Macro-prudential Policies in a Commodity Exporting Economy

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Outline

Motivation

Event-study analysis

- Oil price shock
- Event analysis

The model

- Key elements
- Experiment: unexpected oil price reversal

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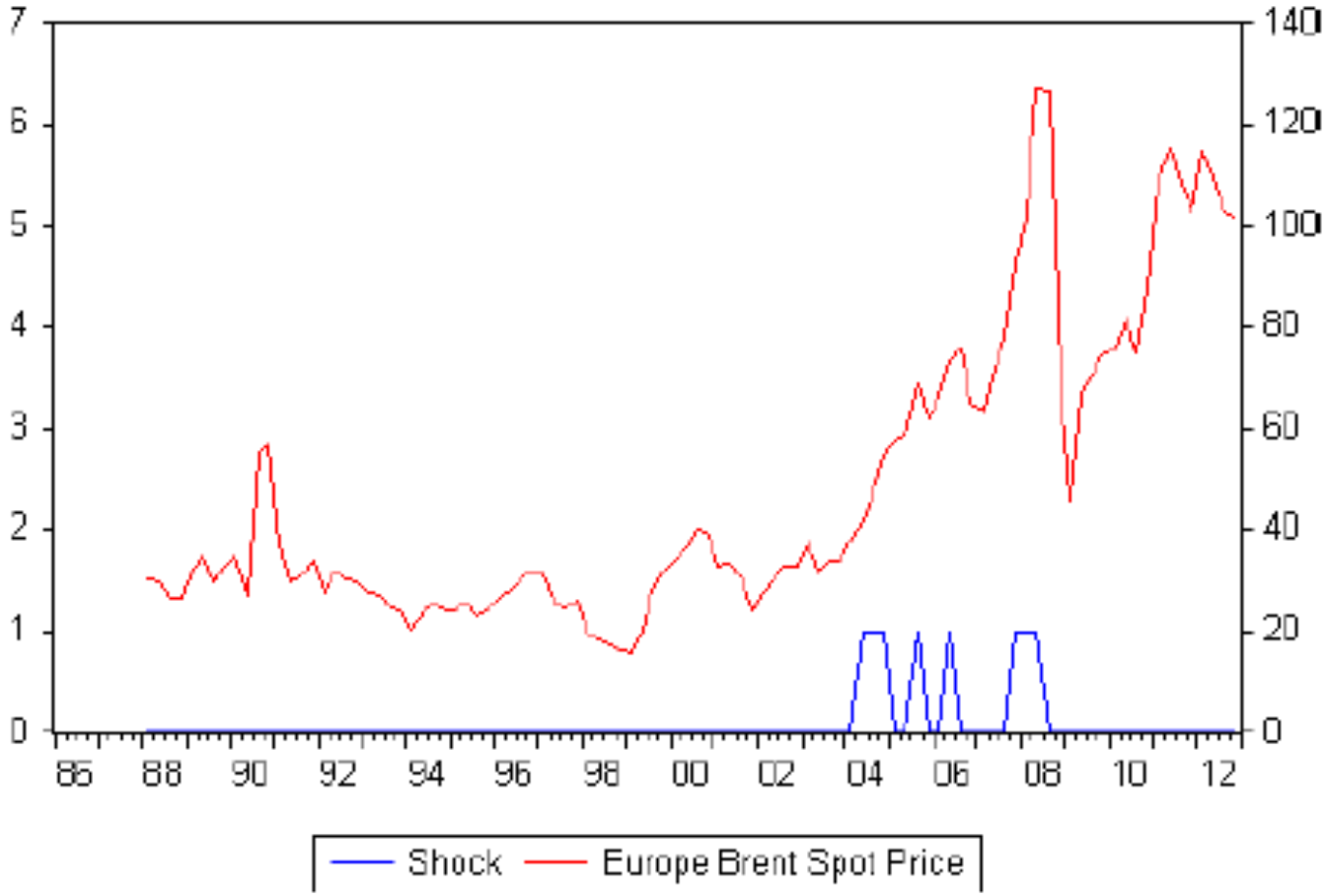
- Not much is known about how monetary and macroprudential policies cope with foreign shocks in a commodity exporting economy.
- We estimate a model to bring it into a policy environment. We use the model to assess the benefits and the costs of conventional and unconventional policy instruments in the face of foreign shocks.

