

Optimal Cooperative Taxation in the Global Economy

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Introduction

Very rich paper

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I A 2-country economy

A. Equilibria with C, L&S, inc. and trade taxes

PS: an allocation is implementable as a comp. eq. can be with C and L&S, inc.

B. Cooperative Ramsey eq.

• Wealth restriction ability.

PE: 3 temp. s.t. private efficiency is maximal \rightarrow important: public finance should not interfere with internal trade.

cond. 1: tax bases are unrelated

PS: if Ramsey eq. converges to SS, optimal not to drive entry/exit decisions asymptotically.

PS: optimality of prod. efficiency with ex. temp. 3 might as s.t. transfer is 0

C. Money for distributional consolidation

$\Delta U = \Delta U^H = F'(K_H, M_H, N_H)$ Rank: solution of cond. 1 are endogenous \rightarrow one for each policy.

PS: if C and L taxes are equal specific \rightarrow no bank \rightarrow optimal capital mobility \rightarrow same optimal

but the Ramsey alloc. not not to coincide with the Pigou alloc. (since the former is relevant to the distrib. tax is redistributable.)

PS: if taxes are convex, PS is not generally true

II Alternative Implementations

A. Taxes on Corporate Income and Asset Returns

due LI, CI, ME Taxes, with residence based system

PS: Ramsey actions can be implemented with LI and ME taxes only (no CI tax)
 \hookrightarrow but not with LI or CI taxes

B. Border Adjusted VAT and LI tax

PS: BA VAT and LI \approx equivalent to C and LI tax \rightarrow no tariff.
 \rightarrow Ramsey can be implemented.

C. VAT with no BA

PS: if trade taxes are 0, Ramsey cannot be implemented with VAT in BA and LI
uncertain \rightarrow can be, as C tax is replaced by VAT and LI.

D. Leasing symmetry

Leasing symmetry: for given international price, input taxes & output taxes

lemma 1: if τ_{LH}^H, τ_{LH}^F in a comp. eq.

then $1 - \tau_{LH}^H = \kappa(1 - \tau_{LH}^F)$, $1 - \tau_{LH}^F = \kappa(1 - \tau_{LH}^H)$ gives the same alloc. (along appropriate initial W and τ)
a initial transfer

Perfect Factor Price
no factor of substitution
goods

Lemma 2: Excess rate adjustment

• Take a competitive eq.

• $\tau_{LH}^H > \tau_{LH}^F$ sets the domestic good and real business cycle

• other $\tau_{LH}^H < \tau_{LH}^F$ say is

• then, some alloc. \leq a comp. eq. with $\tau_{LH}^H = \tau_{LH}^F$
(with appropriate W and a external transfer)

• over time if τ_{LH} varies

III Remarks on the generality of results

• Prop. 2 extends to many models of IT (with = final goods, dist. payoff, trade) and non-trade (with = Taxes, trade and final goods, Bal. Kation)

\rightarrow but not if monopoly power or externalities

• Non linear taxation

• Mirrlees model, PS: Mirrlees outcome satisfies prod. efficiency, no full trade and restricted capital mobility are optimal

IV Concluding remarks

Roadmap

1. Summarizing the results
2. Comment

Roadmap

1. Summarizing the results
2. Comment

Summarizing the results

Environment

- ▶ Two-country economy (country 1 and country 2)
- ▶ Dynamic economy
- ▶ z_{ij} : i = location of production, j = location of use.
- ▶ $u(c, n) + h(g)$
- ▶ Production of intermediate goods in country i :
$$y_{i1} + y_{i2} = F(k_i, n_i)$$
- ▶ Final good : $c_i + g_i + x_i \leq G(y_{1i}, y_{2i})$
- ▶ Representative agent in each economy (RAMSEY) *or* heterogeneity in labor endowment
- ▶ (I will not talk about the Mirrleesian extension)

Summarizing the results

Environment

► Various taxes :

CT: Consumption Tax

LIT: Labor Income Tax

TT: Trade Tax (export and import taxes)

IWT: Initial Wealth Tax

CIT: Corporate Income Tax

ART: Asset Return Tax (residence based, all assets taxed the same way)

BA VAT Border-Adjusted Value-Added Tax (firms do not pay VAT on exports, and do not deduct VAT on imports)

NoBA VAT Value-Added Tax with No Border-Adjustment

Summarizing the results

- ▶ Four more specific features
 1. *Cooperative* RAMSEY equilibrium
 2. Policies are restricted to leave the agents a value of initial wealth *in utility terms* of \mathcal{W}_i
 3. Transfers are allowed between Governments.
 4. Full access to financial markets, perfect competition.

