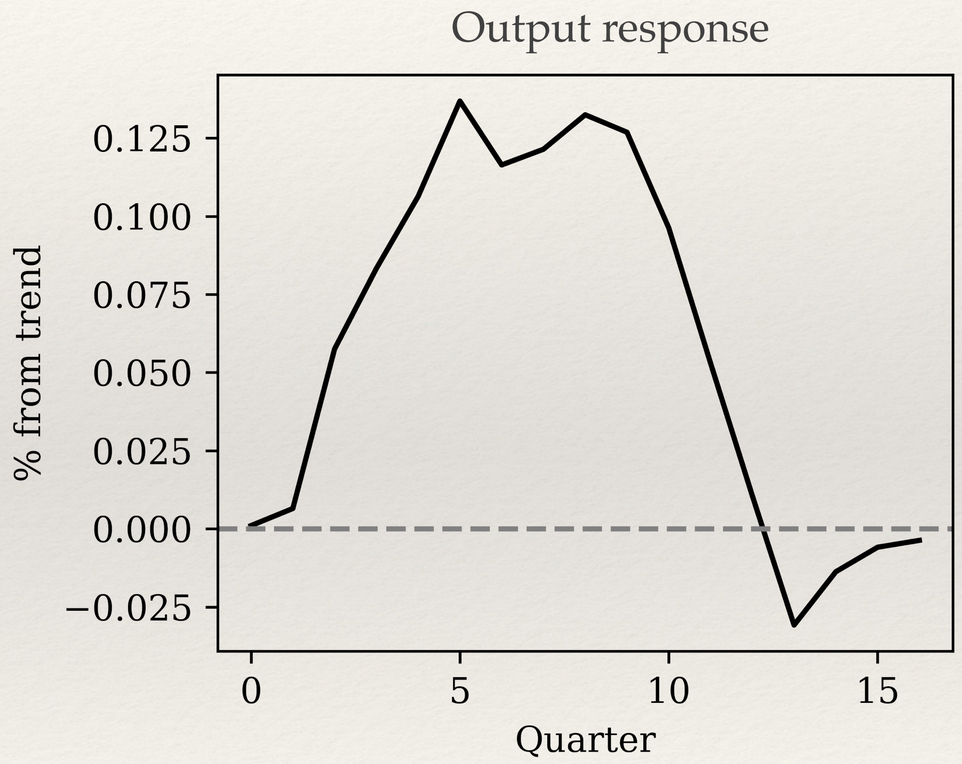
- Strong and persistent output response. Cumulative multiplier ≈ 1

Monetary policy and output

- Simply use Romer-Romer monetary policy shocks





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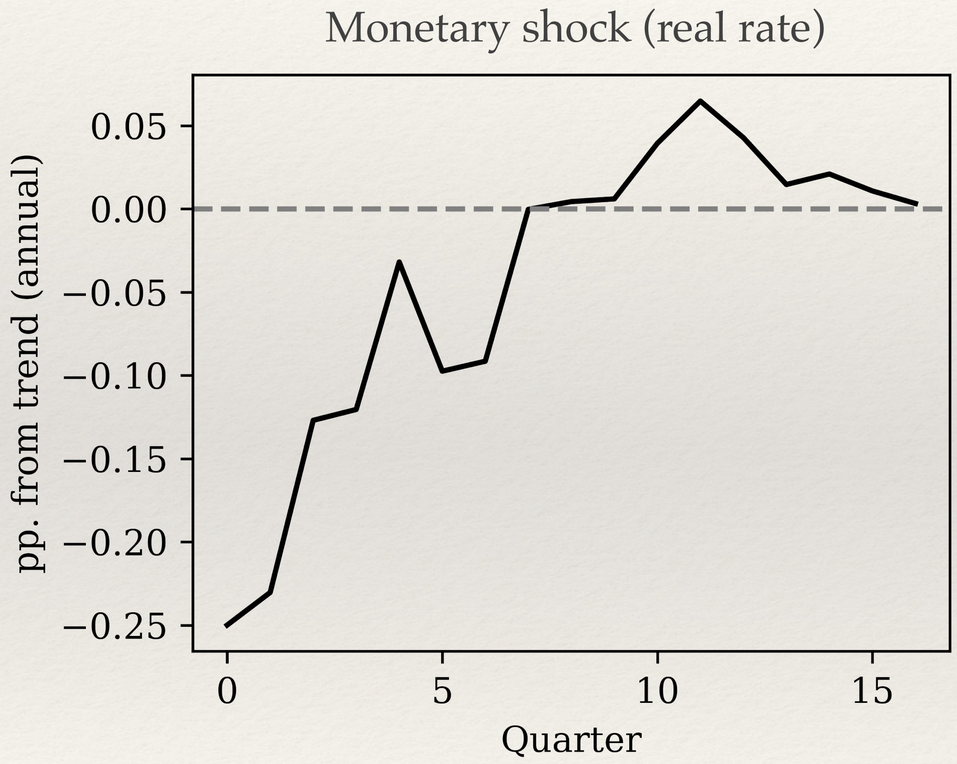

