Trade and Synchronization in a Multi-Country Economy

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Discussion by
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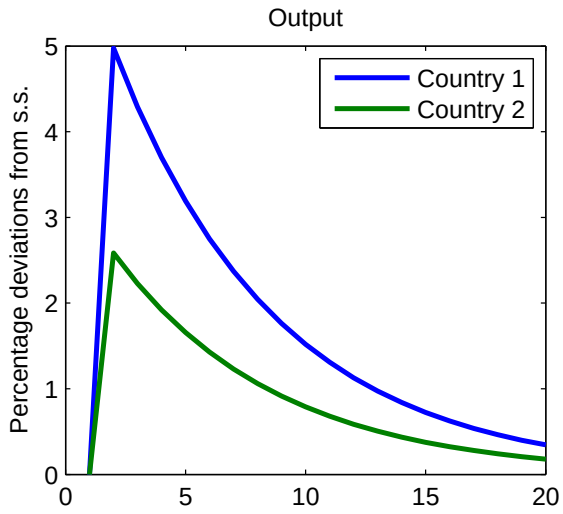
Introduction

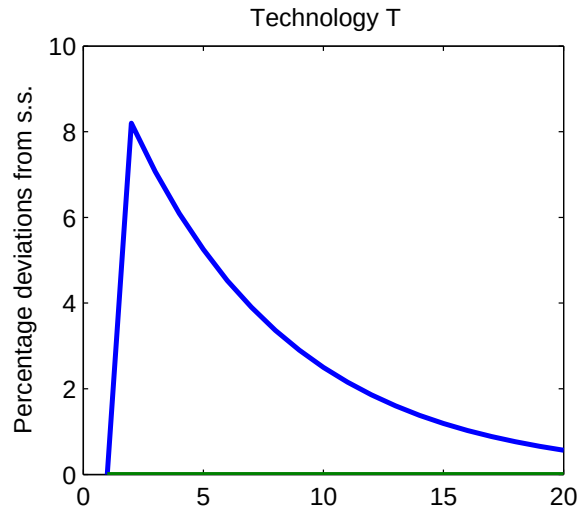
- Does trade lead to business cycle synchronization?
  - Empirical evidence says it does.
  - But trade models typically predict a tenuous relationship.
- This paper develops a model with
  - Ricardian trade a la Eaton-Kortum,
  - Pricing-to-market and variable markups,
  - Calibrated iceberg trade costs,
  - and 21 countries!
- The model doubles the effect from Kose and Yi (2006), although there still quite some way to go.

