Automation, U.S. Manufacturing and Jobs
Presentation to the National Economist Club

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About ITIF

- The world’s top ranked science and technology think tank
- Formulates and promotes policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress
- Focuses on a host of issues at the intersection of technology innovation and public policy:
  - Innovation processes, policies, and metrics
  - Science policy related to economic growth
  - Digital technology issues (e.g., e-commerce, e-government, e-health)
  - IT and economic productivity
Productivity and Job Growth in the U.S. Economy (Employment Growth In Total Economy Relative to Total Economy; Productivity Growth in Manufacturing Relative to Total Economy)

Source: Bureau of Labor Statistics, Major Sector Productivity, Costs, and Employment
Percent Manufacturers Engaged in Automation Investment in the Prior 5 Years and Planning to Engage in Automation Investment in the Coming 3 Years (December 2015)

Prior Five Years
- Did Not Engage: 17%
- Engaged: 83%

Coming Three Years
- Do Not Plan to Engage: 76%
- Plan to Engage: 24%

U.S. Manufacturers’ Preparedness for the Introduction of New Technologies for Industry 4.0, (March 2016)

Source: Boston Consulting Group “Time to Accelerate in the Race Toward Industry 4.0”

Source: Economist Intelligence Unit and Prudential, “Manufacturing in Motion: Transforming Manufacturing for a New Industrial Era.”
Robots Per 10,000 Manufacturing Workers, 2017

Actual Robot Adoption Rate as a Share of Expected Robot Adoption Rate

Source: ITIF calculations
So Why Has Productivity Growth Slowed? Not a Fall in CapEx

Investment in Machinery as Share of Value Added

Source: U.S. Census Bureau, Annual Survey of Manufacturers
Poor Policies

- Weak tax incentives to invest in machinery
- Weak policies to support manufacturing skill development
- Limited funding for manufacturing extension (e.g., NIST’s MEP)
- Poorly supported high-performance clusters (e.g., technical colleges)
We Are Between Technology Long Waves

Electro-Mechanical Tech System
Takeoff 1945-58
Installation 59-74
Slowdown 74-92
Takeoff 93-2000

Digital Electronic Tech System
Installation 2001-2008
Slowdown 2009-21

AI-Robotics Tech System
Takeoff 2022-33
Installation 2039-??
Thank You!

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