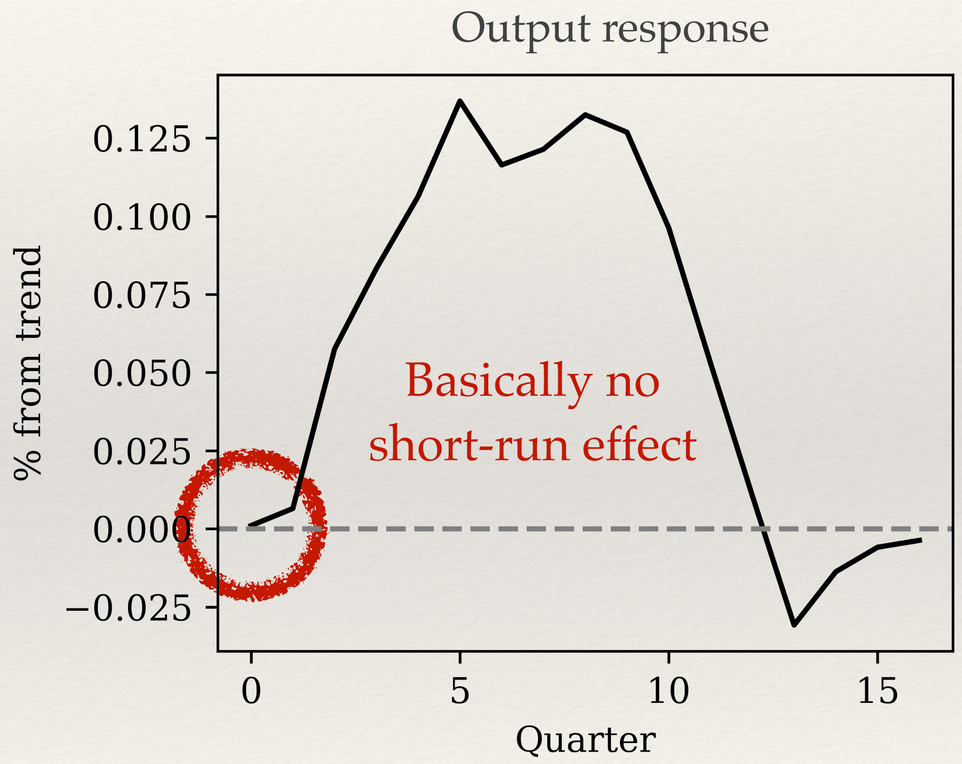

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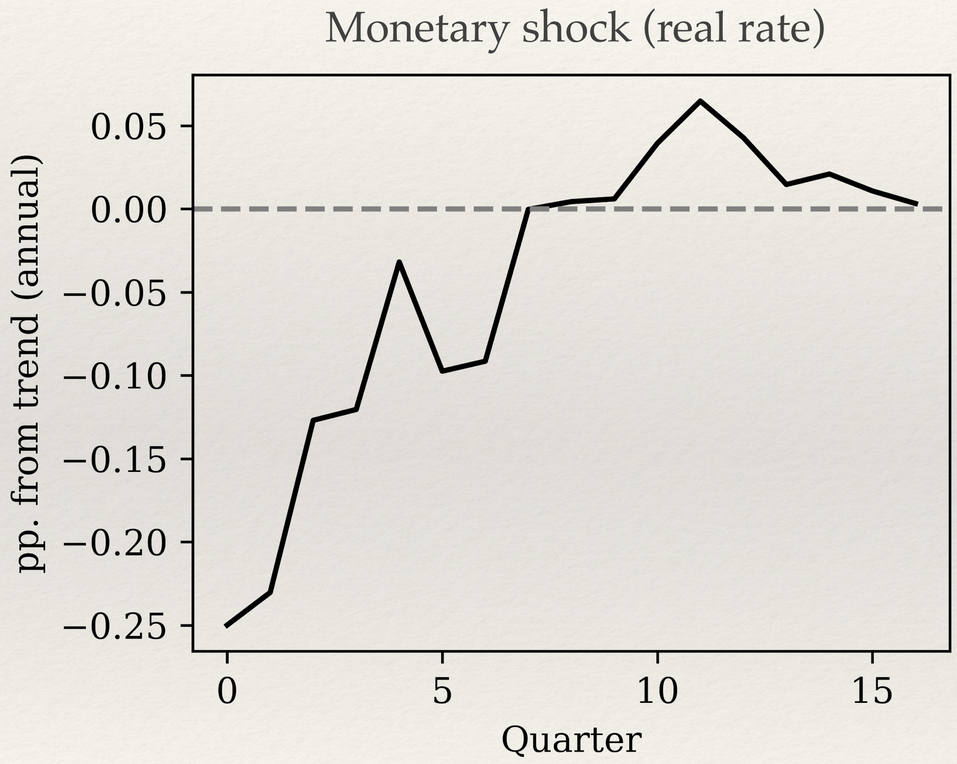

