‘Capital Controls and Currency Wars’

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Very nice piece of theory. Very rich paper and very pedagogical.

**What is it about?**

Provides a benchmark multi-country *general* equilibrium model of *intertemporal* trade to analyze:

1) the impact of capital controls on the world equilibrium;

2) the welfare effects of capital controls.

Capital controls can be distorsive if attempts to manipulate intertemporal terms-of-trade (world interest rates) but efficient if used to correct domestic externalities.
Roadmap of the discussion

- Summarize (some of) the results/intuitions in a simple two-country/two-period model

- Comments about the robustness of the results and their policy/empirical relevance
A simple two period/two country version

Countries $S$ (for saver) and $B$ (for borrower).

One representative agent, one tradable good.

Two period $t = 1, 2$. Utility in country $i$: $U_i = u(c_{i,1}) + u(c_{i,2})$

Endowment economy with $y_{i,t} =$ output in $i = \{S, B\}$ at date $t$; at $t = 1$, country $S$ has high output $y_{S,1} = y_h$ and then low at $t = 2$: $y_{S,2} = y_l$. Opposite for $B$: $y_{B,1} = y_l$ and $y_{B,2} = y_h$

$\Rightarrow$ Motive for intertemporal trade. Country $S$ has a comparative advantage in producing at date 1 (producing good 1), the opposite for country $B$. 
Autarky
Financial integration and capital controls

\( R = \text{world real interest rate}, \ R_S \leq R \leq R_B \)

Capital control in country \( i = \tau_i = \text{tax on capital inflows (savings subsidy), rebated lump-sum in country } i \text{ at date } 1, T_i \)

Intertemporal budget constraint in \( i \):

\[
c_{i,1} + \left( \frac{1 - \tau_i}{R} \right) c_{i,2} = y_{i,1} + \left( \frac{1 - \tau_i}{R} \right) y_{i,2} + T_i
\]

Price of period 2 consumption = \( \left( \frac{1 - \tau_i}{R} \right) \)
Financial integration \( (\tau = 0) \)
Capital controls in $B$: $\tau_B > 0$
Capital controls in $B$: $\tau_B > 0$ ($\tau_L = 0$)

Reduces the size of current account deficits (borrowing and lending) and decreases the world interest rate.

Inefficient allocation.

Imperfect smoothing of consumption.
Distortive capital controls in $B$: $\tau_B > 0$

Positive terms-of-trade shock for the borrower = at the heart of distortive capital controls if uncoordinated policies.

Imposing capital controls $\tau_B > 0$ for the borrowing country, reduces $R = \text{increases price of period 2 consumption of which } B \text{ is good at producing.}$

Gives incentives to $B$ to manipulate its terms-of-trade to his own advantage (optimal tariff). Negative spillover on $S$. Points out the need for global coordination.
Worldwide rise in capital controls: $\tau_B = \tau_S > 0$
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Efficient allocation up to a Pareto-weight = equivalent to a lump-sum transfer from $S$ to $B$.

A global coordination to increase capital controls has no welfare costs.

Will even be welfare improving if used to correct *domestic externalities*.
Spillovers and non-coordinated policies

Nature of the externality is key.

Ignoring general equilibrium effects (terms-of-trade externalities), uncoordinated capital controls policy can be Pareto-improving if used to correct domestic externalities. Intuition?

Best response of $S$ to an increase in $\tau_B$ to correct domestic externalities is to increase $\tau_S$. Similar to a worldwide increase in $\tau$. Arms race of controls not necessarily detrimental to welfare.

$\neq$ Opposite to the case of terms-of trade externality where best response of $S$ to an increase in $\tau_B$ is to decrease $\tau_S$. Welfare reducing.
(Some) extensions

*Reserve policy:* no impact if reserves and private assets perfect substitutes. Ricardian equivalence. If private investors have no access to foreign assets, reserve policy isomorphic to capital controls. Remind equivalence between quota and tariffs in trade up to transfers?

*Real exchange rate:* with non-traded goods and real exchange rate, capital controls affect relative prices (real exchange rate). Increase in $\tau_B$ reduces consumption of tradables in $B$ at date 1, price of non-tradables have to fall (real exchange rate depreciation). Perfect mapping between capital controls and real exchange rate policy
1. **Exogenous production**

Assume country $i$ can invest $k_{i,1}$ in period 1 to increase period 2 production $= y_{i,2}(k_{i,1})$. Arbitrage condition for given capital controls imposes:

$$
\left( \frac{\partial y_{i,2}}{\partial k_{i,1}} \right) = \left( \frac{R}{1 - \tau_i} \right)
$$

Capital controls distorts capital allocation. Inefficiencies potentially much larger than costs of inefficient consumption smoothing. Particularly true for borrowers in their transition to accumulate capital. With multiple goods, distorts factor allocation across sectors (away from non-tradable if increase in $\tau$).
2. *Quantitative exploration of the channels*

Overall size of the welfare gains and losses of controls?

 Likely to be quantitatively very small in an environment where costs of imperfect smoothing are very small. Even in presence of domestic externalities?

 Second-order costs. Might be swamped if effects on allocation of factors of production.

 Question the robustness of the results in the present paper to provide a positive theory of controls.
3. *Empirical relevance*

Mostly normative view in the present paper but could be also seen a positive theory of capital controls.

Why are controls put in place?

Here: terms-of-trade manipulation (inefficient) versus reducing inefficient borrowing in presence of domestic externalities (welfare improving).

Apply to which countries? Does not seem to fit China so much (domestic externality likely to be small/terms-of-trade manipulation would go the opposite way?). Asian countries before the Asian crisis/Brazil nowadays.
3. *Empirical relevance*

Especially important to motivate further since alternative (plausible) candidates.

Export led growth strategies (Korinek and Serven (2010), Benigno and Fornaro (2012)), provision of liquidity through reserve policy (Bachetta et al. (2011, 2012)), source of revenue for the government, political economy considerations to protect the incumbents/capitalists (Alesina et al., Alfaro (2002))...

Some empirical motivation/evidence would be appreciated (many papers on the determinants of controls/reserve policy not discussed). Some evidence that prudential policy matters. Evidence on spillovers/best responses? Link with empirical literature on international capital taxation.
Conclusion

Very rich paper (maybe too much for one paper).

Provide an important benchmark model to think of the implications of capital controls in *general equilibrium*.

Main contribution (to me): results for *uncoordinated* capital control policies since take full advantage on the *general equilibrium* nature of the model in a multi-country world.

Further empirical motivation (even anecdotal) would be appreciated. Very much looking forward to see the final version.