Sovereign Debt Risk Premia and Fiscal Policy in Sweden

Huixin Bi and Eric Leeper

Indiana University

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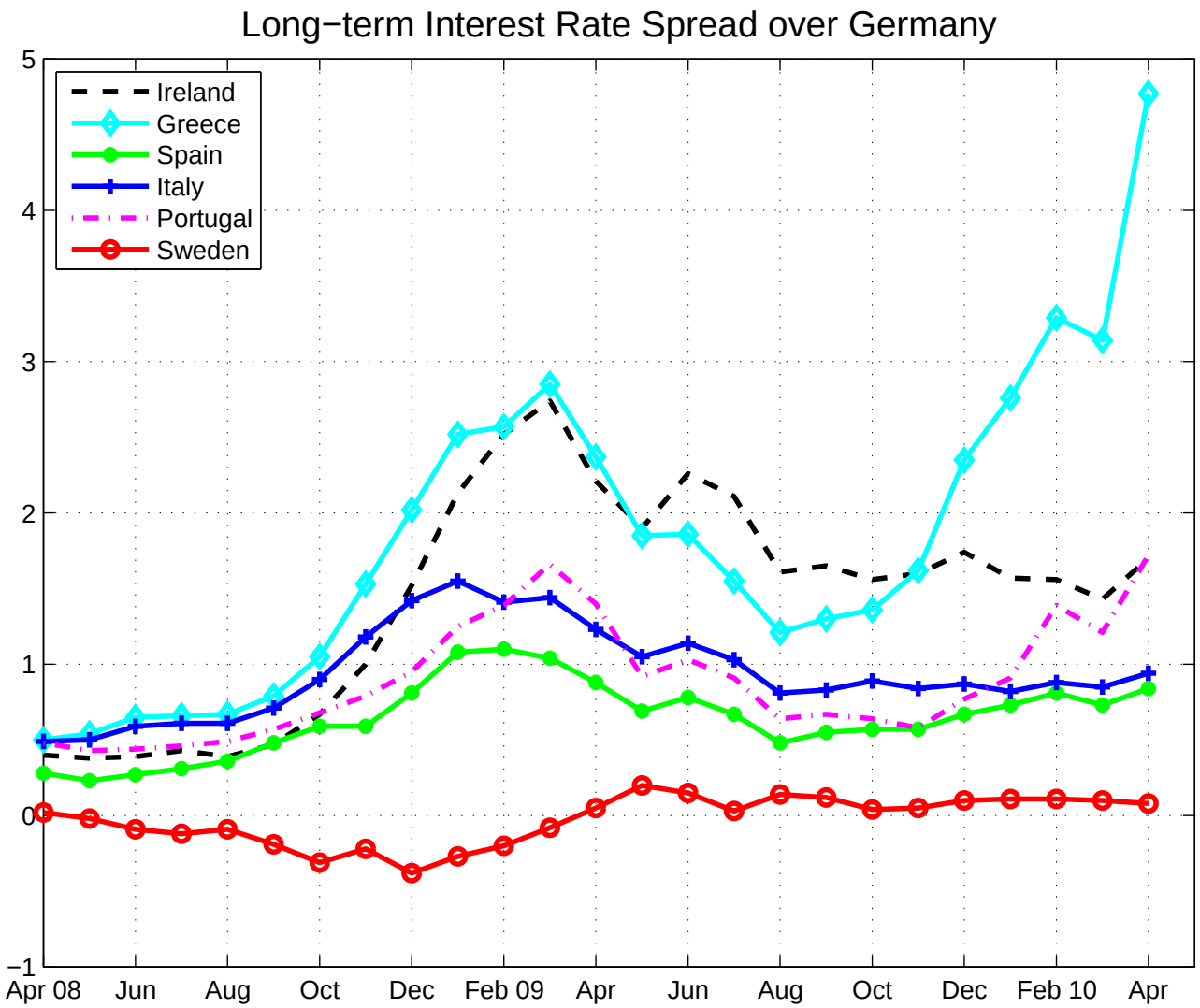
Recent Sovereign Risk Premia



Recent Sovereign Rating

Standard & Poor's comment about Swedish sovereign bond (2009):

- "The established fiscal rules have served Sweden well..."
- "... the Kingdom's substantial fiscal buffers to support its creditworthiness in the current adverse economic environment."

This Paper

Question: How do institutional changes to fiscal behavior affect the sovereign risk premia?

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Model: a real closed economy with distortionary tax

- Endogenous fiscal limits from dynamic Laffer Curves.

Main findings:

- Fiscal reform can shift the distribution of fiscal limits in a significant way.
- Sovereign risk premia arise nonlinearly with respect to the level of government debt.

