

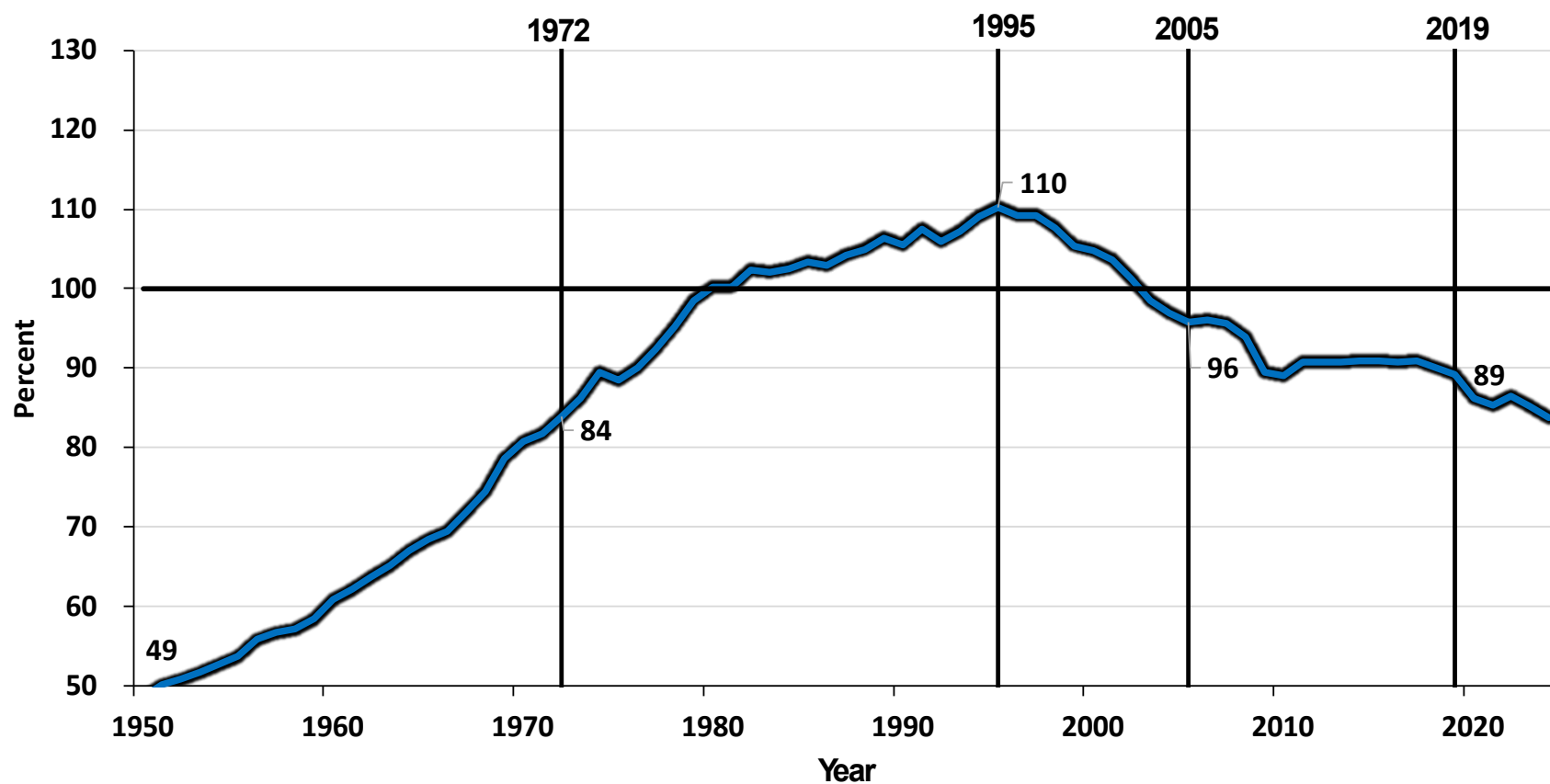
# **Did the Import Invasion Cause the Mysterious Disappearance of Productivity Growth in U.S. Manufacturing:**

