Discussion: "Regional Trade Policy Uncertainty" (Poilly and Tripier)

Joseph Steinberg (University of Toronto)

Summary

Literature: Effects of TPU shocks on individual firms and entire countries

- Firm-level analyses can't address GE effects
- Country-level analyses potentially confounded by other events that are correlated with TPU shocks (e.g. U.S.-China trade war vs. other Trump policies like TCJA)

This paper: Exploit regional variation in exposure to TPU shocks

- Estimates include GE effects, to the extent that those effects operate differently in more- vs. less-exposed regions
- Time fixed effects soak up non-tariff aggregate shocks that create problems for country-level estimation
- Model allows for GE feedback between more- vs. less-exposed regions

Overarching comment: Regional-exposure-variation approach can be pushed further to uncover mechanisms behind macro effects of TPU

Empirics: How does TPU affect the economy?

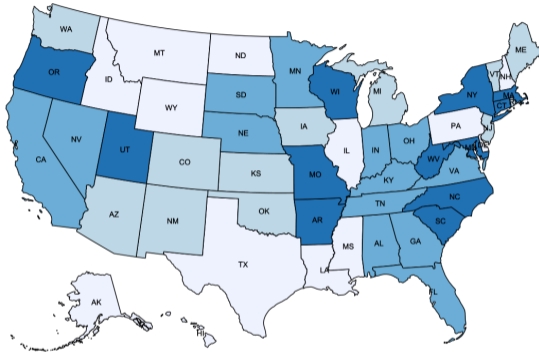Tariffs (and uncertainty about future tariffs) can affect economy in several ways:

1. Higher retail prices for consumers who buy imported final goods

2. Higher input prices for firms that use imported intermediate inputs

3. More favorable environment for import-competing firms (recall Trump's claims about steel tariffs!)

4. Retaliation by foreign countries reduces exporters' demand

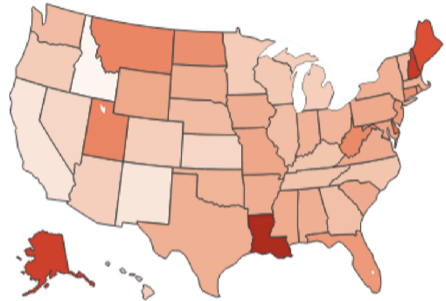Model focuses on 2, but empirical exposure measure includes both 1 and 2

- Input-output tables can be used to assign imports to final vs. intermediate uses

TPU exposure vs. intermediate intensity of imports

Figure 3: Tariff-volatility exposure across the U.S. states

Intermediate intensity of imports by state

- Some states with high tariff-volatility exposure import lots of intermediates (e.g. UT), but others don't (e.g. NC)

- Many states with high intermediate intensity of imports are relatively unexposed to tariff-volatility (e.g. LA, AK, MT, ND, NH)

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"Regional exposure variation" approach could also tell us about 3 and 4

3. How do states that produce certain products intensively respond when tariffs on those products rise/become more volatile? [Easy, just change definition of $\mu_{p,s,t}$]
4. How do states that export certain products intensively respond when foreign tariffs on those products rises/become more volatile? [Harder, also need to estimate stochastic volatility of foreign tariffs on U.S. goods.]

Empirics: Tariff volatility $\neq$ uncertainty about future policy

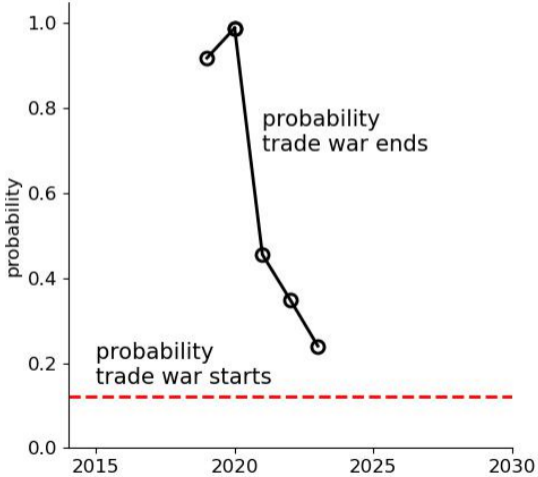Stochastic volatility model estimates TPU based on realized changes in applied tariffs

- Clearly reflects increase in TPU associated with U.S.-China trade war

Biggest changes in TPU occurred during long periods without material changes in tariffs

- China's 2001 WTO accession: ↓ chance of losing MFN access, but tariffs constant after 1980
- Brexit vote in 2016: ↑ in uncertainty about future tariffs, immediate change in ECU status
- Future of current trade war: No change in tariffs under Biden (until very recent announced ↑), but big changes in likelihood of trade war ending (Alessandria et al. 2024)

Probability of ending U.S-China trade war

U.S.-China trade war probabilities

Empirics: Tariff volatility ≠ uncertainty about future policy

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Fluctuations in applied duties don't always reflect changes in statutory tariff regime

- Countervailing duties, antidumping, and other TTBs
- Incomplete compliance with RoO ⇒ fluctuations in % of shipments that enter under FTA vs. MFN
- Changes in within-sector product composition rather than changes in product-level tariffs

Empirics: Other comments

Variation across regions in sectoral composition of imports $\neq$ variation in openness

- Suppose OR and ID have same $\mu_{p,s,t}$, but $M_{OR,t} > M_{ID,t}$. Paper treats them as equally-exposed to tariff shocks, but I would say OR is more exposed.
- Why not do $\mu_{p,s,t} = M_{p,s,t}/Y_{s,t}$ instead?
- More consistent with model, where ω_j is share of foreign goods in state-level CES aggregator

Are imports really absorbed in "state of destination?"