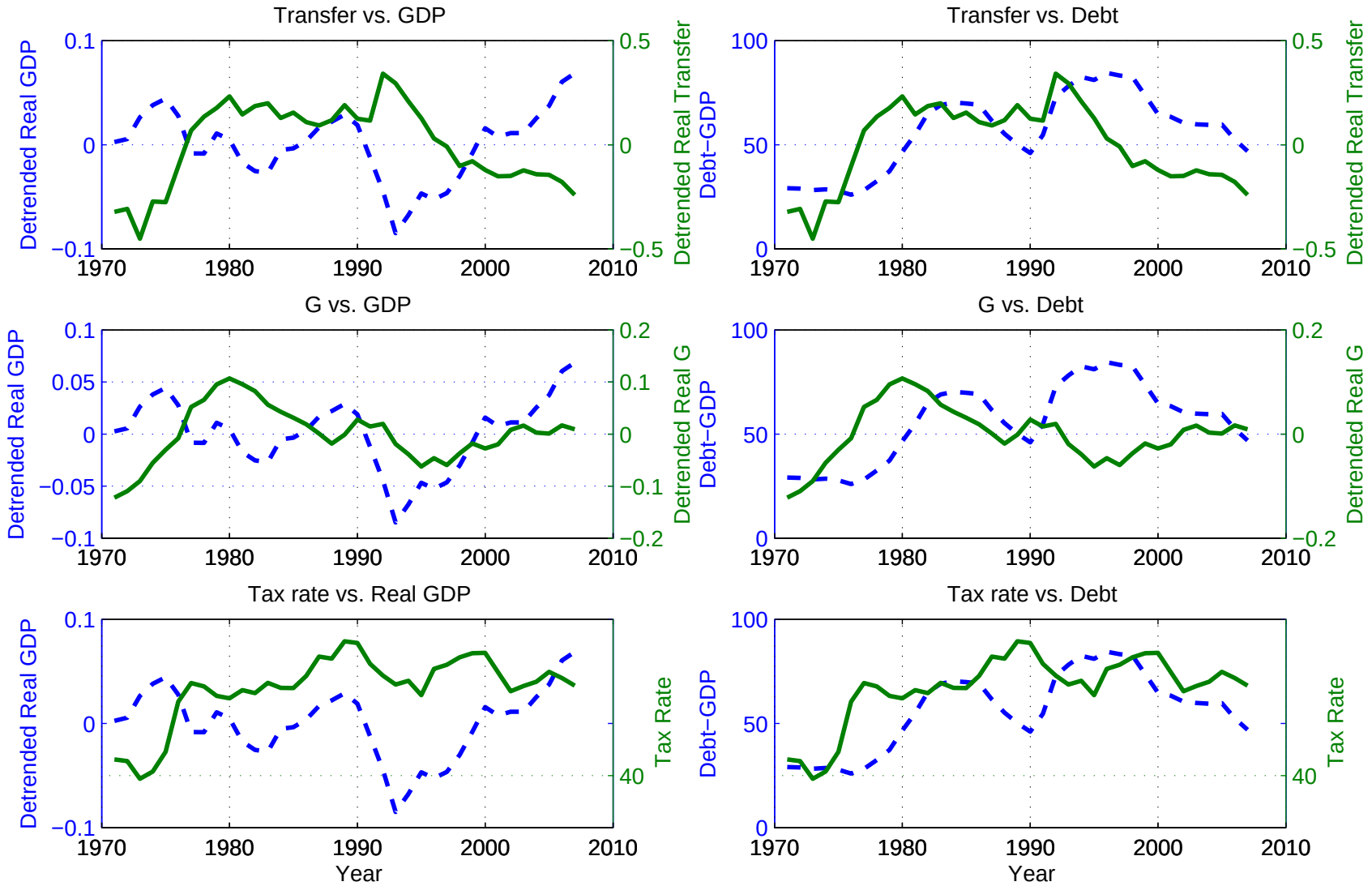
Relate to the Literature of Sovereign Default

- Strategic default:
  - Eaton and Gersovitz (1981), Arellano (2008), Pouzo (2010).
- Fiscal limit:
  - Uribe (2006): ad-hoc and fixed fiscal limit
  - Juessen, Linnemann and Schabert (2009): constant tax rate
- This paper: endogenous and stochastic fiscal limit
  - Time-varying distortionary tax (Dynamic Laffer Curve)

This Talk

- Swedish fiscal data: 1980-2007
- Model
- Distributions of fiscal limits (pre-crisis vs. post-crisis)
- Nonlinear simulations

Swedish Data



Swedish Data

In the post-crisis period:

- Lump-sum transfers:
  - declining;
  - government expenditure ceiling.
- Government spending:
  - less countercyclical;
  - government expenditure ceiling.
- Tax rate: declining

Model

Government:

- Collect tax revenue and issue one-period bond;
  - Follow a feedback tax rule: raise tax rate when the government debt increases.
- Finance countercyclical lump-sum transfers and government purchases.

