

The Optimal Inflation Target and the Natural Rate of Interest ¹

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Abstract

We study how changes in the steady-state real interest rate affect the optimal inflation target in a New Keynesian DSGE model with trend inflation and a lower bound on the nominal interest rate. In this setup, a drop in the steady-state real interest rate increases the probability of hitting that constraint. This higher probability can be offset by an increase in the inflation target inducing a higher average nominal interest rate. However, a higher inflation target also entails greater distortion costs induced by steady-state inflation. We estimate the model on both U.S. and euro area data to quantify this trade-off. We find that the relation between the steady-state real interest rate and the optimal inflation target is downward sloping, but its slope is not necessarily one-for-one: increases in the optimal inflation rate are generally lower than declines in the steady-state real interest rate. However, in the currently empirically relevant region for the US as well as the euro area, the slope of the relation is close to -0.9. That latter finding is robust to considering several alternative parameter values as well as parameter uncertainty.

Keywords: inflation target, Effective lower bound.

JEL Codes: E31, E52, E58

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