Discussion of

The Dynamics of the U.S. Trade Balance and the Real Exchange Rate: The J Curve and Trade Costs?

by

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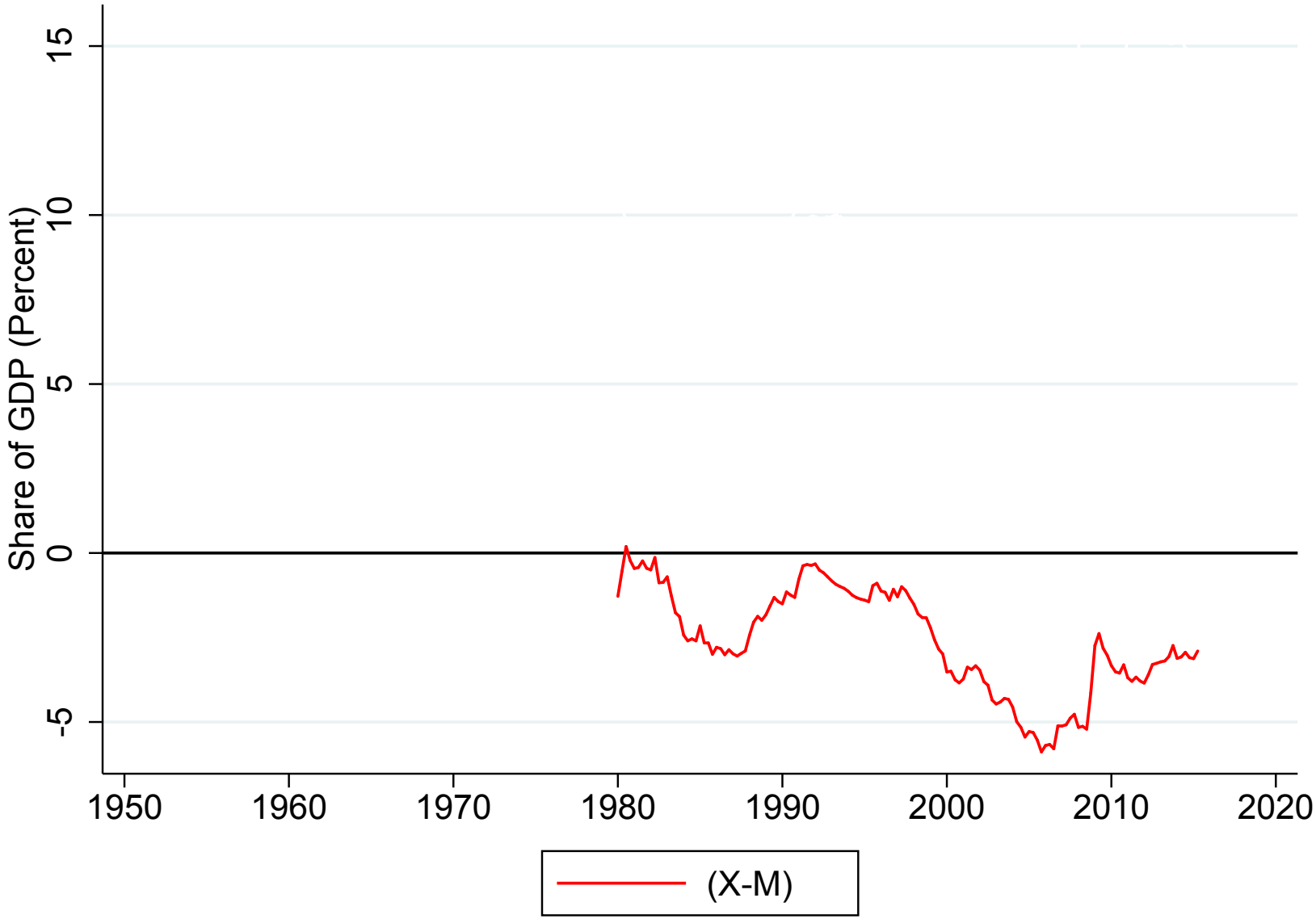
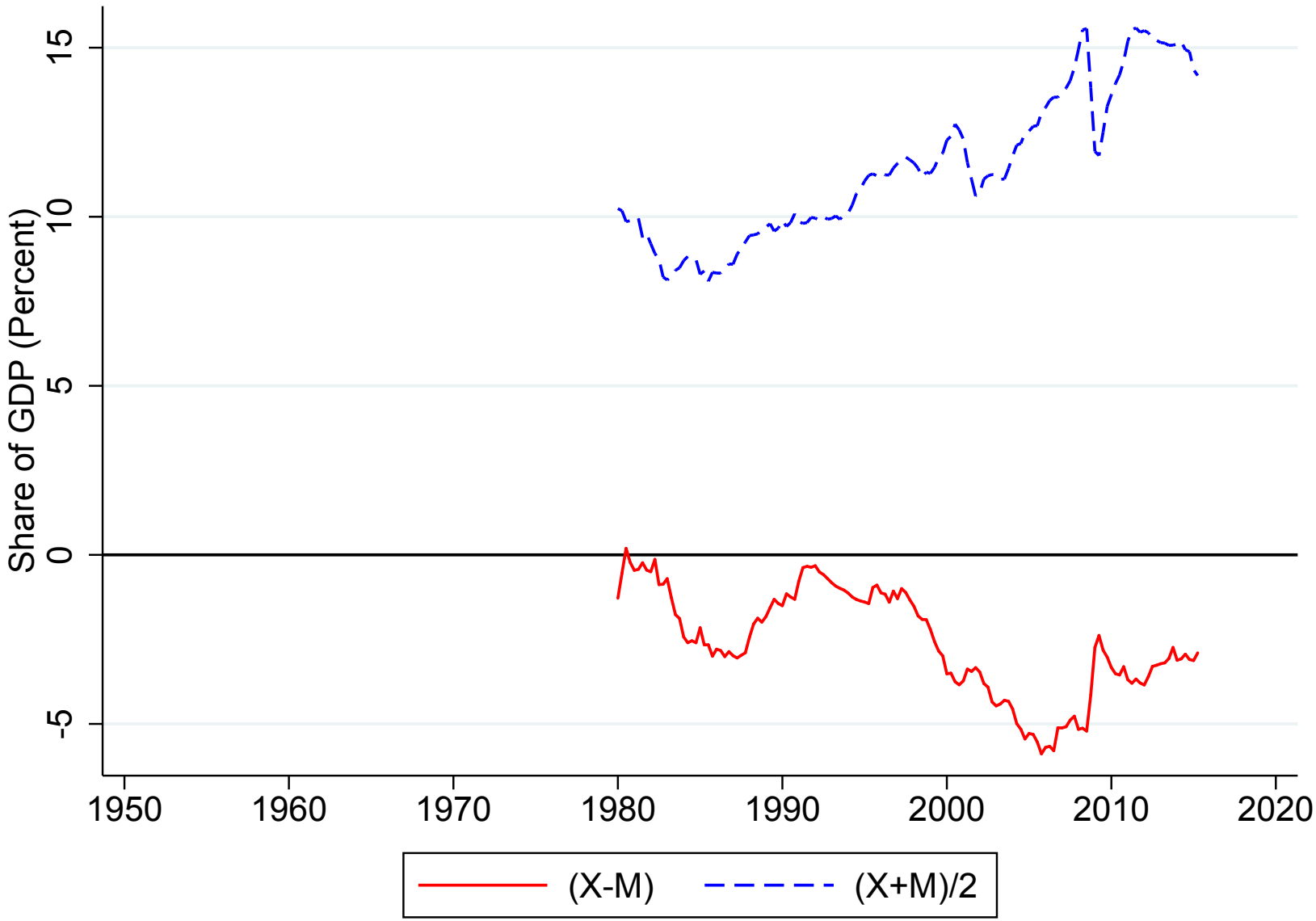
