Mind the Gap:
AI Adoption in Europe and the US

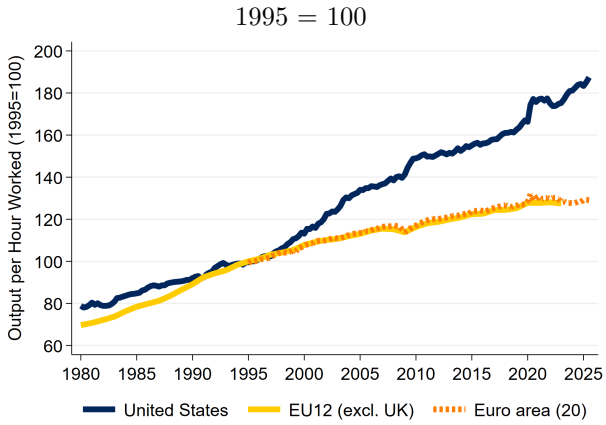
Alexander Bick — St. Louis Fed & CEPR
Adam Blandin — Vanderbilt University
David J. Deming — Harvard & NBER
Nicola Fuchs-Schündeln — WZB & GU Frankfurt & CEPR
Jonas Jessen — WZB & IAB

March 27, 2026

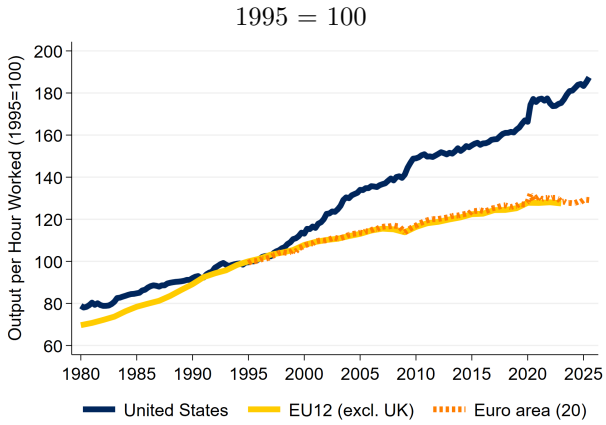
Brookings Papers on Economic Activity Spring 2026 Conference

*The views in this paper are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

45 Years of Productivity Growth in Europe and the United States

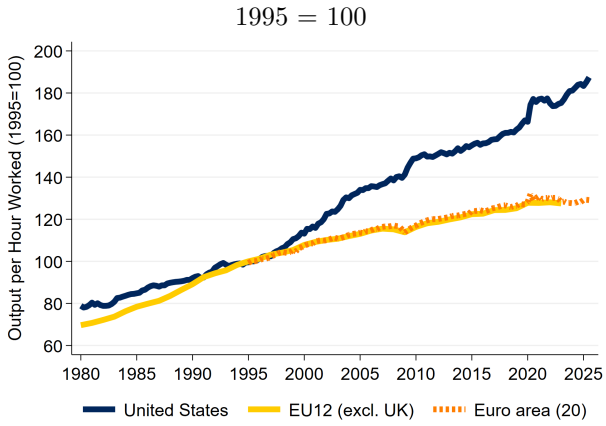


45 Years of Productivity Growth in Europe and the United States



1980 - 1995: Europe grew 30% US grew 21%

45 Years of Productivity Growth in Europe and the United States



1980 - 1995: Europe grew 30% US grew 21%

1995 - 2025: Europe grew 30% US grew 89%

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?
- **Three questions**

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?
- **Three questions**
  1. What is the current state of AI adoption in Europe and the US?

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?
- **Three questions**
  1. What is the current state of AI adoption in Europe and the US?
  2. Why does adoption differ across countries?

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?
- **Three questions**
  1. What is the current state of AI adoption in Europe and the US?
  2. Why does adoption differ across countries?
  3. Is there any hint of a macroeconomic impact of AI across countries so far?

This Paper

- **Motivation**
  - Since 1995, US productivity growth has outpaced that of Europe
  - Much of this divergence has been attributed to a US - Europe "ICT gap"
    - Oliner and Sichel (2000); Oliner et al. (2007); Ark et al. (2008); Bloom, Sadun, Van Reenen (2012)
  - Will a similar "AI gap" emerge — or is this time different?
- **Three questions**
  1. What is the current state of AI adoption in Europe and the US?
  2. Why does adoption differ across countries?
  3. Is there any hint of a macroeconomic impact of AI across countries so far?
- **Methods**
  - Fielded parallel worker surveys in 7 countries focused on AI
  - Leverage international firm data on AI adoption in 33 countries

Outline

We Field Online Surveys to 56,000 Workers in 7 Countries

- **US, UK, Germany, France, Italy, Sweden, Netherlands**
- **Two rounds**: 05-06/2025, 01-02/2026
- **How we address sample selection concerns**:
  - Nationally representative demographic quotas: sex, age, race, edu, marriage, income, region
  - Similar US ChatGPT use to other surveys (incl. non-internet, address-based sampling)
  - Similar AI adoption rates to 2025 Eurostat ICT Household Survey
  - Lots of validation checks for US in prior papers
    - Earnings & hours distribution, occupation & industry shares, work from home, ...

