Commodity Cycles and Financial Instability in Emerging Economies

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New-Keynesian DSGE model of small commodity-exporting
economy with banking sector and financial frictions:

- two financial frictions: the collateral constraint (secured debt)
  and the dead-weight cost of default (unsecured debt)
- two variants of the model: with endogenous and exogenous
  rate/cost of default
- estimated using quarterly data on the Russian economy
- allows analizing monetary and macro-prudential policies

Summary

Main results:

- financial frictions amplify the effects of oil shocks on Russian economy, especially in the model with endogenous defaults

- a lean-against-the-wind monetary policy adjusts the level of unsecured debt and stablize the economy

- macro-prudential policies (reserve requirements on deposits and capital adequacy requirements) have small stabilizing effect

Comments: SOE and international shocks

❶ Small open economy and transmission of international shocks:
- terms-of-trade/oil price channel - present
- financial/interest rate/risk premium channel - present
- trade channel - no export demand shocks (constant non-oil export demand?)

❷ Not all oil shocks are alike
- global demand driven (2008-2009) vs. global oil supply driven (2014-2016) oil price declines
  Kilian (2009), Charnavoki & Dolado (2014)
- importance of the source of windfall gains: volume (higher investment demand, positive technology spillovers) vs. price changes (higher energy costs)
  Bjornland & Thorsrud (2016)
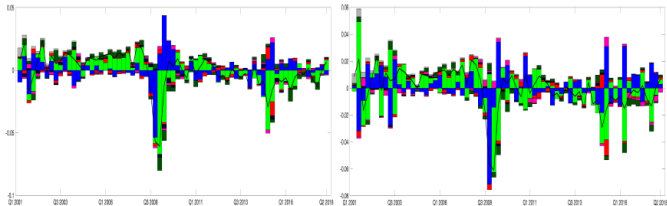
EU GDP as a proxy for global demand in Russia

Simple SVAR of Russian economy: 1995Q1-2018Q4

- two global variables: (log) of EU GDP and (log) of Brent price
- recursive ordering: EU GDP - first, oil price - second, robust to alternative identification schemes
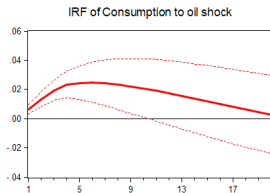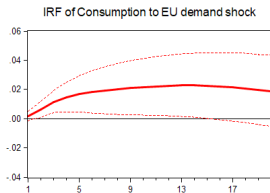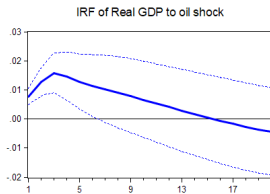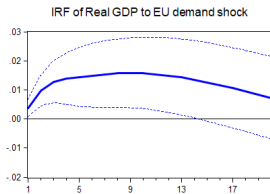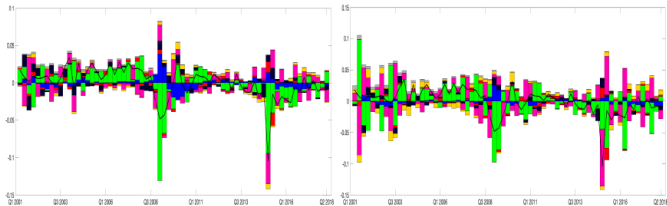
Comments: the effects of oil price shocks

Historical decomposition of real GDP and consumption in Russia:

(a) GDP for endogenous financial frictions case

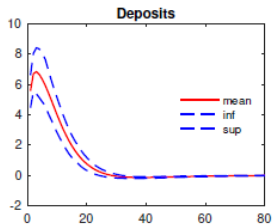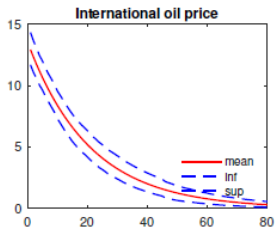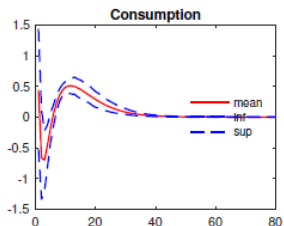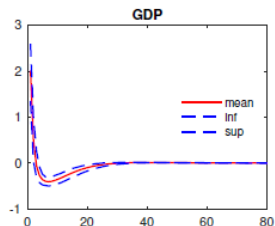(b) GDP for exogenous financial frictions case

(c) Consumption for endogenous financial frictions case

(d) Consumption for exogenous financial frictions case

Comments: the effects of oil price shocks

IRFs of real GDP and consumption in Russia to oil price shock:

Comments: the effects of oil price shocks

Possible explanations:

1. All oil revenues are collected and spent by government: no direct effect of oil prices on households' income (shareholders, managers and workers of oil & gas companies, fiscal transfers/wages of public sector workers) $\rightarrow$ small income effect on consumption

2. Households can save in foreign assets: adjustment costs are not strong enough to shut down outflow of capital

3. Investment good is imported: strong incentive to substitute expensive labour for cheap capital in production + households increase savings (to finance investment) and substitute their consumption for leisure

Additional modifications:

1. Habit formation $\rightarrow$ hump-shaped dynamics of consumption

2. Oil in production (energy and materials)/consumption (gasoline) $\rightarrow$ direct negative effect on output

Comments: fiscal policy rules

1. The authors discuss monetary and macro-prudential policies
2. No fiscal policy: fiscal policy rules/sovereign wealth funds
   - Oil revenues are collected by government
   - Public debt/assets are constant - all oil revenues are spent on domestic final goods
   - All public debt is held by domestic households - no sovereign wealth fund
3. Fiscal rules for commodity exporters: Pieschacon (2012), Medina & Soto (2016)

Literature

1. Kilian (2009) - *Not all oil price shocks are alike: Disentangling demand and supply shocks in the crude oil market*, American Economic Review 99 (3)

2. Charnavoki & Dolado (2014) - *The effects of global shocks on small commodity-exporting economies: Lessons from Canada*, American Economic Journal: Macroeconomics 6 (2)

3. Bjornland & Thorsrud (2016) - *Boom or Gloom? Examining the Dutch Disease in Two-Speed Economies*, The Economic Journal 126

4. Pieschacon (2012) - *The value of fiscal discipline for oil-exporting countries*, Journal of Monetary Economics 59 (3)

5. Medina & Soto (2016) - *Commodity prices and fiscal policy in a commodity exporting economy*, Economic Modelling 59