**Robert J. Gordon  
and Kenneth Ryu  
CSLS Webinar  
June 25, 2026**

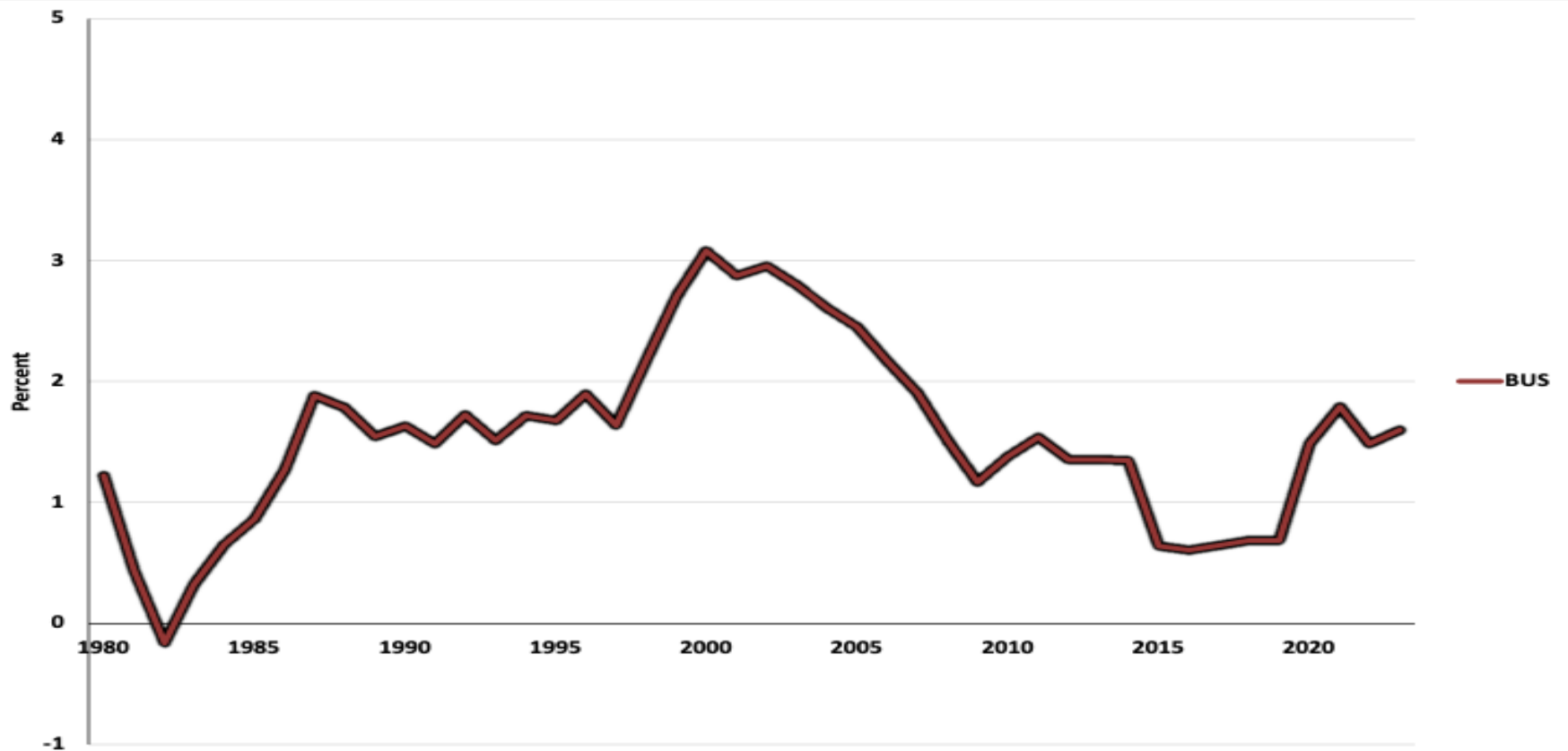
## Roaring Ahead or Falling Behind?

- The *Economist* last year called the U.S. economy the “Envy of the World”
- Important new 12/25 paper by Baily & Byrne:
  - The reasons for U.S. productivity leadership go to both the remarkable engine of innovation represented by public and private sector research and development

