DSGE model for Russian economy. Oil export duty reduction.

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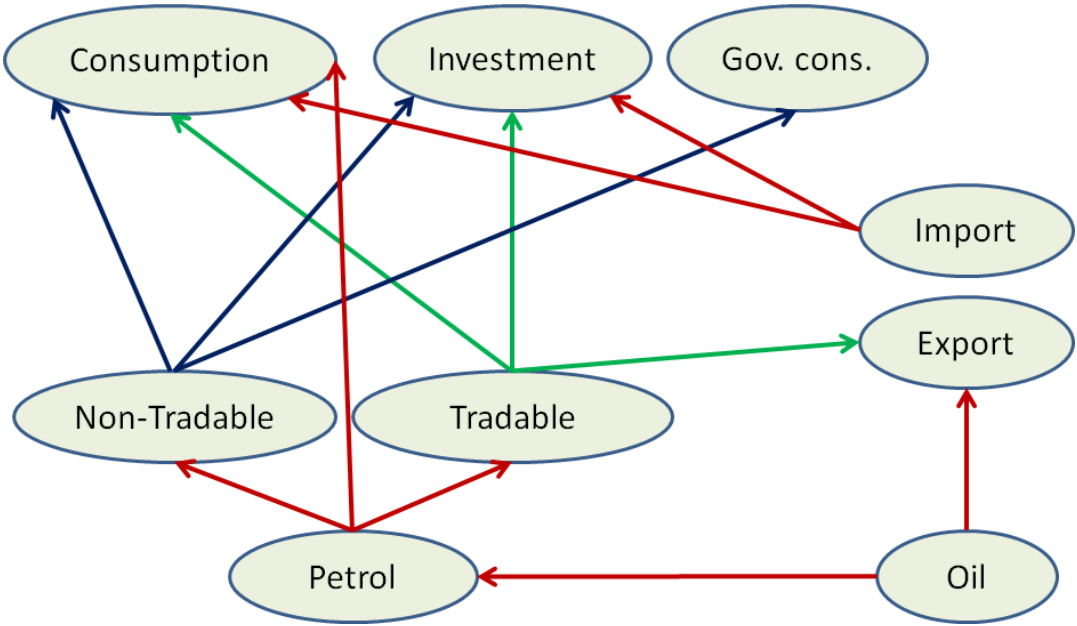
Schematic


Consumption
Investment
Gov. cons.
Import
Export
Non-Tradable
Tradable
Petrol
Oil

Agents

- Households
- Firms
- Government
- Central Bank
- External sector

Petrol sector

Technology for petrol production:

$$Y_t(i) = Petrol_t(i) = F\left(K_t(i), L_t(i), Oil_t(i)\right) = Min\left[A_t\left(K_t(i)\right)^{\alpha}\left(L_t(i)\right)^{1-\alpha}, \gamma^{Oil} Oil_t(i)\right]$$

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Firm's cash flow:

$$\begin{aligned} CF_t(i) =& E_t \sum_{s=0}^{\infty} \tilde{R}_{t,t+s} \left[(1-\tau) P_{t+s}(i) \left(\frac{P_{t+s}(i)}{P_{t+s}}\right)^{-\sigma} Y_{t+s} - P^I_{t+s} I_{t+s}(i) - W_{t+s} L_{t+s}(i)\right. \\ & \left. - P^{Oil}_{t+s} Oil_{t+s}(i) - \Psi^P_{t+s}\left(\frac{P_{t+s}(i)}{P_{t+s-1}(i)}\right)\right] \end{aligned}$$

Tradable and Non-Tradable sector

Production function:

$$Y_t = F\left(K_t(i), L_t(i), Petrol_t(i)\right) = A_t \left(CES\left[K_t(i), Petrol_t(i)\right]\right)^{\alpha} \left(L_t(i)\right)^{1-\alpha}$$

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Other features

- Oil export duty:

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- Calibration based on input-output tables

Scenarios

- Baseline scenario: cut in oil export duty by 80%, increase in the efficiency of petrol production from 70% to 85%

