Erratum on:

The Dynamic Behavior of the Real Exchange Rate in Sticky Price Models

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December 2011

The Model:

1. The homogeneous labor markets model is solved under the assumption that $\omega = 0$. Reference to this parameter assumption was omitted in the published version of the paper and there is a corresponding error in the reporting of the implied strategic complementarity parameter, which takes the value $\zeta_{homog} = 5$ (rather than 8) in the homogenous labor markets model.

   The calibration of $\omega = 0$ implies that in the homogeneous labor markets model, I am assuming in this case that the elasticity of labor supply is infinite and the production function is linear in labor. These assumptions substantially simplify the analysis of the homogeneous labor markets case and imply that both the heterogeneous and homogeneous labor markets models can be written in terms of the same sets of equations with only one difference in terms of parameter values. Iversen and Soderstrom (2011) investigate the homogeneous labor markets model with $\omega = 3$.

2. In the heterogeneous labor markets model ζ should be

$$\zeta_{heterog} = \frac{\omega(C/Y) + \sigma^{-1}}{1 + \omega\theta}.$$

   The expression in the published paper is missing the (C/Y) term. Assuming (C/Y) = 0.8 implies $\zeta_{heterog} = 0.24$ rather than $\zeta_{heterog} = 0.26$. The results for this case are essentially unchanged from those reported in the paper.

In both cases, the error was present in the original code as well. I have fixed the code and reposted it on my webpage.

Calculation of Up-life, Half-life and Quarter-Life:

1. The "up-life" values in the original version of the paper are one quarter too long. This error applied both to the model and the data (and is also modest relative to the total size of the up-life in the data) and therefore has little impact on my results.

2. I was not sufficiently precise in defining the terms up-life, half-life and quarter-life in my original paper. A precise definition of the half-life is a continuous variable T such that

* I would like to thank Jens Iversen and Ulf Söderström for drawing my attention to the errors reported here.

$|IR(T)| = 0.5$ and $|IR(S)| < 0.5$ for all $S > T$. The up-life and quarter-life are defined analogously, except that the up-life is set to zero if the impulse never rises above one.

It is important to note the following points:

a) I define the half-life in terms of the absolute value of the impulse response function to account for cases where the process has oscillatory dynamics. This allows me to better approximate when the outer envelope of these dynamics falls below 0.5 since the last peak with larger amplitude than 0.5 might be negative.

b) Since the empirical work is done in discrete time, I approximate T by first finding the first whole quarter – call it τ – when the impulse response has fallen below 0.5 in absolute value for the last time and then subtract

$$f = \frac{1 - |IR(\tau)|}{|IR(\tau - 1)| - |IR(\tau)|}$$

In other words, I approximate T as $T = \tau - f$.

3. There was an error in my code relating to the calculation of the half-life, up-life and quarter-life of the impulse response for the data simulated from the model. By mistake, after estimating an AR(5) for the real exchange rate series simulated from the model, I set several of the higher order AR-coefficients equal to zero when calculating the half-life, up-life, and quarter-life.

I have re-run my code adjusting for points #1 and #3 and posted the updated code on my website. The original and corrected results are reported in Table 1 below. This table is an updated excerpt from Table 4 in the original paper, where I compare the dynamics of the real change rate in the data and the model. Panel A in Table 1 below reproduces the original published results, while panel B reports corrected results. For the empirical results, only UL/HL is affected. It falls from 0.44 to 0.37. For the model results, the results regarding the half-life of shocks are essentially unchanged. In particular, the model with Phillips curve shocks continues to yield half-lives long enough to match the data. In the paper, I argue that the key to these long half-lives is the fact that the real exchange rate has a hump-shaped response to Phillips curve shocks. The models with Phillips curve shocks now somewhat over-predict UL/HL relative to the data (0.37 in the data vs. 0.47 or 0.51 in the models), but continues to fit far better than the models with monetary shocks which imply an up-life of zero. The corrected results make the model fit the data better for the QL-HL.

References:

Iversen, J. and U. Soderstrom (2011): "They Dynamic Behavior of the Real Exchange Rate in Sticky Price Models: Comment," Working Paper, Sveriges Riksbank.

TABLE I (excerpt from Table 4 in original paper)
Behavior of the Real Exchange Rate in the Model

		HL	UL/HL	QL-HL
	Panel A: Results in Original Paper			
1	Median empirical value for 9 countries	3.7	0.44	1.9
2	Homogeneous labor market monetary policy shocks	0.6	0.00	0.7
3	Heterogeneous labor market monetary policy shocks	1.3	0.00	1.3
4	Extreme model monetary policy shocks	1.4	0.00	1.4
5	Homogeneous labor market Phillips curve shocks	3.3	0.41	2.1
6	Heterogeneous labor market Phillips curve shocks	4.1	0.40	2.6
	Panel B. Corrected Results			
1	Median empirical value for 9 countries	3.7	0.37	1.9
7	Homogeneous labor market monetary policy shocks	0.6	0.00	0.9
8	Heterogeneous labor market monetary policy shocks	1.3	0.00	1.5
9	Extreme model monetary policy shocks	1.3	0.00	1.5
10	Homogeneous labor market Phillips curve shocks	3.6	0.47	1.8
11	Heterogeneous labor market Phillips curve shocks	4.2	0.51	1.9