

Canaries in the Coal Mine? Six Facts about the Recent Employment Effects of Artificial Intelligence

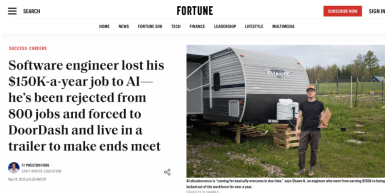
Erik Brynjolfsson, Bharat Chandar, and **Ruyu Chen**

Stanford University

AI in Action Conference

January 29, 2026

Widespread discussion about AI's impact on the labor market



The New York Times

Opinion | A 'White-Collar Blood Bath' Doesn't Have to Be Our Fate

Instead of asking which future is coming, we should be asking which future we want.
2 days ago



The New York Times

For Some Recent Graduates, the A.I. Job Apocalypse May Already Be Here

The unemployment rate for recent college graduates has jumped as companies try to replace entry-level workers with artificial intelligence.
4 weeks ago



Axios

Behind the Curtain: Top AI CEO foresees white-collar bloodbath

Dario Amodei — CEO of Anthropic, one of the world's most powerful creators of artificial intelligence — has a blunt, scary warning for the...

1 month ago



The New York Times

Opinion | I'm a LinkedIn Executive. I See the Bottom Rung of the Career Ladder Breaking.

Eventually, A.I. will create plenty of jobs. The World Economic Forum predicts that number could be as high as 78 million more jobs, even after...

1 month ago



Business Insider

The AI coding apocalypse

In the age of artificial intelligence, entry-level coders are doomed. But some engineers are thriving.

Feb 25, 2025

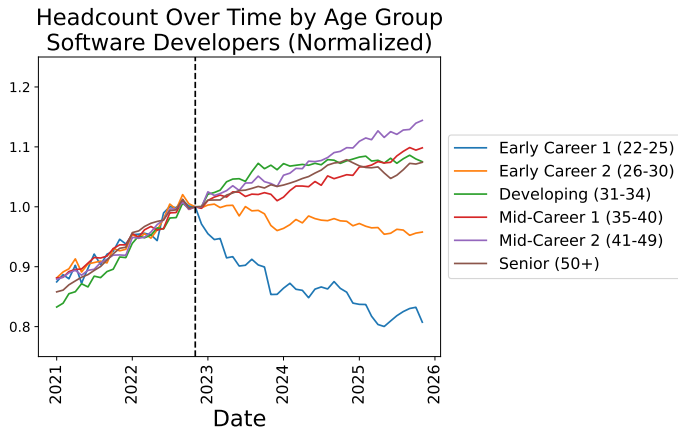


“Canaries in the coal mine” for AI’s impact

Are we already seeing changes in the labor market driven by AI? Particularly for entry-level workers?

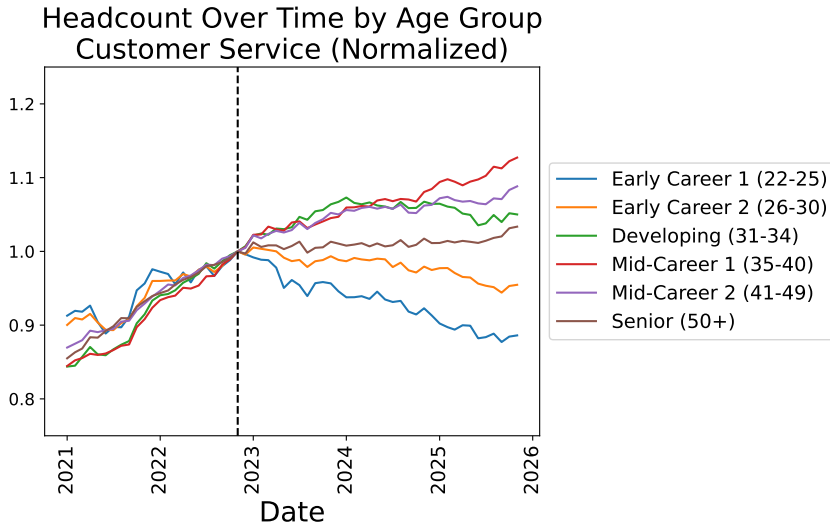
- ▶ **ADP:** monthly payroll records through September 2025 for millions of workers