- U.S. Census: *"[T]he state of destination may not reflect the final location for which the imported goods are destined. Rather…the state of destination…may reflect an intermediary, storage or distribution point…[S]hipments may later be distributed to…another state as the ultimate destination. For example, a consolidated shipment of many automobiles may be shipped by the importing company to a distribution point in one state with the intent of later shipping the automobiles to numerous states for final sale."* (`https://tinyurl.com/w6vwymf5`)
- Example: $Y_{NY} = 2.5Y_{NJ}$, but $M_{NY} \approx M_{NJ}$
- Of course, storing and distributing imports contributes to regional economies…
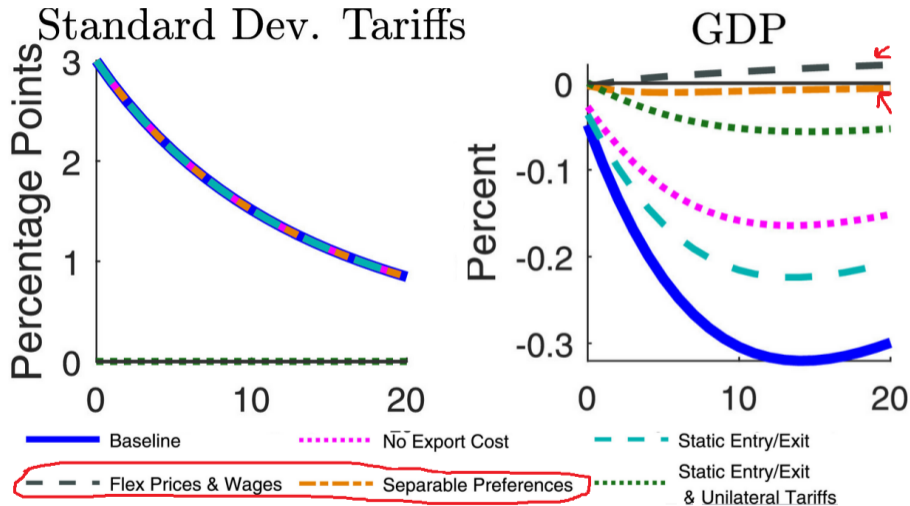
Model: How does TPU affect the economy?

Two main features that generate macro response to tariff volatility shock

- Precautionary saving: higher uncertainty makes households save more (and consume less)
- Sticky prices: higher uncertainty increases markups (a.k.a. precautionary pricing)

How robust are these responses?

- Steinberg (2019): No effect with flexible prices
- Caldara et al. (2020): Effect only materializes with sticky prices and GHH preferences

Caldara et al. (2020) sensitivity analysis

Standard Dev. Tariffs

GDP

Baseline
No Export Cost
Static Entry/Exit
Flex Prices & Wages
Separable Preferences
Static Entry/Exit
& Unilateral Tariffs

Model: How does TPU affect the economy?

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- Precautionary saving effect may be amplified by financial-autarky assumption, which prevents precautionary saving from being channeled to net exports

Would be nice to see what happens when these features (and others) are turned off

- Note: Fig. 6 shows differences in macro responses across regions. Masks symmetric changes across regions in levels. Would be nice to see within-region differences relative to baseline calibration.

Model: Precautionary pricing mechanism intuition

Consider firm that chooses price p in period 1 to maximize EPV of profits in periods 1 and 2

- Demand curve: $y_t(p) = D_t p^{-\epsilon}$
- Marginal cost c_2 and demand shifter D_2 in period 2 uncertain
- Simple version of Appendix G of Fernández-Villaderde et al. (2015)

Firm's problem:

$$\max_p \left\{ y_1(p)(p - c_1) + \mathbb{E}\big[y_2(p)(p - c_2)\big] \right\}$$

Solution:

$$p = \left(\frac{\epsilon}{\epsilon - 1} \right) \left(\frac{c_1 D_1 + \mathbb{E}[c_2]\mathbb{E}[D_2] + \operatorname{cov}(c_2, D_2)}{D_1 + \mathbb{E}[D_2]} \right)$$

Model: Precautionary pricing mechanism intuition

Assume $\mathbb{E}[c_2] = c_1$, $\mathbb{E}[D_2] = D_1$. Then optimal price increasing in $\text{cov}(c_2, D_2)$:

$$p = \left(\frac{\epsilon}{\epsilon - 1} \right) \left(c_1 + \frac{\text{cov}(c_2, D_2)}{2D_1} \right)$$

For tariff volatility to increase markups, must increase $\text{cov}(c_2, D_2)$. How does this work?

- My intuition is that $\text{cov}(\tau, c_2) > 0$ and $\text{cov}(\tau, D_2) < 0$, which would imply $\text{cov}(c_2, D_2) < 0$. If so, increase in $\text{var}(\tau)$ would <u>reduce</u> $\text{cov}(c_2, D_2)$ (specifically, make it more negative), not increase it.

- Caldara et al. (2020): *"Our simulations indicate that variation in tariffs induces aggregate demand and marginal costs to covary. This result may appear surprising because tariff increases depress demand and boost the price of intermediate inputs and, consequently, marginal costs. While that is the case, we find that the increase in marginal costs is extremely short-lived and firms anticipate that marginal costs and demand eventually decline together."*

What is the economic mechanism that makes tariff volatility increase—not reduce—the covariance between demand and marginal costs?

Model: Other comments

Rest of the world represented by single region. Inconsistent with focus of recent U.S. tariff risk (and changes in applied tariffs) on China only.

- Increase in tariffs on one country $\Rightarrow$ substitute towards imports from other countries. Same substitution might happen when policy towards one country becomes riskier.

- U.S. imports lots from China but mostly exports to other countries. Increase in tariff risk in main import source country may not cause contraction in main export destination countries.

Thank you!