Summarizing the results

A set of non-trivial but intuitive main results

- Result 1: With LIT, CT and TT, RAMSEY equilibria satisfy production efficiency \rightsquigarrow do not use TT (and transfers between countries are needed).
 \rightsquigarrow Separation between Public Finance and International Trade
- Result 2: No asymptotical intertemporal distortion (i.e. no ART) if RAMSEY equilibrium converges
- Result 3: There is a weight ω such that transfers are zero at the RAMSEY equilibrium \rightsquigarrow Utility possibility frontiers with or without transfers are tangent
 \rightsquigarrow A cooperative RAMSEY allocation in an environment in which governments cannot make transfers to each other cannot be PARETO improved

Summarizing the results

With heterogeneity

- ▶ Assume two agents a and b , $y_i = F(k, n^a, n^b)$

Result 4: With agent specific LIT, back to the previous case.

↪ Separation between Public Finance and International Trade again

Result 5: With common LIT, no more separation.

Summarizing the results

Some more results

Result 6: With LIT, CIT & ART, `RAMSEY` outcome can be implemented with LIT and ART only, but not with LIT and CIT only.

Result 7: BA VAT and LIT, one can replicate the allocations obtained with CT and LIT only, and `RAMSEY` outcome can be implemented

Result 8: With NoBA VAT and LIT, one cannot replicate the allocations obtained with CT and LIT only, and `RAMSEY` outcome cannot be implemented

Summarizing the results

Extensions and limits

Result 1: With LIT, CT and TT, RAMSEY equilibria satisfy production efficiency \rightsquigarrow do not use TT (and transfers between countries are needed).
 \rightsquigarrow Separation between Public Finance and International Trade

- ▶ Result 1 can be extended to many models of International Trade
 - × Trade in final good (OBSTFELD & ROGOFF)
 - × Traded and non-traded goods (STOCKMAN & TESAR)
 - × Rich structure of intermediate and final goods (EATON & KORTUM)
- ▶ But Result 1 does not hold if monopoly power (METLITZ) or externalities.

Roadmap

1. Summarizing the results
2. Comment

Comment

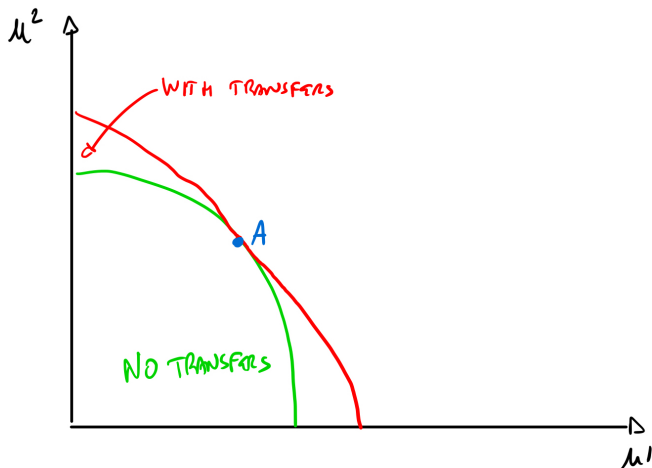
KEEN & WILDASIN [2004]

- ▶ Keen & Wildasin [2004] also study Pareto-efficient international tax regimes
- ▶ They assume away international transfers: every country faces its own national budget constraint
- ▶ In that framework, DIAMOND & MIRRLEES production efficiency theorem does not hold.
- ▶ They then lose desirability:
 - × of destination basis for commodity taxation,
 - × of the residence principle for capital income taxation,
 - × of free trade.
- ▶ The possibility of having international transfers is a key assumption for CHARI, JUAN PA & PEDRO.