How We Elicit AI Use For Work

- **CPS Computer & Internet Use Supplement (CIU)**: 1984 - 2003, every few years
  - *Do you use a computer for your job? (No/Yes)*

How We Elicit AI Use For Work

- **CPS Computer & Internet Use Supplement (CIU)**: 1984 - 2003, every few years
  - *Do you use a computer for your job? (No/Yes)*
- **Our survey follows CIU**:
  - *Generative AI is a type of artificial intelligence that creates text, images, audio, or video in response to prompts. Some examples of Generative AI include ChatGPT, Gemini, and Midjourney.*
  - *Do you use Generative AI for your job? (No/Yes)*

How We Elicit AI Use For Work

- **CPS Computer & Internet Use Supplement (CIU)**: 1984 - 2003, every few years
  - *Do you use a computer for your job? (No/Yes)*
- **Our survey follows CIU**:
  - *Generative AI is a type of artificial intelligence that creates text, images, audio, or video in response to prompts. Some examples of Generative AI include ChatGPT, Gemini, and Midjourney.*
  - *Do you use Generative AI for your job? (No/Yes)*
  - Follow-up questions: Days/week, time/day, which products, which tasks, time saved

How We Elicit AI Use For Work

- **CPS Computer & Internet Use Supplement (CIU)**: 1984 - 2003, every few years
  - *Do you use a computer for your job? (No/Yes)*
- **Our survey follows CIU**:
  - *Generative AI is a type of artificial intelligence that creates text, images, audio, or video in response to prompts. Some examples of Generative AI include ChatGPT, Gemini, and Midjourney.*
  - *Do you use Generative AI for your job? (No/Yes)*
  - Follow-up questions: Days/week, time/day, which products, which tasks, time saved
- **Quarterly US estimates since 08/2024**: https://www.genaiadoptiontracker.com/

Surveys of Firms

- **US Census Business Trends and Outlook Survey (BTOS)**
  - AI questions fielded every 2 weeks since 09/2023
  - Asks whether firm used AI *"in producing goods or services"*
  - Question broadened in 11/2025 to *"in any of its business functions"*

Surveys of Firms

- **US Census Business Trends and Outlook Survey (BTOS)**
  - AI questions fielded every 2 weeks since 09/2023
  - Asks whether firm used AI *"in producing goods or services"*
  - Question broadened in 11/2025 to *"in any of its business functions"*
- **Eurostat ICT Firm Survey**: 27 EU countries plus 5 non-EU countries
  - Annual survey (Q1): AI questions in 2021, 2023 - 2025
  - Ask about firms' use of 8 AI technologies

Surveys of Firms

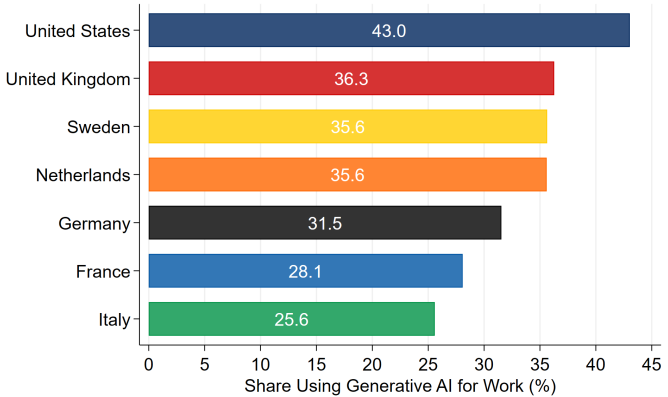
- **US Census Business Trends and Outlook Survey (BTOS)**
  - AI questions fielded every 2 weeks since 09/2023
  - Asks whether firm used AI *"in producing goods or services"*
  - Question broadened in 11/2025 to *"in any of its business functions"*
- **Eurostat ICT Firm Survey**: 27 EU countries plus 5 non-EU countries
  - Annual survey (Q1): AI questions in 2021, 2023 - 2025
  - Ask about firms' use of 8 AI technologies
  - Distinguish between 7 business functions (including *"producing goods or services"*)

Surveys of Firms

- **US Census Business Trends and Outlook Survey (BTOS)**
  - AI questions fielded every 2 weeks since 09/2023
  - Asks whether firm used AI *"in producing goods or services"*
  - Question broadened in 11/2025 to *"in any of its business functions"*
- **Eurostat ICT Firm Survey**: 27 EU countries plus 5 non-EU countries
  - Annual survey (Q1): AI questions in 2021, 2023 - 2025
  - Ask about firms' use of 8 AI technologies
  - Distinguish between 7 business functions (including *"producing goods or services"*)
- **No micro data**: but can split by country / industry / firm size

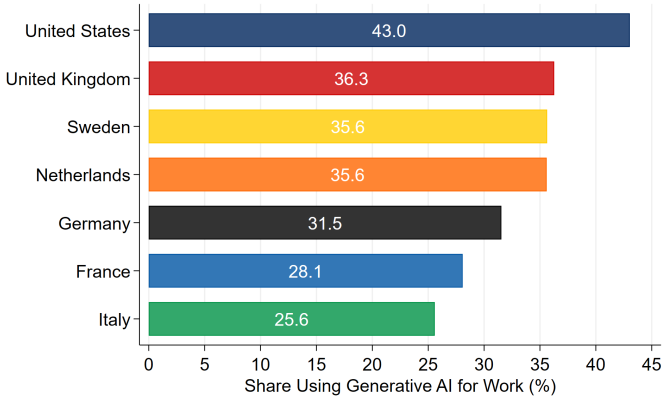
Outline

What Share of Workers Use GenAI For Their Job in 2026?