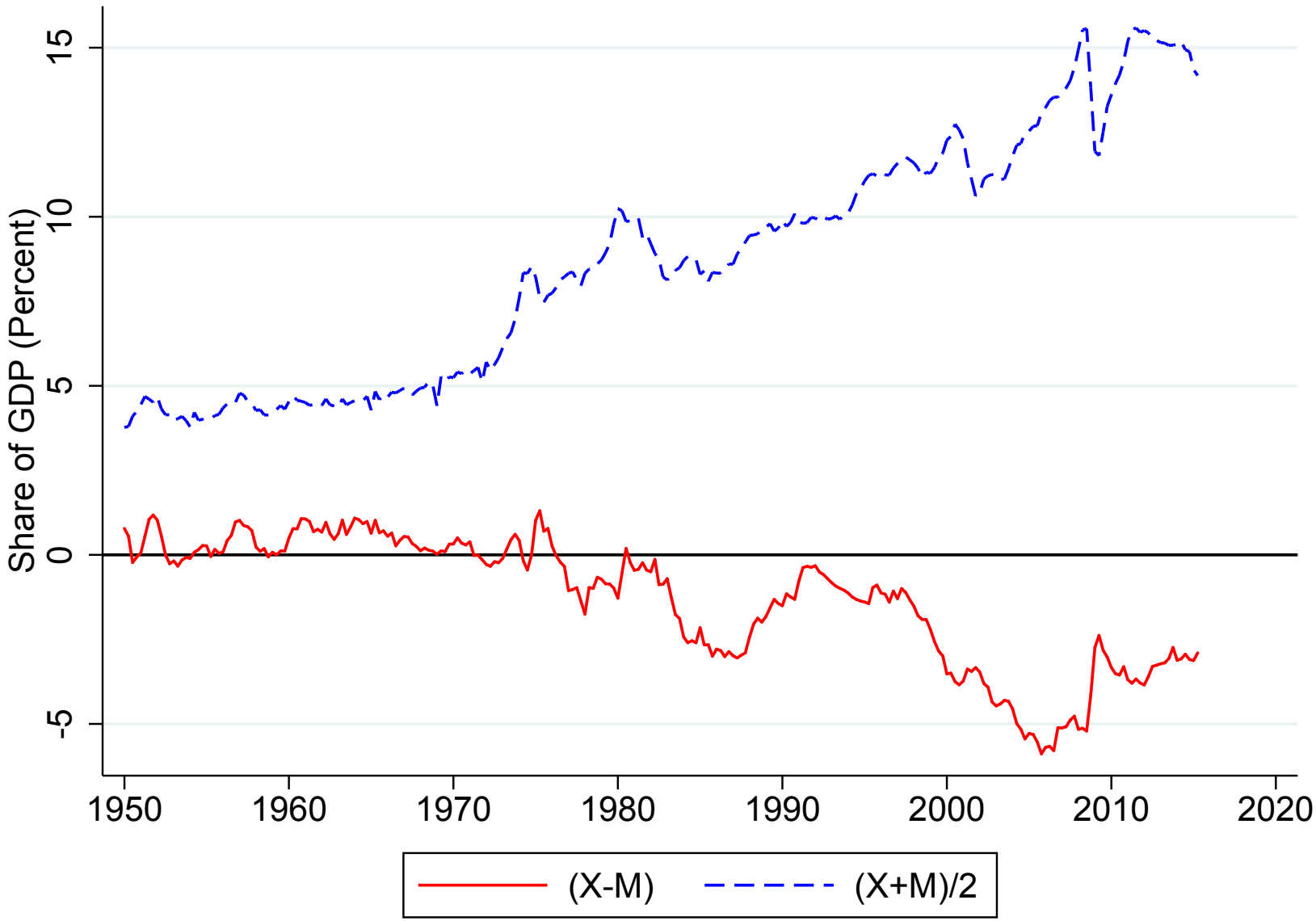
Large U.S. Deficit in Mid 1980s, Even Bigger in Mid 2000s