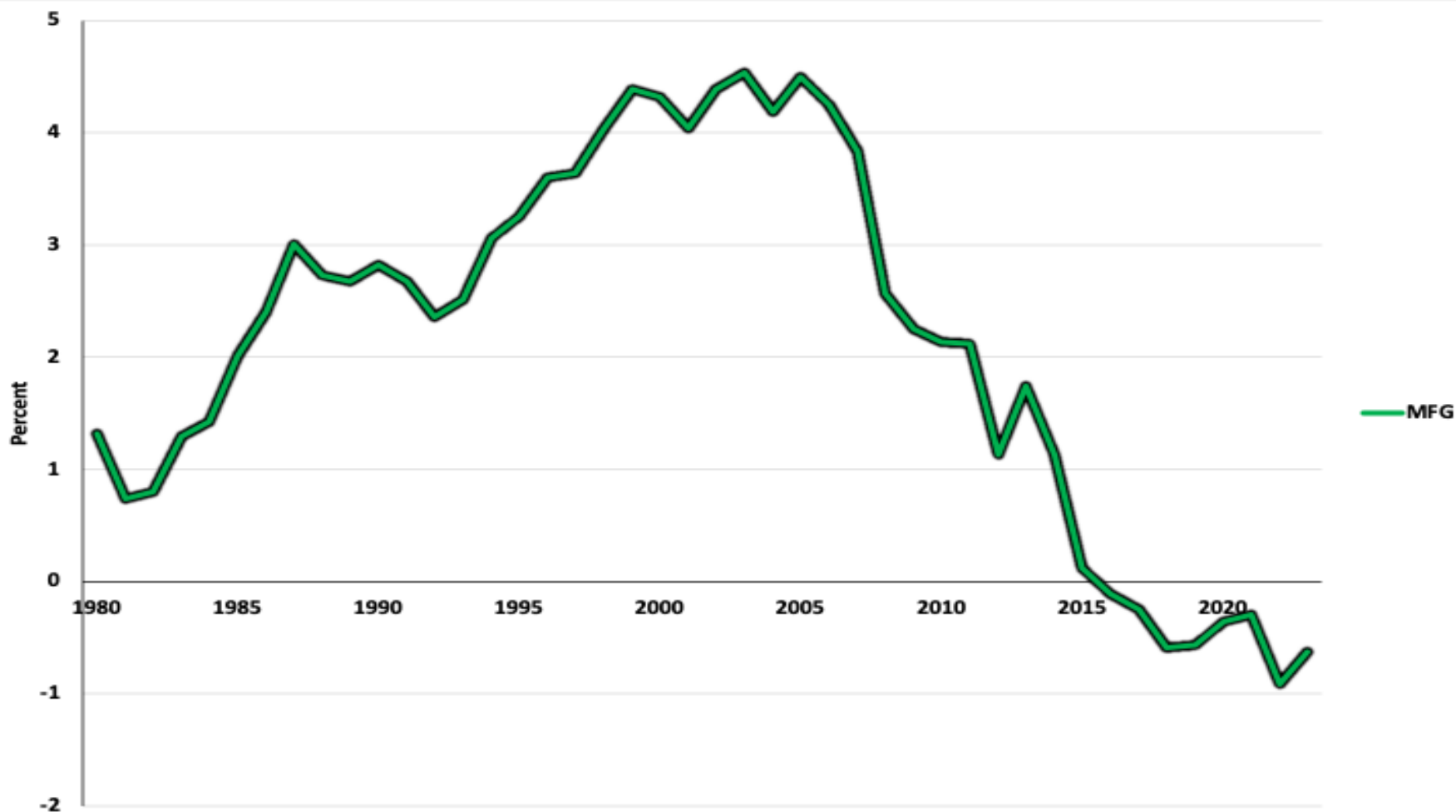
# Ratio of E17 to US Output per Hour, 1950 – 2024 (Average of BCL and TED)



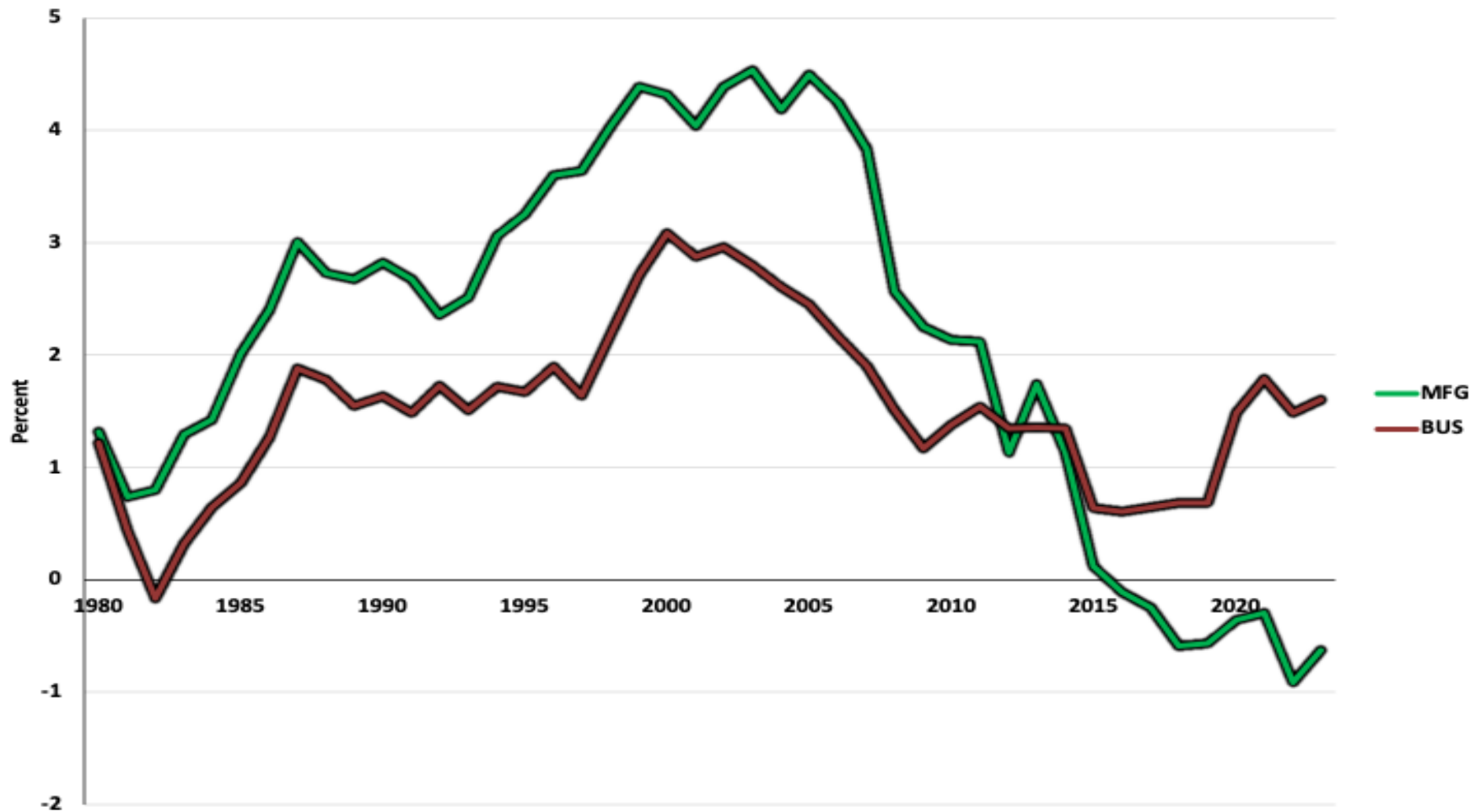
# 5-Year Moving Average Growth of Private Business Productivity, 1980 - 2023



