

# Deindustrialization and Industry Polarization<sup>1</sup>

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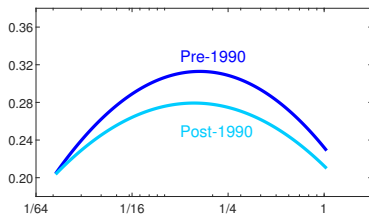
<sup>1</sup>The views expressed here are those of the authors and are not necessarily reflective of views of the Federal Reserve Banks of Chicago and Dallas, and the Federal Reserve System.

# Facts: Deindustrialization and Industry Polarization

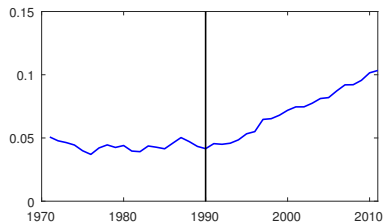
For each period  $pd \in \{\text{pre-90}, \text{post-90}\}$ :

$$va_{n,t}^j = \alpha_n^j + \sum_{pd} \left( \beta_{0,pd}^j + \beta_{1,pd}^j y_{n,t} + \beta_{2,pd}^j y_{n,t}^2 \right) \mathbb{1}_{t=pd} + \epsilon_{n,t}^j,$$

Predicted VA shares



Cross-country log-variance



- The manufacturing curve shifts down over time.
- The cross-country dispersion in manufacturing shares rises over time

# Research Question and Approach

What are the drivers of deindustrialization and industry polarization over time?

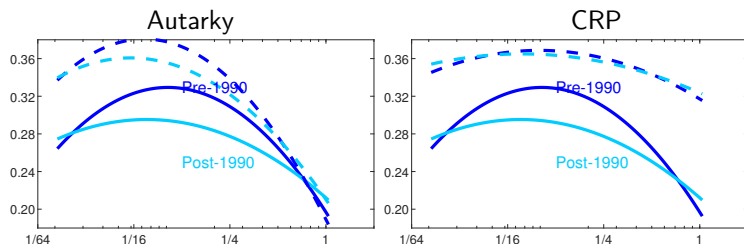
Approach:

- Build and calibrate dynamic trade model of structural change
  - ▶ Main drivers are shocks to sector productivity and trade costs
  - ▶ Income, relative price, and comparative advantage channels operate
  - ▶ Calibrate to 29 countries covering 1971-2011 (match sector prices & trade flows; aggregate income and investment)
- Model reproduces two main facts very well
- Quantify importance of sector-biased productivity vs. trade by shutting off one or both shocks

# Results

## Deindustrialization

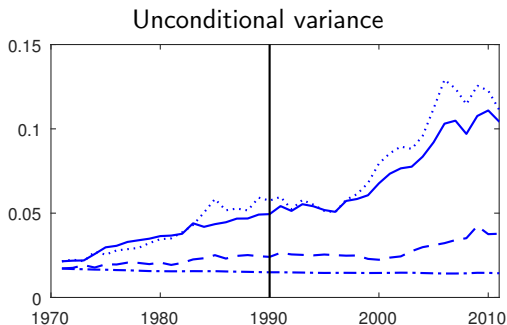
Predicted sector value added shares: pre-90 vs post-90



- Left panel: Autarky - Asymmetric productivity growth generates 60% of deindustrialization
- Right panel: CRP - Trade alone does not induce deindustrialization
- →Interaction accounts for remaining 40%

# Results

## Industry Polarization



- Solid line: Baseline model
- Dashed line: Autarky - very little increase
- Dotted line: CRP - virtually all of the increase

# Key Mechanisms

- **Deindustrialization:** Lower relative price of manufacturing to services over time
  - ▶ Sector-biased TFP growth and reduction in trade costs lead to lower relative price
  - ▶ With "Baumol" elasticities, this implies smaller global manufacturing market (as share of world GDP)
  - ▶ Later industrializers have fewer opportunities to reach industrial heights of early industrializers
- **Industry polarization:** Increased specialization
  - ▶ Lower trade costs leads to increased specialization
  - ▶ Implies greater divergence of manufacturing value-added shares
- Empirical evidence supports each mechanism