Discussion of:

"Dynamics of Trade and Heterogeneity in General Equilibrium"

by

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Overview of the Paper

- **Goal**: "To reconcile the observation that aggregate movements of exports and imports are 'disconnected' from RER movements, while firm-level exports [and imports] co-move significantly with the RER."

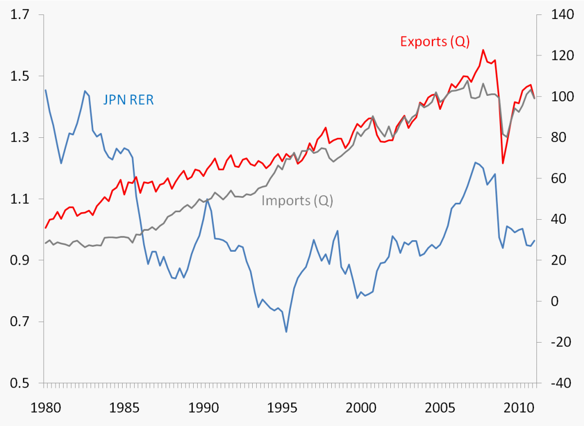
- Paper Proceeds As Follows:
  - Documentation of aggregate part of 'disconnect' for Japan
  - Dynamic GE Model; All analytical expsssns, no approx
  - Toward a Calibration

- To Be Done:
  - Analysis of steady state
  - Analysis of dynamics
  - Simulation
  - Revisit goal

Overview of Discussion

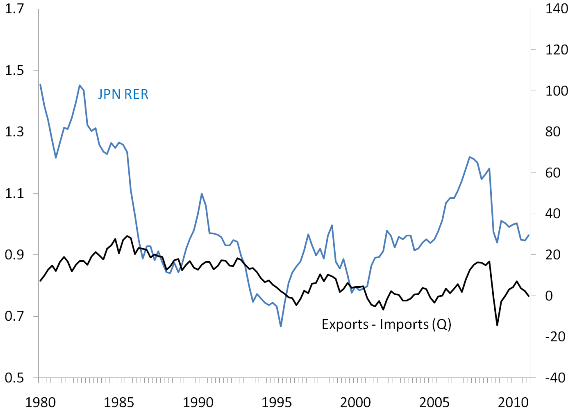
- Disconnect puzzle: Macro and Micro
- Model Setup
- Concerns about Model's Ability to Achieve Goal
- Excitement about Other "To Do's" with (*Beautiful*) Model

Disconnect Puzzle



- Relationship betwn Ex/Im and RER dominated by trend
- Correlations are low (and wrong sign for exports)
- Imports in world (and model) used to produce exports; plus, given trend, want to look at something more like (Ex - Im)

Disconnect Puzzle



- Now correlation is stronger and with correct sign
- Elasticity optimism and pessimism debate (Imbs and Majean 2009), for example, is about magnitude of trade elasticity, but not about sign
- Not disputing 'disconnect', but more precision on definition

Disconnect Puzzle

- More fundamentally: What does it mean for firm-level flows to relate to RER while aggregate flows do not?

1. Relationship identified over different variation?
2. Some sort of weighting issue?
3. Measurement issues? (Aggregation, Imputed Quantities)

- I believe authors have in mind some combination of 2 and 3 above. In particular, build model with focus on extensive margin within firms...

Model Setup

- Dynamic, 2-Country, GE model

- Utility derived from consumption, leisure, and holdings of foreign and domestic bonds (which provide liquidity services). Like money in utility function:

$$U = E \sum_t \beta^t \left(\ln C_t - \psi_0 \frac{L_t^{1+1/\psi}}{1+1/\psi} + \xi_t \ln D_t^H + \xi_t^* \ln D_t^{*H} \right)$$

  Shocks ξ_t, ξ_t^* (x2) will contribute to RER dynamics

- Nested CES structure:

$$\begin{aligned} Y &= CES(Y^H, Y^{*H}) \\ Y^H + M^H &= CES(Q(h,\omega)), \end{aligned}$$

  where firms h produce continuum of unique traded input varieties ω

Model Setup

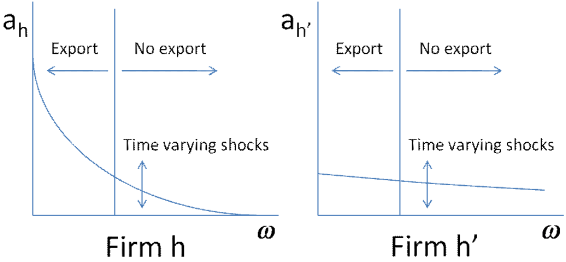
- Production of input varieties is Cobb-Douglas:

$$Q(h,\omega) = a_{h\omega} Z \left(L\right)^{\gamma_L} \left(K\right)^{\gamma_K} \left(M^H\right)^{\gamma_{MH}} \left(M^{*H}\right)^{\gamma_{M^*H}}$$

  and to export your variety, firm must pay fixed cost.