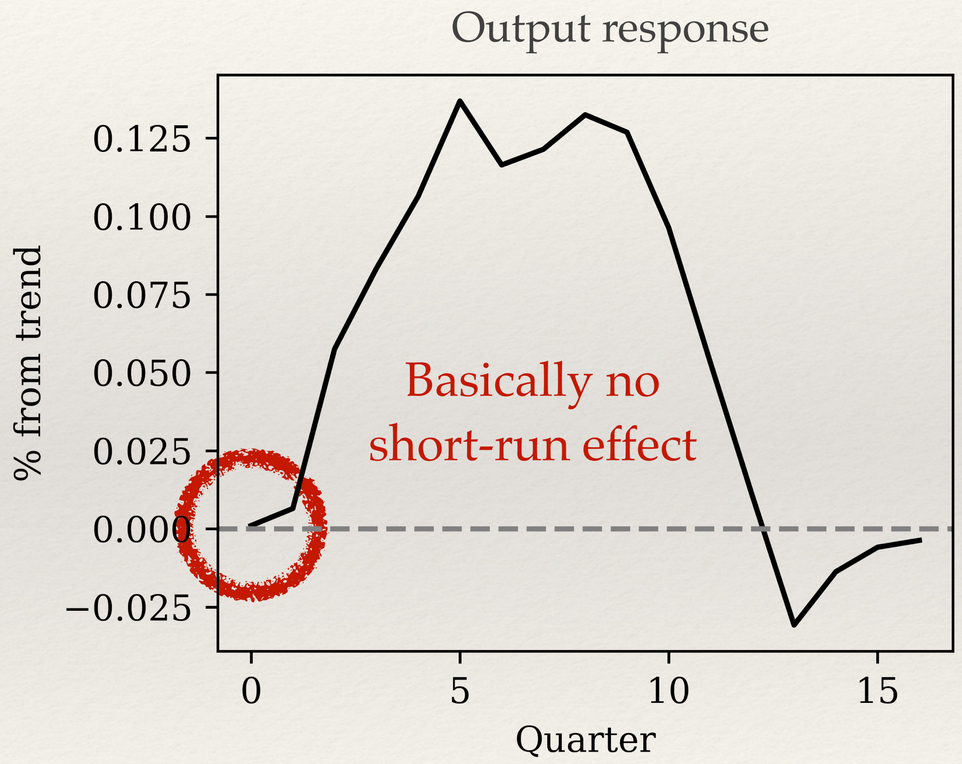

Next: Add monetary shocks to fiscal stimulus output response until output gap is close to zero!

