Purchasing Power Parity and the Taylor Rule_

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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 e_cient 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 con_dence 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 _nd that most of the half-life
estimates from the single equation method fall in the range of 3 to 5 years with wide con_dence
intervals that extend to positive in_nity. In contrast, the system method yields median-unbiased
estimates that are typically shorter than one year with much sharper 95% con_dence intervals,
most of which range from 3 quarters to 5 years. These median unbiased estimates and the lower
bound of the con_dence 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 Con_dence Interval

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