Intermediation and Economic Integration

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Motivation

- Intermediaries are the grease that allows wheels of commerce to spin
- Examples of intermediaries in the real world:
  - Central role in the historical development of world trade flows
  - Small itinerant traders ('ddebe boys') picking up coffee in rural Uganda
  - Large Asian trading companies (such as Li & Fung) matching Western manufacturers with local suppliers of goods or services
- Empirical evidence:
  - China: Feenstra and Hanson (2004), Ahn et al. (2009)
  - United States: Bernard et al. (2009)
  - Columbia: Blum et al. (2009)

Outline of the Paper

- This paper presents a variant of Antràs and Costinot (2009) (**AC**) that illustrates the potential role of intermediaries
- We develop a stylized model of trade with intermediation**:**
  - Starting point: Ricardian model with two goods and two countries
  - New feature: Producers have no direct access to Walrasian markets
- We use this simple model to contrast the implications of:
  1. Integration of Walrasian markets (**W-integration**), which allow traders from different countries to exchange their goods
  2. Integration of Matching markets (**M-integration**), which allow farmers to trade with traders from different countries

The Basic Environment

Preferences

- Consider an island inhabited by a continuum of infinitely lived agents with mass N that consume two goods, coffee (C) and sugar (S)
- Agents aim to maximize the expected value of their lifetime utility

$$V = E\left[\int_0^{+\infty} e^{-rt} v\left(C(t), S(t)\right) dt\right]$$

- v is increasing, concave, homogeneous of degree one and satisfies standard Inada conditions
  - So both goods are essential in consumption: $v\left(0, S\right) = v\left(C, 0\right) = 0$

- There are two types of agents: **Farmers** (F) and **Traders** (T)
- N_F and N_T denote the measures of farmers and traders on the island
- Farmers are endowed with a plot of land that allows them to grow:
  - $1/a_C$ of coffee **or** an amount $1/a_S$ of sugar per unit of time
  - goods are not storable
- Farmers do not have direct access to centralized/Walrasian markets where their output can be exchanged for that of other farmers
- Traders are not endowed with land but have the expertise necessary to access Walrasian markets
  - $p \equiv p_C / p_S$ denotes the relative price of coffee in that market

- **Matching:**
  - Farmers and traders can be either matched (M) or unmatched (U)
  - u_F and u_T denote the mass of unmatched farmers and traders
  - Unmatched farmers and traders come together randomly at rates $\mu_F(\theta)$ and $\mu_T(\theta)$ with $\theta \equiv u_T / u_F$ the "intermediation level"
  - Existing matches are destroyed at an exogenous Poisson rate $\lambda > 0$
- **Bargaining:**
  - When a farmer and a trader form a match, they negotiate the terms of exchange of the output in the hands of the farmer
  - We posit a generalized Nash bargaining that leaves traders with a fraction β of the ex-post gains from trade

The Basic Environment

Timing of Events

- Each date t is divided into two periods:
  1. Farmers decide which goods to produce and matched farmers and traders bargain over the exchange of goods
  2. Matched traders carry out transactions in Walrasian markets, consumption takes place, new matches are formed among unmatched agents, and a fraction of existing matches is dissolved exogenously

Definition

We define a steady state equilibrium as:

(i) a relative price, p;
(ii) a share of coffee farmers, γ;
(iii) a vector of consumption levels, $(C_{F_i}, S_{F_i}, C_{T_i}, S_{T_i})$ for $i = C, S$; and
(iv) an intermediation level, θ

such that:

(i) Walrasian markets clear;
(ii) consumption levels are determined by Nash bargaining;
(iii) number of matches created is equal to number of matches destroyed

Steady State Equilibrium

Conditions

- As in Ricardian model, relative price p of coffee is

$$p = a_C / a_S$$

- Values of γ, $\bar{C} \equiv C_F + C_T$ and $\bar{S} \equiv S_F + S_T$ analogous as well
- Share $\alpha \in (0,1)$ of joint consumption captured by the trader is

$$\alpha = \beta \frac{r + \lambda + \mu_T(\theta)}{r + \lambda + (1-\beta)\mu_F(\theta) + \beta\mu_T(\theta)}$$

- Equality between number of matches created and destroyed implies:

$$\frac{\lambda\theta + \mu_F(\theta)}{\lambda + \mu_F(\theta)} = \frac{N_T}{N_F}$$

Economic Integration

- We consider a world economy comprising two islands, North and South, of the type described above
- The islands only differ in terms of their ratios of traders to farmers and their production technologies
- We assume that traders are abundant in the North and that this country has a comparative advantage in the production of sugar:

$$\begin{aligned} N_T / N_F &> N_T^* / N_F^* \\ a_C / a_S &> a_C^* / a_S^* \end{aligned}$$

W-Integration

Definition

- *W-integration*$\equiv$ *Integration of two initially isolated Walrasian markets*
- The centralized markets where traders exchange goods become global rather than local, but farmers can only trade with local traders
- It aims to shed light on the consequences of convergence in goods prices across countries in the presence of intermediaries

W-integration

Consequences

Proposition

W-integration: (i) has no effect on traders' margins; (ii) and makes all agents in the world (weakly) better off.

- In **AC**, allowing for endogenous entry of traders modifies the previous conclusions in two ways:
  1. The increase in joint utility levels caused by W-integration induces entry of new traders, which raises level of intermediation
  2. Endogenous change in level of intermediation reduces traders' margins and magnifies gains from trade
- In **AC**, we still have Pareto gains from trade under W-integration despite lower traders' margins

M-Integration

Definition

- *M-integration*$\equiv$ *Integration of two initially isolated matching markets*
- There is internationalization of trading opportunities: all traders are allowed to intermediate trade in either of the two islands
- It aims to capture the consequences of entry of foreign intermediaries in local markets, whether such intermediaries are trading companies, banks, or multinational companies in practice

M-Integration

Consequences

Proposition

M-integration: (i) has opposite effects on the steady-state welfare of farmers and traders; (ii) may lead to aggregate losses from trade in one island if the primitive bargaining power of the set of agents made worse off is sufficiently high.

- M-integration resembles factor migration, but potentially perverse welfare effects stem from existence of rents, not TOT worsening
- In **AC**, we allow for the endogenous entry of traders (as well as transitional dynamics), yet aggregate losses remain possible whenever the bargaining power of traders differ in the two islands:
  - Key inefficiency is trading externality underlying the search friction

Concluding Remarks

- Previous model is admittedly stylized
  - Search frictions aim to reflect, in a somewhat reduced-form way, the set of frictions that inhibit the ability of producers to single-handedly place their goods in world markets
- This simple model illustrates that the consequences of economic integration in the presence of intermediation may be very different:
  - Some of the issues raised by our model speak well to recent episodes of trade liberalization in Africa; see e.g. McMillan et al. (2003)
- Analysis of market institutions in international trade is a promising avenue of future research:
  - Potential to help improve our understanding of the consequences of globalization in developing economies.