Gross Trade Has Also Grown



Looks Even More Suggestive with Longer Data



What The Authors Do

(1) Cool decomposition of real trade balance

- First order approximation of $\ln(X/M)$ around $X = M$ gives:

$$\frac{X-M}{Y} \approx \frac{1}{2} \times \underbrace{\frac{X+M}{Y}}_{\text{Global}} \times \ln\left(\frac{X}{M}\right)$$

Trade Integration

- Suggest the deficit in the 2000s was in some sense the same scale as the deficit in the 1980s, adjusted for globalization

What The Authors Do

(2) What accounts for flucts in U.S. TB since 1991?

- Combine standard import demand equation:

$$\ln(M) = \ln(\omega) - \rho \ln(1+\tau) - \rho \ln\left(\frac{P_M}{P}\right) + \ln D$$

with "export" equation (i.e. imports from ROW) to get:

$$\ln\left(\frac{X}{M}\right) = \underbrace{\ln\left(\frac{\omega^*}{\omega}\right) - \rho \ln\left(\frac{1+\tau^*}{1+\tau}\right)}_{\substack{\text{Uneven} \\ \text{Trade Integration}}} + \underbrace{\underbrace{\rho \ln\left(\frac{P_M}{P_X} \times \frac{P^*}{P}\right)}_{\substack{\text{TOT + RER} \\ \text{Relative Prices}}} + \underbrace{\ln\left(\frac{D^*}{D}\right)}_{\substack{\text{Relative} \\ \text{Expenditures}}}}_{\text{Business Cycle}}$$

What The Authors Do

(2) What accounts for flucts in U.S. TB since 1991?

- Global trade integration contributes half
- Specifications: (1) 1^{st} Diffs, (2) Levels, and (3) Error-correct
- Expenditures (part of business cycle) contributes none
- Relative Prices contribute 1/3 in (3) (with decent fit), much less in (1) and (2) (with worse fit)
- They conclude that lagged response and dynamics are key

What The Authors Do

(3) How far can trade costs alone go?

- Add PTM and external habbit to Alessandria and Choi (2007)
- Feed in asymmetric trade shocks backed out from data
- TOT, RER, and Rel. expenditures evolve endogenously
- Uneven integration accounts for moderate amount of $\ln(X/M)$, slightly less than in data.
- Accounts for much less if eliminate PTM and habit

Comments

- Nice paper!
- TB dynamics not just about different business cycles
- I'll focus rest of my discussion on:
  - Demand and Composition (Sectors and Countries)
  - What is About TB and What Isn't?
  - Some Measurement Issues
  - Draw Out Mechanisms
  - Relating this to "Global Imbalances" and OR's "6 Puzzles"

Sectoral Demand and Composition

- Import demand equation derived from 1-Sector CES:

$$\frac{M}{D} = \left(\frac{P_M(1+\tau)}{P} \right)^{-\rho}$$

- This implies:

$$\ln \widehat{(1+\tau)} = -\frac{1}{\rho} \left[\ln \left(\widehat{P_M M} \right) - \ln \left(\widehat{P_D D} \right) - (1-\rho) \ln \left(\widehat{\frac{P_M}{P}} \right) \right]$$

- But substitution may occur within sectors (even if same ρ):

$$\frac{M_1}{D_1} = \left(\frac{P_{M_1}(1+\tau_1)}{P_{D_1}} \right)^{-\rho} \quad \text{and} \quad \frac{M_2}{D_2} = \left(\frac{P_{M_2}(1+\tau_2)}{P_{D_2}} \right)^{-\rho}$$

Sectoral Demand and Composition

- Causes problems with composition changes. To see it, assume:

$$\widehat{P_{M_1}} = \widehat{P_{M_2}} = \widehat{P_{D_1}} = \widehat{P_{D_2}} = \widehat{(1+\tau_1)} = \widehat{(1+\tau_2)} = 1$$

$$\widehat{M_1} = \widehat{D_1} = 1 \text{ and } \widehat{M_2} = \widehat{D_2} = 1 + g$$

- This implies:

$$\widehat{(1+\tau)} = \left(\frac{1 + g\omega_2^M}{1 + g\omega_2^D} \right)^{-1/\rho},$$

where

$$\omega_2^M = \frac{P_{M_2} M_2}{P_M M} \text{ and } \omega_2^D = \frac{P_{D_2} D_2}{P_D D}.$$