Outline

Large increases in oil prices



Oil shock $\equiv$ the maximum value of the oil price during the last 36 months. It occurs when the oil price change is larger than two std. deviations, Hamilton (2003).

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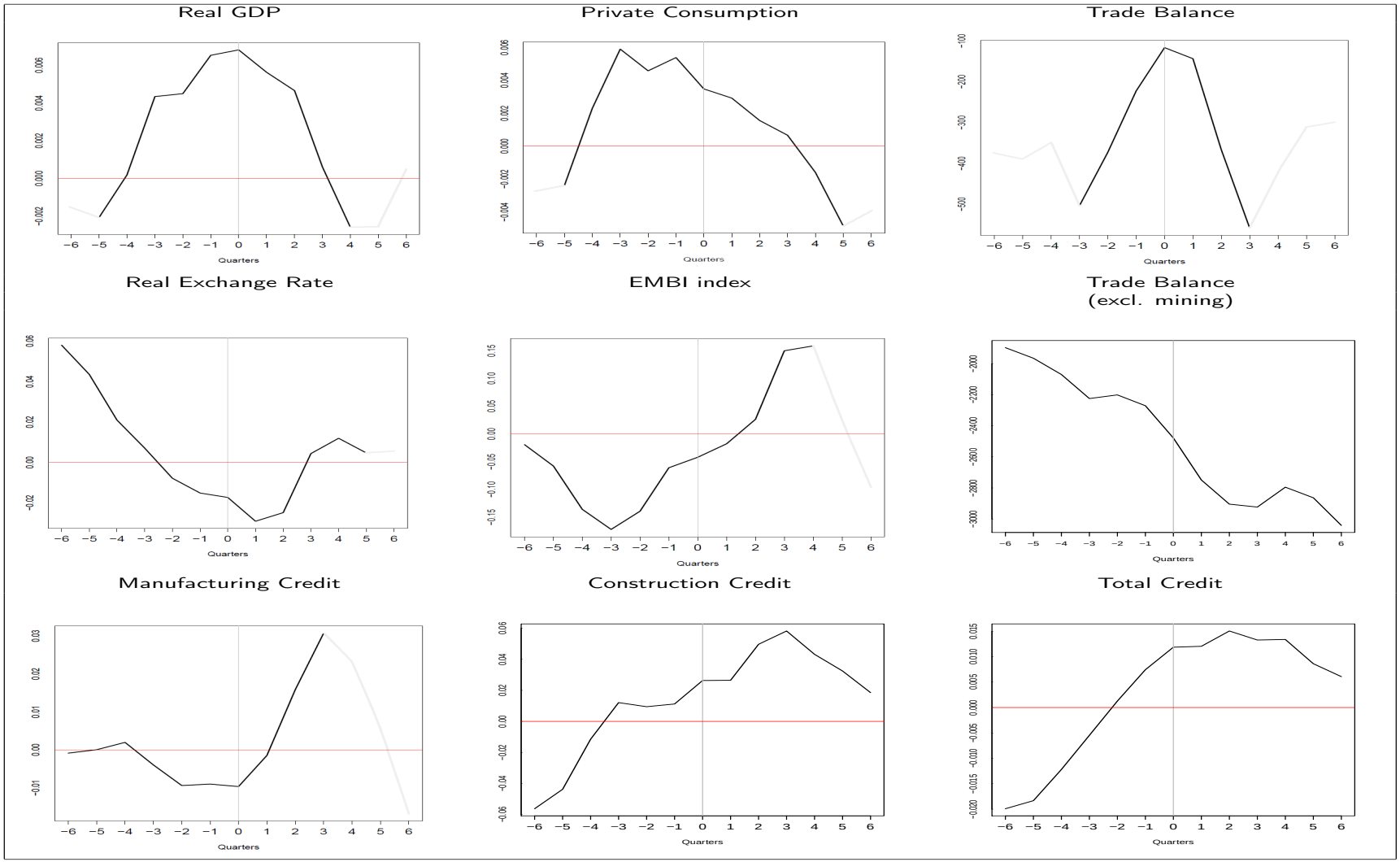
Macro variables around oil price shocks



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- Key: financial accelerator (BGG) in *both sectors* where net worth is influenced by valuation effects.