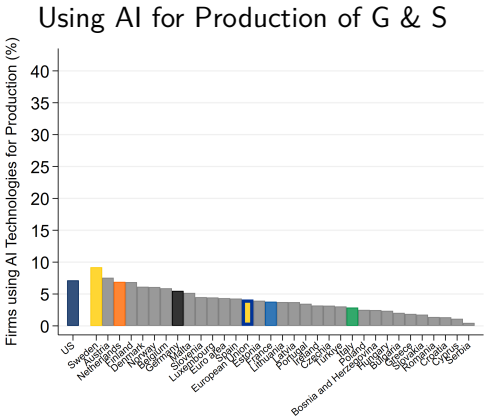
- 43% of US workers use AI, vs. 26% - 36% in Europe

What Share of Workers Use GenAI For Their Job in 2026?



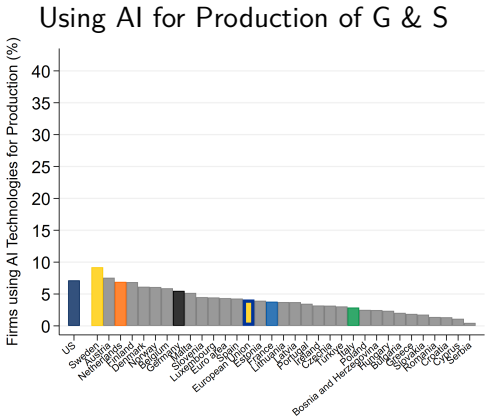
- 43% of US workers use AI, vs. 26% - 36% in Europe
  - 5% of US work hours spent using AI, vs. 1.5% - 2.8% in Europe

What Share of Firms Use AI in 2025?

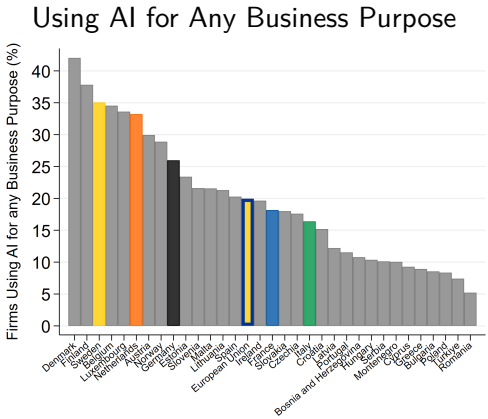


- 7% of US firms vs. 4% of EU firms

What Share of Firms Use AI in 2025?



- 7% of US firms vs. 4% of EU firms



- ≈ 5x higher than production adoption!

Outline

Explanation 1:
Worker and Firm Composition

Important Share of Adoption Gap "Explained" by Composition Effects

- In all countries we survey, AI adoption is higher for workers who ...
  - are more educated
  - are younger
  - work in Computer / Math, Management, Business / Finance occupations
  - work in Technical and Information / Communication industries
  - work in larger firms

Important Share of Adoption Gap "Explained" by Composition Effects

- In all countries we survey, AI adoption is higher for workers who ...
  - are more educated
  - are younger
  - work in Computer / Math, Management, Business / Finance occupations
  - work in Technical and Information / Communication industries
  - work in larger firms
- Countries differ in the composition of their workers and firms

Important Share of Adoption Gap "Explained" by Composition Effects

- In all countries we survey, AI adoption is higher for workers who ...
  - are more educated
  - are younger
  - work in Computer / Math, Management, Business / Finance occupations
  - work in Technical and Information / Communication industries
  - work in larger firms
- Countries differ in the composition of their workers and firms
- Compositional differences statistically explain $\approx 50\%$ of US - Europe Adoption gap

Explanation 2:
Management Practices

Management Practices & Technology Adoption

- US firms invested more in ICT and obtained greater returns Bloom, Sadun, Van Reenen (2012)
  - US firms score higher on management quality indices than Europe
  - Higher US management indices account for greater ICT returns

Management Practices & Technology Adoption

- US firms invested more in ICT and obtained greater returns Bloom, Sadun, Van Reenen (2012)
  - US firms score higher on management quality indices than Europe
  - Higher US management indices account for greater ICT returns
  - Why? ICT benefits depend on (costly) complementary organizational changes
    - Milgrom, Roberts (1990); David (1990); Brynjolfsson, Hitt (2000); Bresnahan et al. (2002); Garicano, Heaton (2010)

Management Practices & Technology Adoption

- US firms invested more in ICT and obtained greater returns Bloom, Sadun, Van Reenen (2012)
  - US firms score higher on management quality indices than Europe
  - Higher US management indices account for greater ICT returns
  - Why? ICT benefits depend on (costly) complementary organizational changes
    - Milgrom, Roberts (1990); David (1990); Brynjolfsson, Hitt (2000); Bresnahan et al. (2002); Garicano, Heaton (2010)

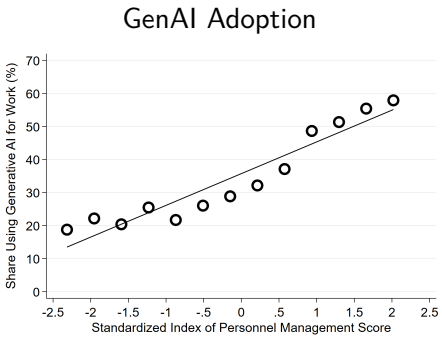
- We show:
  - World Management Survey (WMS) indices strongly predict country-level AI adoption

Management Practices & Technology Adoption

- US firms invested more in ICT and obtained greater returns Bloom, Sadun, Van Reenen (2012)
  - US firms score higher on management quality indices than Europe
  - Higher US management indices account for greater ICT returns
  - Why? ICT benefits depend on (costly) complementary organizational changes
    - Milgrom, Roberts (1990); David (1990); Brynjolfsson, Hitt (2000); Bresnahan et al. (2002); Garicano, Heaton (2010)