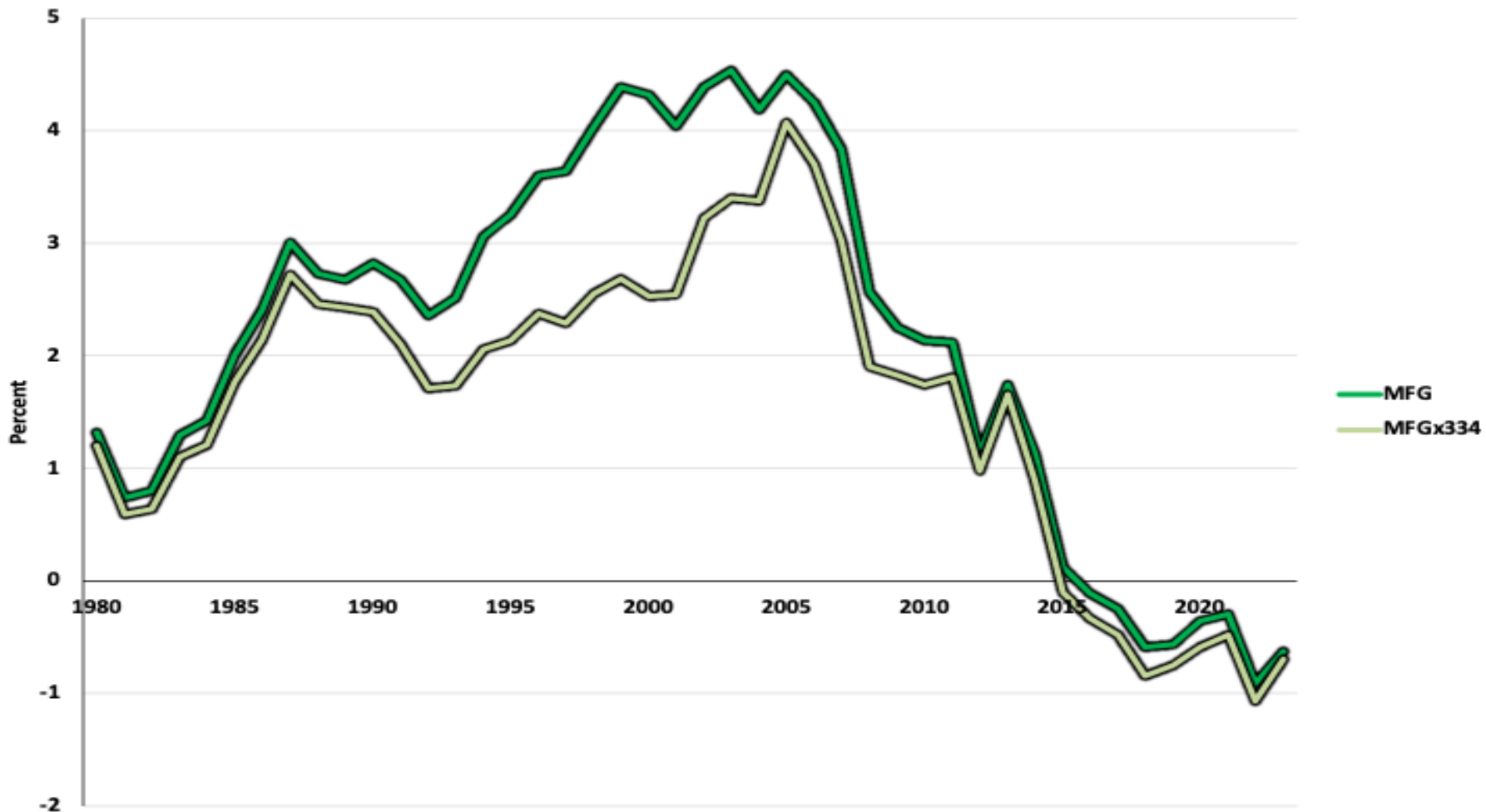
# 5-Year Moving Average Growth of Manufacturing Productivity, 1980 - 2023