Fact 1: Employment Declines for Young, Exposed Workers

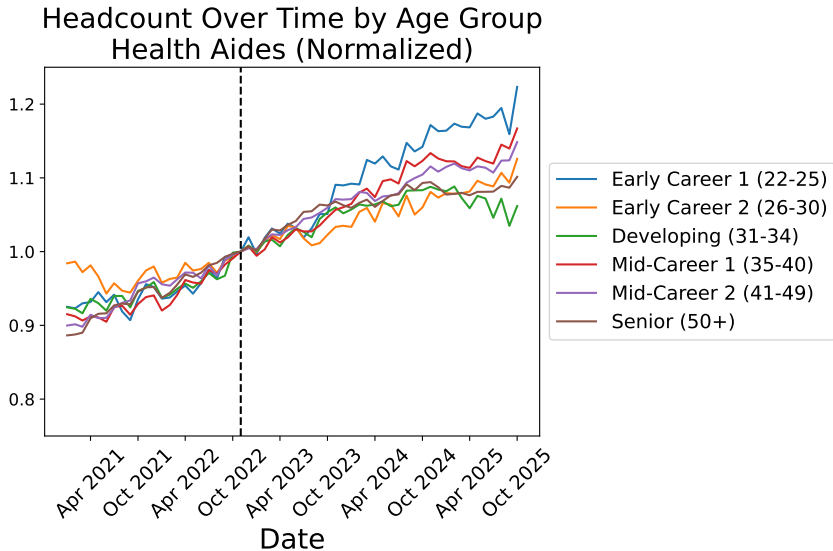


20% ↓ for 22-25 y/o software developers since late 2022

Similar findings for customer service

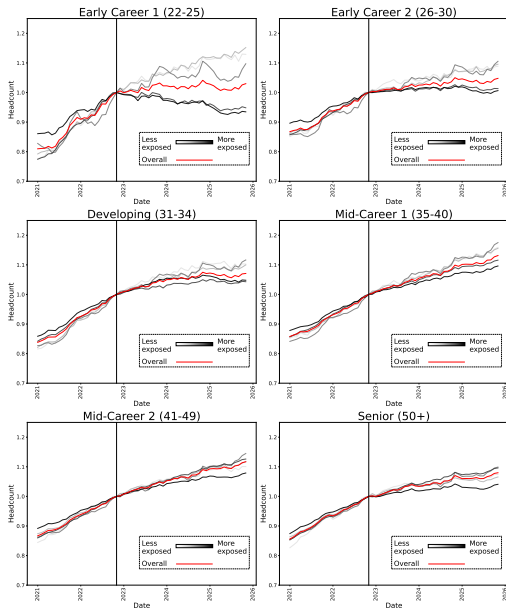


Opposite patterns for health aides

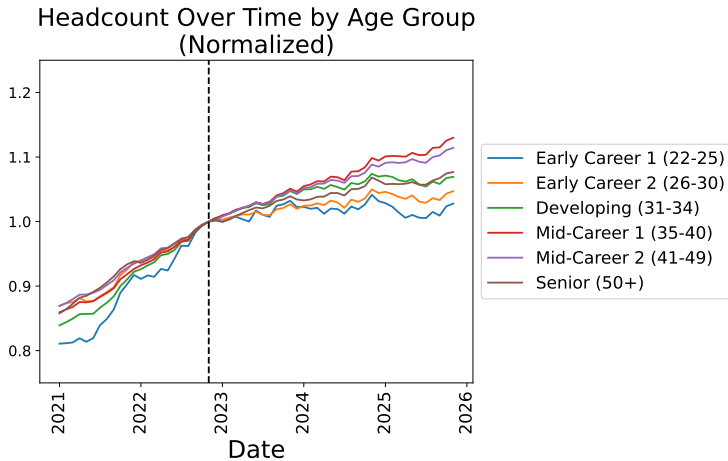


Findings hold more generally across exposure levels

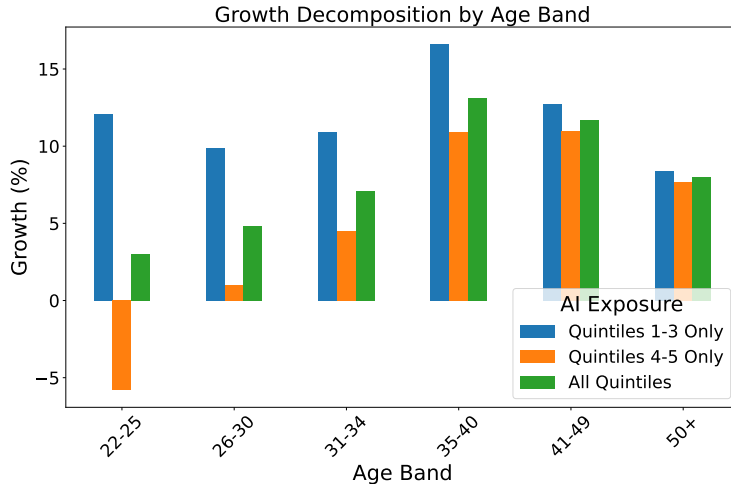
- ▶ Exposure from Eloundou et al. (2024)
- ▶ **Darker lines more exposed**



Fact 2: Overall a relative slowdown in entry-level hiring



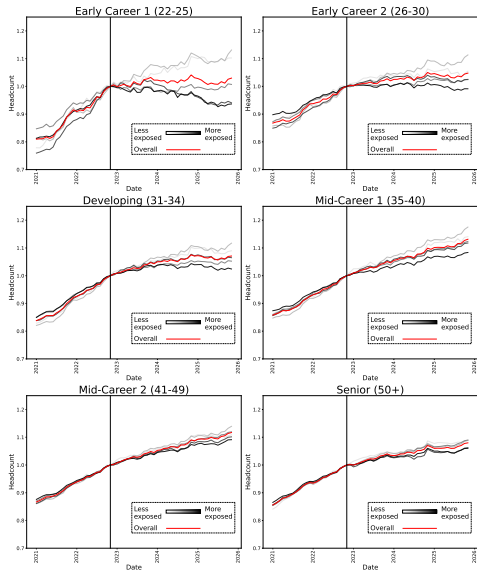
Slowdown driven by jobs exposed to AI



Could be driven by other changes in US economy. **Test alternatives.**

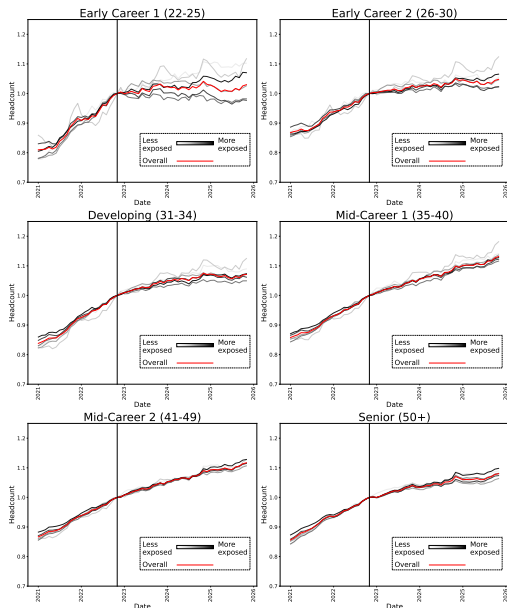
Fact 3: Employment ↓ in jobs where AI automates work