Key 1: Financial accelerator

tradable and nontradable ($j = N, T$)

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- Financial intermediation subject to frictions (CSV problem) on the side of the asset side of the banks. Thus, spreads depend on firms' net worth, n_t^j and the value of capital, $p_t^{k^j} k_t^j$.

$$\mathbb{E}_t \left[r_{t+1}^{k^j} \right] = \left(\frac{n_t^j}{p_t^{k^j} k_t^j} \right)^{-v_t^j} (1 + r_t)(rp_t)$$

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- We define a "regulation premium", rp_t, as *any* policy that increases credit costs.

Key 2: Conventional and unconventional tools

- Monetary policy rule: reacts to deviations of *total* inflation relative to the target $\overline{\pi}$

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$$rp_t = \exp\left(\mu_{rp} \left(\frac{cr_t}{\overline{cr}} - 1 \right) \right)$$

Key 3: Oil production and country risk

- Changes in oil revenues are ultimately transferred to households, relaxing their budgets. In addition, oil affects the country risk premium:

$$(1+i_t^*) = (1+\bar{r}^*)(1+\pi_t^*)\, z_t^{i^*} \frac{\exp\left(\nu_{b^*}\left(\frac{q_t b_t^*}{GDP_t} - \bar{b}^*\right)\right)}{\exp\left(\nu_{oil}\left(oil_t - \overline{oil}\right)\right)}$$

- The value of oil activities is exoegenous

$$oil_t = \rho_{z^{oil}}\, oil_{t-1} + (1-\rho_{z^{oil}})\log\left(\overline{oil}\right) + \varepsilon_t^{oil}$$