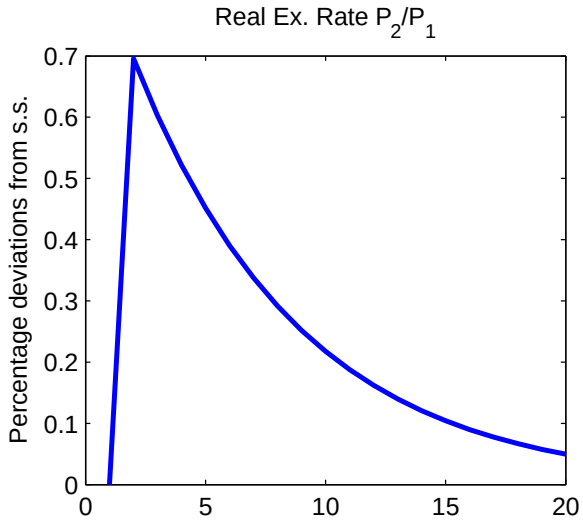
Transmission

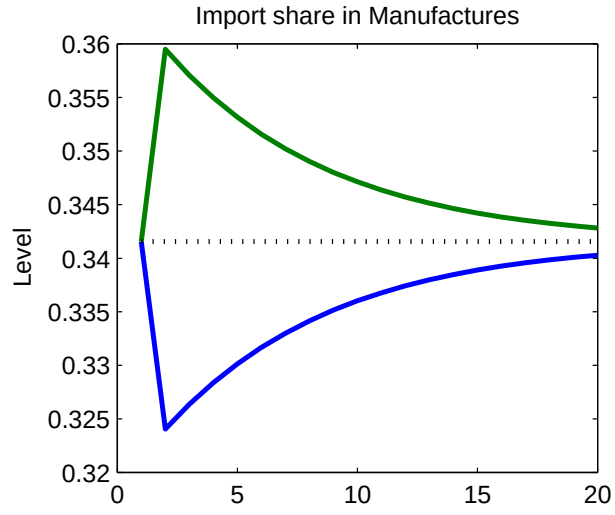
- Standard IRBC will have two channels
  - Trade,
  - Finance.
- This paper assumes financial autarky and focuses on trade:
  - Although trade is not necessarily balanced for the intermediate manufactured goods.
  - Heathcote and Perri (2002)
- Let's see how trade alone transmits shocks across countries.