- ▶ By occupational **automation exposure** from Claude
- ▶ Ex: Software, accounting and auditing, information clerks



Fact 3: Employment \uparrow in jobs where AI augments work

- ▶ By occupational **augmentation exposure**
- ▶ Ex: Management, nursing, maintenance and repair



Fact 4: Robustness to Firm-Level Shocks

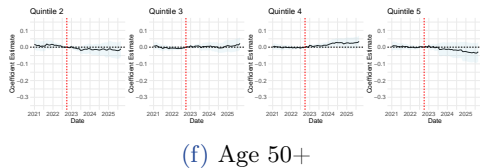
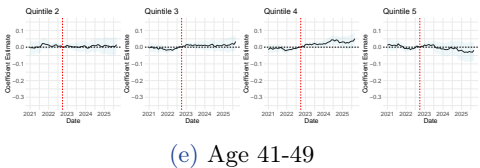
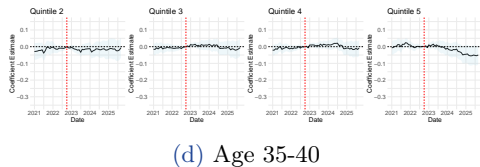
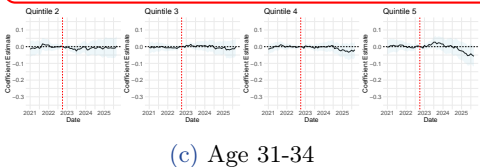
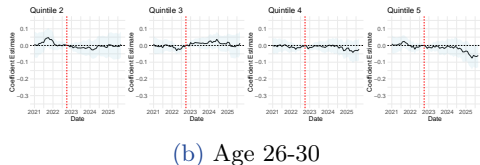
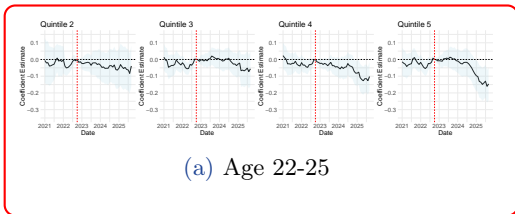
- ▶ Alternative explanation: industry- or firm-level shocks correlated with occupational sorting (e.g., interest rate changes).
- ▶ Event study Poisson regression with firm-time and firm-quintile fixed effects

