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# **Exchange Rate Controls**

## **As A Fiscal Instrument**

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December 30, 2023

## Motivation

- About 20 percent of all countries have in place dual, multiple, or parallel exchange rates (Ilzetzki, Reinhart, and Rogoff, 2019).
- Exchange-rate controls are more common in high inflation countries (e.g., Argentina, Nigeria, Venezuela).
- This paper focuses on the role of exchange-rate controls as a means to generate fiscal revenue in an environment in which they compete with seignorage to finance the fiscal deficit.

## Monetary Distortion

Money Velocity

$$v_t = L(i_t)$$

Inflation discourages consumption and labor

$$\frac{U_2(c_t, h_t)}{U_1(c_t, h_t)} = \frac{w_t}{1 + s(v_t) + v_t s'(v_t)}$$

In this presentation, I will focus on steady-state equilibria, so inflation is directly linked to the nominal interest rate

$$1 + i_t = \frac{1 + \pi_{t+1}}{\beta}$$

Notation:  $i_t$  = nominal interest rate;  $\pi_t$  = inflation;  $w_t$  = real wage;  $s(v_t)$  = transaction cost.

The exchange-rate gap

$$\gamma_t = \frac{\mathcal{E}_t - \mathcal{E}_t^o}{\mathcal{E}_t^o}$$

The market real exchange rate

$$e_t = \frac{\mathcal{E}_t}{P_t}$$

Notation:

$\mathcal{E}_t$  = market exchange rate (pesos per dollar)

$\mathcal{E}_t^o$  = official exchange rate

$P_t$  = nominal price of the consumption good

## Firms

$$\max F(h_t, q_t^n) + \frac{e_t}{1 + \gamma_t}(x_t^o - q_t^o) + e_t(x_t^s - q_t^s) - w_t h_t - C(q_t^s, \kappa) - C(x_t^s, \kappa)$$

Notation:

$x_t^o, x_t^s$  = official and smuggled exports;

$q_t^o, q_t^s$  = official and smuggled imports;

$\bar{q}_t^o$  = import restrictions imposed by the government;

$C(\cdot, \kappa)$  = cost of smuggling.

## The Government's Budget Constraint

$$a_t + \frac{i_t}{1 + i_t} m_t + \frac{\gamma_t}{1 + \gamma_t} e_t (x_t^o - q_t^o) = \tau_t + e_t \frac{i^* B^*}{1 + i^*} + \frac{1 + i_{t-1}}{1 + \pi_t} a_{t-1}$$