Country 1 Productivity Shock









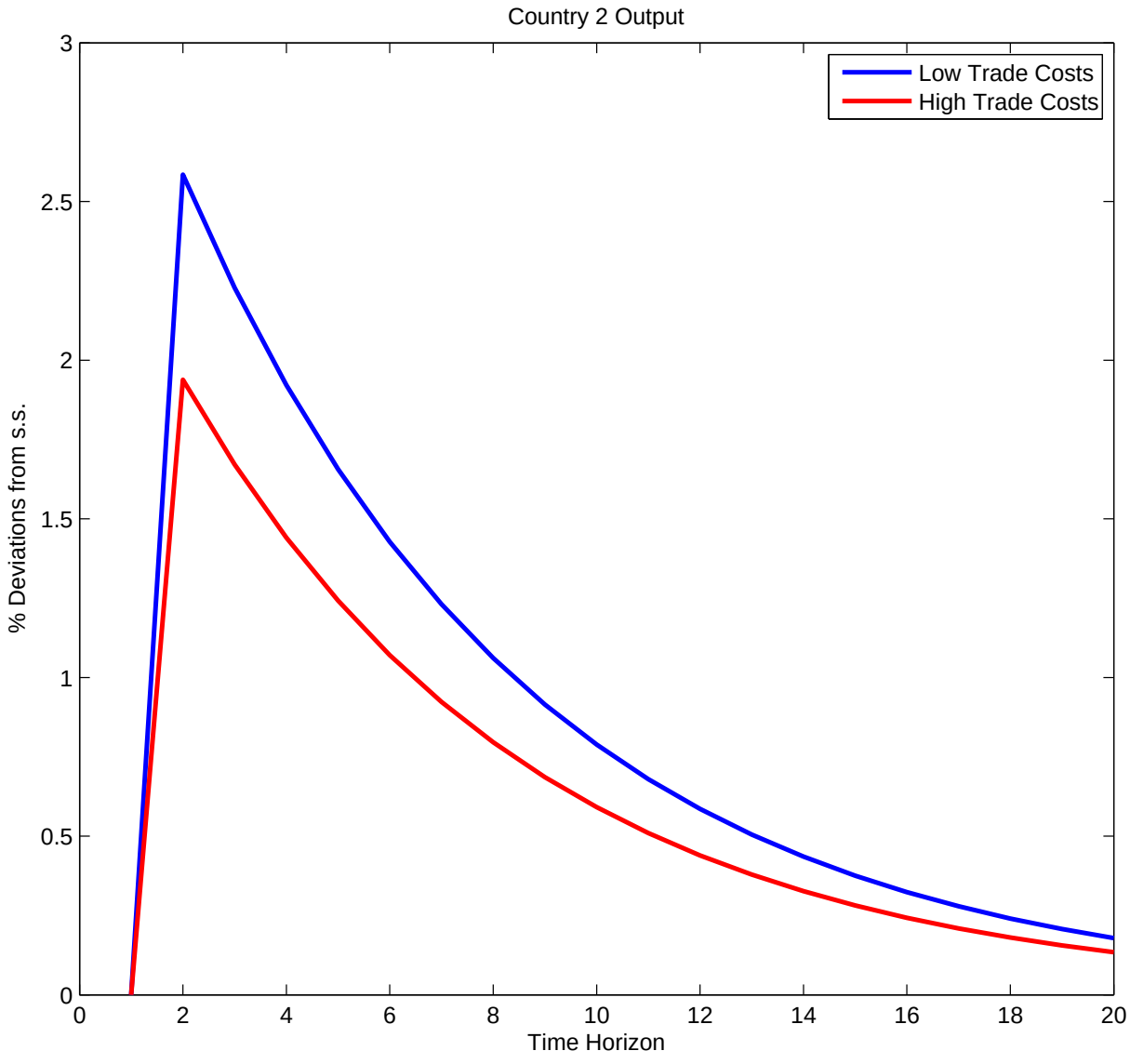
Real exchange rate

- Output and RER are tightly connected:

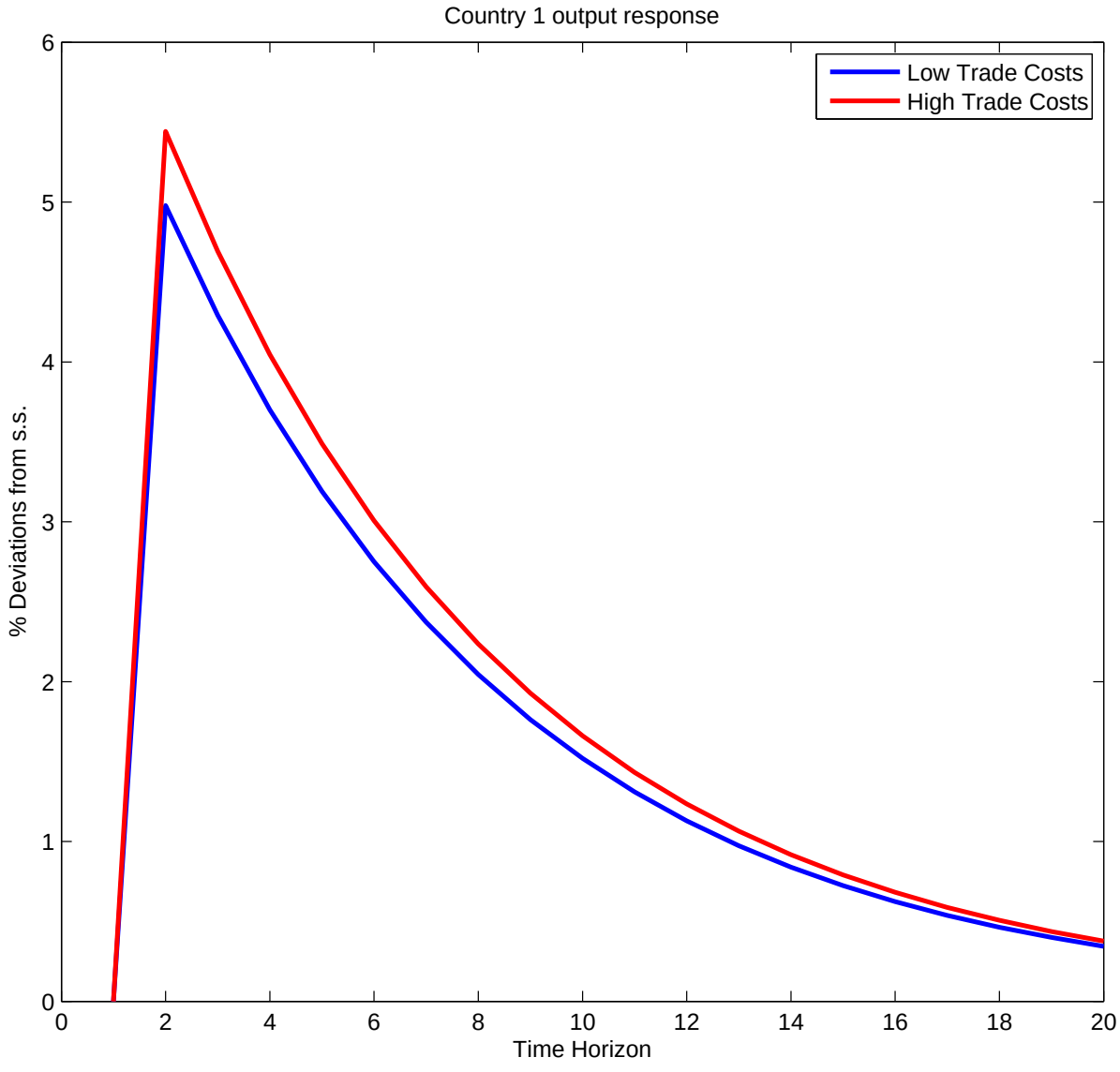
$$\frac{Y_{it}}{Y_{jt}} = A^{ij} \left(Q_t^{ij} \right)^{\frac{\nu+1}{\nu}} .$$