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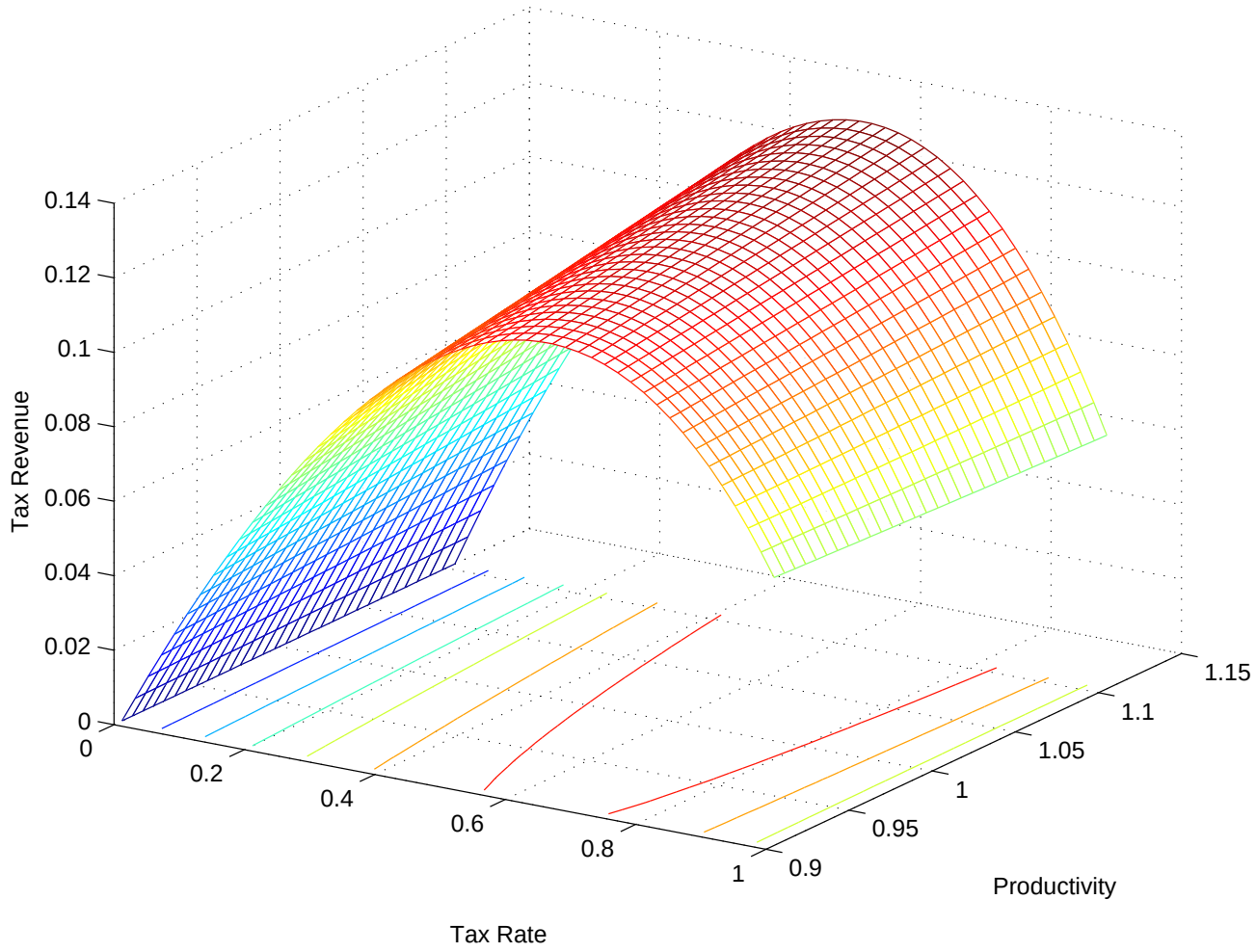
Representative household:

- Receive lump-sum transfers from the government and after-tax labor income;
- Purchase government bond and consumption goods.

Model: Laffer Curve

Time-varying distorting tax on labor income: dynamic Laffer Curve



Model: Sovereign Default

Unenforceable government bond contract:

- Due to endogenous and stochastic fiscal limits.

$$\begin{aligned} \mathcal{B}^* &= \text{Expected Present Value}(T^* - \text{Government Expenditures}) \\ &\sim \mathcal{N}(b^*, \sigma_b^2) \end{aligned}$$