Effect of fiscal policy on r^*

- Assume anticipated interest rate movements act like Romer-Romer shocks, too.
- Will find r^* by minimizing $\sum \beta^t(x_t^2 + \lambda(r_t^* - r_{t-1}^*)^2)$ to avoid volatility in r^*

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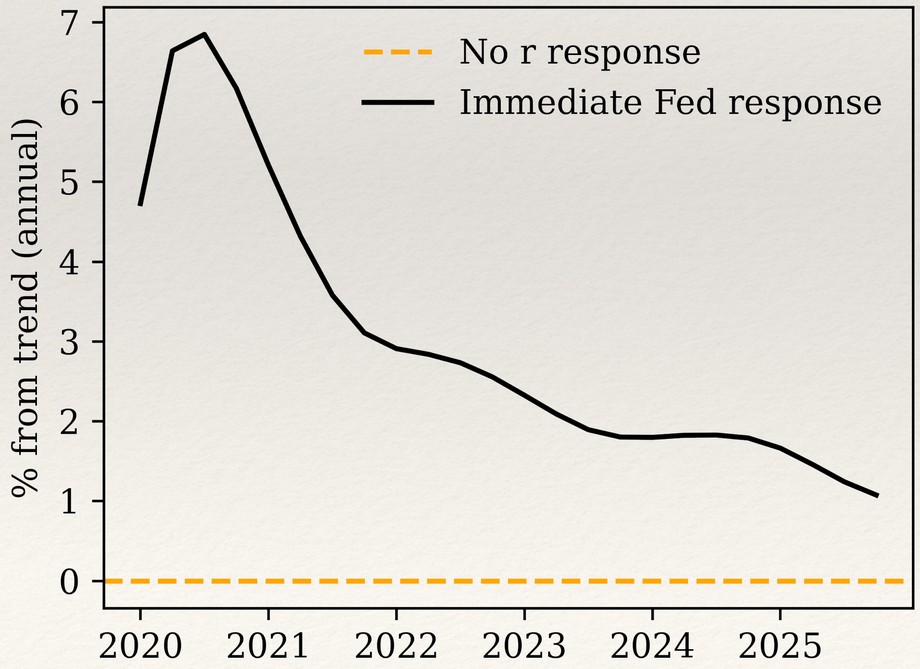

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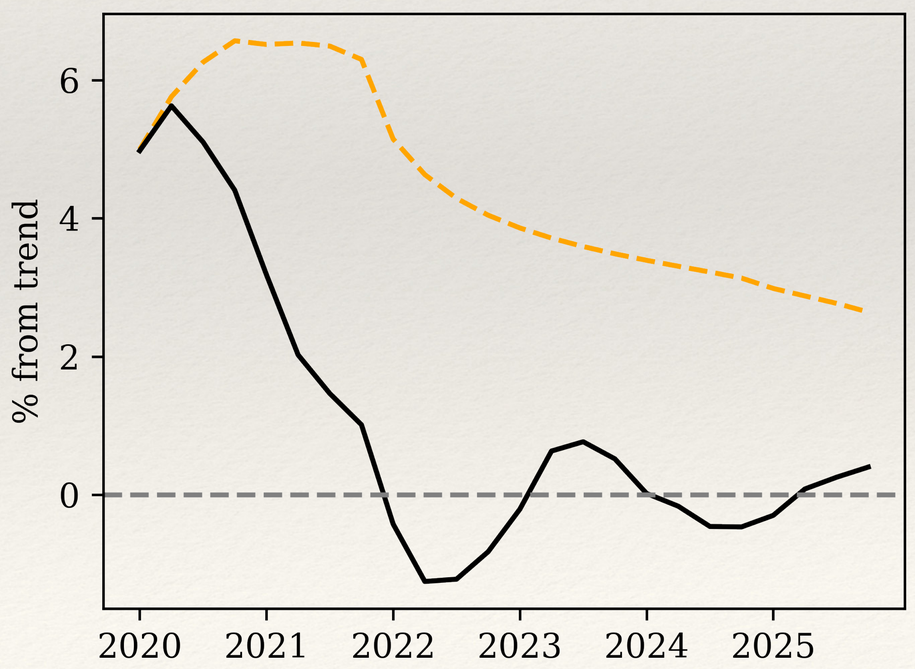

