

Information Globalization, Risk Sharing, and International Trade

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Discussion by


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¹The views expressed here do not necessarily reflect those of the Federal Reserve Bank of St. Louis or the Federal Reserve System. 

This paper:

“...incorporates a simple information asymmetry in a standard, two-country Armington trade and studies its effect on international risk sharing and trade flows.”

“[...] we find that ameliorating information asymmetry–information globalization–reduces trade and risk sharing [...] asymmetric information behave in the opposite manner as standard trade costs.”

Me, This paper, Information and Trade:

t_0 : No signal: (only the authors) Veldkamp and Waugh!!

t_1 : Signal: (the Introduction): OMG!! Hirshleifer and Trade.

t_2 : Realization: (reading the paper) A lot of food for thought.

Road Map

1. An even simpler environment
2. Comments & Concerns
3. My Takeaways

An Even Simpler Armington Model

- ▶ Two Countries: 1, 2.
 - ▶ Continuum measure one in each.
 - ▶ Identical agents (ex-ante and ex-post).
- ▶ Two goods: 1,2 (associated to resp. country)
- ▶ Preferences:

$$U = E \left[\frac{(c_1)^\theta}{\theta} + \frac{(c_2)^\theta}{\theta} \right]$$

- ▶ Timing of trade:
 - ▶ **First:** agents in each country realize their endowment:
 - ▶ signal about the other country.
 - ▶ **Second:** each agent decides how much to export.
 - ▶ **Third:** International prices clear.

An Even Simpler Armington Model

- ▶ Endowments: Bernoulli distributed.
 - ▶ Either high (Y_i^H) or low (Y_i^L); probability=50%. $r \in \{L, H\}$
- ▶ Distributions are independent across countries (as in BVW).
- ▶ Identical across agents within each country

Equilibrium: Complete Information

- ▶ Export Prices (good 1 relative to 2): $p = \frac{X_2}{X_1}$.
- ▶ Export Decisions: Each agent chooses x_i , knowing X_i and X_j :

$$x_1^r = \arg \max_x \left\{ \frac{(Y_1^r - x)^\theta}{\theta} + \frac{\left(\frac{X_2}{X_1} \times x\right)^\theta}{\theta} \right\}$$

$$x_2^r = \arg \max_x \left\{ \frac{\left(x \frac{X_1}{X_2}\right)^\theta}{\theta} + \frac{(Y_2^r - x)^\theta}{\theta} \right\}$$

- ▶ Consistency: $x_i^r = X_i^r$.

Equilibrium: Complete Information

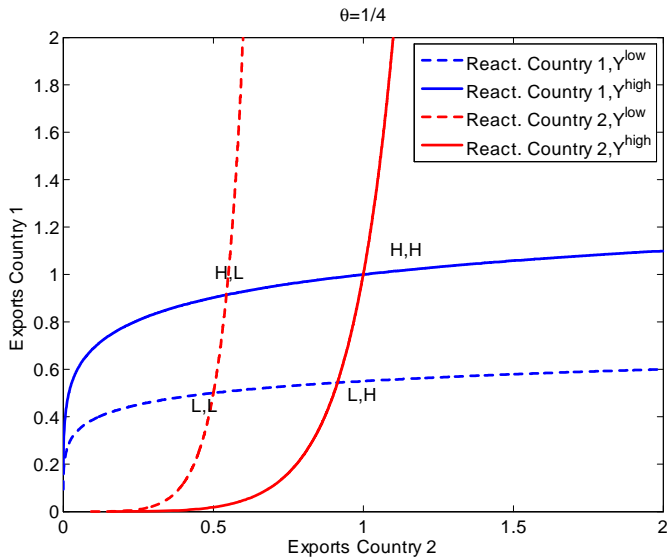
- ▶ Reaction Functions: Country i exports given X_j

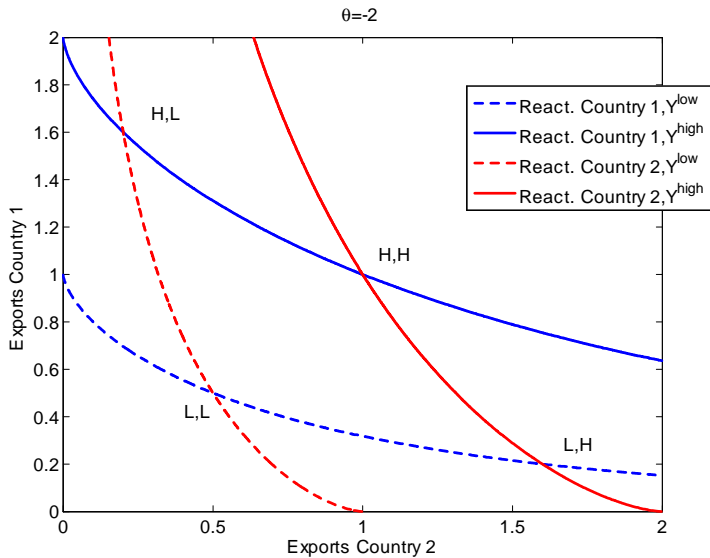
$$[Y_i - X_i]^{\theta-1} = (X_j)^\theta (X_i)^{-1}$$

- ▶ If $\theta = 0$ (log preferences)

$$X_i = \frac{Y_i}{2}.$$

- ▶ Easy to numerically solve for any $\theta \in (-\infty, 1]$.





