Fiscal Unions Redux

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(ADEMU WP 2015)

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– ADEMU Working Group –

October 20, 2016

MOTIVATION: research question

Can (perfect) financial markets substitute for a fiscal union?

- 'Fiscal union': union-wide authority, levies taxes and makes transfers
- Two different views on currency unions
  - With financial markets no FU needed; Mundell [1973]
  - Even with financial markets FU needed; Kenen [1969]
- KP's contribution: Analytically assess the robustness of these views
- Main results:
  - Desirability/Necessity of a FU depends on its *objective*
    - Insurance: With financial markets no FU needed
    - Transfers: Even with financial markets FU needed
  - Identify conditions under which a FU providing insurance is needed even with financial markets

MODEL: summary

- Finite set of states s ($\mu(s)$ denotes probabilities) which affect preferences and technology
- One-period with continuum of countries producing traded and non-traded goods
  - traded: competitive and flexible prices
  - non-traded: monopolistically competitive intermediate goods firms produce differentiated products; prices sticky (must be set before state realizations)
- Governments: payroll, portfolio, non-traded goods taxes and rebates
- Economy has three tiers of decision making:
  1. Union-wide authority chooses portfolio taxes and transfers to max weighted sum of welfare of consumers in each country
  2. Governments choose fiscal policy to max welfare of their citizens (non-cooperatively)
  3. Consumers and firms decide on consumption and production

MODEL: main mechanism

Distortions in the model:

- monopoly power
- sticky prices
- fixed exchange rate

Exogenous constraints in the model:

- endowment of traded goods
- production of non-traded goods

Key point of the paper:
What conditions do NOT allow governments to implement the constrained efficient allocations even when asset markets are complete?

- Some governments choose non-optimal fiscal policies
- Some governments pursue non-benevolent objectives

FINANCIAL MARKETS: focus on tier 3

- Consumers:
  - Preferences:

$$\sum_s \mu(s) U(C_N^i(s), C_T^i(s), L^i(s), s)$$

  - Budget constraint:

$$\begin{aligned}(1+\tau_N^i(s))P_N^i C_N^i(s) + P_T(s)C_T^i(s) \leq \\ W^i(s)L^i(s) + P_T(s)(Y_T^i(s) + T^i(s) + T_I(s)) \\ + \pi^i(s) + (1+\tau_D^i(s))D^i(s)\end{aligned}$$

  - FOCs:

$$\rho^i = \mu(s)\frac{U_T^i(s)(1+\tau_D^i(s))}{P_t(s)Q^i(s)}$$

$$\frac{U_T^i(s)}{P_T(s)} = \frac{U_N^i(s)}{(1+\tau_N^i(s))P_N^i}$$

$$-\frac{U_L^i(s)}{U_T^i(s)} = \frac{W^i(s)}{P_T(s)}$$

FINANCIAL MARKETS: focus on tier 3

- Producers:
  - competitive nontraded final goods producers: Buy varieties of intermediate non-traded and sell to consumers

$$\max_{C_N^{i,j}(s)} P_N^i C_N^i(s) - \int_0^1 P_N^{i,j} C_N^{i,j}(s) dj$$

  - intermediate goods producers are monopolistically competitive and have sticky prices

$$C_N^{i,j}(s) = A^i(s) L^{i,f}(s)$$
$$\Pi^{i,j}(s) = P_N^{i,j} C_N^{i,j}(s) - (1+\tau_L^i) W^i(s) L^{i,j}(s)$$

    Substituting demand and technology to get optimal price

$$P_N^{i,j} = (1+\tau_L^i) \frac{\epsilon}{\epsilon - 1} \frac{\sum_s Q^i(s) \frac{W^i(s)}{A^i(s)} C_N^i(s)}{\sum_s Q^i(s) C_N^i(s)}$$

    Note: This is a markup over weighted average across states

FINANCIAL MARKETS: focus on tier 3

- Governments:
  - Objective:

$$V^i(T_I^{i,c}) = \max_{C_N^i(s), C_T^i(s), L^i(s)} \sum_s \mu(s) U(C_N^i(s), C_T^i(s), L^i(s), s)$$

  - Policies: $\pi^i(s) = (\tau_L^i, \tau_N^i(s), \tau_D^i(s), T^i(s))$
  - Constraints:
    - nontraded goods: $C_N^i(s) \leq A^i(s) L^i(s) \; \forall s$
    - country wide budget constraint
      $\sum_s Q^c(s) P_T^c(s) C_T^i(s) \leq \sum_s Q^c(s) P_T^c(s)(Y_T^i(s) + T_I^{i,c})$
  - NOTE: These are the two constraints mentioned above

- Union wide authority:
  - KP show that transfers for insurance are unnecessary to implement the constrained efficient allocation: $T^{c,i}(\lambda) = 0 \; \forall i$
    (λ are welfare weights such that no transfers occur)

RESTRICTING TAX POLICIES: an illustrative example

- Restrict the non-traded goods tax $\tau_N^i = 0 \ \forall i, s \rightarrow$ relative prices cannot be adjusted
- Normalize $P_T(s_0) = 1$. From tier 3 FOCs: $\frac{U_T^i(s)/U_N^i(s)}{U_T^i(s_0)/U_N^i(s_0)} = P_T(s)$
  The lhs is constant across countries so rhs is constant across countries for any state.
- Let R^i be the ratio of marg. U from traded and non-traded goods for country i: $\frac{R^i(s)}{R^i(s_0)} = \frac{R^0(s)}{R^0(s_0)}$
  $\rightarrow$ one constraint for each pair of countries per state (other than s_0)
  KP: "Incomplete tax system constraint"
- Corollary: Even tough national governments cannot correct all national distortions, their choices are still optimal for the union (= no fiscal externalities arise which would need to be corrected by union wide authority)

THE CASE FOR A FU: North-South division in taxes

- North uses payroll and non-traded goods taxes: $\left\{\tau_L^i, \tau_N^i(s), T^i(s)\right\}$
- South only uses payroll taxes: $\left\{\tau_L^i, T^i(s)\right\}$
- Union authority uses portfolio taxes in each country $\left\{\tau_D^i(s)\right\}$ and rebates proceeds to THAT country

- Incomplete tax constraint emerges for South $\rightarrow$ perfect risk sharing only among North
- It can be shown that when the union authority levies $\tau_D^i(s) = \frac{1}{\lambda^i}\frac{\theta^i(s)}{U_T^i(s)}$ in South countries $\rightarrow$ complete market outcome (perfect risk sharing) achieved $\left(\theta^i(s) = \lambda^i(A^i(s)U_N^i(s) + U_L^i(s))\frac{\partial R^i(s)/\partial C_T^i(s)}{\partial R^i(s)/\partial L_T^i(s)}\right)$
- Note: The union-wide authority does NOT correct for externalities but only helps to increase welfare of South citizens

CONCLUSION: and some thoughts

a) What assumptions are supporting the irrelevance of an insurance providing FU?

1. all countries are small in the relevant sense
2. the union-wide authority and member countries can commit to their policies
3. the union-wide authority has no advantage over national governments in its choice of policy instruments
4. the government of each country maximizes the welfare of its citizens

   $\rightarrow$ KP dispense of 3. and 4. What about 1. and 2.?

b) Back to square one: Kenen versus Mundell...