# Comparison of Manufacturing and Private Business Productivity Growth, 1980 - 2023



# Productivity Growth in Manufacturing With and Without Computers (NAICS 334), 1980 - 2023



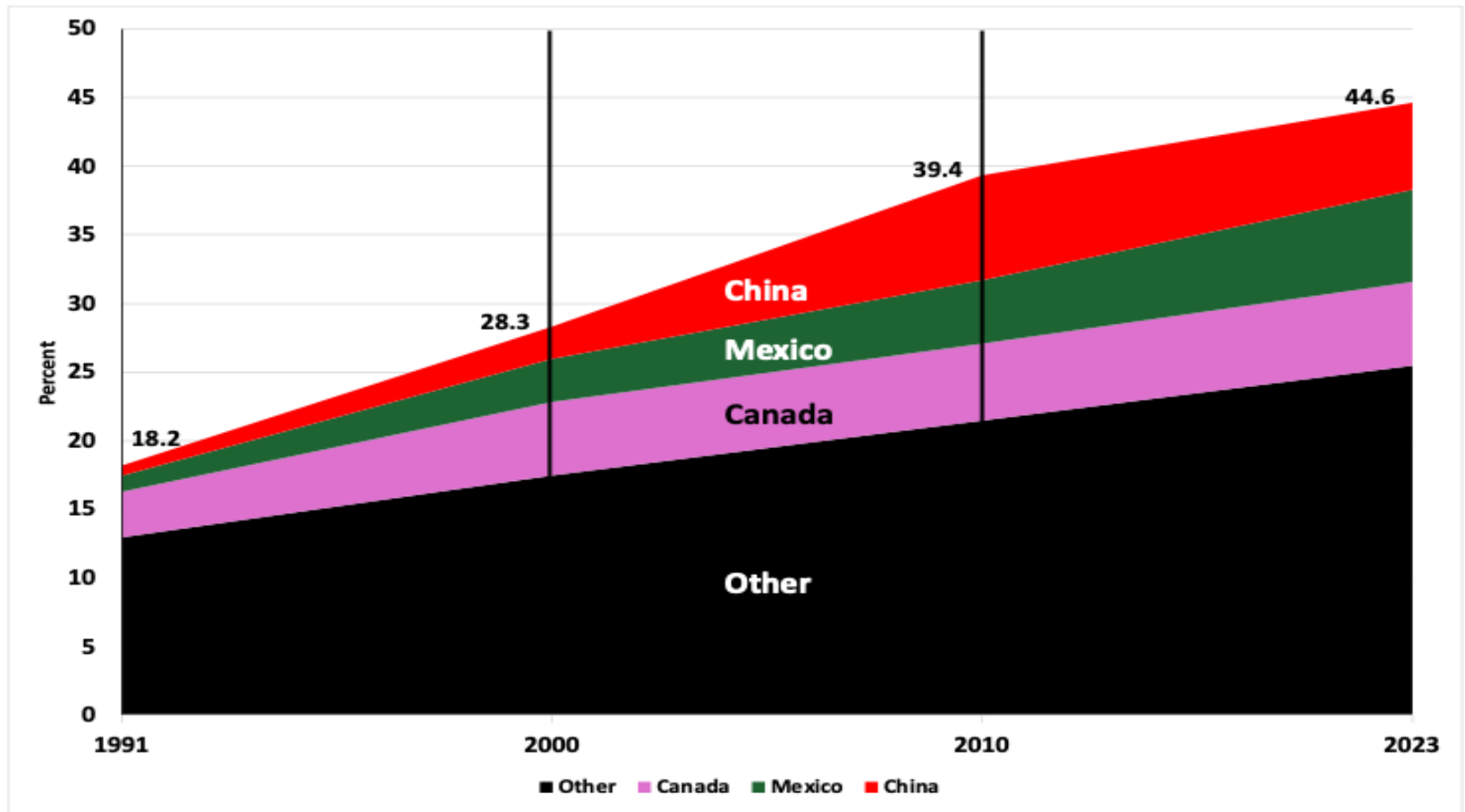
# Productivity Growth in Manufacturing without Computers vs. Private Business, 1980 - 2023



## **Looking for Clues – How Is Manufacturing Different?**

- **REGULATIONS** affect manufacturing more than they affect most other sectors
  - Anti-pollution, environmental, safety, and fuel economy regs aimed at mfg firms
  - Also utilities, mining, but not most services that make up 79% of GDP
- **IMPORTS OF GOODS MAKE MFG DIFFERENT**
  - Compete with US-made goods, not services
  - US trade as % of GDP in 2024
    - Goods Deficit -4.4% Service Surplus +0.8%