$$\log(E[y_{f,q,t}]) = \sum_{q' \neq 1} \sum_{j \neq -1} \gamma_{q',j} 1\{t = j\} 1\{q' = q\} + \alpha_{f,q} + \beta_{f,t} + \epsilon_{f,q,t} \quad (1)$$

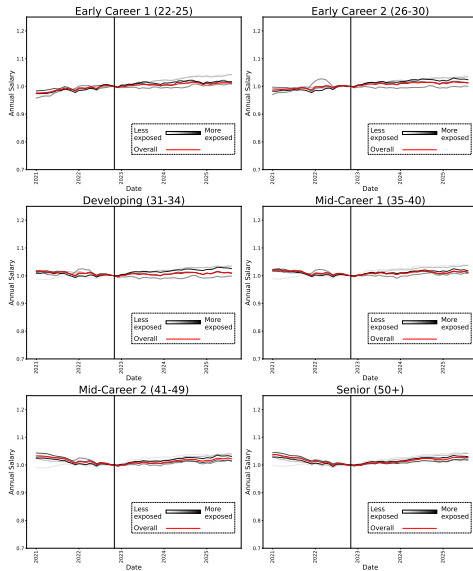
Run separately for each age group

- ▶ Absorbs shocks that affect *all workers* in a firm

Fact 4: 16% relative \downarrow in employment for exposed young workers



Fact 5: No clear divergence in compensation



Fact 6: Trends hold under alternative analyses

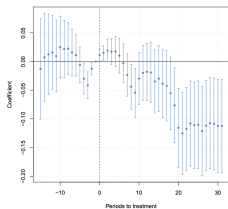
1. Excluding tech sector [▶ 1](#) [▶ 2](#)
2. Teleworkable vs non-teleworkable jobs [▶ 1](#) [▶ 2](#)
3. College vs non-college workers [▶ 1](#) [▶ 2](#)
4. Men and women [▶ M](#) [▶ F](#)
5. Part-time and temporary workers [▶ View](#)
6. Occupational interest rate exposure [▶ View](#)

And more in the paper

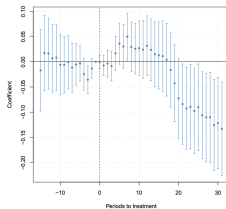
Consistent with new evidence in the UK (Klein Teeselink, 2025)

Figure 2: Effect of LLM exposure on firm-level seniority of jobs

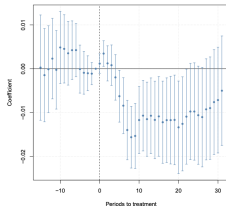
(a) Low seniority jobs



(b) High seniority jobs



(c) Fraction of low seniority jobs



AI and Labor Markets:
What We Know and Don't Know

My Thoughts on AI and the Labor Market

- ▶ The overall impact of AI on aggregate employment is likely small right now
- ▶ AI may be diminishing hiring for AI-exposed entry-level jobs

Next steps:

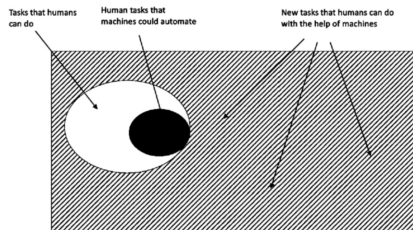
- ▶ Building employment trackers using high-quality data
- ▶ Better targeted, faster, easier public data
- ▶ Firm AI adoption data
- ▶ Job/occupational AI exposure measure
- ▶ Look within the entry-level worker labor market (increased inequality, etc.)

