The Effect of International Trade Barriers on Migration Flows

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Outline

Motivation

- What are the costs of trade barriers between developed and developing countries?
  - Not much for developed countries, theory says, since international prices should be close to autarky prices of developed countries (provided that labor factor does not move)
- Here we challenge this view

Motivation

- Migration seems to prevail over time
- Heckscher-Ohlin models (trade due to differentiation of products) goods trade and factor mobility are perfect substitutes (at least in the long run)
- This is not the case in Ricardian models (trade due to comparative advantage)
- We focus our analysis on steady states
- Migration imposes an extra burden of trade barriers on developed countries (sometimes, depending on migration policy)

The environment

Ricardian model of trade

Locations and Technology

- Two countries $x \in \{N, S\}$
- Two tradeable goods a consumption good C, an investment good I and a non tradeable public good, G (Ricardian model of trade)
  - The consumption good

  $$Y_{t\,x}^C = A^C \left(K_{t\,x}^C\right)^\alpha \left(L_{t\,x}^C\right)^{1-\alpha}$$

  - The investment good

  $$Y_{t\,x}^I = A_x^I \left(K_{t\,x}^I\right)^\alpha \left(L_{t\,x}^I\right)^{1-\alpha}$$

  $$A_N^I > A_S^I$$

Demography

- Each period $t+1$, a stork brings $n\,P_t$ new dinasties into the world
- $n\,P_t/2$ are dropped in North, $n\,P_t/2$ are dropped in South,
- At the period of birth, dinasties can migrate to the other country,
- Evolution of population (assuming migration from South to North)

$$P_{t+1}^N = P_t^N + \frac{n\,P_t}{2}\left(1 + m_{t+1}\right)$$

$$P_{t+1}^S = P_t^S + \frac{n\,P_t}{2}\left(1 - m_{t+1}\right)$$

Preferences and endowments

- Dinasties are born with zero assets
- They are endowed with one unit of efficiency units of labor every period
- Their utility function is

$$\sum_{i=0}^{\infty} \beta^i \left[\ln\left(c_{t+i}\right) + \eta \ln\left(G_{t+i}\right) \right]$$

Institutional arrangements
International trade

- Trade barriers
  - τ_S^I: *ad valorem* trade barrier to investment good
  - τ_N^C: *ad valorem* trade barrier to consumption good

  the barriers proceeds are thrown away (they finance an extra public good)
- Foreign direct investment is not allowed

Motivation

The environment
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Preview of results
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Caveats

Institutional arrangements
Financing the public good

The government finances the public good G with income taxes,

$$G_{tx} = \tau Y_{tx} \quad for \quad x \in \{N, S\}$$

Institutional arrangements
Migration costs

- Migration is costly: Some efficiency units of labor are lost
  - Language barriers
  - Legal restrictions to work in particular sectors or professions

- New born dinasties differ in the "portability" of their efficient units of labor
  - At home $l^i = 1$, $i \in [0,1]$,
  - Abroad, $l^i = 1 - i^\gamma$, $i \in [0,1]$.

Household problem

$$V_{t\,x}^{j} = \max \sum_{i=0}^{\infty} \beta^{i} \left[\ln \left(c_{t+i\,x}^{j} \right) + \eta \ln \left(G_{t+i\,x} \right) \right]$$

s.t. $\dfrac{p_{t+i\,x}^{c}}{p_{t+i\,x}^{I}}\, c_{t+i\,x}^{j} + k_{t+i+1\,x}^{j} - (1-\delta) k_{t+i\,x}^{j} =$

$$(1-\tau)\, w_{t+i\,x}\, l_{t+i\,x}^{j} + (1-\tau)\, r_{t+i\,x}\, k_{t+i\,x}^{j},$$

$$k_{t\,x}^{j} = 0.$$

Preview of results
Assumptions

1. Households expend more than 50% of their after tax income in consumption:

$$\beta \leq \frac{1+\alpha\,n}{1+2\,\alpha\,n(1-\tau)}$$

2. Trade barriers are not severe enough to prevent trade:

$$\frac{A_N^I}{A_S^I} \geq (1+\tau_S^I)(1+\tau_N^C)$$

Patterns of trade and migration

- North produces both goods, consumption and investment goods, while the South specializes in the consumption good
  - If there were a continuum of goods specialization would not be complete in South
- There is migration if

$$V_{tN}^{j} \geq V_{tS}^{j}$$

Southerners with higher portability of skills will migrate. Two interpretations:

1. Migrants are selected among workers with higher skills
2. Migrants are selected among those with lower loss

Prices
International relative prices

Trade barriers distort relative prices in the South but do not affect these of the Noth:

- $\frac{p_N^I}{p_N^C} = \frac{A^C}{A_N^I} = \frac{p_N^{free\,trade,I}}{p_N^{free\,trade,C}} = \frac{p_N^{autarky,I}}{p_N^{autarky,C}}$

- $\frac{p_S^I}{p_S^C} = \frac{A^C}{A_N^I}(1+\tau_S^C)(1+\tau_S^I) > \frac{p_S^{free\,trade,I}}{p_S^{free\,trade,C}} = \frac{p_N^{free\,trade,I}}{p_N^{free\,trade,C}}$

This is so because

- The high productivity country has a larger size economy
- There is only one investment good

Prices
Factor prices

- Interest rate

$$r_N = r_S = \frac{\alpha\, n + (1 - \beta)}{(1 - \tau)\, \beta} = r_x^{free\, trade}$$

- Wages

$$w_N = w_N^{free\, trade}$$

$$\frac{w_N}{w_S} = (1 + \tau_S^C)^{\frac{1}{1-\alpha}} (1 + \tau_S^I)^{\frac{\alpha}{1-\alpha}}$$

Under free trade there is no migration
Trade barriers increase the wage gap between North and South

Quantities
In South

- Trade barriers reduce per capita capital and disturb wages, giving incentives in the South to migration:

$$k_S = k_S^{free\,trade} \left[\frac{1}{(1 + \tau_S^C)(1 + \tau_S^I)} \right]^{\frac{1}{1-\alpha}} < k_S^{free\,trade}$$

- Migration pattern goes from the South to the Noth

$$m_N = m\left(\tau_N^C, \tau_S^I\right) > 0$$

Quantities
In North (I)

There is a loss in labor productivity and, given income taxes, a reduction in the public good

$$l_N\left(\tau_N^C, \tau_S^I\right) = 1 - \frac{\left[m\left(\tau_N^C, \tau_S^I\right)\right]^{1+\gamma}}{(1+\gamma)\left[1 + m\left(\tau_N^C, \tau_S^I\right)\right]} < 1 = l_N^{ft}$$

$$k_N\left(\tau_N^C, \tau_S^I\right) = \left[\frac{\alpha A_N^I}{r}\right]^{\frac{1}{1-\alpha}} l_N\left(\tau_N^C, \tau_S^I\right) < k_N^{ft} = \left[\frac{\alpha A_N^I}{r}\right]^{\frac{1}{1-\alpha}}$$

$$g_N\left(\tau_N^C, \tau_S^I\right) = \tau A_N^I \left[\frac{\alpha A_N^I}{r}\right]^{\frac{1}{1-\alpha}} l_N\left(\tau_N^C, \tau_S^I\right) < g_N^{ft}$$

Quantities
In North (II)

Notice that the losses in North are associated to

- Portability of skills (which is affected by labor market regulations in the North)
- Universal access to the public good

Two models of immigration policies : U.S., Europe

Welfare gains of free trade
In South

- $V_{tS}^{j} - V_{tS}^{free\,trade,j} < 0$: Households born and residing in the South experiment a reduction in their wage and per capita publicly provided good
- $V_{tN}^{j} - V_{tS}^{free\,trade,j} < 0$: Immigrants, meaning households born in the South and residing in the North, suffer lower wages and publicly provided good

Welfare in South increases even if South eliminates barriers to imports of investment goods (and North keeps barriers to imports of consumption goods)

Welfare gains of free trade
In North

- $V_{tN}^{j} - V_{tN}^{ft,j} < 0$: North native households also suffer reductions in welfare through the fiscal channel

Boomerang Effect: Immigrants have less productivity and lower wages implying that migration reduces the per capita tax revenues in the North, but since immigrants participate in the public system like natives do, the consequence is a reduction in the per capita publicly provided goods

Caveats

- In this model there are no reason for South to impose tariffs on investment goods
  - We have not modeled the income distribution implications of trade barriers
- The size of the barriers does not affect patterns of trade
  - In a more general model with a continuum of investment goods, this would not be the case
- "Portability of skills" is very rough
  - We would like to have a richer model with skill heterogeneity and job heterogeneity, the result would still hold