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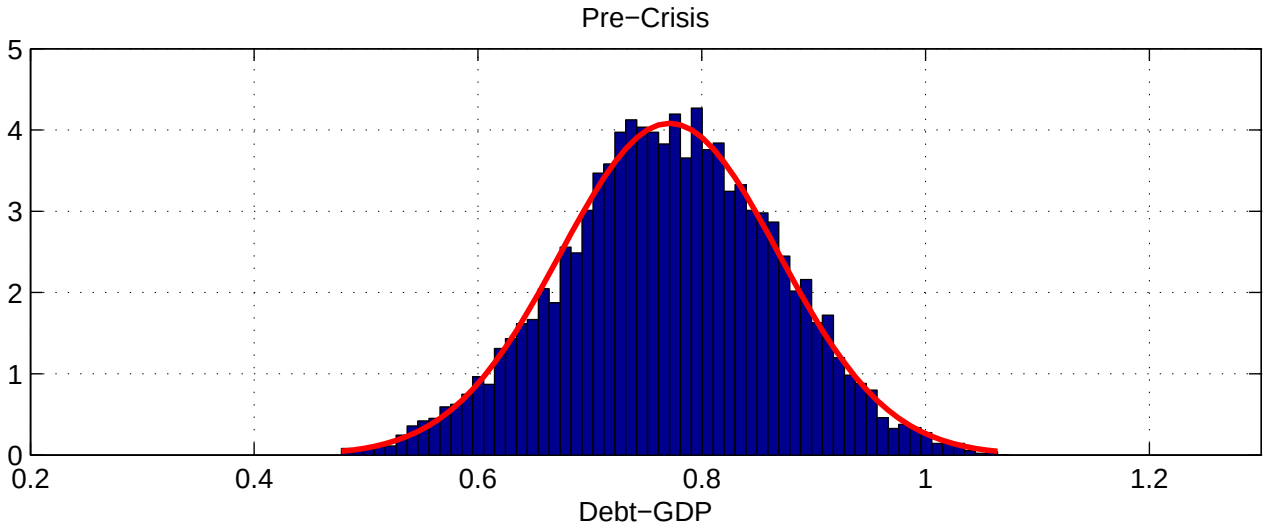
- The household prices the bond conditional on the sovereign default information available at each period.

Calibration: Pre-crisis vs. post-crisis

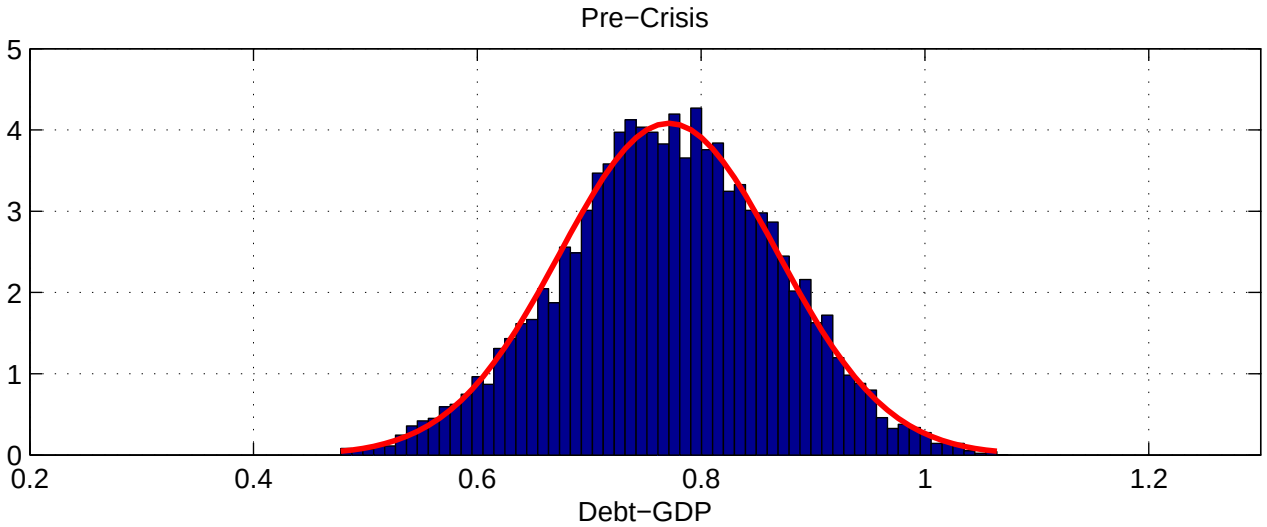
Parameter	Pre-Crisis	Post-Crisis	Post-Crisis (procyclical)	Post-Crisis (ceiling)
	Baseline	Case 1	Case 2	Case 3
α^g	-0.281	-0.281	0.174	-0.281
α^z	-1.864	-1.864	-1.13	-1.864
τ	0.51	0.49	0.49	0.49
z/y	0.215	0.19	0.19	0.19
g/y	0.28	0.28	0.28	0.28
Ceiling	n.a.	n.a.	n.a.	Yes

