Discussion of "Reshoring, Automation and Labor Markets under Trade Uncertainty" by Firooz, Leduc, and Liu

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Summary of the Paper

Higher Uncertainty about Tariffs (TPU)

1. Higher Demand for Domestic Intermediate Goods (Reshoring)

Higher Automation investment and demand for skilled labor

Lower demand for unskilled workers

2. Higher precautionary saving

3. Higher option value of waiting

FIGURE 1. Impulse responses to a trade uncertainty shock

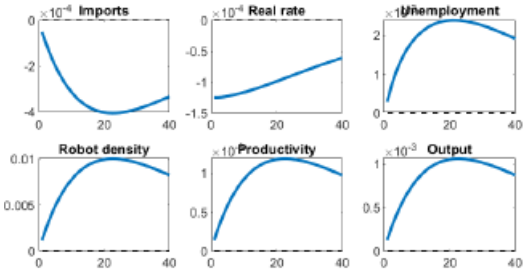


TABLE 3. Trade policy uncertainty, automation, and offshoring

	(1) log(Robot density)	(2) log(Import share)
Initial import share × log(TPU)	2.857*	-0.941**
	(1.464)	(0.396)
log(1+Tariff)	34.99	-7.344
	(59.09)	(8.649)
Industry fixed effect	✓	✓
Time fixed effect	✓	✓
Observations	241	336
R^2	0.923	0.956
Years	2004:2022	1997:2020
No. of industries	14	14

Summary of my Comments

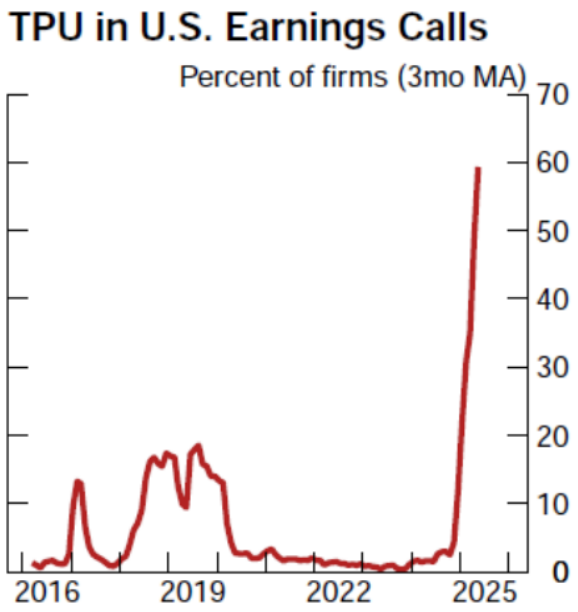
- Paper **correctly** executed.
  Model is rich and elegantly presented
  Empirics (using industry data) lend support to channels in the model

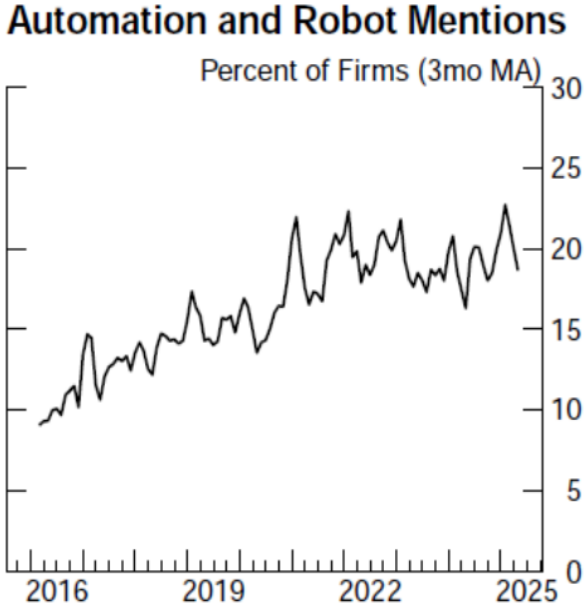
- More work should be done to flesh out the **importance** part:
  1. Practical relevance of the channel;
  2. How the baseline model is setup the way it is
  3. Channels of trade uncertainty in the model
  4. Quantitative implications of the effect in model and data.