Equilibrium: Incomplete Information

- ▶ Ex-Post Export Prices: $p = \frac{X_2}{X_1}$
- ▶ Export Decisions: Each agent chooses x_i , knowing X_i but not X_j (or prices):

$$x_1^r = \arg \max_x \left\{ \frac{(Y_1^r - x)^\theta}{\theta} + \left(\frac{1}{2}\right) \frac{\left(x \frac{X_2^H}{X_1^r}\right)^\theta}{\theta} + \left(\frac{1}{2}\right) \frac{\left(x \frac{X_2^L}{X_1^r}\right)^\theta}{\theta} \right\}$$

$$x_2^r = \arg \max_x \left\{ \left(\frac{1}{2}\right) \frac{\left(x \frac{X_1^H}{X_2^r}\right)^\theta}{\theta} + \left(\frac{1}{2}\right) \frac{\left(x \frac{X_1^L}{X_2^r}\right)^\theta}{\theta} + \frac{(Y_2^r - x)^\theta}{\theta} \right\}$$

- ▶ Consistency:

$$x_i^r = X_i^r.$$

Equilibrium: Incomplete Information

- ▶ Export Decisions:

$$x_1^r = \arg \max_x \left\{ \frac{(Y_1^r - x)^\theta}{\theta} + \frac{(x p^E)^\theta}{\theta} \right\}$$

- ▶ where p^E is a CES aggregator:

$$p^E \equiv \left[\left(\frac{1}{2} \right) \left(\frac{X_2^H}{X_1^r} \right)^\theta + \left(\frac{1}{2} \right) \left(\frac{X_2^L}{X_1} \right)^\theta \right]^{\frac{1}{\theta}}$$

is a CES aggregator of ex-post export prices.

- ▶ Again, with log preferences,

$$X_i = \frac{Y_i}{2},$$

i.e. the same as with perfect information.

Incomplete Information with Signals

- ▶ Let country i observe a signal; $\mu^j \geq 1/2$ probability of true realization Y_j
- ▶ Export Decisions:

$$x_1^r = \arg \max_x \left\{ \frac{(Y_1^r - x)^\theta}{\theta} + \frac{[x \mathbf{p}^E(\mu^j)]^\theta}{\theta} \right\}$$

- ▶ where the aggregate \mathbf{p}^E becomes:

$$\mathbf{p}^E(\mu^j) \equiv \left[\mu^H \left(\frac{X_2^H}{X_1^r} \right)^\theta + (1 - \mu^H) \left(\frac{X_2^L}{X_1} \right)^\theta \right]^{\frac{1}{\theta}}$$

is a CES aggregator of ex-post export prices.

- ▶ Again, with log preferences,

$$X_i = \frac{Y_i}{2},$$

i.e. the same as with perfect information.

Comments

- ▶ **The Value of θ .**

- ▶ Here: Argmington (intra-temporal);
- ▶ But the key economics is wrt Risk!
- ▶ Example outlined above shows that the value of θ matters.

- ▶ **Information frictions the opposite of trade costs?**

- ▶ **Not True!** In their simulations, utility is higher with better information.
- ▶ Same in the stylized example above.
- ▶ More below (on efficiency benchmark)

▶ **International vs. Domestic Trade:**

- ▶ Yet, they do not have domestic trade in the model!!!
- ▶ *Information aggregation & domestic prices never had a chance!!*
- ▶ Paper is motivated by information frictions that preclude international trade but not domestic trade.
- ▶ Introducing non-tradeables can enrich (or revert?) the implications of information imperfections.

Comments

▶ **Second order beliefs:**

- ▶ Here: Knowing more of what the others know reduces trade.
- ▶ But in many other settings the opposite is true!
- ▶ In general, thinking of higher order beliefs might be useful.
- ▶ Potentially interesting interaction with multicountry settings.

Comments

▶ **Efficiency:**

- ▶ More trade is not necessarily good
 - ▶ (remember old "creation" vs "diversion" stuff).
- ▶ Here is also true in their simulations.
- ▶ A clear benchmarks is desirable.

▶ **Going beyond Endowment Economies:**

- ▶ Here, information only changes final consumption.
- ▶ With production can change allocation of labor and other factors.

Comments

▶ **Real Exchange Risk?**

- ▶ Here Terms-of-Trade risk only.
- ▶ Most countries exports are determined in US\$.
- ▶ A big chunk of risk is with domestic prices.
- ▶ Yet another reason to address the target issues in model with non-tradeables.

▶ **Financial Markets:**

- ▶ Here: no asset trading to avoid obscuring the argument.
- ▶ Can envisage settings in which asset prices lead to full revelation.
- ▶ The devil is on the details (but so are the interesting issues here)..

- ▶ **How and how far are you going to push this?**
 - ▶ Here: as a negative result and very forcefully.
 - ▶ Multiple dead-ends with the data.

My Takeaways

- ▶ Interesting stuff.
- ▶ Paper provides a productive provocation on how to think about information and trade.
- ▶ Introducing second order beliefs (information) and trade.