# Import Share of US Manufacturing Gross Output, 1991 - 2023



# **Import Penetration and Limits of the Import Explanation**

- **The “import invasion” is about all imports of goods, not just from China**
- **“Import Penetration”  $IP = IM / (IM + GO)$** 
  - **Grew 13% 1988 to 28% 2018**
  - **2018 range: 5% petroleum, 97% apparel**
  - **Second rank: computers 84%**
- **Correlation -67% across 18 industries between 1987-2005 growth in IP and 2000-10 growth in output**

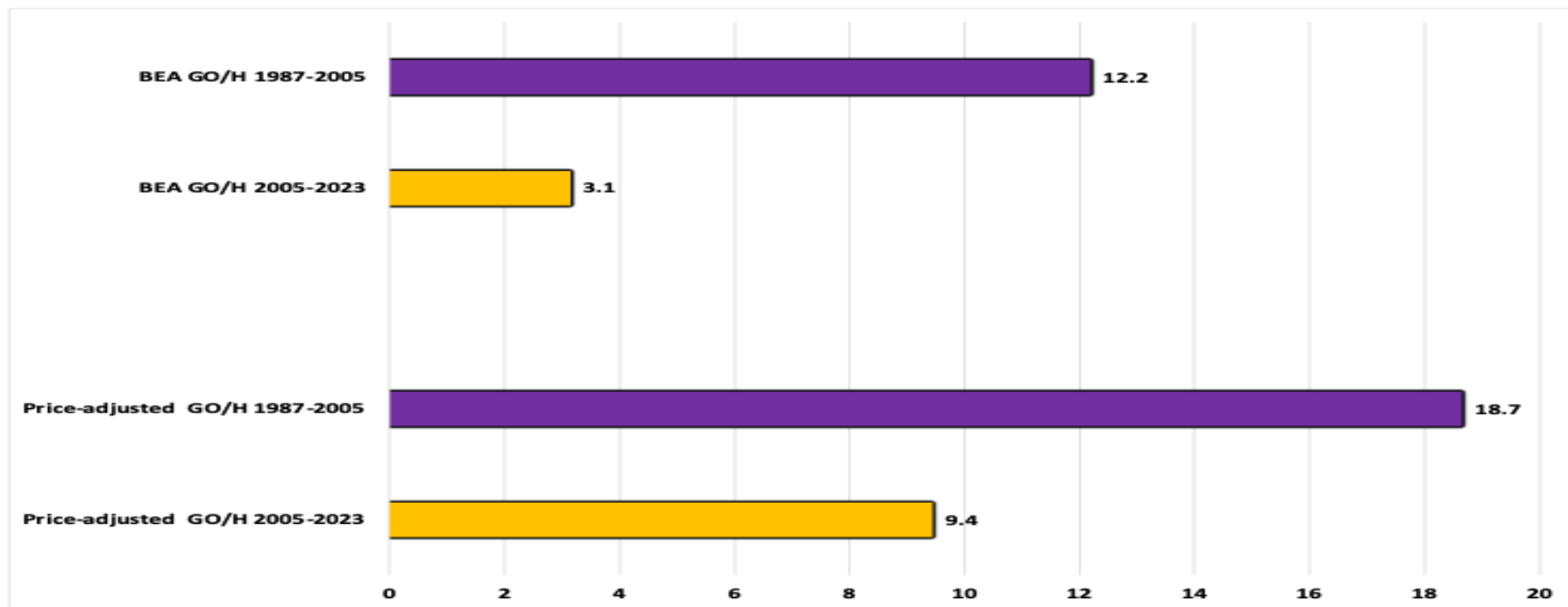
## Was it the Import Shock?

- Few mention another big event of 2001:
  - Mfg output **STOPPED GROWING**
  - Output: 1948-2000 3.2%    2000-23 - 0.1%
  - More details about 2000-23
    - Unweighted average -0.9%
    - 12/19 industries negative growth
    - Range: -7% for apparel to +1.7% for computers (all BEA numbers)

