

How Does Monetary Policy Change?

Evidence on Inflation Targeting Countries

Jaromír Baxa

jaromir.baxa@gmail.com

Academy of Sciences of the Czech Republic

Roman Horváth

roman.horvath@gmail.com

Czech National Bank

Bořek Vašíček

borek.vasicek@gmail.com

Universitat Autònoma de Barcelona

1. Introduction

- We examine the evolution of monetary policy rules in a group of inflation targeting countries - Australia, Canada, New Zealand, Sweden and the United Kingdom.
- The inflation targeting (IT) was suggested as the optimal monetary policy regime and it is of interest to investigate how the (de-facto) policysetting evolves in countries that adopted this regime.
- We use the Taylor-type regression with time-varying parameters.
- This allows to analyze (i) how the monetary policy setting changed as a consequence of the IT implementation and (ii) whether the policy under IT is rather discretionary or rule-based.

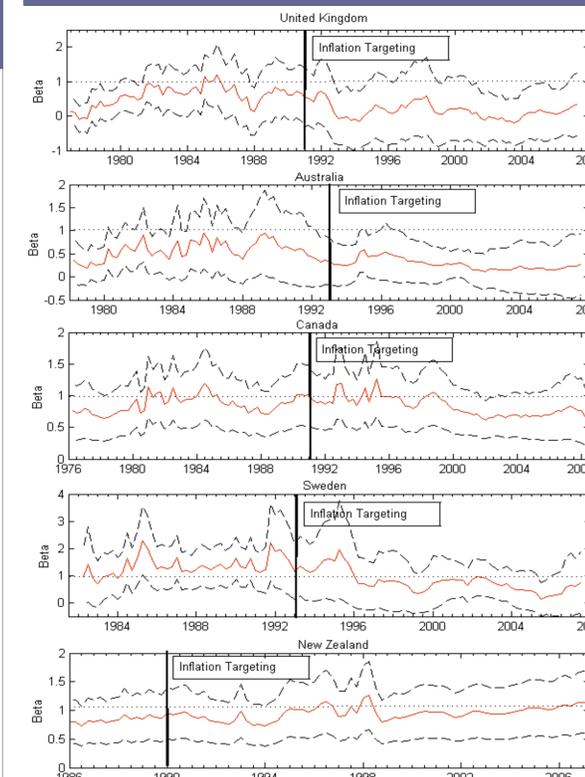
2. Methodology

- Forward-looking interest rate rule with interest rate smoothing (Clarida et al., 1998, 2000):
- $$r_t = (1 - \rho)[\alpha + \beta\pi_{t+i} + \gamma y_t + \delta x_t] + \rho r_{t-1} + \epsilon_t$$
- Endogeneity treatment: Heckman-type two stage procedure that deals with endogeneity bias in time-varying model (Kim, 2006) using instruments for forecasted inflation and current output gap.
- $$\pi_{t+i} = Z_{t-j}\xi + \sigma_\phi \phi_t, \quad \phi_t \sim i.i.d.N(0, 1)$$
- Time-varying parameters estimated using the Schlicht's VC estimator (Schlicht, 1981, 2005).
- The idea: estimated means of the time-varying coefficients should equal to invariant estimator from a weighted least squares (weights are the inverse variance ratios estimated using a moment estimator).
- Hence, it balances the fit of the model and parameter stability.

3. Results: Monetary Policy Less Aggressive Under IT

- The response of interest rates to inflation is high during the periods when central bankers want to break the record of high inflation (the U.K. or Australia in the 80's).
- Contrary to common wisdom, the response to inflation becomes less aggressive after the adoption of inflation targeting suggesting the positive effect of this regime on anchoring inflation expectations.
- This hypothesis seems to be supported by other results: inflation becomes less persistent and policy neutral rate α decreases after IT adopted.
- Intepretation: Inflation targeting wasn't used as an antiinflationary policy, rather the cenral banks wanted to keep the low inflation stable.

