Exchange rate pass-through under the unconventional monetary policy regime

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Abstract:

The structural VAR with sign and zero restrictions implied by open-economy DSGE model of Forbes et al. (2018) is applied to the Japanese dataset including shadow monetary policy rate for the period between 2000Q2 and 2019Q4. Confirming to the UK results in Forbes et al. (2018), we found evidence of perverse exchange rate pass-through induced by demand shock that a ten percent exchange rate depreciation driven by weak domestic demand is associated with a one percent deflation at consumer level. This effect may have undermined the continuous efforts of the Bank of Japan to achieve the target of two percent inflation rate. On the other hand, exchange rate pass-through induced by monetary policy shock and exogenous exchange rate shock are consistent with the conventional view, i.e., a depreciation of the Japanese yen inducing an inflation at the consumer level.

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Keywords: Exchange rate pass-through; Structural VAR; Unconventional monetary policy.

Definition of Exchange Rate Pass-through

After obtaining impulse responses of exchange rate and consumer price index from individual structural shocks, we can define shock-specific exchange rate pass-through as the ratio of the cumulated changes in consumer price index to the cumulated changes in exchange rate to the corresponding structural shock. More specifically, $ir^k(t;i)$ is impulse response variable k, being equal to either price or exchange rate, at t-th quarter after the i-th shock. Exchange rate pass-through evaluated at the τ-th quarter after the i-th shock is defined as the following.

$$ERPT(\tau;i) = \frac{\sum_{t=0}^{\tau} ir^p(t;i)}{\sum_{t=0}^{\tau} ir^{er}(t;i)} \quad (3)$$

Selected References:

Forbes, K., I. Hjortsoe, and T. Nenova, 2018, The shocks matter: Improving our estimates of exchange rate pass-through, *Journal of International Economics*, 114, 255-275.

Figure 2. Japanese ERPT on CPI by structural shocks
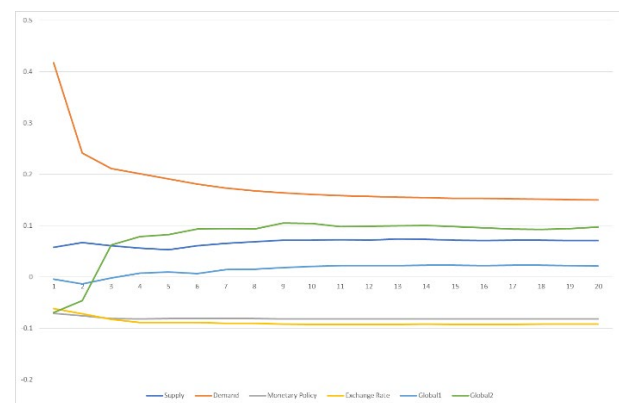
Note: The median ERPT on CPI by shocks are shown. Horizontal axis is the number of quarters after the shock. The data sample is from 2000Q1 to 2019Q4. Following Forbes et al. (2018), after discarding the initial 10,000 random draws, the only final 1000 draws are saved only

if the draw satisfies the all restrictions.