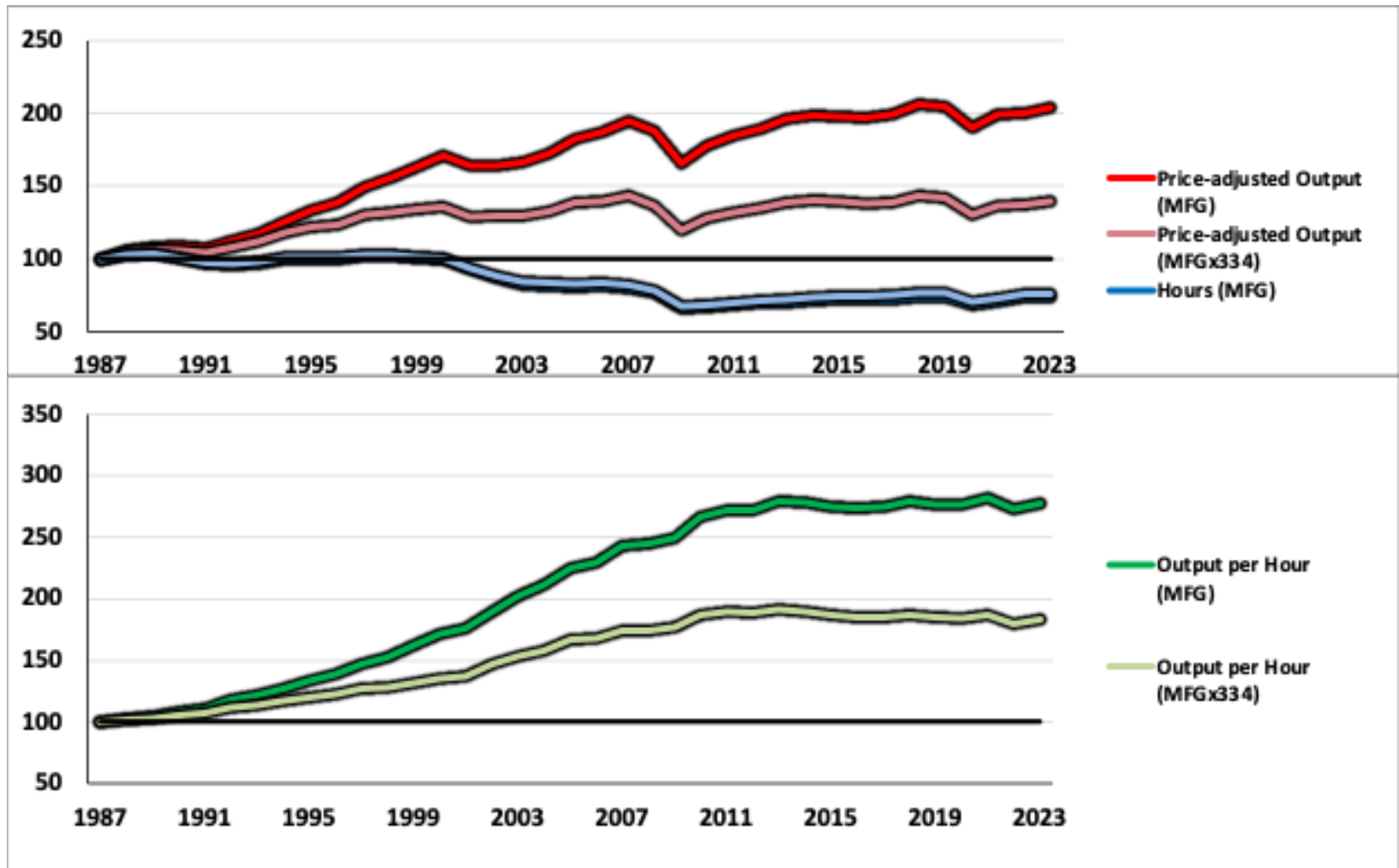
# Measurement Issues

- Offshoring bias, like outlet substitution bias
  - Link cheap imported inputs to expensive domestic inputs they replace
  - Up bias input prices, down bias input quantities, up bias RVA
  - Even more up bias TFP if K down bias
- To avoid RVA & TFP bias, here all is GO/H
- Atalay price adjustments with Byrne
- All measures with and without computers
- Why 2005 instead of 2010 for break year