- Nothing deep theoretically here, but key for measurement given sectoral differences (i.e. durables in 2008-2009)

Sectoral Demand and Composition

- In context of Great Recession, issue is well known wrt durables (Engel and Wang, Alessandria, Kaboski, and Midrigan, etc.)
- Levchenko, Lewis, and Tesar (2010) calculate $\widehat{(1+\tau)}$ for U.S.:

ε	(1) Overall	(2) Overall, Non-Oil	(3) Durable	(4) Consumption	(5) Investment
1.5	-0.401	-0.278	-0.205	-0.064	-0.105
6	-1.190	-0.648	-0.342	0.072	-0.203

- Same issue arises when aggregating across foreign bilaterals:
  - Just as with durables, Country X may be disproportionately represented in U.S. exports and have idiosyncratic fluctuation
  - D^* comes from Dallas Fed's advanced economy IP index and excludes, for example, Mexico and China

Sectoral Demand and Composition

- Eaton, Kortum, Neiman, and Romalis (2015) measures bilateral wedges, but here I construct import-wtd average
- Can compare EKNR wedge for U.S. imports to LLT by taking weighted average of their $\epsilon = 1.5$ and $\epsilon = 6$ cases:

	Overall, Non-Oil	Durables	Consumption
LLT ($\epsilon = 3$)	-0.401	-0.251	-0.019
	Manufacturing	**Durables**	**Nondurables**
EKNR ($\theta = 2$)	-0.561	-0.274	-0.011

- EKNR foreign wedges, built up from sector- and bilateral specific data, distributed (more or less) evenly around 0
- None of this matters for theoretical point. But might be quite important for the empirical results.
- Where does this argument end? Fair and open question, depends on purpose... Authors might try to show robustness

What is About TB and What Isn't?

- Initial decomp cleanly relates TB/Y to global integration
- But after is mostly about better open-economy model. Easy to get a bit confused on whether story explains:
  1. Price elasticity in import demand,
  2. Income elasticity in import demand, or
  3. Home/foreign ratios of prices or income (i.e. comovement).
- Leibovici/Waugh (2015) emphasize large estimated elasticity to current spending (closer to 2 than 1). Does this model alleviate that concern?
- Authors emphasize that BKK needs counterfactual D/D^* behavior to get deficit with prod shock. Show version here.
- Feels like authors have deep sense why model is better studied with focus on TB vs. import equation, useful to draw it out

Key Mechanisms – 50% PT, Habbit, Stock of Exporters

- These are key new parts of model. Can offer corroboration?
- Incomplete Passthrough: Nice feature. PT rises (falls) for U.S. (ROW) in the data, but is flat here. Does this matter for comparison of model to data?
- External Habit: Asset pricing implications?
- Exporter Dynamics: Any direct evidence?
- Bottom line is key innovations in paper are reasonable and promising, but reader would benefit from more direct evidence on mechanism

Some Measurement Issues

Export price index calculated as:

$$P_X = \left(\int_{i \in \Omega} P_i^{1-\theta} \right)^{\frac{1}{1-\theta}}$$

- Nice to introduce time variation in θ, but changes in the price index now reflect changes in substitutabilities across varieties.
- Similarly, action through entry/exit. Potentially nice, but now important changes in price index reflect love of variety Ω.
- Neither effect found in price indices used in the empirics

Some Measurement Issues

Empirics and theory rely on long-run estimate of ρ from:

$$\ln\left(\frac{X}{M}\right) - \ln\left(\frac{D^*}{D}\right) = \rho \ln\left(\frac{P_M}{P_X} \times \frac{P^*}{P}\right) + \epsilon$$

But truth has:

$$\ln\left(\frac{X}{M}\right) - \ln\left(\frac{D^*}{D}\right) = \ln\left(\frac{\omega^*}{\omega}\right) - \rho \ln\left(\frac{1+\tau^*}{1+\tau}\right) + \rho \ln\left(\frac{P_M}{P_X} \times \frac{P^*}{P}\right)$$

- Model generates correlation structure between $\ln\left(\frac{1+\tau^*}{1+\tau}\right)$ and $\ln\left(\frac{P_M}{P_X} \times \frac{P^*}{P}\right)$, so there's potential for OVB
- Probably not critical as asymmetric τ shocks are temporary, or different in EC model vs. levels. But worth discussing.
- Recover calibrated ρ from regressions on simulated data?

