Discussion of "International Spillovers and Guidelines for Policy Cooperation", by Anton Korinek

Eduardo Dávila
NYU Stern

NBER IFM

Summary

- **Motivation:** currency wars, capital controls, international spillovers, etc.

Summary

- **Motivation:** currency wars, capital controls, international spillovers, etc.
- **This paper:** irrelevance result (in the spirit of Modigliani-Miller, Ricardian equivalence, Wallace 81, ...)
  - Under which conditions international cooperation is irrelevant

Summary

- **Motivation:** currency wars, capital controls, international spillovers, etc.
- **This paper:** irrelevance result (in the spirit of Modigliani-Miller, Ricardian equivalence, Wallace 81, ...)
  - Under which conditions international cooperation is irrelevant
- **Main result:** policy cooperation does not improve welfare when
  1. National policymakers are **price-takers** in the international market
  2. National policymakers have access to a **complete set of policy instruments** to correct externalities
  3. International financial **markets are complete**

Outline of discussion

- Interesting paper and results
- My discussion
  1. Reinterpret the results using a **dual** approach (the paper uses a primal approach)
  2. Are more assumptions needed?
  3. Applicability of the results

A dual approach

- Almost identical setup, but only one constraint $f^i(\cdot)$
- Private agents solve:

$$\max_{x_i, m_i} U_i(x_i) - \lambda^i f^i(x_i\zeta_i + T_i^x, X_i, m_i\tau_i + T_i^m, M_i; Q)$$

where $T_i^x = (1-\zeta_i)\,x_i$ and $T_i^m = (1-\tau_i)\,m_i$

A dual approach

- Almost identical setup, but only one constraint $f^i(\cdot)$
- Private agents solve:

$$\max_{x_i, m_i} U_i(x_i) - \lambda^i f^i\left(x_i\zeta_i + T_i^x, X_i, m_i\tau_i + T_i^m, M_i; Q\right)$$

where $T_i^x = (1 - \zeta_i)\, x_i$ and $T_i^m = (1 - \tau_i)\, m_i$

- Optimality conditions:

$$\boxed{\frac{dU_i}{dx_i} - \lambda^i \frac{df^i}{dx_i} \times \zeta_i = 0} \quad \text{Domestic}$$

$$\boxed{\lambda^i \frac{df^i}{dm_i} \times \tau_i = 0} \quad \text{External}$$

A dual approach

- (Competitive) Policymaker solves:

$$\max_{\tau_i,\zeta_i} U_i\left(X_i\right) - \lambda^i f^i\left(X_i, X_i, M_i, M_i; Q\right)$$

A dual approach

- (Competitive) Policymaker solves:

$$\max_{\tau_i, \zeta_i} U_i\left(X_i\right) - \lambda^i f^i\left(X_i, X_i, M_i, M_i; Q\right)$$

- Optimality conditions:

$$\left(\frac{dU_i}{dx_i} - \lambda^i \frac{df^i}{dx_i} + \lambda^i \frac{df^i}{dX_i}\right) \frac{dX_i}{d\tau_i} - \lambda^i \left(\frac{df^i}{dm_i} + \frac{df^i}{dM_i}\right) \frac{dM_i}{d\tau_i} = 0$$

A dual approach

- (Competitive) Policymaker solves:

$$\max_{\tau_i,\zeta_i} U_i\left(X_i\right) - \lambda^i f^i\left(X_i, X_i, M_i, M_i; Q\right)$$

- Optimality conditions: (after using agents FOC's)

$$\lambda^i \underbrace{\left(\frac{df^i}{dx_i} \times (1-\zeta_i) + \frac{df^i}{dX_i}\right)}_{=0 \text{ (if possible)}} \frac{dX_i}{d\tau_i} - \lambda^i \underbrace{\left(\frac{df^i}{dm_i} \times (1-\tau_i) + \frac{df^i}{dM_i}\right)}_{=0 \text{ (if possible)}} \frac{dM_i}{d\tau_i} = 0$$

- Analogous condition for ζ_i

A dual approach

- (Competitive) Policymaker solves:

$$\max_{\tau_i,\zeta_i} U_i\left(X_i\right) - \lambda^i f^i\left(X_i, X_i, M_i, M_i; Q\right)$$

- Optimality conditions: (after using agents FOC's)

$$\lambda^i \underbrace{\left(\frac{df^i}{dx_i} \times (1-\zeta_i) + \frac{df^i}{dX_i}\right)}_{=0 \text{ (if possible)}} \frac{dX_i}{d\tau_i} - \lambda^i \underbrace{\left(\frac{df^i}{dm_i} \times (1-\tau_i) + \frac{df^i}{dM_i}\right)}_{=0 \text{ (if possible)}} \frac{dM_i}{d\tau_i} = 0$$

- Analogous condition for ζ_i
- Competitive planner $\Rightarrow$ No $\frac{df^i}{dQ}$
- With enough instruments ζ_i and τ_i policymaker can close all wedges caused by externalities X_i and M_i
- Indeterminacy