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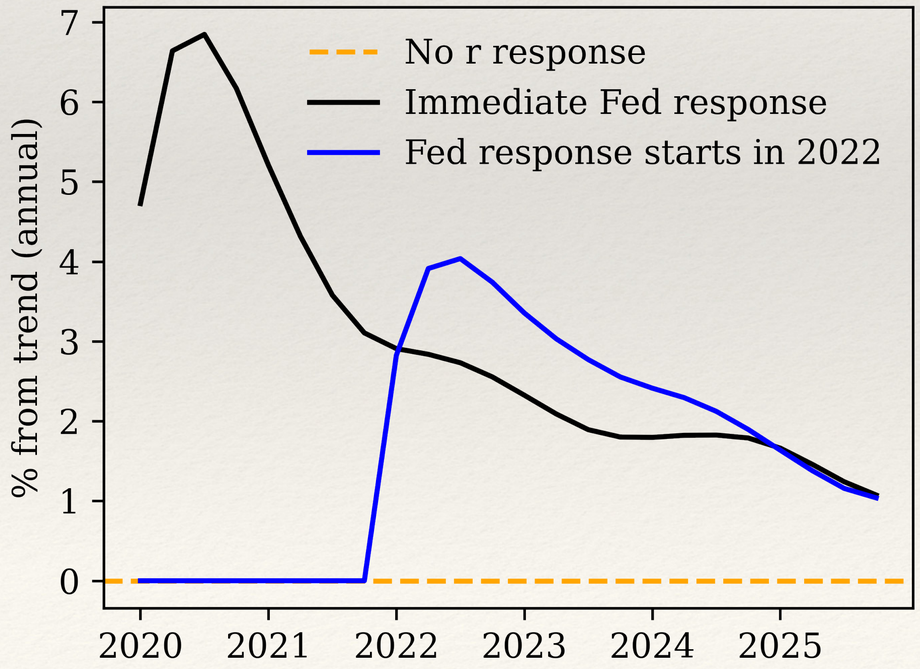

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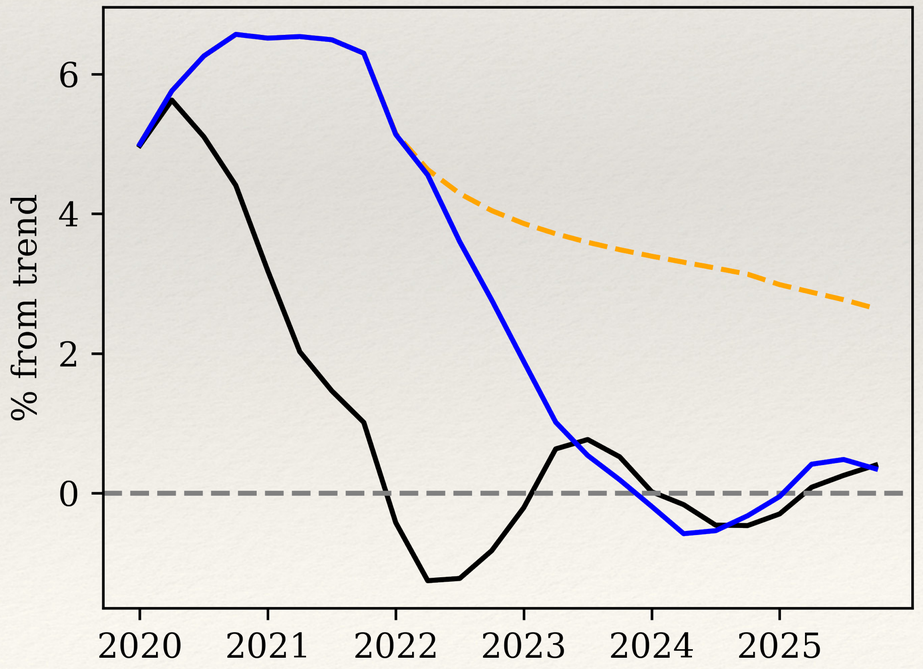