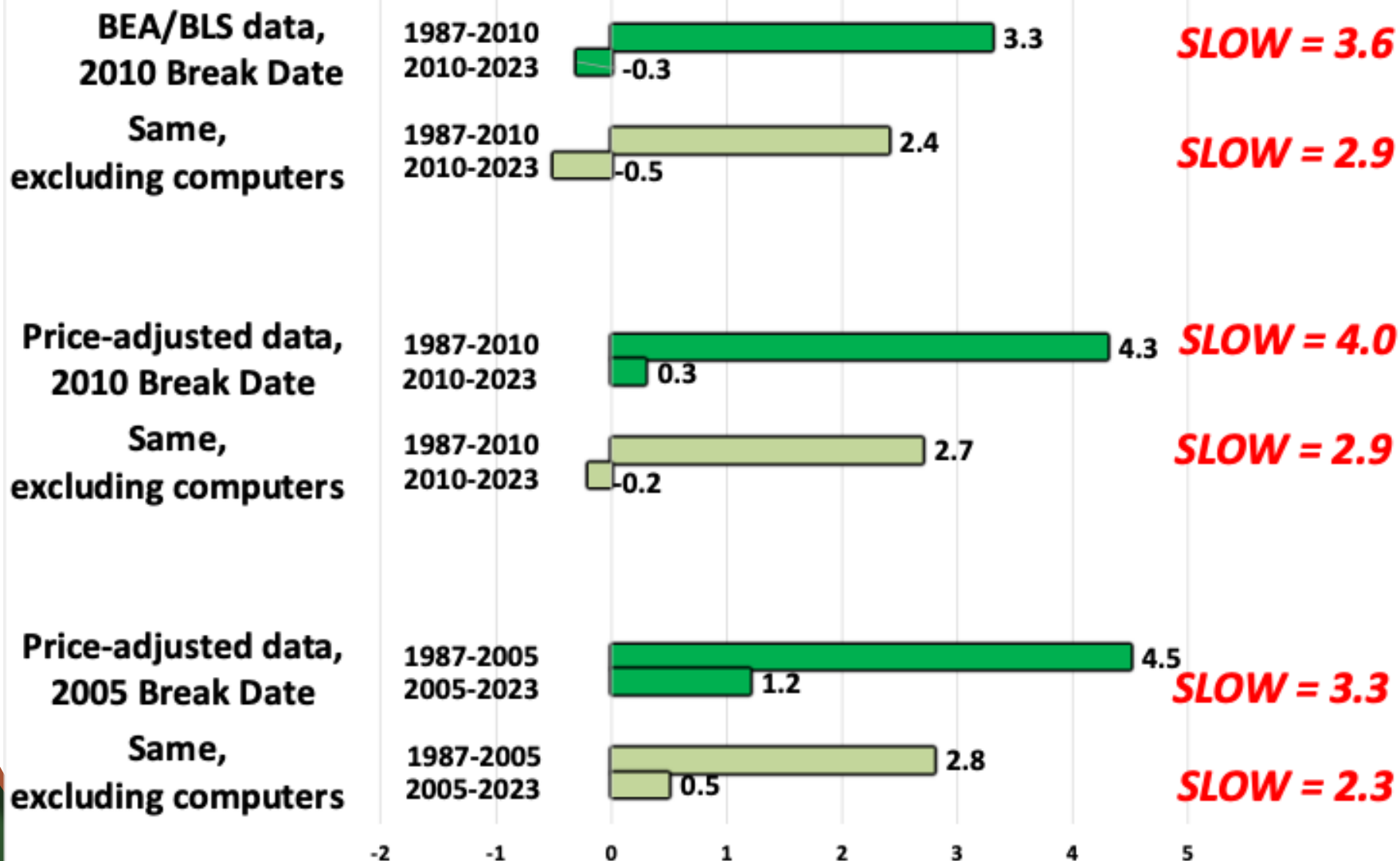
# Why NAICS Industry 334, “Computers and Electronic Products” Has Such a Big Influence on Growth Rates of Total Manufacturing



# Index Numbers (1987 = 100) of Price Adjusted GO, H, and GO/H, with and without Computers



# Slowdown Magnitude: Price Bias, Excluding Computers, Break Year



# **Channels by Which Imports Worsened the Post-2005 Slowdown**

- **We survey literature that finds:**
  - **End of output growth reduced capacity utilization, reduced investment, starving industry of new more efficient capital. Missed automation opportunities**
    - **I for 334: 1987-2000 +8.8% 2000-05 -4.2%**
  - **Closing of most inefficient plants raises productivity within industries**
  - **Impacted industries moved R&D abroad**
  - **Innovation activity shifted from manufacturing to services**

## **A Broader Set of Effects: Product vs. Process Innovation**

- **Asian process innovation started with Japanese autos “just in time” in 1980s**
- **Electronics: Labor cost only 5%**
  - **Asian firms pioneered continuous improvement and defect detection**
  - **Asian supply chain leadership with suppliers clustered near final assembly**
  - **US underinvestment, share buybacks**
  - **Asian subsidies and infrastructure**
  - **Labor: Asian firms building US plants have to import Asian labor to build them**

# **It's Not All About Imports: Declining Innovation**

- **Decline public R&D from 2 to 0.7% of GDP**
- **Short time horizon of US private R&D**
  - **End of Bell Labs, Dupont, Xerox**
- **Obstacles to startups: funding, competition**
- **Special cases of diminishing returns**
  - **Bloom et al: given increase in Moore's Law or drug discovery now requires many more R&D workers than 40 years ago**
  - **Complex autos => more recalls (CR)**
  - **Food: shift from process innovation to product design of brand extensions**

## **A Catalog of Other Causes**

- **Robots? Only 4% of mfg equipment I in 2021**
  - **Auto body & paint shops vs human senses**
- **Regulation: Diverts investment from productivity to abiding by regulations**
  - **Petroleum, chemicals, autos**
    - **Note: petroleum had the largest Y/H growth slowdown despite no imports**
  - **Food safety, machinery product liability**
- **Irony of skilled labor shortage vs. -44% 2000's**
  - **Retirements, less training, culture for college, automation requires technicians**

# Conclusions

- **Import invasion explains a lot, not everything**
- **Output stopped growing 10 years before GO/H**
- **Imports diverted demand, plant closings, lower utilization, decline of investment stalled automation, less R&D and innovation**
- **Asia emphasis on process efficiency vs. US on short-term profits, share buybacks, products**
- **Faltering innovation. Less public/private R&D**
- **Regulations, robots, skilled labor shortages**
- **Policies? Too late for some explanations, not too late to shift from college to blue collar**