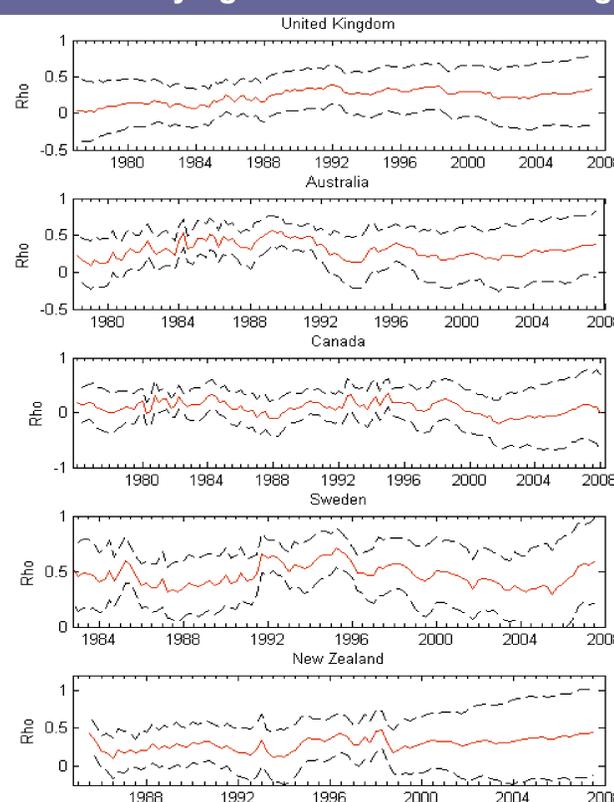
Time-varying Response to Inflation



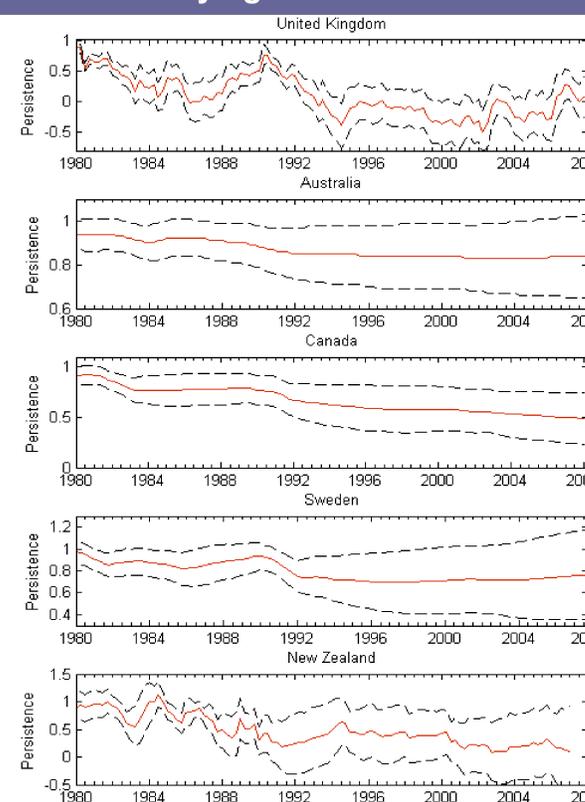
4. Results: Low Policy Inertia

- The response to GDP differs across countries.
- External factors matter for interest rate setting in all our sample countries.
- Foreign interest rate is found to enter the monetary policy rule significantly.
- The importance of (effective) exchange rate varies, it seems to be apparently more important before the countries adopted inflation targeting than afterwards.
- Our results indicate that the interest rate smoothing ρ is much lower than what time-invariant estimates of monetary policy rules typically report (see for example, Clarida et al., 1998, 2000). Our estimates seem to be reasonable given the recent critique of Rudebusch (2006), who argues that the degree of interest rate smoothing is rather low.

Time-varying Interest Rate Smoothing



Time-varying Inflation Persistence



List o Main References

- Benati, Luca, 2008. Investigating Inflation Persistence across Monetary Regimes. *The Quarterly Journal of Economics* 123, 1005-1060.
- Clarida, Richard; Gali, Jordi; Gertler, Mark, 1998. Monetary Policy Rules in Practice: Some International Evidence. *European Economic Review* 42, 1033-1067.
- Clarida, Richard; Gali, Jordi; Gertler, Mark, 2000. Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory. *The Quarterly Journal of Economics*, 115, 147-180.
- Kim, Chang-Jin, 2006. Time-Varying Parameter Models with Endogenous Regressors. *Economics Letters* 91, 21-26.
- Rudebusch, Glenn, 2006. Monetary Policy Inertia: Fact or Fiction? *International Journal of Central Banking* 2(4), 85-136.
- Schlicht, Ekkehart, 2005. Estimating the Smoothing Parameter in the So-called Hodrick-Prescott Filter. *Journal of the Japan Statistical Society*, 35(1), 99-119.