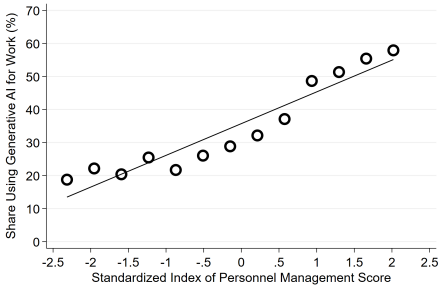
- We show:
  - World Management Survey (WMS) indices strongly predict country-level AI adoption
  - Personnel management indices in our surveys predict AI adoption at worker level

Personnel Management Practices Predict AI Adoption & Support

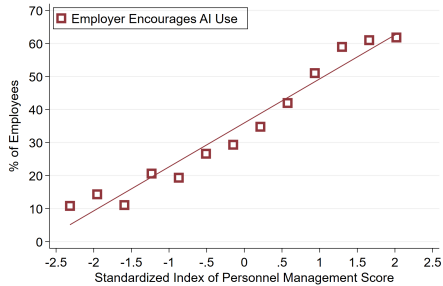


Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption

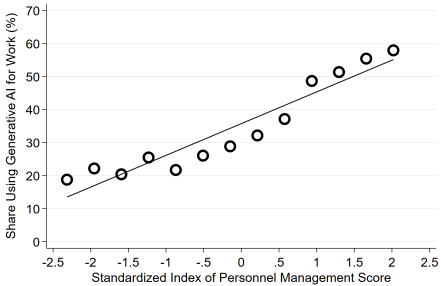


Encouragement, Training, Tool Provision

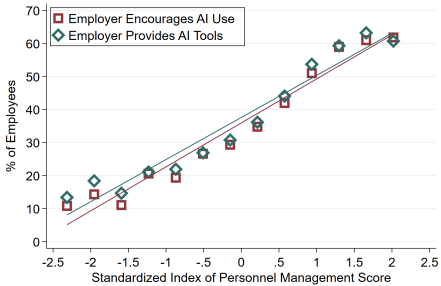


Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption

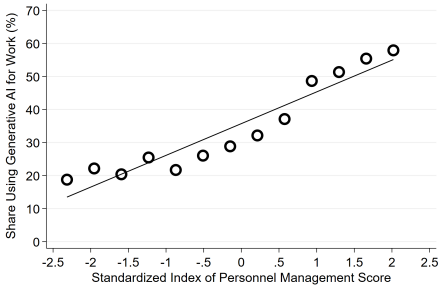


Encouragement, Training, Tool Provision

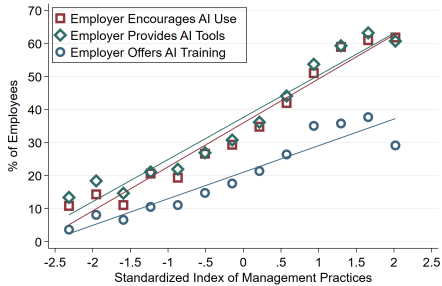


Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption

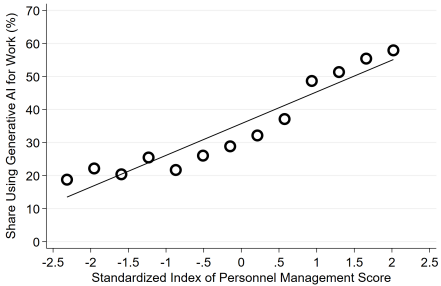


Encouragement, Training, Tool Provision

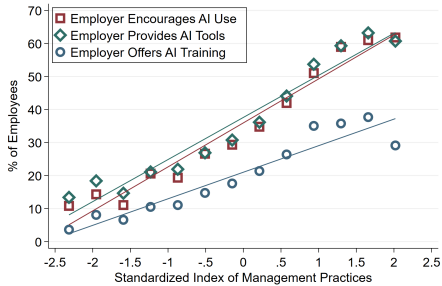


Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption



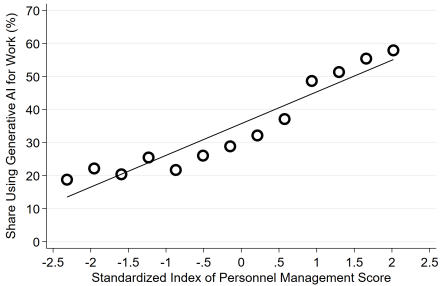
Encouragement, Training, Tool Provision



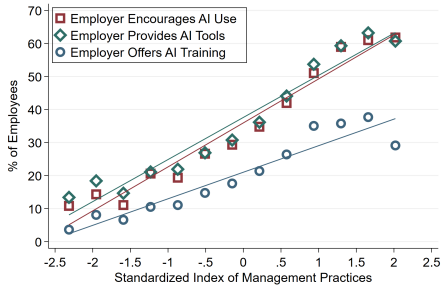
- What matters most for adoption? Employer encourages AI use and / or provides AI tools

Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption



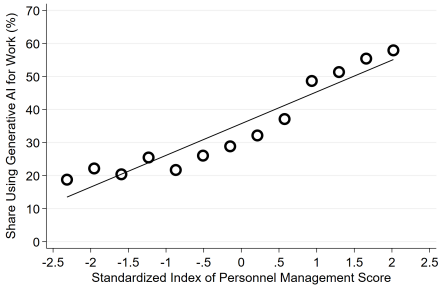
Encouragement, Training, Tool Provision



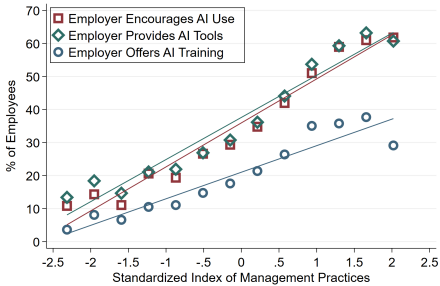
- What matters most for adoption? Employer encourages AI use and / or provides AI tools
  - AI support differs by country: e.g., 48% get encouragement in US (vs. 24% in FR, IT)