- Products from same firm $\{(h,\omega),(h,\omega')\}$ and across firms $\{(h,\omega),(h',\omega')\}$ enter with same substitutability.

- Firms draw 2 parameters of productivity distribution function and export only most productive varieties:

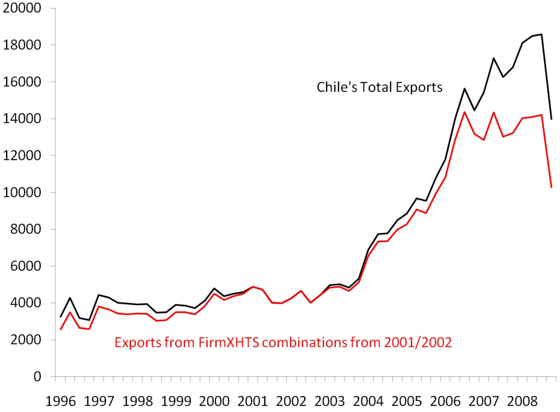


How Does Model Explain Disconnect and Other Puzzles?

- On ‘Disconnect’, I’m not sure yet. Suspect it’s from quasi-random bundling of products into "firms"
  - Data comes packaged by firm
  - Export share varies within firm
  - Changes with extensive margin adjustment
- Empirical evidence consistent with higher elasticity governing firm-level extensive margin adjustment (θ) than "macro" adjustment (φ) – see Feenstra, Obstfeld, Russ (2010)
- Evolution of firm-level productivity implies option value, so even firms with losses continue some activity (as in data)

Some Concerns About Model Achieving Stated Goal

- Nearly all action coming from exporter extensive margin. How big a deal is this?
- Customs Data from Gopinath/Neiman 2011:



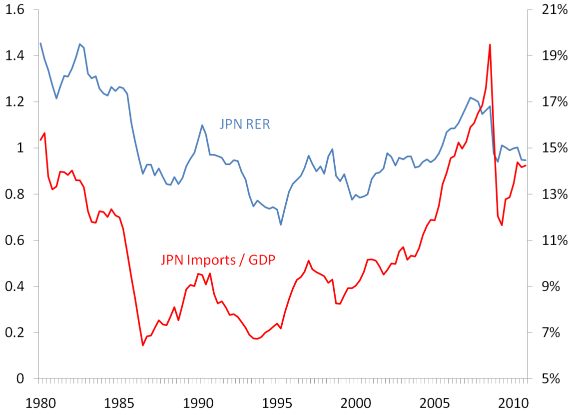
- Is this big enough? Maybe. May be bigger in Japan, too.

Some Concerns About Model Achieving Stated Goal

- Firms in model exhibit complete exchange rate passthrough (before GE response) of continuing varieties.
  - BLS micro-data (same exporter, same product) has evidence of highly incomplete passthrough, even after several rounds of pricing adjustment (Gopinath and Itskhoki 2009, Neiman 2009)
  - Incomplete passthrough is potentially more direct mechanism to 'disconnect'
- Quantities in model different from quantities in data due to changing varieties. (This might actually be helpful to them, but is a measurement point.)
  - Quantities not measured directly above 10-digit level
  - Price indices used, subject to variety correction (Feenstra 1994, Broda and Weinstein 2008)

Some Concerns About Model Achieving Stated Goal

- Is Cobb-Douglas right for bundle of intermediates?
  - I/O tables for Japan shows changing share of imported intermediates in total manufacturing intermediate spending (1995=7%; 2005=11%)
  - Spending on Imports relative to GDP (or manufacturing production, not shown) seem to move with RER



Excitement about other "To Do's" (1/2)

- Model is amazing.
  - Very sophisticated environment with capital, fixed costs, cross-border portfolio holdings, extensive margin adjustment, heterogeneity, dynamics, etc.
  - Analytical expressions, no linearization or approximation, etc.
- Particularly new:
  - Can calibrate much more seriously to micro data
  - Asset flows *and* trade flows
  - Endogenous intertemporal trade (unlike Deckle, Eaton, Kortum 2008, or Eaton, Kortum, Neiman, Romalis 2011)

Excitement about other "To Do's" (2/2)

- Consumption corr puzzle and terms-of-trade volatility puzzle
  - Pavlova-Rigobon (RFS 2007) back out taste-shock process
  - Atkeson-Burstein (AER 2008) consider selection
  - This model much more general, can simultaneously consider these puzzles and in quantitative way others couldn't
- Relationship between valn and trade channels of adjustment
  - Can observe relationship between changes in Net Foreign Asset position, trade balance, and return differential
  - Gourinchas and Rey (JPE 2007), no theory
- Results by Arkolakis, Costinot, Rodriguez-Clare (AER 2011) showing summary statistic, not margins of adjustment, matter for welfare gains from external shocks

Summary

- Very ambitious and impressive model
- May help resolve 'disconnect' puzzle, but I don't yet see it. Particularly concerned about the quantitative import of the calibrated extensive margin.
- But very useful vehicle for re-examining many other first-order puzzles in international macroeconomics
- I look forward to reading next draft...