## The Government's Import Restriction Policy

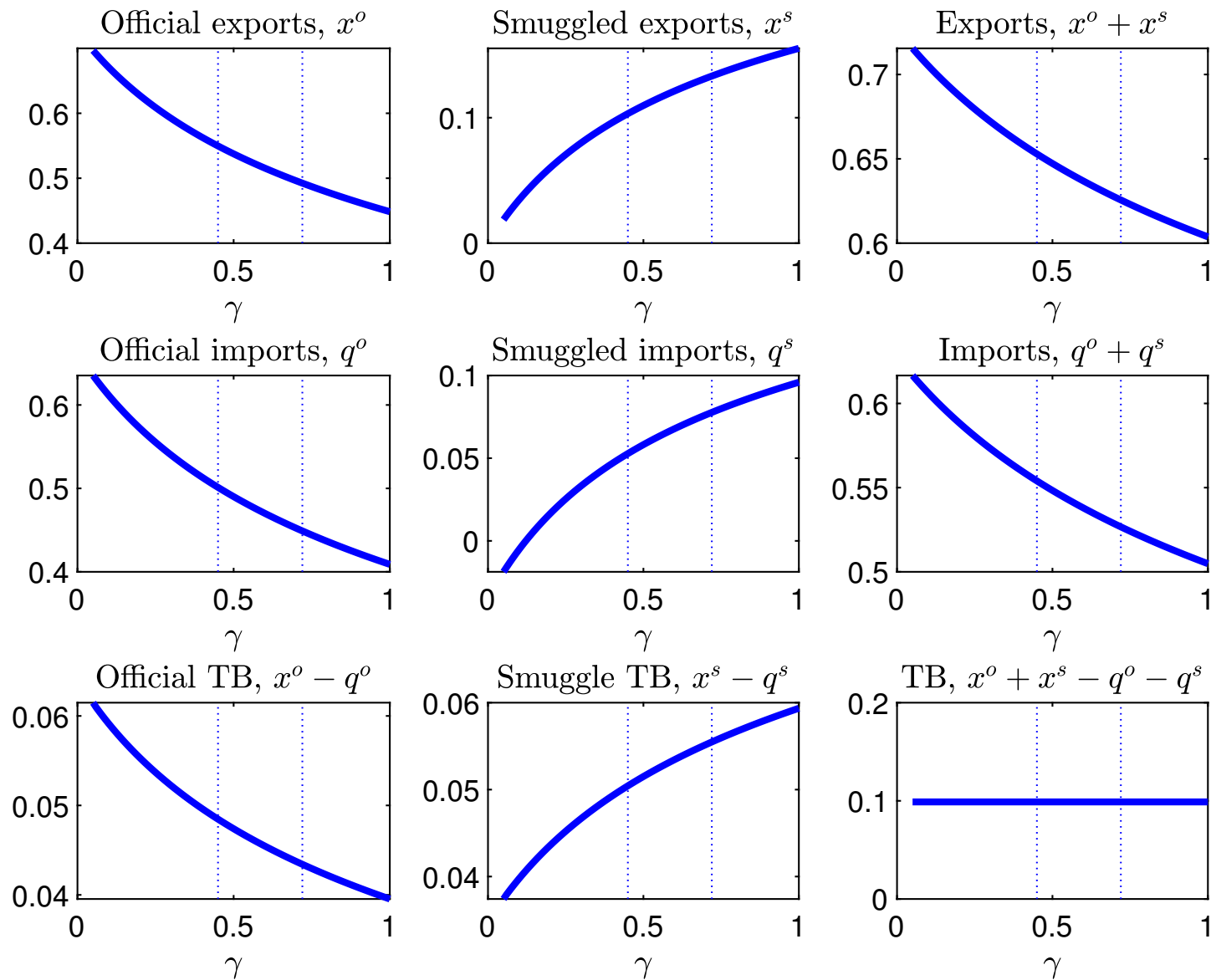
$$q_t^o \leq (1 - \rho_t) x_t^o,$$

where  $\rho_t \in (0, 1)$  is a policy instrument.

Notation:  $B^*$  = government's external debt;  $i^*$  = foreign interest rate;  $\tau$  = primary fiscal deficit.

$B^*$ ,  $i^*$ , and  $\tau$  are exogenous.

## Exports, Imports, and the Trade Balance



## Optimal Exchange Controls

Variable	No Exchange Controls	Optimal Exchange Controls	Minimum Inflation
exchange-rate gap $\gamma$	0	0.03	0.87
import restrictions $\rho$	0	0.15	0.52
inflation (%/yr)	39.6	35.6	-3.8
seignorage (% GDP)	2.9	2.7	0
revenue FX controls (% GDP)	0	0.2	3.0
welfare cost (% consumption)	0.02	0	4.57

**Takeaways:** The optimal exchange-rate gap is virtually nil. The government finances its chronic fiscal deficit almost exclusively with seignorage income.

## Optimal Policy With Two Official Exchange Rates

Variable	Baseline	Multiple official exchange rates
export exchange-rate gap $\gamma^x$	0.03	0.12
import exchange-rate gap $\gamma^q$	0.03	0
import restrictions $\rho$	0.15	0
inflation (%/yr)	35.6	6.6
seignorage (% GDP)	2.7	1.0
revenue FX controls (% GDP)	0.2	2.0

**Takeaways:** It's optimal to legalize the import exchange market ( $\gamma^q = 0$ ). The exchange-rate gap on exports is small ( $\gamma^x = 0.12$ ). Inflation is low (6%)

## Conclusions

- Exchange controls lead to misallocation
  - make the economy more closed (exports and imports decline);
  - cause a shortage of imported inputs;
  - cause lower consumption.
- Exchange controls can generate sizeable fiscal revenue.
- Under plausible calibrations, the trade off between financing the fiscal deficit with inflation or with exchange controls is resolved in favor of inflation.
- It is optimal to legalize the exchange market for imports.