Personnel Management Practices Predict AI Adoption & Support

GenAI Adoption



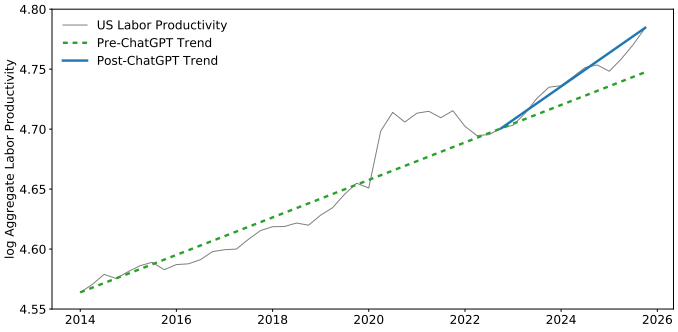
Encouragement, Training, Tool Provision



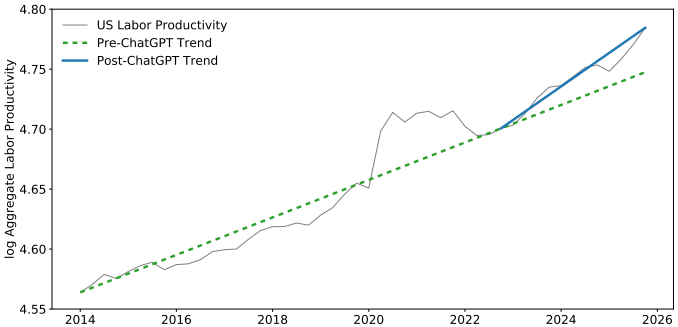
- What matters most for adoption? Employer encourages AI use and / or provides AI tools
  - AI support differs by country: e.g., 48% get encouragement in US (vs. 24% in FR, IT)
  - $\approx 90\%$ of AI adoption gap statistically explained by Composition + Encouragement

Outline

Is AI Contributing to Faster Aggregate Productivity Growth?

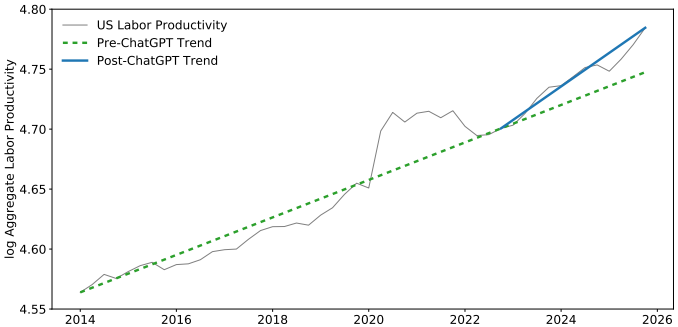


Is AI Contributing to Faster Aggregate Productivity Growth?



- Growing experimental evidence that AI raises productivity for some workers

Is AI Contributing to Faster Aggregate Productivity Growth?



- Growing experimental evidence that AI raises productivity for some workers
- Can we help bridge the gap between micro evidence & recent macro trends?

Assessing the Link Between AI Adoption & Productivity Growth

- **Europe**: 29 countries with firm AI adoption data + industry productivity
  - Regress county-industry productivity growth on firm AI adoption rates
  - Include country & industry fixed effects

Assessing the Link Between AI Adoption & Productivity Growth

- **Europe**: 29 countries with firm AI adoption data + industry productivity
  - Regress county-industry productivity growth on firm AI adoption rates
  - Include country & industry fixed effects
  - Placebo period: 2015 - 2019
  - Two "AI periods": 2019 - 2024, and 2022 - 2024

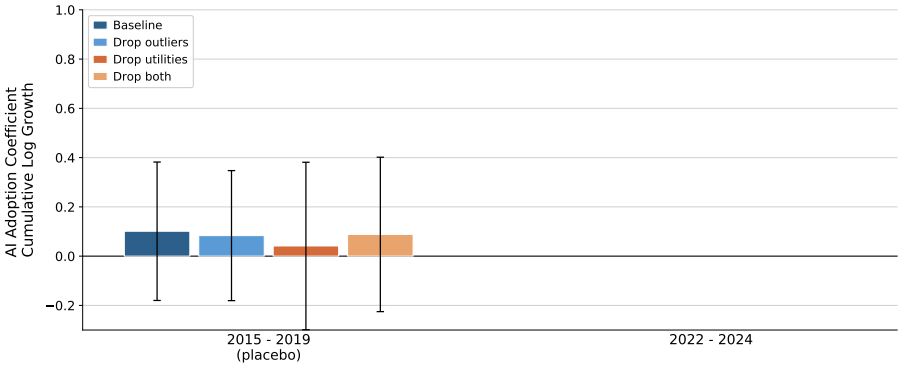
Assessing the Link Between AI Adoption & Productivity Growth

- **Europe**: 29 countries with firm AI adoption data + industry productivity
  - Regress county-industry productivity growth on firm AI adoption rates
  - Include country & industry fixed effects
  - Placebo period: 2015 - 2019
  - Two "AI periods": 2019 - 2024, and 2022 - 2024
- **United States**: use worker AI adoption (incomplete firm adoption data)

