

LEARNIG BY NECESSITY:  
GOVERNMENT DEMAND, CAPACITY CONSTRAINTS, AND PRODUCTIVITY  
GROWTH

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Salent Macro Meetings

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- ▶ **Heterogeneity:** (occasionally) binding capacity constraints



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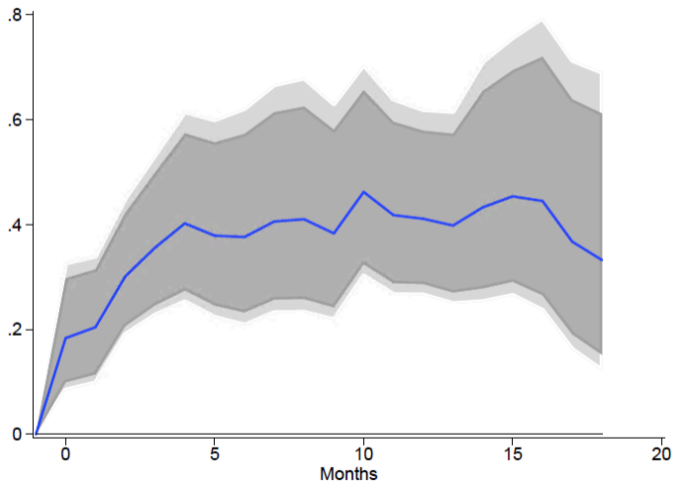
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- ▶ Capacity constraint (CC) heterogeneity:

$$y_{mp,t+h} - y_{mp,t-1} = \beta_h^3 \left[ \overbrace{D_{mpt} \times c_p}^{=1 \text{ if CC binds}} \right] + \omega_h D_{mpt} + \text{Lags} + \text{Controls} + \text{FEs} + \epsilon_{mpt}^3 \quad (3)$$

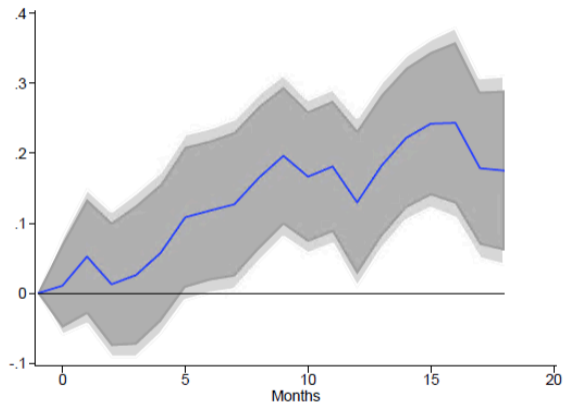
# MAIN RESULT

FIGURE: Elasticity of TFPQ productivity to aircraft demand shock

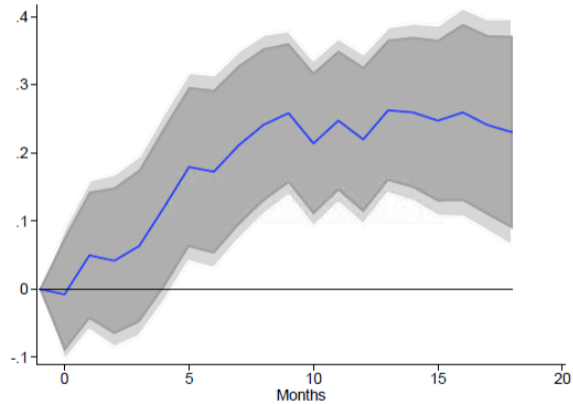


# CAPACITY CONSTRAINT HETEROGENEITY

FIGURE: Relative responses of  $c_p = 1$  group relative to  $c_p = 0$



(a) Output per Hour Worked



(b) TFP

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- ▶ Convert to the fiscal output multiplier with the TFP-output elasticity: measurable!

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- ▶ **Welfare** when capacity constraint binds:
  - Demand unfulfilled. Welfare down
  - Endogenous TFP growth. Welfare up
  - Quantification of net welfare effects beyond the scope of this paper, maybe for future work

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- ▶ **Outsourcing 2:** equality-efficiency trade-off between cutting labor costs and increasing productivity. What if outsourced labor is supplied from abroad? Less productive labor but at lower wages = higher productivity?

# SUMMARY

- ▶ Important paper
- ▶ Empirical contribution on identification is potentially general for a large class of (empirical) endogenous technical change models
- ▶ Comments and details: author transparently addresses most issues, acknowledges limitations, and runs many robustness checks ✓