

Discussion of “Exchange Rate Pass Through, Domestic Competition, and Inflation - Evidence from the 2005/08 Revaluation of the Renminbi” by Raphael Auer

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## Motivation

The Chinese exchange rate policy vis à vis the U.S. dollar has generated heated policy discussions and sparked academic interest.

That debate may have missed the influence of cheap Chinese imports on keeping competitors' prices in check.

This paper contributes to that debate by assessing:

- 1) the passthrough of Chinese exchange rate movements to U.S. prices of imports from China;
- 2) the passthrough of Chinese exchange rate movements to average trade weighted import prices;
- 3) the influence of import prices on U.S. PPI prices.

## Plan

Review estimation framework and main results for 1), 2), and 3).

Offer some comments that apply generally to empirical approaches across 1), 2), and 3).

## 1) Passthrough to import price

Regress:

$$\Delta IP_{C,t,t-j} = \alpha + \beta_{j,C} \Delta e_{C,t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \Delta X_{C,t,t-j} + \epsilon_{C,t}$$

X includes at least inflation measures for each country C and ROW, and an index of commodity prices.

Regressions repeated for different j lags and different countries C.

Sample Dec 2003-Dec 2009 (?).

## Results for Import prices

$$\begin{aligned}\Delta IP_{Ct,t-j} = & \alpha + \beta_{j,C} \Delta e_{Ct,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} \\ & + \gamma_{j,C} \Delta X_{C,t,t-j} + \epsilon_{C,t}\end{aligned}$$

$\hat{\beta}_{12m\,China} = 1$ . This is interpreted as evidence of full passthrough of Chinese exchange rate movements to U.S. import prices.

After 12 months, median (or mean) country-specific passthrough is 30%.

## 2) Passthrough to Import Price Indices

$$\Delta IPI_{i,t,t-j} = \alpha_i + \beta_{j,C} \Delta e_{C,t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_j \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

Where  $i$  is a 6 digit NAICS industry.

Run panel regression from Dec 2003-Dec 2009 (?).

## Some trade weights

U.S. merchandise imports by origin as a share of total U.S. merchandise imports

Canada 15%	China 20%	Euro Area 17%	Japan 6%	Mexico 12%	ROW 30%
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from IMF dots database

## Results of Panel Regression

$$\Delta IPI_{i,t,t-j} = \alpha_i + \beta_{j,China} \Delta e_{China,t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_j \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

$\hat{\beta}_{6m, China} = 0.18$  consistent with finding of full passthrough of Chinese exchange rate movements to U.S. import prices, as in earlier regression.

But alternative interpretation possible: passthrough of Chinese exchange rate movements to import prices from China really is less than full, but other import prices expand when Chinese imports become more expensive.

### 3) Are domestic prices influenced by import prices ?

Framework:

$$\Delta PPI_{i,t,t-j} = \alpha_i + \beta \Delta IPI_{t,t-j} + \gamma_i \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

Use IV approach with change in US\$/Yuan as an instrument.

Result  $\hat{\beta} = 0.9$ . Variation across  $j$  insignificant.

Do we need a model to guide the estimation framework?

1)

$$\Delta IP_{C,t,t-j} = \alpha + \beta_{j,C} \Delta e_{C,t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_{j,C} \Delta X_{C,t,t-j} + \epsilon_{C,t}$$

2)

$$\Delta IP I_{i,t,t-j} = \alpha_i + \beta_{j,China} \Delta e_{China,t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_j \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