Comment

International Transfers

- ▶ CHARI, JUAN PA & PEDRO: Focus on point A : PARETO optimality with no transfers and no production distortion



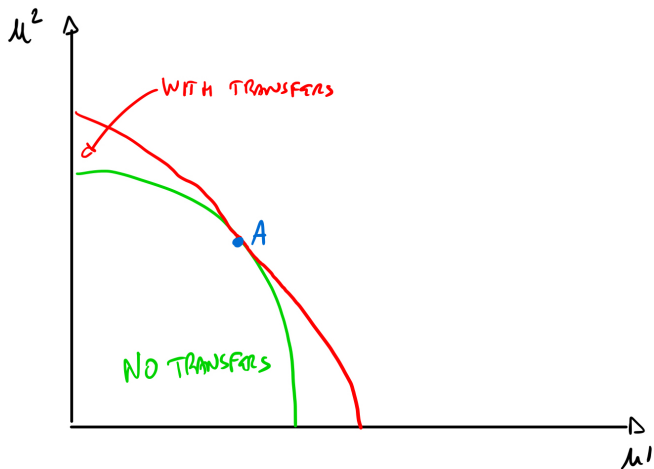
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International Transfers

- ▶ Do a different thought experiment:
 - × Start from arbitrary taxes (say LIT, CIT and TT) competitive equilibrium: E_0
 - × Then choose RAMSEY equilibrium without international transfers E_1 : there will be production distortions
 - × Then allow for international transfers to go to E_2 : no production distortions

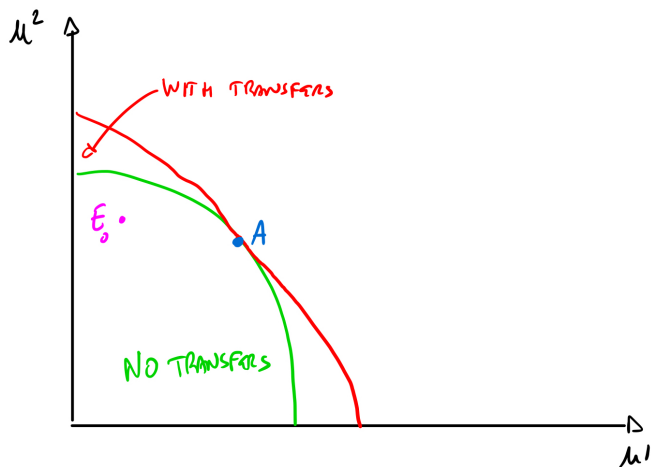
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International Transfers



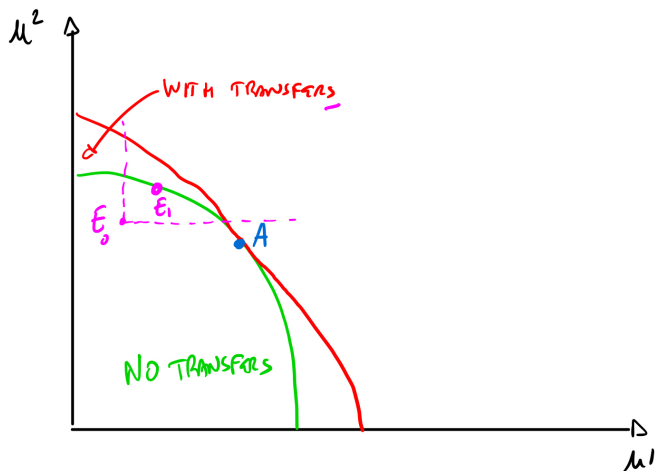
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International Transfers



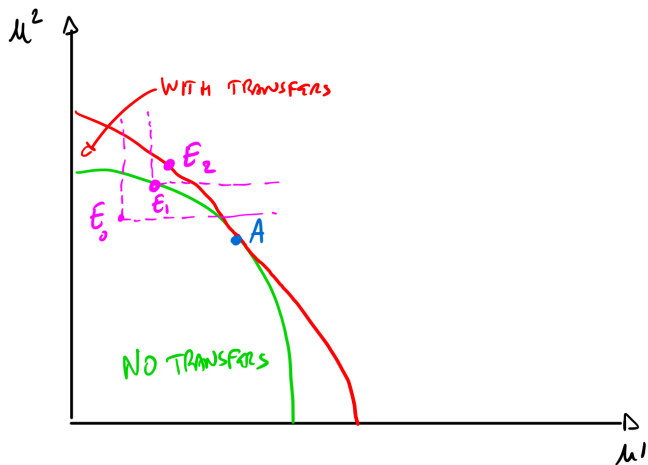
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International Transfers



Comment

International Transfers



Comment

International Transfers

- ▶ Do we observe them? What is the observed counterpart?
- ▶ If not, would it be politically easy to implement?
- ▶ How large transfers need to be from E_1 to E_2 ?
- ▶ I guess hard to have a general answer to that.
- ▶ In some calibrated models of the EU?
- ▶ How reasonable is the assumption of international transfers is in my opinion a quantitative question...
- ▶ ... and it has critical implications for the results.