Relating this to "Global Imbalances" and OR's "6 Puzzles"

- Connect with policyish literature on whether deficit was "too big"? Decomposition reminded me of Cooper (BPEA 2007):

  "[The U.S. deficit] of $811 billion in 2006 was certainly unprecedentedly large. But in fact it was smaller than the deficit that would have resulted if world financial markets were fully globalized, if globalization is taken to mean that savers around the world allocate their saving according to relative sizes of national economies..."

- Nice to see recent growing quantitative dynamic literature developing to think through these issues. This paper, others by authors plus Ruhl, Kehoe, etc.

- Current paper related to new project of mine with Eaton/Kortum called "Obstfeld and Rogoff's International Macro Puzzles: A Quantitative Assessment"

Relating this to "Global Imbalances" and OR's "6 Puzzles"

- OR (2000): trade costs might explain many puzzles. But realistic quantification was difficult.
- EKNR extracts shocks to trade frictions, productivity, invest efficiency, intertemporal demand, etc., that fully "explain" data if shocks fed to perfect foresight dynamic model.
- EKN does this for 19 countries and 4 sectors since 2000, creates world with all same shocks but zero trade frictions

Relating this to "Global Imbalances" and OR's "6 Puzzles"

- How do we simulate a world with no trade costs?
- We extract trade costs from data with:

$$\hat{d}^j_{ni,t+1} = \left(\frac{\pi^j_{ni,t+1}/\pi^j_{ni,t}}{\pi^j_{ii,t+1}/\pi^j_{ii,t}} \right)^{-1/\theta} \frac{p^j_{n,t+1}/p^j_{n,t}}{p^j_{i,t+1}/p^j_{i,t}}$$