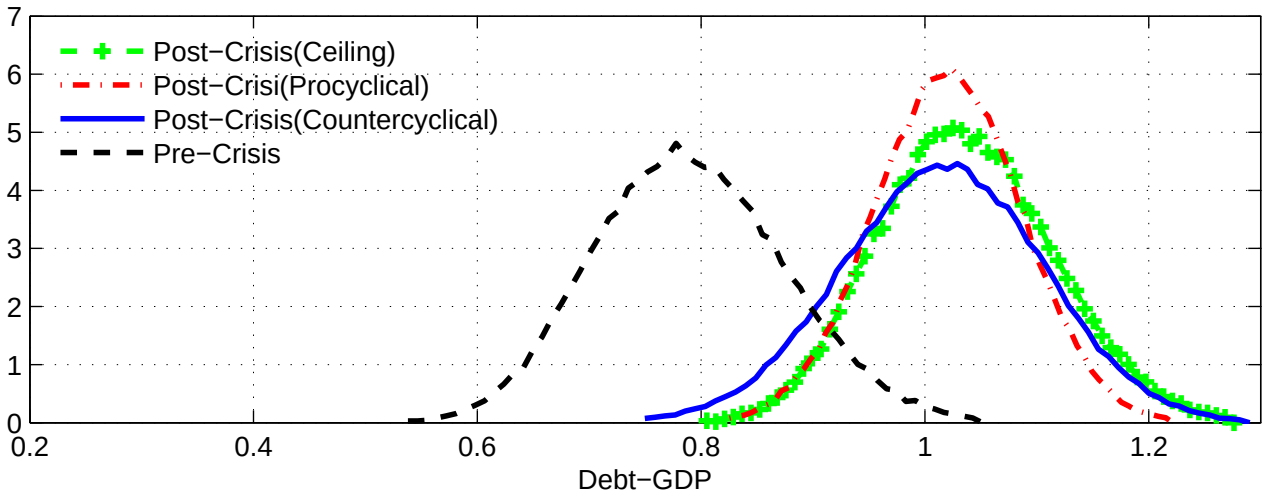
- α^g and α^z: response of spending and transfers to productivity;
- g/y and z/y: spending-GDP ratio and transfers-GDP ratio
- Ceiling: $g_t \leq g^{ceil}$ and $z_t \leq z^{ceil}$