- We run into the Backus-Smith puzzle.
- Output correlation and RER volatility are the two sides of the same coin.
  - How does this relationship look in the data?
  - Note it bypasses trade intensities.

Trade costs decrease synchronization



Trade costs amplify shocks



Pricing to Market?

- Technology and the price level are given by

$$P_{it} = \kappa \Phi_{it}^{-\frac{1}{\theta}}$$

where

$$\Phi_{it} = \sum_{j} T_{jt} \left(\omega_j \tau_{ij} \right)^{-\theta} .$$

- Pricing-to-market and variable markups determine the constant κ.

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- Pricing-to-market and variable markups determine the constant κ.
- However, market competition seems irrelevant for correlations

$$Q_t^{ij} = \left(\frac{\Phi_{it}}{\Phi_{jt}}\right)^{\frac{1}{\theta}}.$$

Trade linkages

- Log-output is

$$y_{it} = S_i + \frac{\nu + 1}{\nu\theta} \log \left(\sum_j T_{jt} \left(\omega_j \tau_{ij} \right)^{-\theta} \right)$$

- A first-order approximation around s.s. delivers

$$\hat{y}_{it} \propto \sum \lambda_{ij} \hat{T}_{jt}$$

  where λ_{ij} is the import share from country j in s.s.

- What matters is the correlation of trade linkages

$$\rho \left(\hat{y}_{it}, \hat{y}_{kt} \right) = \frac{\sum_j \lambda_{ij} \lambda_{kj}}{\sqrt{\sum_j \lambda_{ij}^2} \sqrt{\sum_j \lambda_{kj}^2}} = \rho \left(\lambda_{ij}, \lambda_{kj} \right)$$

Closer or Similar?