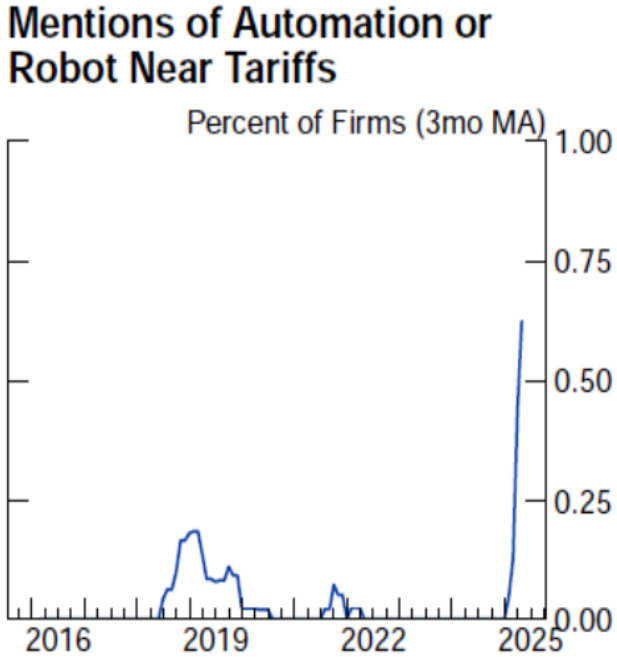
1. Relevance of the Channel

Earnings calls transcripts shows few mentions of automation in conjunction with tariffs or tariff uncertainty. Dig more?

"But there are also big challenges in terms of the availability of labor and the cost to automate --- even if we automate a lot of the automation equipment come from high-tariff countries, so cost of automation is going to grow…"







2. Modelling Trade Uncertainty and Robots

$$Y = f(\text{Robot H}, \text{Skilled Labor H}, \text{Unskilled Labor H}, \text{Imported Intermediates F})$$

- When uncertainty about the price/availability of imported inputs goes up, firms switch expenditure towards home
- Paper models complementarities so that:

  TPU ↑ Robot ↑ Skilled L ↑ Unskilled L ↓ Imported inputs ↓
- Not clear what is special about a robot relative to other forms of K
- Who makes robots and what do they replace? Home Robots are likely highly complementary with Intermediate Inputs sourced from abroad. (Extension IV.3.2)
- A bit unintuitive why there are search frictions for unskilled labor, while the market for skilled labor is very simplified
- **What would happen in a pure neoclassical labor market model with an aggregate production function and fixed cost of setting up robots? Could the model start from there?**

3. Is it Uncertainty or Something else?

- Intuition could be best conveyed in a simpler model by showing combination of higher uncertainty about tariffs (second moment shock) vs news of higher expected tariffs (expectation shock). More realistic way of thinking about TPU.

- In Caldara et al (2020), we found that pure uncertainty shocks required a combination of GHH preferences and sticky prices to reduce investment (but model had different margins)

- It could be useful to separate uncertainty effects that do not rely on fixed costs from standard macro effects.

1. Vacancy Creation and Posting Cost for Unskilled L — TPU ↑ Automation ?
2. Sunk Cost for Adoption of a Robot — TPU ↑ Automation ↓
3. Recurring Cost of Operating a Robot — TPU ↑ Automation ?

4. Expenditure switching and precautionary saving — TPU ↑ Automation ↑

Which of all these non-standard, fixed costs is important to explain how uncertainty works? Make it clear in future versions

4. Magnitude of Effects

Model

- Model: clarify magnitudes.
- From Figure 1, a one-sd TPU shock leads to small effects:
  - 0.0004 reduction in imports
  - 0.002 increase in unemployment
  - 0.01 increase in robot density
  - 0.002 increase in skill premium
- Yet, allowing automation to fluctuate incurs a modest welfare loss of about 0.75 percent of consumption equivalent, a huge effect!
- Are the welfare effects too large?

Data

- Provide more explicit quantitative estimates, not clear whether in line or not with model. How did the 2018 rise in TPU accelerate automation?

  1-sd rise in TPU exposures is associated with:
  - increase in about 1/3 of the sd of the log of the robot density.
  - reduction in the share of imported intermediate … almost ¼ of the sd
  - rise in labor productivity ….about 1/3 of the sd of labor productivity.

Suggestions: Do more work fleshing out the quantitative magnitudes and lining up effects in the model vs data.