Assessing the Link Between AI Adoption & Productivity Growth

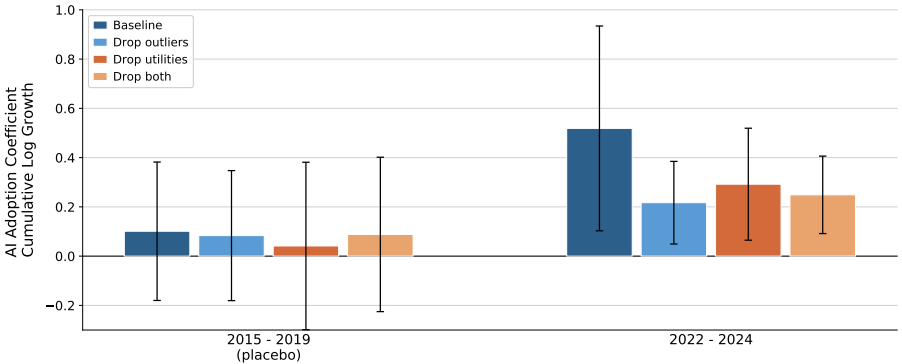
- **Europe**: 29 countries with firm AI adoption data + industry productivity
  - Regress county-industry productivity growth on firm AI adoption rates
  - Include country & industry fixed effects
  - Placebo period: 2015 - 2019
  - Two "AI periods": 2019 - 2024, and 2022 - 2024
- **United States**: use worker AI adoption (incomplete firm adoption data)
  - Compute trend productivity growth by industry from 2015-2019
  - Regress de-trended productivity growth on worker AI adoption rates
  - Two "AI periods": 2019 - 2025, and 2022 - 2025

Europe: Productivity Growing Faster in High-Adoption Industries



Regresses log productivity growth on AI adoption and country, industry FE's. Observations are country-industry (N = 247-271). Whiskers are 95% CIs.

Europe: Productivity Growing Faster in High-Adoption Industries

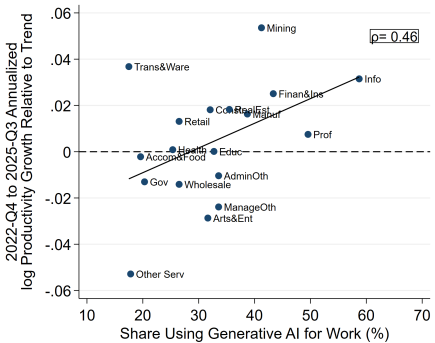


Regresses log productivity growth on AI adoption and country, industry FE's. Observations are country-industry ($N = 247\text{-}271$). Whiskers are 95% CI's.

- ↑ 10 p.p. AI adoption $\implies$ ↑ 2.2 - 5.2 p.p. cumulative productivity growth since 2022

US: Productivity Growing Faster in High-Adoption Industries

Detrended Productivity Growth: 2022 - 2025



Notes: Regresses log productivity growth relative to 2015-2019 trends. Observations at country-industry level ($N = 18$).

- ↑ 10 p.p. AI adoption $\Longrightarrow$ ↑ 2.9 p.p. cumulative productivity growth since 2022

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987
  - *"You can now see computers in the productivity statistics."* – Robert Solow, 2000

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987
  - *"You can now see computers in the productivity statistics."* – Robert Solow, 2000

- **Will AI skip the "productivity paradox"?**

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987
  - *"You can now see computers in the productivity statistics."* – Robert Solow, 2000

- **Will AI skip the "productivity paradox"?**
  - Supporting evidence:
    - Experimental results + worker self reports + industry productivity $\implies$ consistent story

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987
  - *"You can now see computers in the productivity statistics."* – Robert Solow, 2000

- **Will AI skip the "productivity paradox"?**
  - Supporting evidence:
    - Experimental results + worker self reports + industry productivity $\implies$ consistent story
    - AI is being adopted at a faster pace than computers Bick, Blandin, Deming (2026)

Discussion

- **The "Solow ICT Paradox" took a decade or two to resolve**
  - *"You can see the computer age everywhere but in the productivity statistics."* – Robert Solow, 1987
  - *"You can now see computers in the productivity statistics."* – Robert Solow, 2000

- **Will AI skip the "productivity paradox"?**
  - Supporting evidence:
    - Experimental results + worker self reports + industry productivity $\implies$ consistent story
    - AI is being adopted at a faster pace than computers Bick, Blandin, Deming (2026)
  - Points of caution:
    - 3 years of productivity growth is a very short time horizon
    - Broad industries limit sample size and variation

Takeaways

Takeaways

1. **AI adoption is substantially higher in the US than Europe**
   - Adoption also varies considerably between European countries

Takeaways

1. **AI adoption is substantially higher in the US than Europe**
   - Adoption also varies considerably between European countries
2. **Two sets of factors account for most of AI gaps between countries:**
   - Worker / Firm composition + Firm management practices

Takeaways

1. **AI adoption is substantially higher in the US than Europe**
   - Adoption also varies considerably between European countries
2. **Two sets of factors account for most of AI gaps between countries:**
   - Worker / Firm composition + Firm management practices
3. **AI adoption is correlated with recent productivity gains**
   - No clear association between AI adoption & employment