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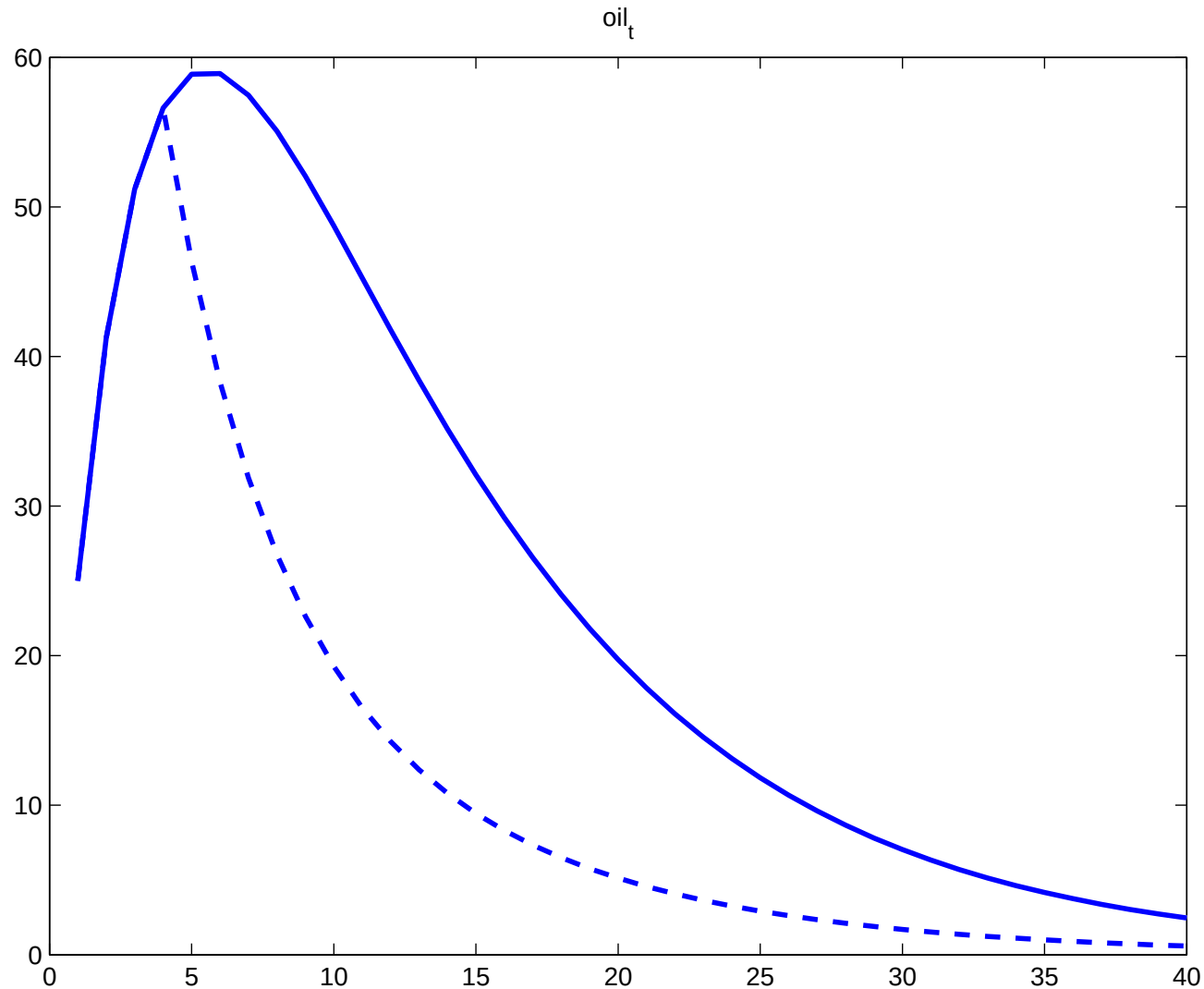
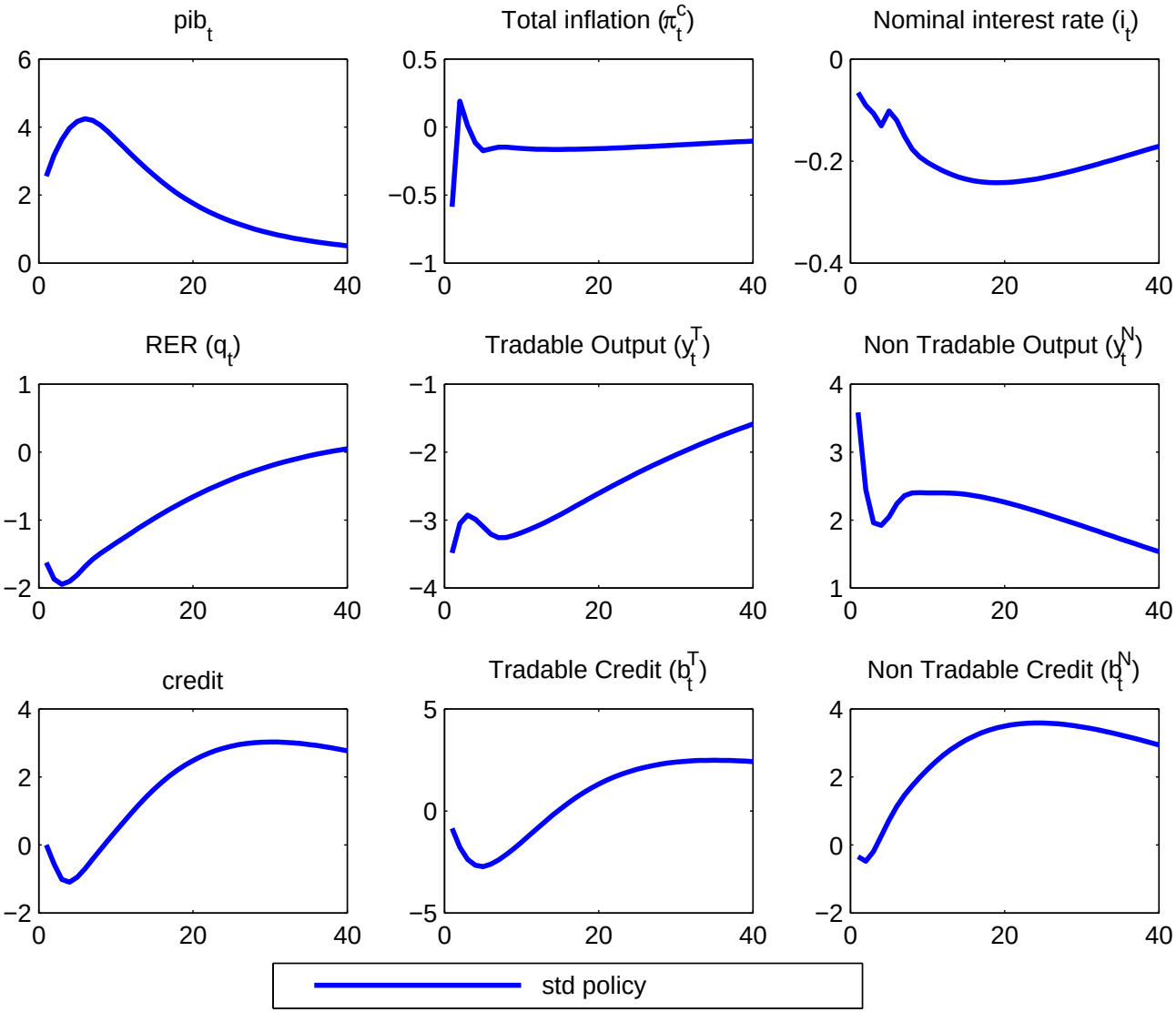
Unexpected oil price reversal