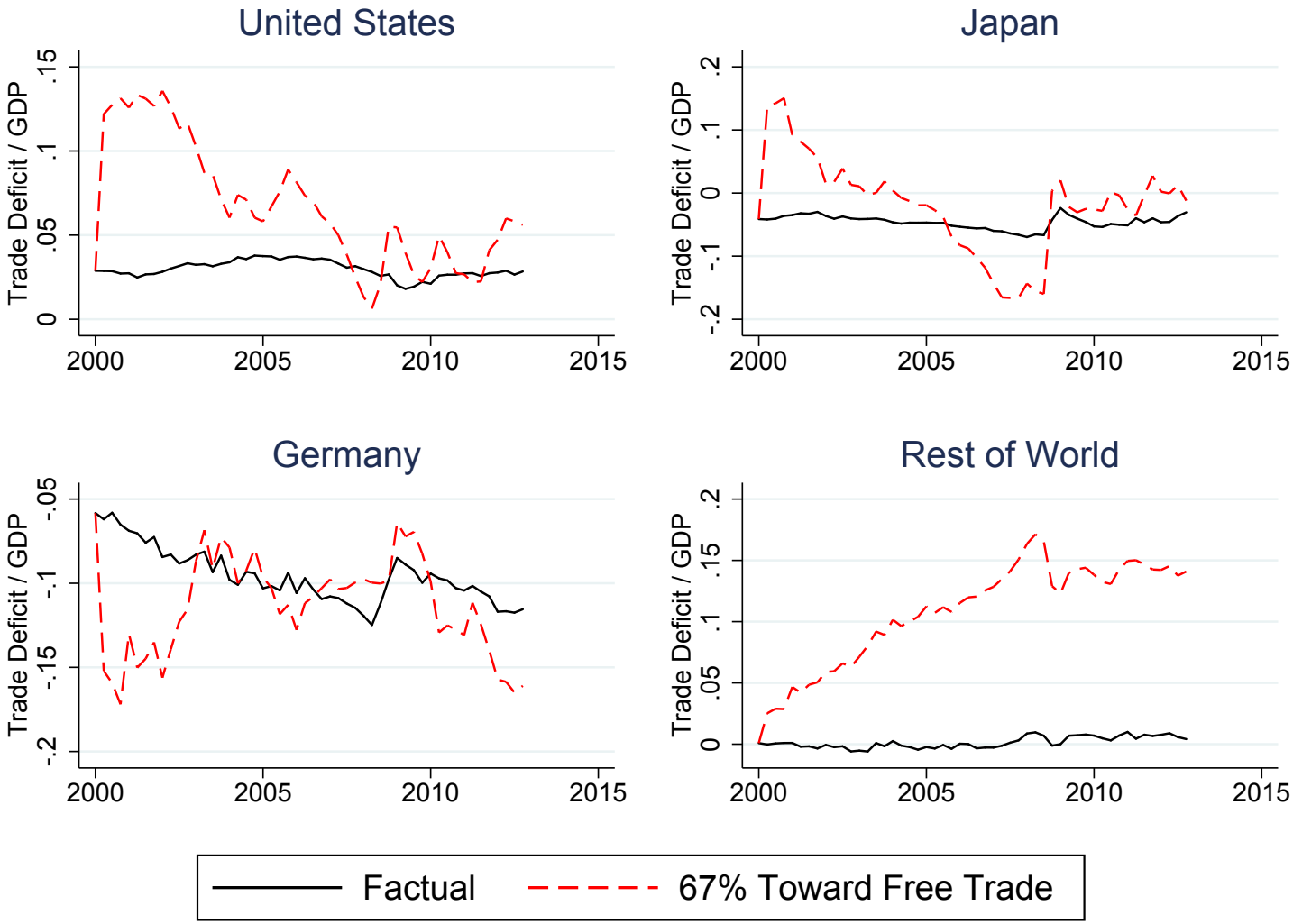
- But trade cost reductions that hypothetically bring free trade would result in $\pi^j_{ni,t+1} = \pi^j_{ii,t+1}$ and in $p^j_{n,t+1} = p^j_{i,t+1}$
- So we implement a counterfactual with:

$$\hat{d}^{j,FT}_{ni,t+1} = \left(\frac{\pi^j_{ii,t}}{\pi^j_{ni,t}} \right)^{-1/\theta} \frac{p^j_{i,t}}{p^j_{n,t}},$$

where the price levels are taken from the ICP

Counterfactual Trade Frictions Bring Economy (Close) To Free Trade in 2000:Q2, Other Shocks as in Data

Counterfactual Trade Frictions Bring Economy (Close) To Free Trade in 2000:Q2, Other Shocks as in Data



Feldstein-Horioka (1980) Puzzle Improves

- F-H regress long-period averages of I/Y on S/Y. Cross-sectional regression coefficients of 0.9 for 60's/70's.
- OR gets 0.60 for 1990-1997
- We define saving as investment plus trade balance

	Data			Counterfactual (2/3 Toward Free Trade)		
	00-12	**09-12**	**Long Difference**	**00-12**	**09-12**	**Long Difference**
Saving	0.356**	0.633***	0.866***	0.244***	0.339***	-0.042
	(0.146)	(0.127)	(0.197)	(0.070)	(0.083)	(0.311)
Constant	0.145***	0.0829***	-0.001	0.176***	0.116***	-0.027
	(0.033)	(0.028)	(0.011)	(0.028)	(0.033)	(0.026)
Observations	18	18	18	18	18	18
R-squared	0.31	0.62	0.61	0.36	0.40	0.00

Conclusion

- I like the paper. Fantastic topic, cool decomposition, and helpful initial results
- Gave me a more solid theoretical footing in thinking about what causes the TB
- Hope my ideas will be helpful for improving the empirical exercise and corroborating key mechanisms in the model
- Look forward to reading next version!