A dual approach

- Cooperative problem solves $\max \sum \phi^i U_i(x_i)$ subject to $\sum_i \omega^i M^i = 0$
- Marginal change in τ_j at the optimal non-coordinated τ^i

$$\left.\frac{dV_i}{d\tau_j}\right|_{\tau_i^*} = \lambda^i \underbrace{\left(\frac{df^i}{dx_i} \times (1-\zeta_i) + \frac{df^i}{dX_i}\right)}_{=0?} \frac{dX_i}{d\tau_j}$$

$$+ \lambda^i \underbrace{\left(\frac{df^i}{dm_i} \times (1-\tau_i) + \frac{df^i}{dM_i}\right)}_{=0?} \frac{dM_i}{d\tau_j} + \underbrace{\lambda^i \frac{df^i}{dQ} \frac{dQ}{d\tau_j}}_{\text{pecuniary effects}}$$

A dual approach

- Cooperative problem solves $\max \sum \phi^i U_i(x_i)$ subject to $\sum_i \omega^i M^i = 0$
- Marginal change in τ_j at the optimal non-coordinated τ^i

$$\left.\frac{dV_i}{d\tau_j}\right|_{\tau_i^*} = \lambda^i \underbrace{\left(\frac{df^i}{dx_i} \times (1-\zeta_i) + \frac{df^i}{dX_i}\right)}_{=0?} \frac{dX_i}{d\tau_j}$$

$$+ \lambda^i \underbrace{\left(\frac{df^i}{dm_i} \times (1-\tau_i) + \frac{df^i}{dM_i}\right)}_{=0?} \frac{dM_i}{d\tau_j} + \underbrace{\lambda^i \frac{df^i}{dQ} \frac{dQ}{d\tau_j}}_{\text{pecuniary effects}}$$

- Assumption 1) **Price-taking behavior.** Required for $=0$ terms not to have $\frac{df^i}{dQ}$
- Assumption 2) **Complete set of instruments.** Required to close all wedges. See next slide on imperfect instruments
- Assumption 3) (Effectively) **Complete markets.** Cancel out pecuniary effects. This is about risk sharing (e.g. Cole-Obstfeld would work too)

Comments

- Case with no domestic instruments

$$\left.\frac{dV_i}{d\tau_j}\right|_{\tau_i^*} = \left(\lambda^i \frac{df^i}{dX_i}\right)\frac{dX_i}{d\tau_j} + \left(\frac{df^i}{dm_i} \times (1-\tau_i) + \lambda^i \frac{df^i}{dM_i}\right)\frac{dM_i}{d\tau_j}$$
$$+ \underbrace{\lambda^i \frac{df^i}{dQ}\frac{dQ}{d\tau_j}}_{\text{pecuniary effects}}$$

  - It is not obvious that cooperation is not helpful. Condition in the paper for *effectively complete set of instruments*

Comments

- Case with no domestic instruments

$$\left.\frac{dV_i}{d\tau_j}\right|_{\tau_i^*} = \left(\lambda^i \frac{df^i}{dX_i}\right)\frac{dX_i}{d\tau_j} + \left(\frac{df^i}{dm_i}\times(1-\tau_i) + \lambda^i \frac{df^i}{dM_i}\right)\frac{dM_i}{d\tau_j} + \underbrace{\lambda^i \frac{df^i}{dQ}\frac{dQ}{d\tau_j}}_{\text{pecuniary effects}}$$

  - It is not obvious that cooperation is not helpful. Condition in the paper for *effectively complete set of instruments*
- Role for **transfers** throughout
  - Need for Pareto improvements (nice discussion in the paper)
  - Even when all conditions hold, it can make implementation of policies hard

Comments

1. Are more assumptions needed?
   - Commitment/time consistency issues (very important)
     - Implications for currency unions
   - No cross-country externalities, e.g. $f^i(\cdot, X_j)$
   - Complete markets at the national level? (National prices do not appear directly in f^i)

Comments

1. Are more assumptions needed?
    - Commitment/time consistency issues (very important)
        - Implications for currency unions
    - No cross-country externalities, e.g. $f^i(\cdot, X_j)$
    - Complete markets at the national level? (National prices do not appear directly in f^i)
2. Applicability of the results: how likely is that the three required conditions hold in modern economies?
    - Instrument completeness and market completeness are *technological* assumptions

Comments

1. Are more assumptions needed?
   - Commitment/time consistency issues (very important)
     - Implications for currency unions
   - No cross-country externalities, e.g. $f^i(\cdot, X_j)$
   - Complete markets at the national level? (National prices do not appear directly in f^i)
2. Applicability of the results: how likely is that the three required conditions hold in modern economies?
   - Instrument completeness and market completeness are *technological* assumptions
   - Price taking assumption is *behavioral* **(stronger)**
     - Why should national policymakers internalize effects on allocations but not behave strategically on prices?
   - Does the result apply to textbook currency wars (e.g. 1930's devaluations, interpreted as (ineffective) expenditure switching driven devaluations)?