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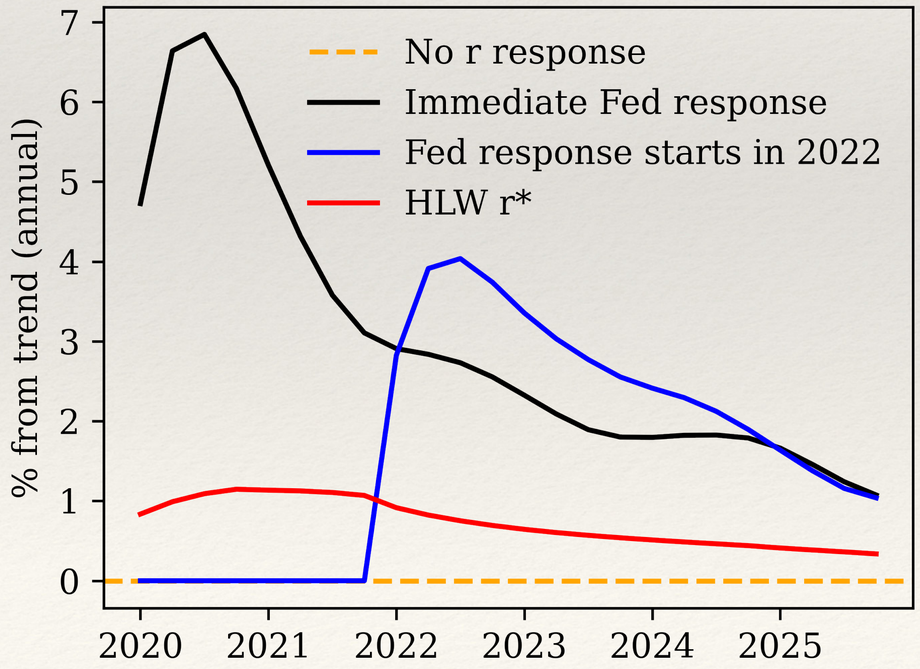

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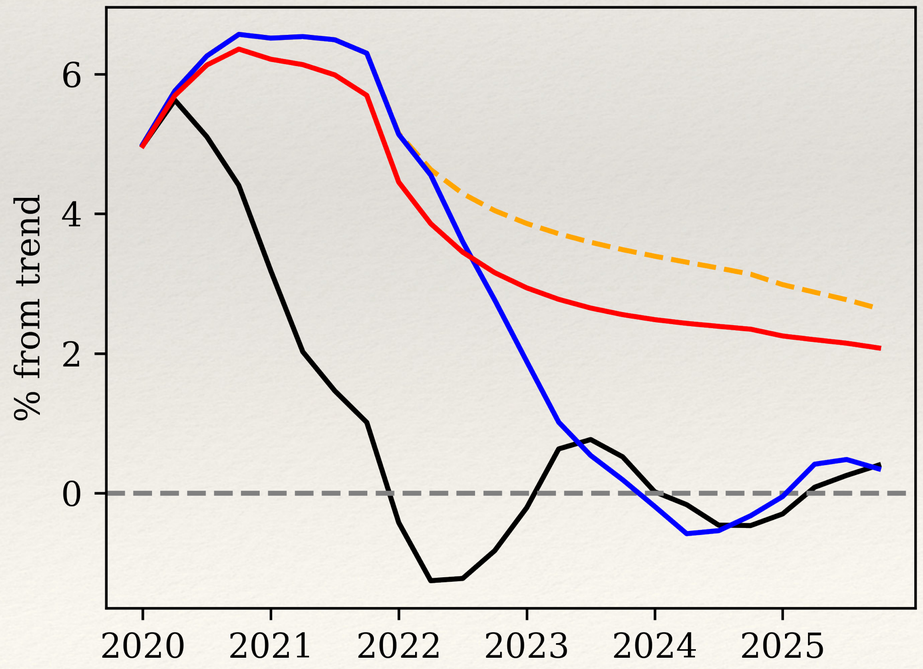