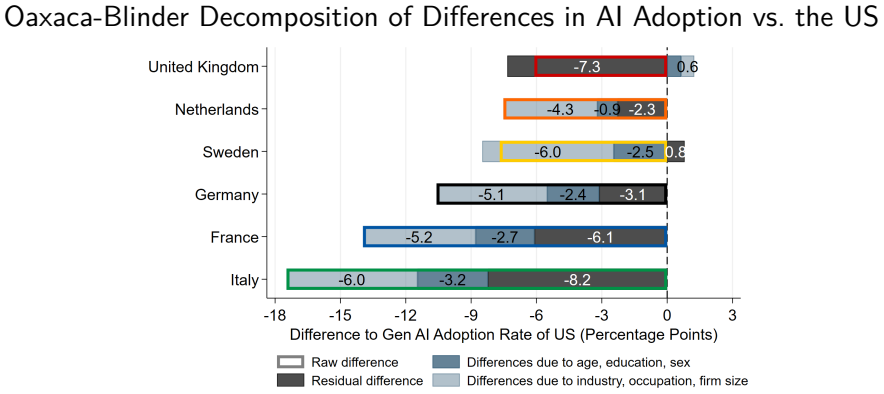
Takeaways

1. **AI adoption is substantially higher in the US than Europe**
   - Adoption also varies considerably between European countries
2. **Two sets of factors account for most of AI gaps between countries:**
   - Worker / Firm composition + Firm management practices
3. **AI adoption is correlated with recent productivity gains**
   - No clear association between AI adoption & employment
4. **Data and research priorities going forward**
   - Continue collecting comparable data and check back frequently
   - Firm-level data / experiments on AI investments & productivity

Thank you!

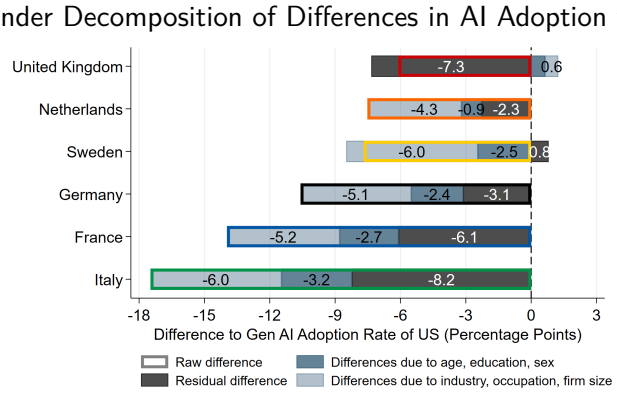
What Share of Adoption Gap "Explained" by Composition Effects?

back



What Share of Adoption Gap "Explained" by Composition Effects?

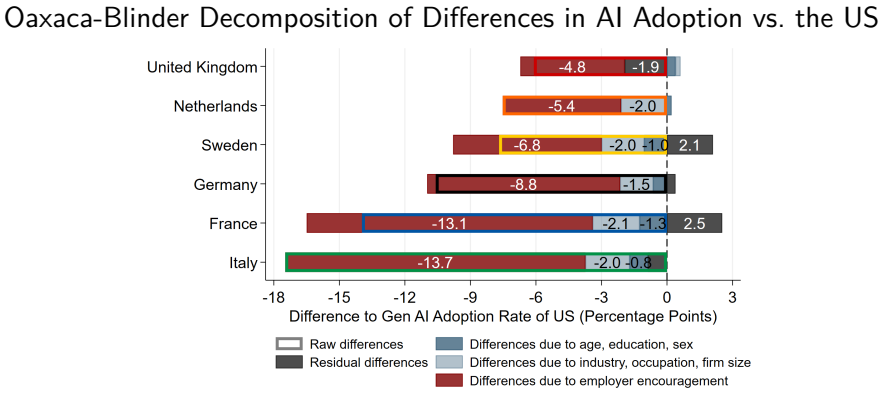
back



- Composition differences account for $\approx 55\%$ of adoption gap
  - Industry / occupation / firm size more important than demographics

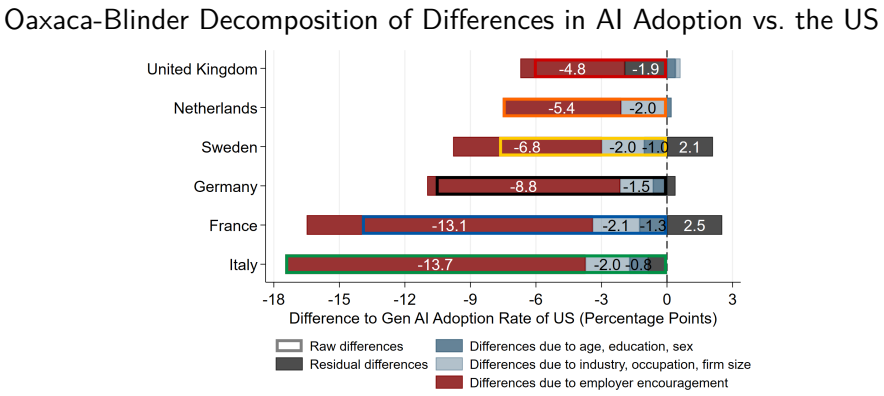
Composition + Employer Encouragement "Explain" ≈ All of AI Gap