Fiscal Limit: Pre-Crisis

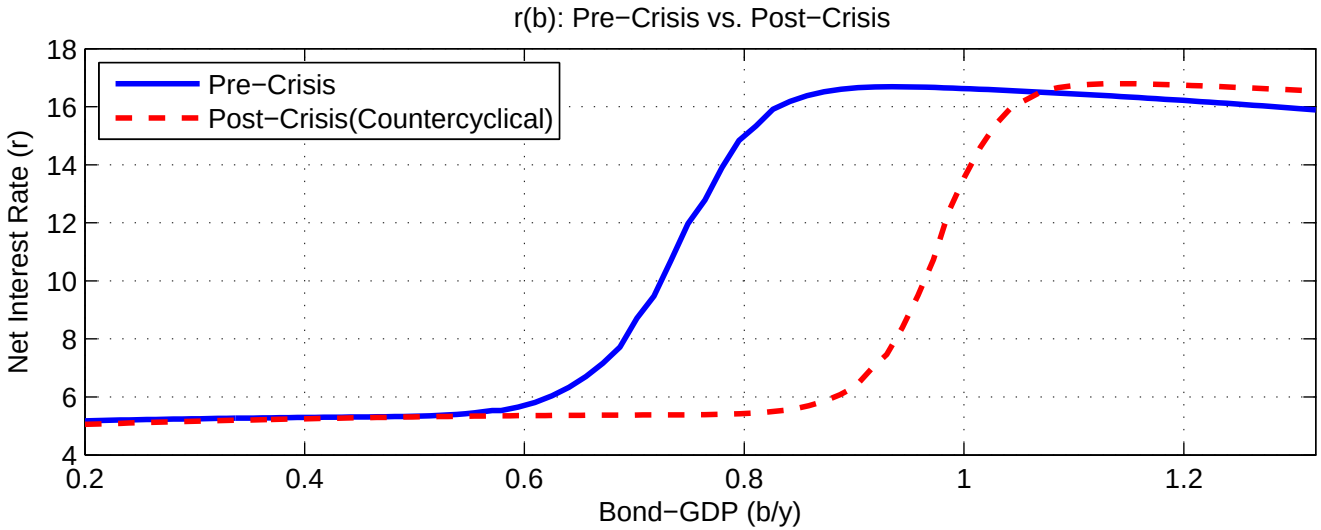


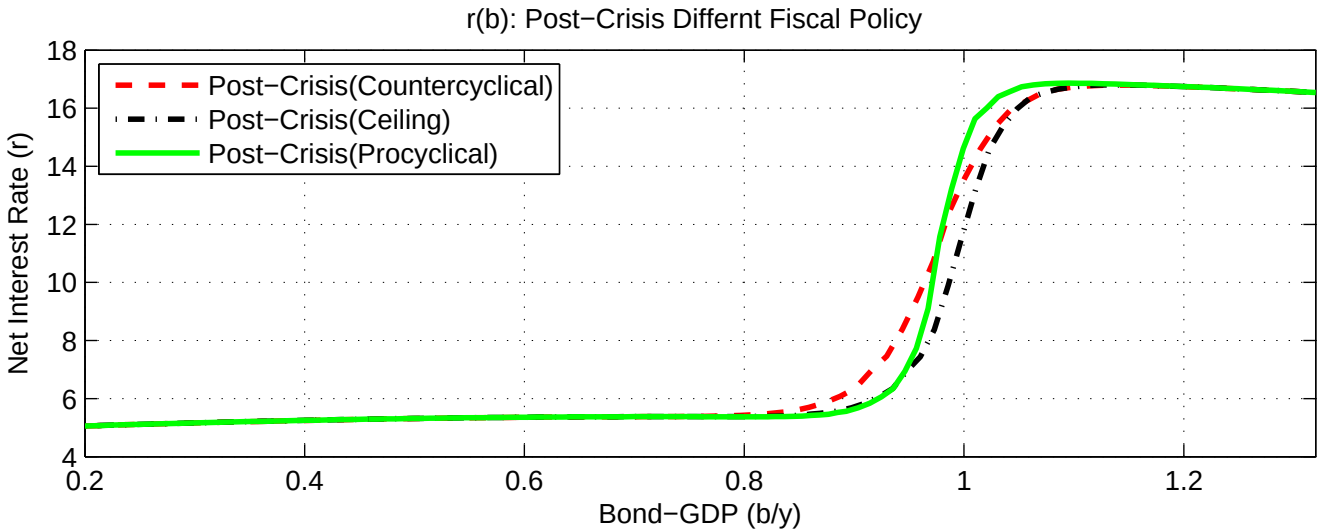
Fiscal Limit: Post-Crisis





Decision Rule: Interest Rate



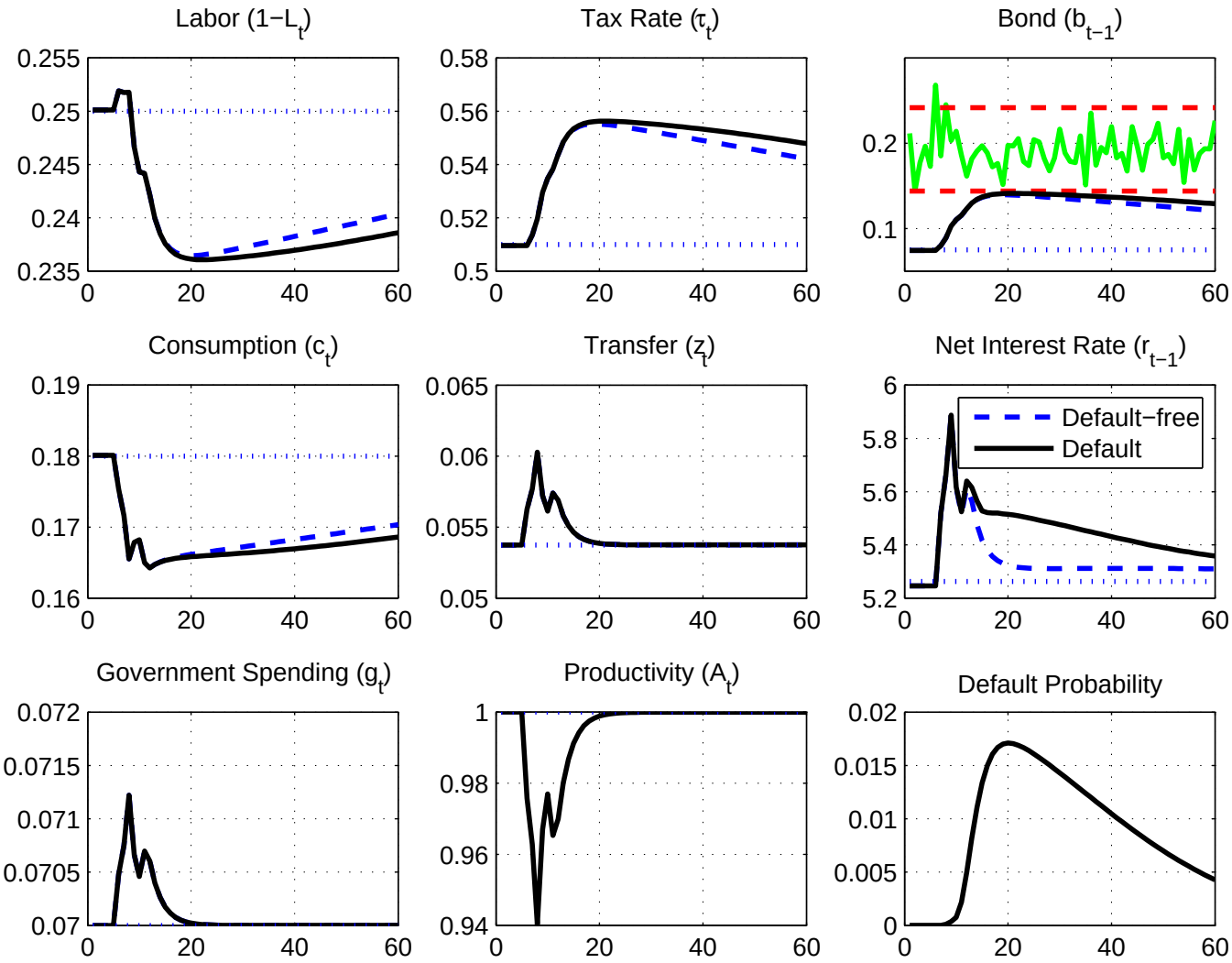


Simulation

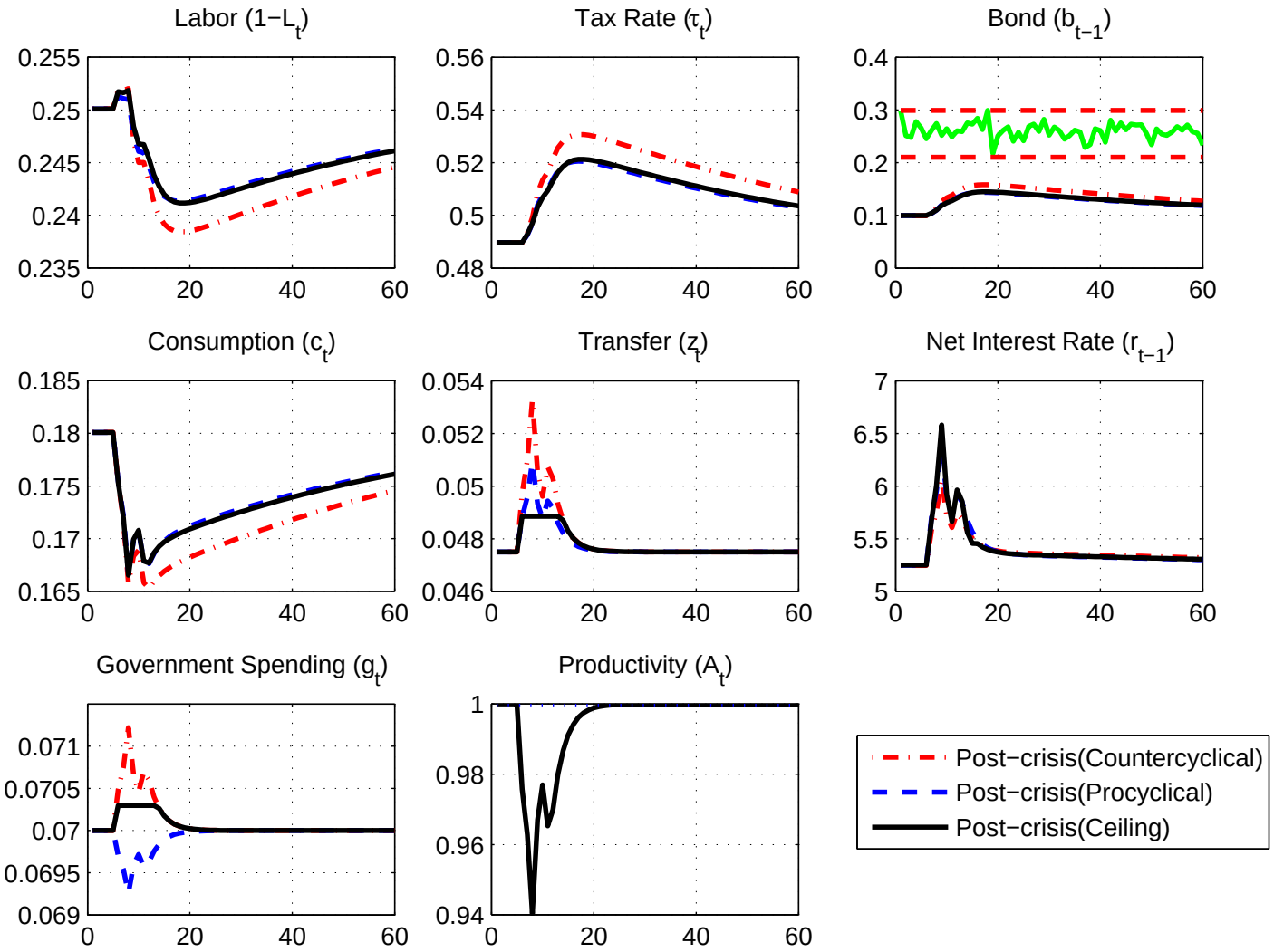
	1990	91	92	93	94	95	96	97
Productivity	1	.9758	.9628	.9404	.9671	.9770	.9653	.97

- Given the productivity path (from the Swedish data);
- The pathes of g_t and z_t follow the countercylical rules.
- At each period, the effective fiscal limit (green line) is drawn from the approximated distribution.
- The paths of $c_t, L_t, \tau_t, b_t, r_t$ are determined by equilibrium conditions.

