Sanctions and the Exchange Rate

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Summary of Paper

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

President Biden, March 26th 2022

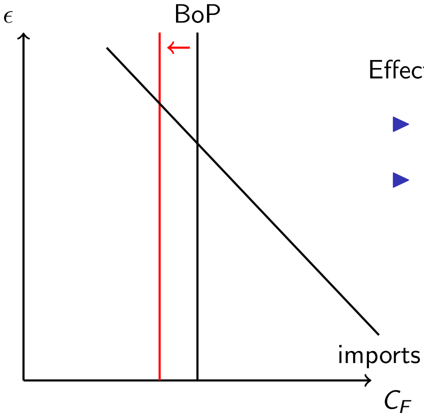
- Russia has been the target of economic sanctions since February
- Movements in the ruble often used as a measure of success
- This paper explores **the effect of sanctions on the exchange rate**
- Build a model of a small open economy with:
  * Endowment of non-tradables, imports and exports
  * Consumers 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

Understanding the Mechanism

Stationary Equilibrium

Import demand: $C_F = \frac{\gamma}{1-\gamma} \frac{P}{\epsilon P^*} Y$

Balance of payments: $P^* C^F = Y^* + (1-\beta) F^*$



Effect on sanctions on ϵ and C^F:

- Export limit $Y^* \downarrow$: $\epsilon \uparrow$, $C^F \downarrow$
- Foreign reserve freeze $F^* \downarrow$: $\epsilon \uparrow$, $C^F \downarrow$

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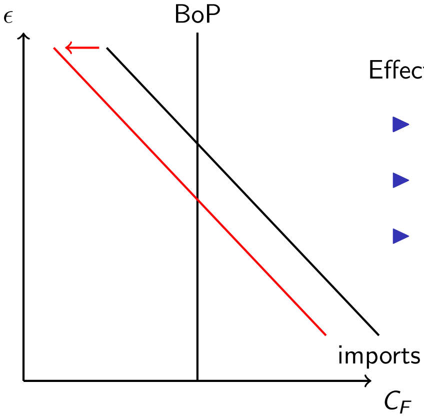

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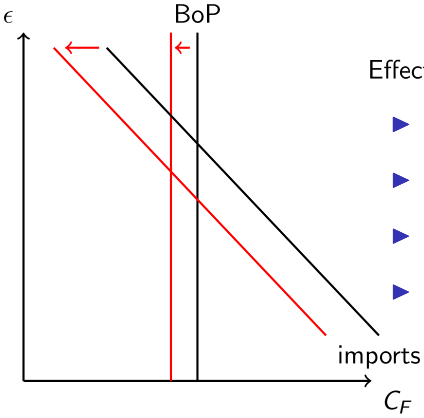

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- Foreign reserve freeze $F^* \downarrow$: $\epsilon \uparrow$, $C^F \downarrow$
- Production deterrents $Y \downarrow$: $\epsilon \downarrow$, $C^F =$
- Import rationing $P^* \uparrow$: $\epsilon \downarrow$, $C^F \downarrow$

Understanding the Mechanism

Dynamic Equilibrium

$$C_{Ft} = \frac{\gamma}{1-\gamma} \frac{P_t}{\epsilon_t P_t^*} Y_t \tag{1}$$

$$\frac{F_{t+1}^*}{R_t^*} - F_t^* = Y_t^* - P_t^* C_{Ft} \tag{2}$$

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

- An increase in Ψ_t results in excess foreign currency demand: $B_{t+1}^* \uparrow$

Understanding the Mechanism

Dynamic Equilibrium

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- An increase in Ψ_t results in excess foreign currency demand: $B_{t+1}^* \uparrow$
- Suppose $F_{t+1}^* = B_{t+1}^*$ and $R_{Ht}^* = R_t^*$:
  * On impact, C_{Ft} falls and ϵ_t increases
  * There is mean reversion and overshooting in the long run

Understanding the Mechanism

Dynamic Equilibrium

$$C_{Ft} = \frac{\gamma}{1-\gamma}\frac{P_t}{\epsilon_t P_t^*}Y_t \tag{1}$$

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- An increase in Ψ_t results in excess foreign currency demand: $B_{t+1}^* \uparrow$
- Suppose $F_{t+1}^* = B_{t+1}^*$ and $R_{Ht}^* = R_t^*$:
  - On impact, C_{Ft} falls and ϵ_t increases
  - There is mean reversion and overshooting in the long run
- FX interventions or financial repression keep (C_{Ft}, ϵ_t) unchanged.

Some Remarks

A must-read: timely question, serious while intuitive analytical model & revealing quantification exercise

Summary of my main comments

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

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 $\Rightarrow$ higher global energy prices
- Implication 1: export revenues in Russia have increased
- Implication 2: RoW is on the brink of a recession: $R_t^* \uparrow$

$$\beta \, R_t^* \, \mathbb{E}_t \left\{ \frac{P_t^*}{P_{t+1}^*} \left[\frac{C_{Ft}}{C_{F,t+1}} + \tilde{\kappa} C_{Ft} \left(\Psi_t - \frac{R_t^* (Y_t^* - P_t^* C_{Ft} + F_t^*)}{P_{t+1}^*} \right) \right] \right\} = 1$$

Suggestion: explore (and quantify) second round effects

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.

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

Other minor comments

- While financial sanctions have not fully turned Russia into a financial pariah, why not consider them (at least) partially?
- Closely related, Eichengreen et al (2022) estimate dynamic responses of exchange rates in a panel of sanction episodes
- 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