ECB Forum on Central Banking 2024

Panel 2: Drivers of Equilibrium Interest Rates

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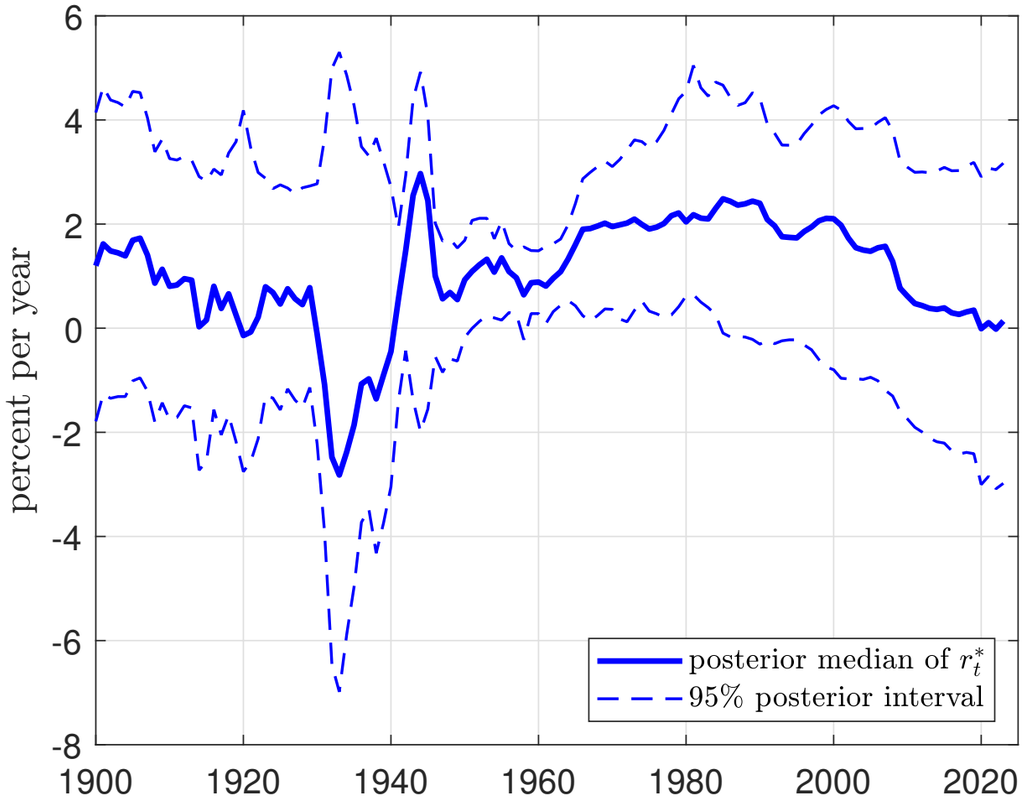
*This presentation is based on "The Macroeconomic Consequences of Natural Rate Shocks: An Empirical Investigation," by Stephanie Schmitt-Grohé and Martín Uribe (2024).

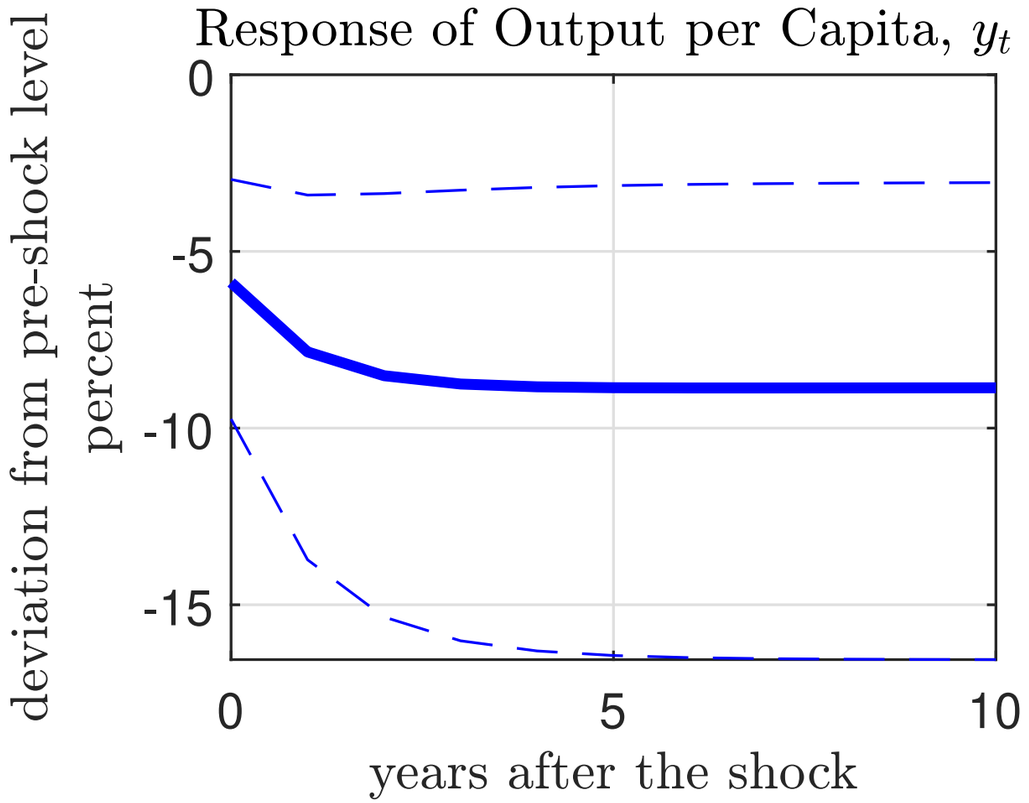
Natural Rate Supercycles

U.S. annual data 1900–2023



Notes. The natural rate, r_t^*, is defined the permanent component of the short-term real interest rate. The figure shows the two-sided Kalman smoothed out path, normalized by adding a constant to match the observed sample mean of $i_t - \pi_{t+1}$ (1.05 percent per year). Source: Schmitt-Grohé and Uribe (2024), "The Macroeconomic Consequences of Natural Rate Shocks: An Empirical Investigation."

Impulse Response to a 1% Decline in the Natural Rate of Interest (r_t^*)



Source: Schmitt-Grohé and Uribe (2024). Notes. Solid lines display the posterior mean response to a negative natural rate shock (a decrease in r_t^*) that lowers the real interest rate by 1 annual percentage point in the long run. Broken lines are asymmetric 95-percent confidence bands computed using the Sims-Zha (1999) method from 100,000 randomly picked draws from an MCMC chain of length 50 million.

Theory: Drivers of r_t^*

• Productivity: secular changes in the growth rate of productivity and hence of per capita income, g_t?

$$(1+g_t)^\sigma = \beta(1+r_t^*) \tag{1}$$

Comment: per capita income growth is stationary so unlikely to explain secular changes in r_t^*.

• Demographics: (i) secular changes in population growth; (ii) An aging population? Comment: (i) population growth rate does not enter (1); (ii) Maybe, but American population has been aging steadily since 1900 whereas r_t^* has not declined steadily since 1900.

• Secular stagnation? Maybe, but negative r_t^* shocks estimated to depress trend path of output even outside the ZLB.

• Secular changes in financial frictions? Potentially promising: can explain positive comovement between trend level of per capita output and r^*; and, in the data, declines in r^* were particularly large during financial crises.