Sanctions and the Exchange Rate

Itskhoki and Muhkin

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As a result of these unprecedented sanctions, the ruble almost is immediately reduced to rubble.

President Biden, March 26th 2022

Russia has been the target of economic sanctions since February. Movements in the ruble often used as a measure of success. This paper explores the effect of sanctions on the exchange rate. Build a model of a small open economy with:

- Endowment of non-tradables, imports and exports
- Consumers derive utility from consumption and foreign currency bonds
- Asset market segmentation
- Policy: reserve accumulation, domestic price and return on foreign bonds

Analytical model: develop intuition on different mechanisms at play

Quantitative analysis: decompose effect of individual sanctions
Summary of Paper

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Understanding the Mechanism

Stationary Equilibrium

Import demand:
\[ C = F \gamma_1 - \gamma_P \epsilon P^* Y \]

Balance of payments:
\[ P^* C F = Y^* + (1 - \beta) F^* C F \epsilon_{BoP} \]
Understanding the Mechanism
Stationary Equilibrium

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\[ C_F = \frac{\gamma}{1-\gamma} \frac{P}{\epsilon P^*} Y \]

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\[ \begin{align*}
\epsilon & \quad \text{BoP} \\
\uparrow & \quad \downarrow \\
\text{imports} & \quad C_F
\end{align*} \]
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Effect on sanctions on \( \epsilon \) and \( C^F \):


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- Export limit \( Y^* \downarrow: \epsilon \uparrow, C_F \downarrow \)
- Foreign reserve freeze \( F^* \downarrow: \epsilon \uparrow, C_F \downarrow \)
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- Export limit $Y^* \downarrow$: $\epsilon \uparrow$, $C_F \downarrow$
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- Production deterrents $Y \downarrow$: $\epsilon \downarrow$, $C_F =$
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- Production deterrents \( Y \downarrow: \epsilon \downarrow, C_F = \)
- Import rationing \( P^* \uparrow: \epsilon \downarrow, C_F \downarrow \)
Understanding the Mechanism

Dynamic Equilibrium

\( \gamma_1 - \gamma_P t \epsilon t P^* t Y_t (1) \)

\( F^*_t + R^* t - F^* t = Y^* t - P^* t C_F t \)

\( \beta R^* H_t E_t \{ P^* t P^* t + 1 [ C_F t C_F t + 1 + \kappa C_F t (\Psi_t - B^* t + 1 P^* t + 1)] \} = 1 \)

▶ An increase in \( \Psi_t \) results in excess foreign currency demand: \( B^* t + 1 \uparrow \)
Understanding the Mechanism

Dynamic Equilibrium

\[ C_{Ft} = \frac{\gamma}{1 - \gamma \epsilon_t P_t^*} Y_t \] \hspace{1cm} (1)

\[ \frac{F_{t+1}^*}{R_t^*} - F_t^* = Y_t^* - P_t^* C_{Ft} \] \hspace{1cm} (2)

\[ \beta R_{Ht}^* \mathbb{E}_t \left\{ \frac{P_t^*}{P_{t+1}^*} \left[ \frac{C_{Ft}}{C_{F,t+1}} + \tilde{\kappa} C_{Ft} \left( \Psi_t - \frac{B_{t+1}^*}{P_{t+1}^*} \right) \right] \right\} = 1 \] \hspace{1cm} (3)

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▶ Suppose \( F_{t+1}^* = B_{t+1}^* \) and \( R_{Ht}^* = R_t^* \)
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Suppose \( F_{t+1}^* = B_{t+1}^* \) and \( R_{Ht}^* = R_t^* \):

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\[ C_{Ft} = \frac{\gamma}{1 - \gamma \epsilon_t P^*_t} Y_t \]  \hspace{1cm} (1)

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  * On impact, \( C_{Ft} \) falls and \( \epsilon_t \) increases
  * There is mean reversion and overshooting in the long run
- FX interventions or financial repression keep \( (C_{Ft}, \epsilon_t) \) unchanged.
Some Remarks

1. Russia is not small on energy markets

   ▶ Potentially interesting second-round effects

2. Paper builds on a specific output - exchange rates interaction

   ▶ There are alternatives worth exploring

3. The exchange rate is not the right metric, I agree

   ▶ Then, more on effects of sanctions on fiscal resources
Some Remarks

A must-read: timely question, serious while intuitive analytical model & revealing quantification exercise
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Summary of my main comments

1. Russia is not small on energy markets
   - Potentially interesting second-round effects

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   - There are alternatives worth exploring

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   - Then, more on effects of sanctions on fiscal resources
Comment I: Russia as a Small Open Economy

The small open economy assumption simplifies analysis: take international prices as given. However, Russia is a big player in energy markets. Export sanctions ⇒ higher global energy prices.

Implication 1: export revenues in Russia have increased

Implication 2: RoW is on the brink of a recession:

\[ Suggestion: \text{explore (and quantify) second round effects} \]
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Comment II: Real Income Channel

Literature is increasingly focusing on heterogeneous agents. Extension featuring hand-to-mouth and Ricardian households in the context of financial repression.* Take-away: financial repression can be welfare enhancing.

Latest contribution of heterogeneity to exchange rate theory is missing: real income channel (Auclert et al. 2021).

Mechanism works strictly through expenditure switching effect.

Real income channel reduces ex-rate movements. By how much? What are the welfare implications?

Suggestion: no need to go full HA, TA should work. Also need domestically consumed tradables.
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Comment III: Beyond the Exchange Rate

Main message to general public: exchange rates are NOT a good measure of sanctions' success

Depreciating the ruble or (directly) hurting consumers was never the final goal of sanctions

Sanctions are primarily targeted towards reducing fiscal capacity to fund the war - why not spend more time on this?

Figure 5 (a) shows the dynamics of government revenues and its decomposition into different shocks.

* Government resources used to counteract sanctions should also be accounted for.
* Ultimately what matters is how big is the reduction of fiscal capacity relative to cost of war
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Other minor comments

- While financial sanctions have not fully turned Russia into a financial pariah, why not consider them (at least) partially?


- In steady state, government fiscal balance should read

\[
W \leq \epsilon (1 - \beta) (F^* - B^*) + \epsilon Y^* + PY
\]

If \(B^* = 0\), \(F^* - B^*\) does not affect nominal wage commitment.
Conclusion

First use of economic sanctions dates back to 432 B.C. when Pericles issued the Megarian Decree against Sparta's allies. Its effectiveness remains an unsettled debate among historians! This paper is a leapfrog in the right direction. Trade and financial sanctions + precautionary shock + policy response explain the dynamic behavior of the ruble. Looking forward to future versions.
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