Purchasing Power Parity and the Taylor Rule

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April 2009

Abstract

In the Kehoe and Midrigan (2007) model, the persistence parameter of the real exchange rate is closely related to the measure of price stickiness in the Calvo-pricing model. When we employ this view, Rogo's (1996) 3 to 5 year consensus half-life implies that rms update their prices every 18 to 30 quarters on average. This is at odds with most estimates from U.S. aggregate data when single equation methods are applied to the New Keynesian Phillips Curve (NKPC), or when system methods are applied to Dynamic Stochastic General Equilibrium (DSGE) models that include the NKPC. It is well known, however, that there is a large degree of uncertainty around the consensus half-life of the real exchange rate. To obtain a more efficient estimator, this paper develops a system method that combines the Taylor rule and a standard exchange rate model to estimate half-lives. We use a median unbiased estimator for the system method with nonparametric bootstrap confidence intervals, and compare the results with those from the single equation method typically used in the literature. Applying the method to the real exchange rates of 18 developed countries against the U.S. dollar, we find that most of the half-life estimates from the single equation method fall in the range of 3 to 5 years with wide confidence intervals that extend to positive infinity. In contrast, the system method yields median unbiased estimates that are typically shorter than one year with much sharper 95% confidence intervals, most of which range from 3 quarters to 5 years. These median unbiased estimates and the lower bound of the confidence intervals for the half-lives of real exchange rates are consistent with most estimates of price stickiness using aggregate U.S. data for the NKPC and DSGE models.

Keywords: Purchasing Power Parity, Calvo Pricing, Taylor Rule, Half-Life of PPP Deviations, Median Unbiased Estimator, Grid-t Confidence Interval

JEL Classification: C32, E52, F31