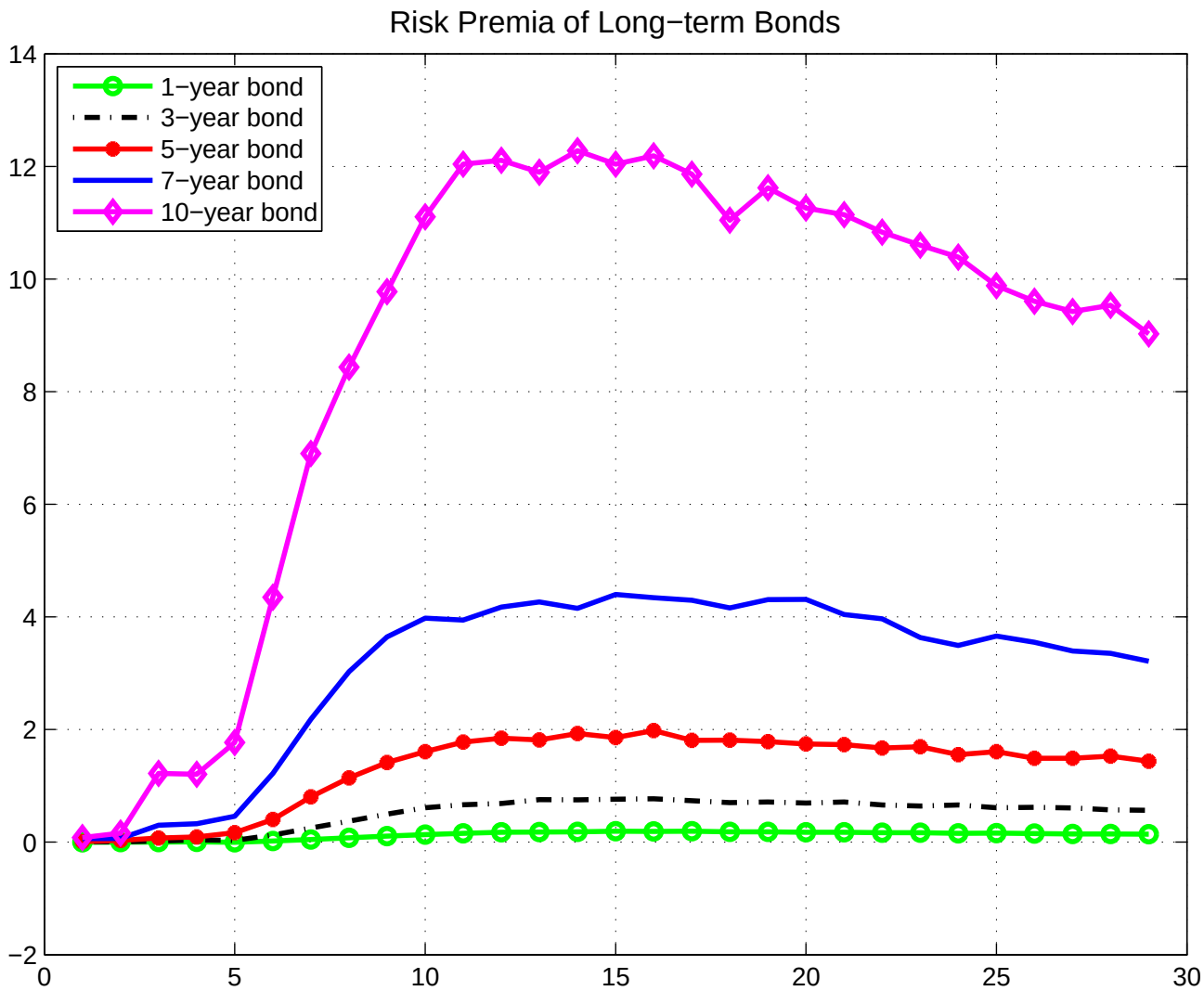
Simulation: Pre-Crisis Calibration



Simulation: Post-Crisis Calibration



Long-term Bonds: Pre-Crisis Calibration



Conclusion

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Future work:

- Extensions to the current model (Joint with Troy Davig and Eric Leeper).
  - Consider capital tax; interaction with monetary policy; endogenous feedback to government spending and transfers.
- Fiscal limits and sovereign default in a monetary union.