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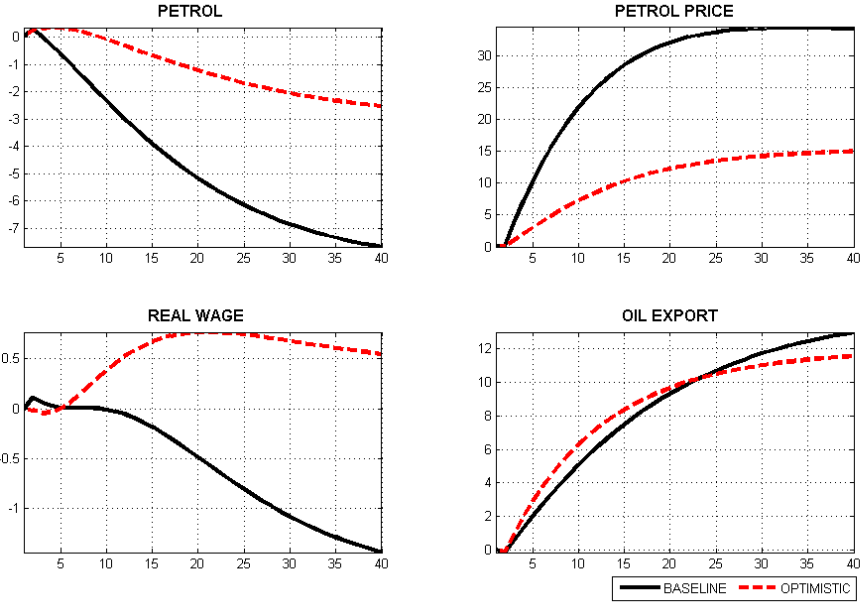
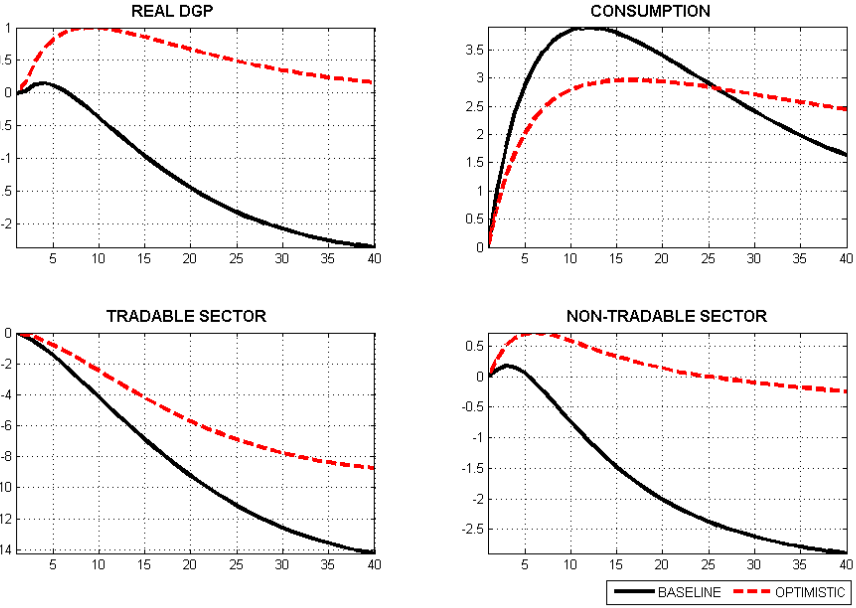
- Optimistic scenario: cut in oil export duty by 80%, increase in the efficiency of petrol production from 70% to 85% and markup drop in the petroleum sector from 30% to 15%

Graphs


PETROL
PETROL PRICE
REAL WAGE
OIL EXPORT
BASELINE
OPTIMISTIC

Graphs


REAL DGP
CONSUMPTION
TRADABLE SECTOR
NON-TRADABLE SECTOR
BASELINE
OPTIMISTIC

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- A 1% short-run increase in GDP