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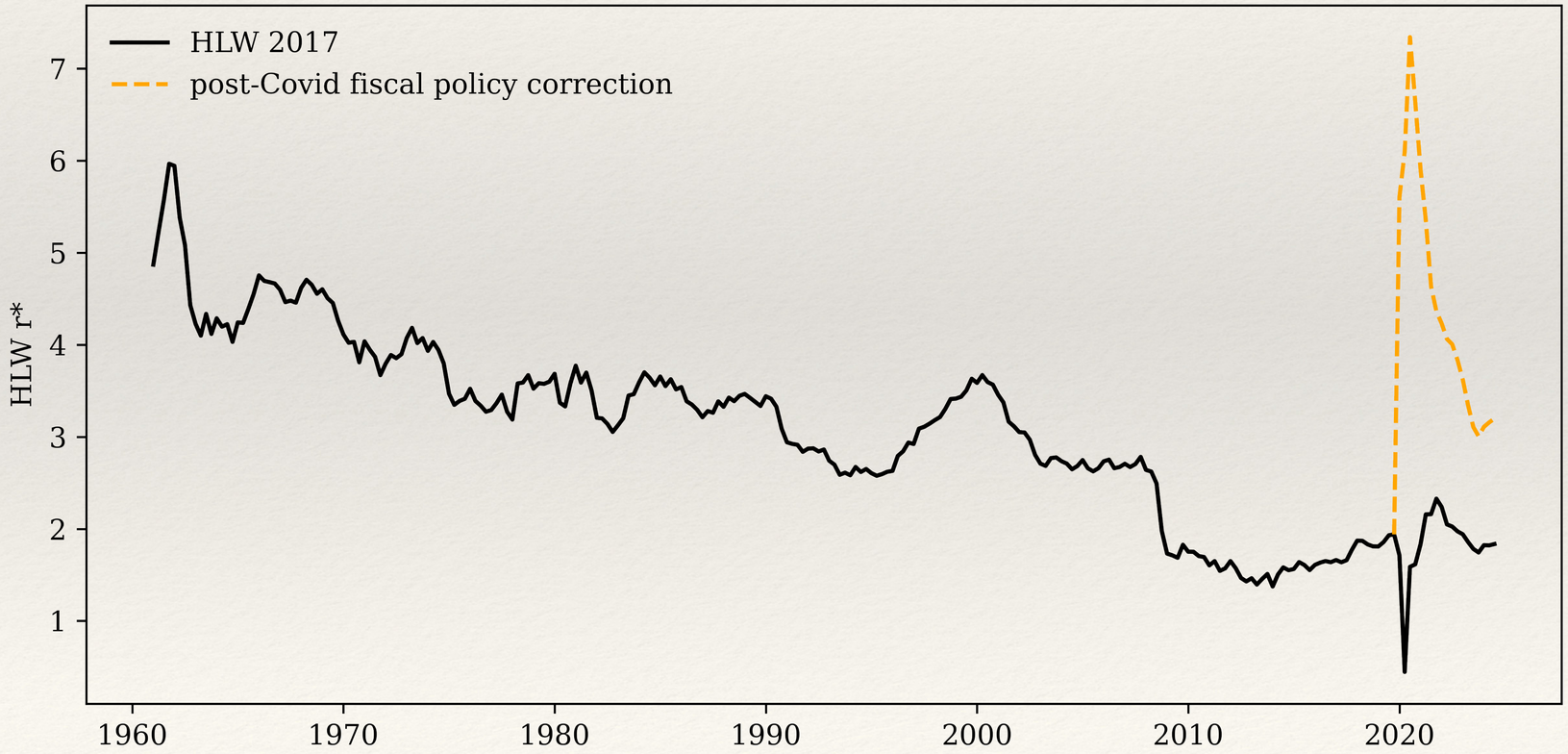
How does this change estimates of *r**?

- Can add this *r** response to the current HLW (2017) estimates
- *r** much greater, in short and in medium run!



Conclusion

- Fiscal policy is key for r^*
- Both in long run and in short to medium run
- Merits more work!