back



Composition + Employer Encouragement "Explain" ≈ All of AI Gap

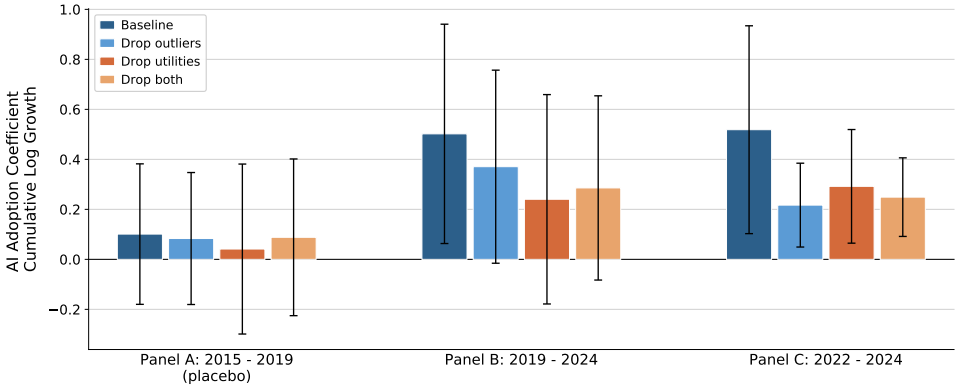
back



- AI encouragement alone accounts for ≈ 2/3 of US - Europe adoption gap

Europe: Productivity Growing Faster in High-Adoption Industries

back

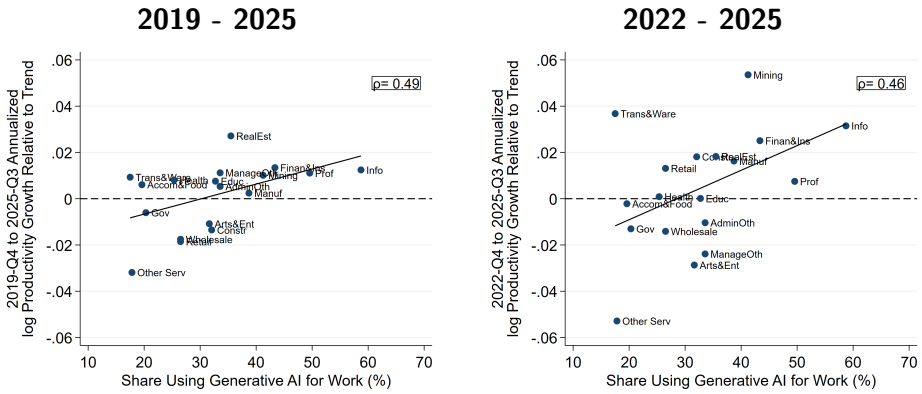


Notes: Regresses log productivity growth on AI adoption and country, industry fixed effects. Observations at country-industry level ($N = 247$-271).

- ↑ 10 p.p. AI adoption $\Longrightarrow$ ↑ 2.2 - 5.2 p.p. productivity growth since 2019 or 2022

US: Productivity Growing Faster in High-Adoption Industries

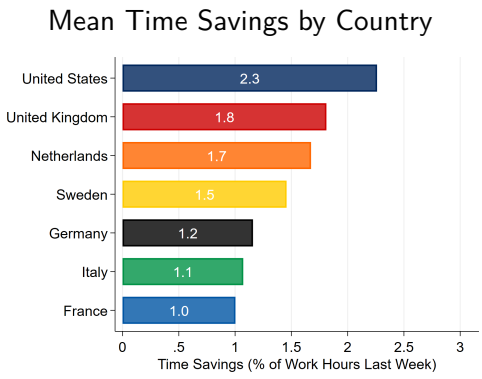
back



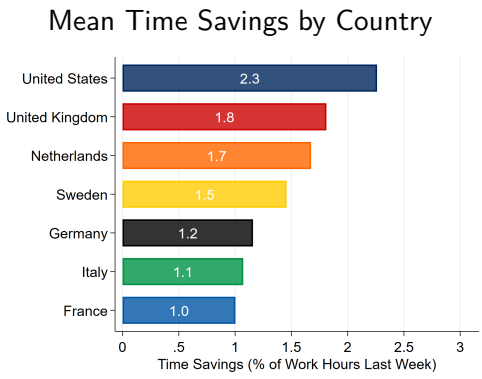
Notes: Regresses log productivity growth relative to 2015-2019 trends. Observations at country-industry level ($N = 18$).

- ↑ 10 p.p. AI adoption $\Longrightarrow$ ↑ 2.9 - 3.7 p.p. productivity growth since 2019 or 2022

AI Users Report Meaningful Productivity Gains back



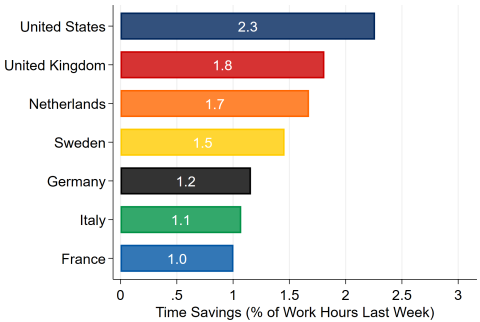
AI Users Report Meaningful Productivity Gains back



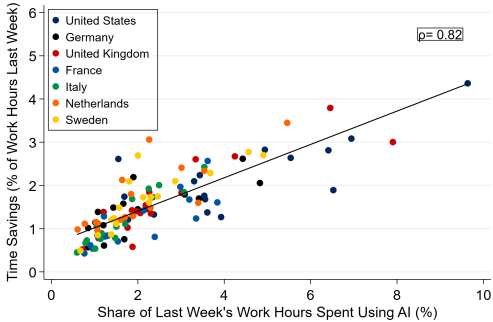
- **US:** 6.1% time savings by AI users
  $\times$ 37% of workers used AI last week
  $=$ 2.3% mean time savings

AI Users Report Meaningful Productivity Gains back

Mean Time Savings by Country



Mean Time Savings by Industry



- **US:** 6.1% time savings by AI users
  × 37% of workers used AI last week
  = 2.3% mean time savings

- Adoption intensity $\Longrightarrow$ time savings