Conventional policy response to persistent oil shock



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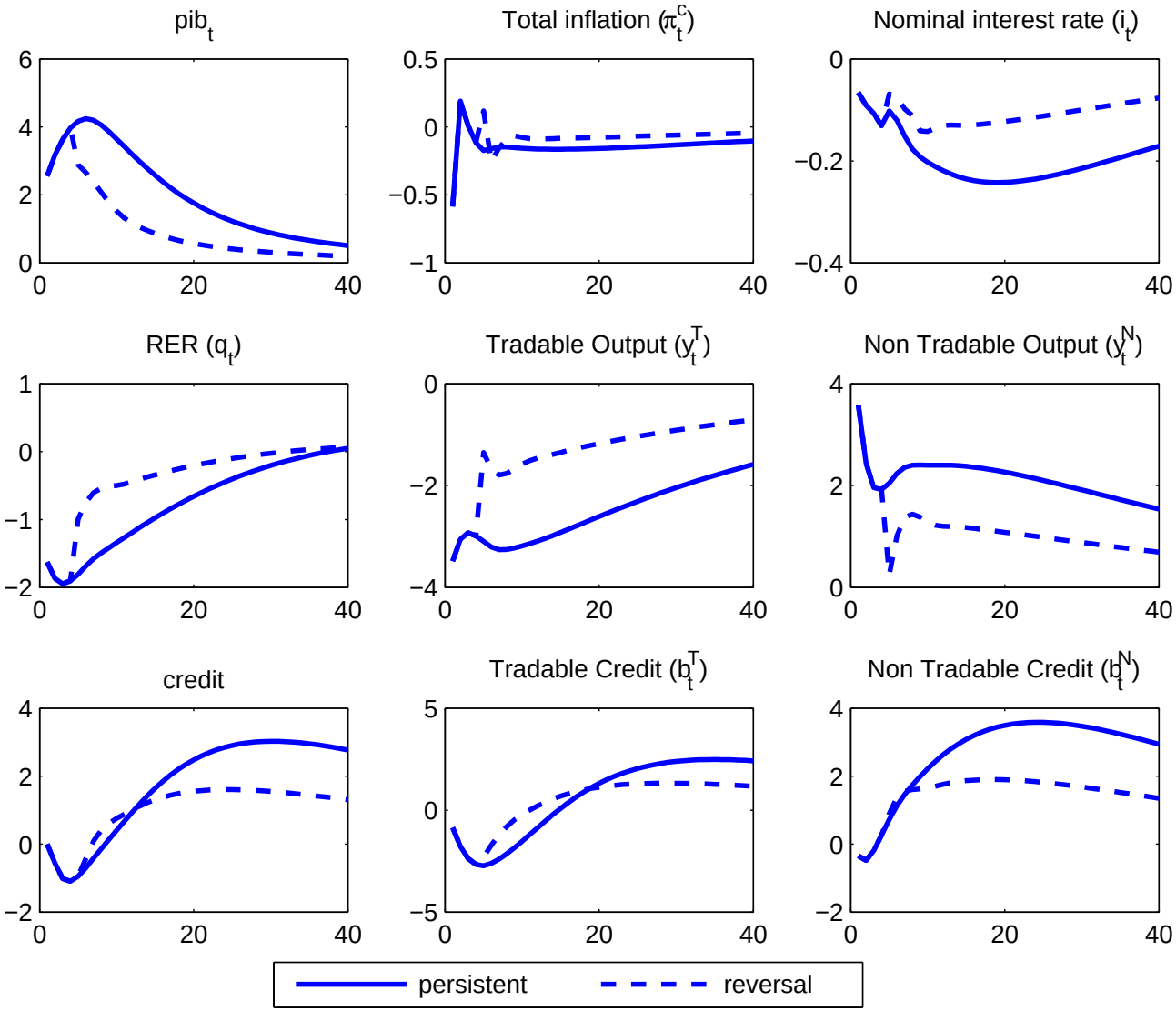

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