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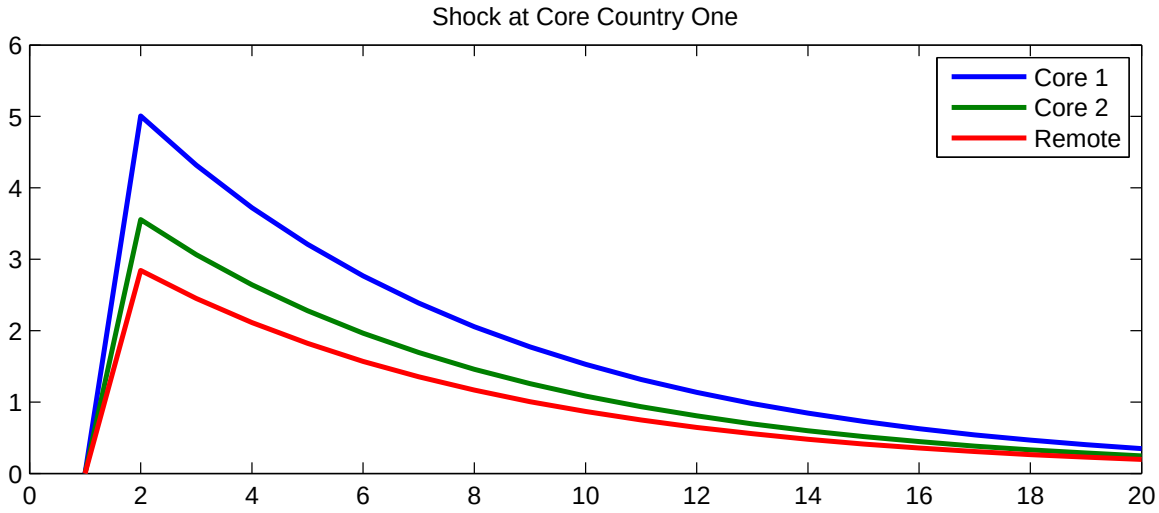
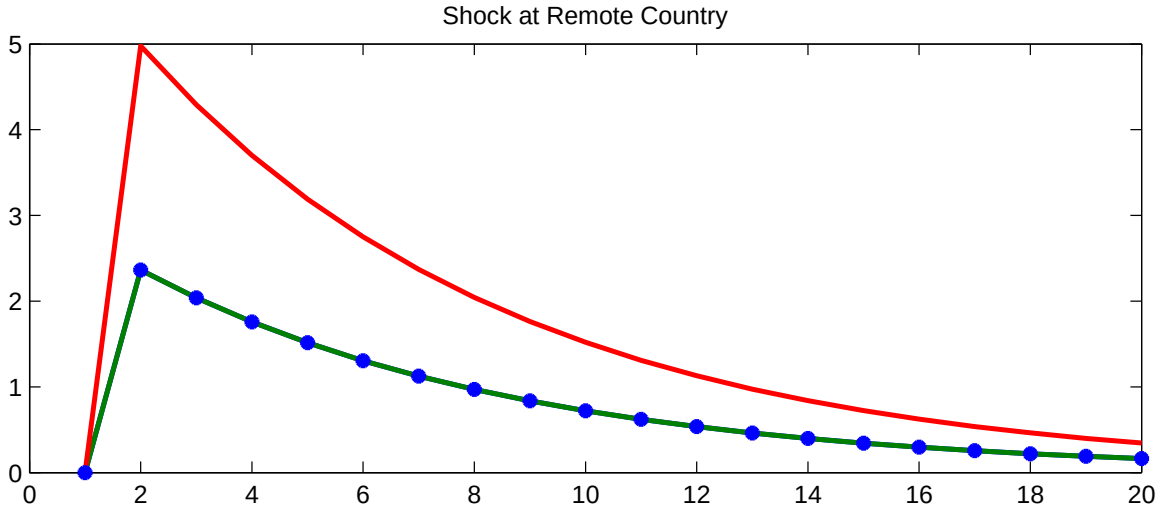
Consider two three-countries worlds:

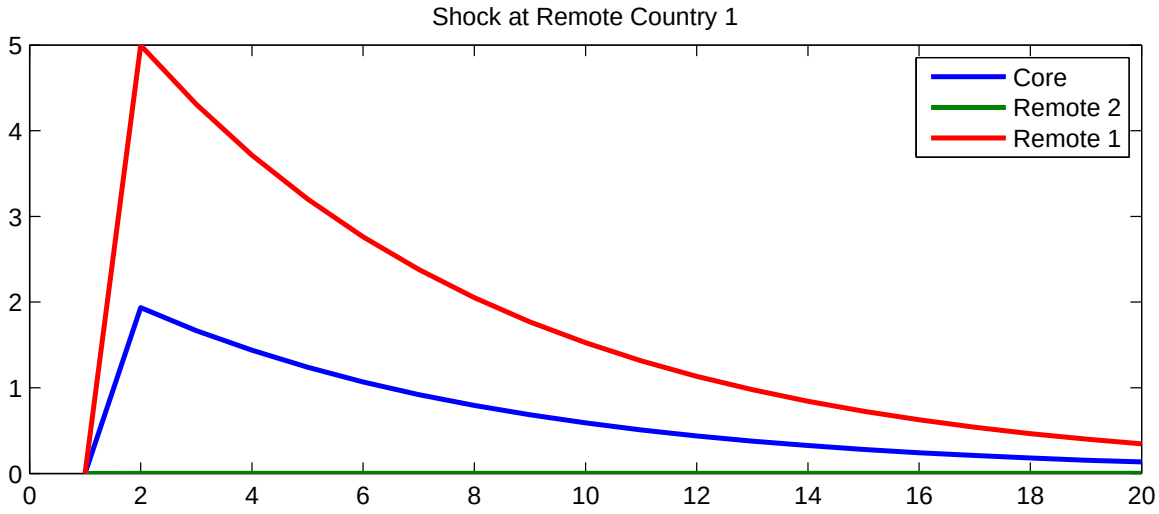
- **Isosceles world**
  - Two core countries with bilateral trade cost τ_l,
  - A remote country with trade cost $\tau_h > \tau_l$ with core.
- **Linear world**
  - A core country with trade cost τ with periphery,
  - Two remote countries with no trade with each other.

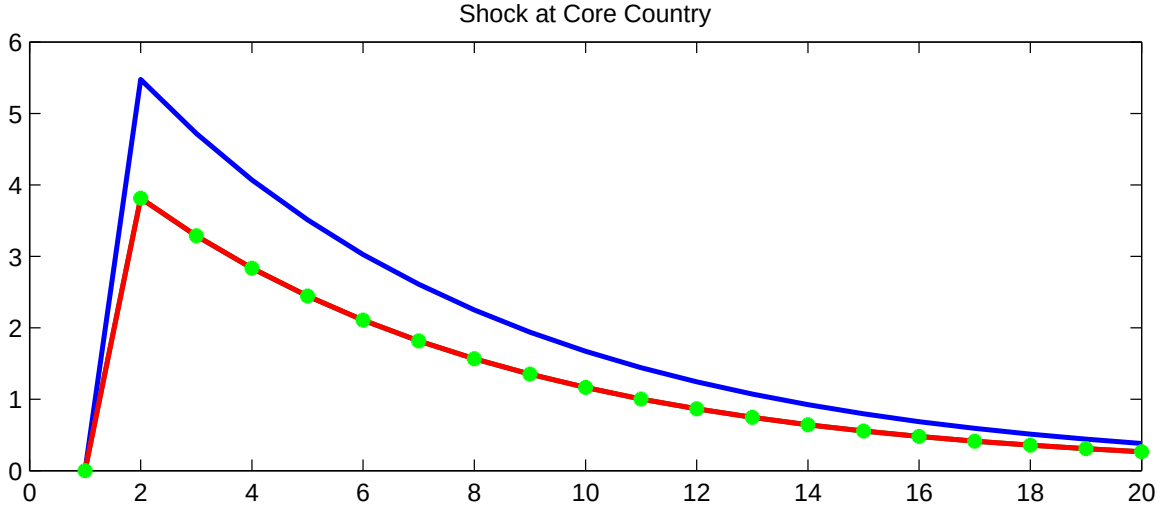
Isosceles world





Linear world





Conclusions

- It is a great idea to apply the Eaton-Kortum framework to output synchronization.
- The model has many interesting predictions:
  - Trade blocks,
  - Trade patterns,
  - Importance of core (and large) countries,
  - Output volatility and remoteness...
- Applications go well past the trade - output correlation.
- The current version does not realize yet the full potential of the paper.