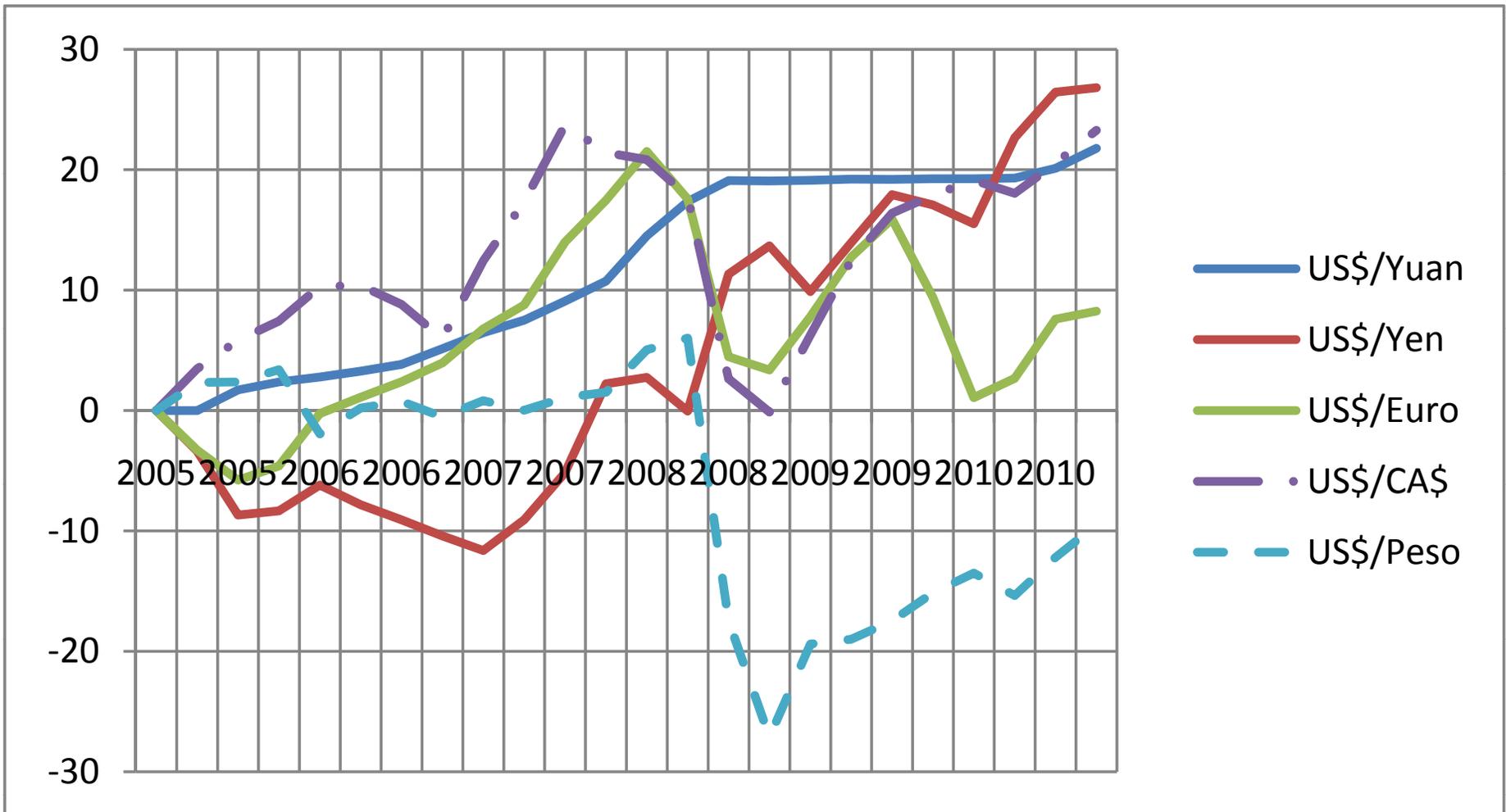
Why focus on nominal exchange rate and not on the real exchange rate? Even with pegged nominal exchange rates, real exchange rates do vary. What model justifies a focus on nominal exchange rates?

## Endogeneity

Even in the case of an exogenous nominal US\$/Yuan exchange rate, what is the argument for the exogeneity of ROW nominal exchange rates with respect to import prices?

Shouldn't we worry about endogeneity issues arising from the joint determination of exchange rates and import prices?

Similar consideration apply to the control variables included in the vector  $X$ .



## Aggregation Bias

Why include in the regression an aggregate of the exchange rate for the entire ROW?

That restriction would be justified if passthrough of exchange rate movements to U.S. import prices were common across countries of origin.

However, Raphael argues that passthrough is country-specific.

While the inclusion of all bilateral exchange rates is inopportune, one could aggregate countries whose import prices have comparable levels of passthrough.

## Time Variation

1)

$$\Delta IP_{Ct,t-j} = \alpha + \beta_{j,C} \Delta e_{Ct,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_{j,C} \Delta X_{C,t,t-j} + \epsilon_{C,t}$$

2)

$$\Delta IPI_{i,t,t-j} = \alpha_i + \beta_{j,China} \Delta e_{China \ t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_j \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

3)

$$\Delta IPI_{i,t,t-j} = \alpha_i + \beta_{j,China} \Delta e_{China \ t,t-j} + \beta_{j,ROW} \Delta e_{ROW,t,t-j} + \gamma_j \Delta X_{i,t,t-j} + \epsilon_{i,t}$$

In each equation, what is the relationship among the  $\epsilon$  terms for different horizons  $j$ ? Don't we need a dynamic model to take a stand on that issue?

## Production costs

Taking a stance on the mechanisms that lead firms to change prices is important in determining appropriate control variables to include in  $X_t$ .

For instance, a New Keynesian model would call for the inclusion of variables that capture marginal cost.

While the paper makes progress in using 6-digit NAICS data, no cost data can be matched to the 6-digit prices.

## Conclusion

Raphael is quite Marxian in this paper. He points the way to a revolution, but does not fully implement it.

What is the bottom line number from the paper? What would happen to U.S. inflation if the Yuan were to appreciate 40%.

That kind of question that opens the paper remains without a bottom line.

One reason to remain sceptical of outside effects on aggregate inflation measures is that even if import prices of manufactured goods exert a large influence on other good prices through competitive effects, goods account for less than one third of the U.S. economy.