Can we shape the direction of AI progress?

- ▶ The Turing test or the Turing trap? (Brynjolfsson, 2022)
- ▶ Centaur evaluations (Haupt and Brynjolfsson, 2025)

Next steps:

- ▶ How do design choices affect work impacts?



Connecting theory, data, and policy

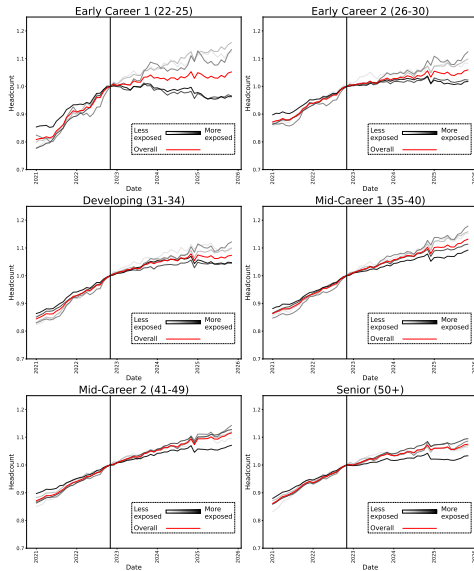
- ▶ What data to collect?
- ▶ What policies under consideration?
- ▶ How to form predictions about those policies?

Thanks!

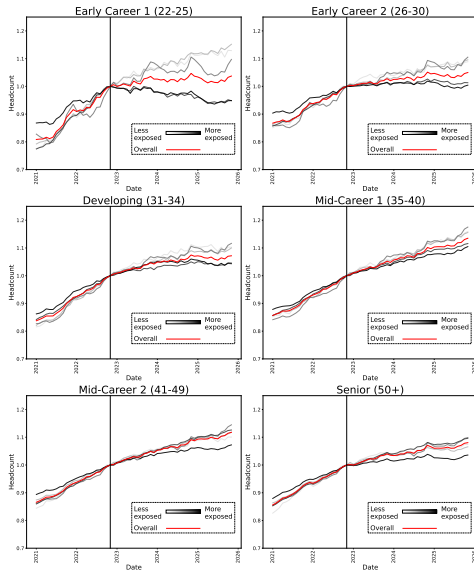
ruyuchen@stanford.edu

Appendix

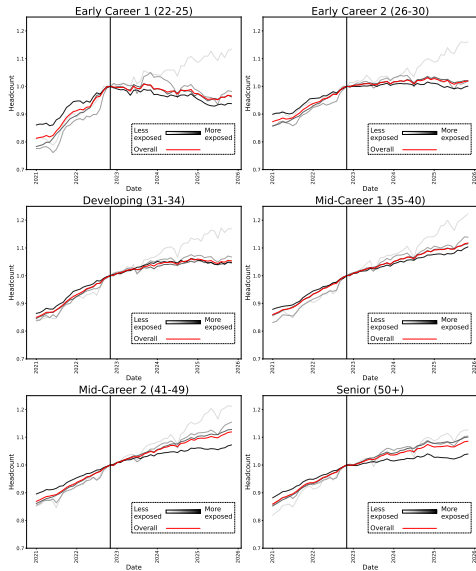
No IT sector (NAICS 51) [▶ Back](#)



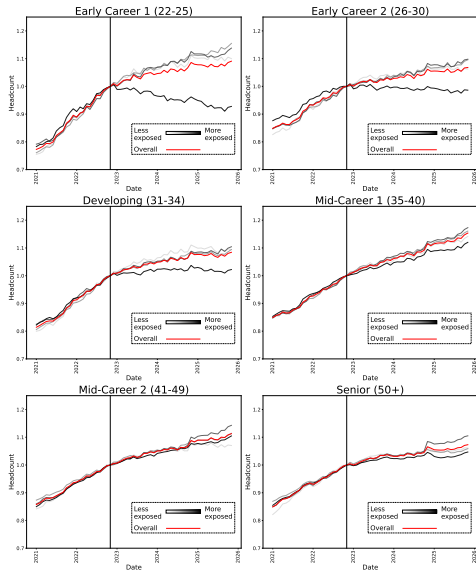
No computer occupations (SOC code 15-1) [▶ Back](#)



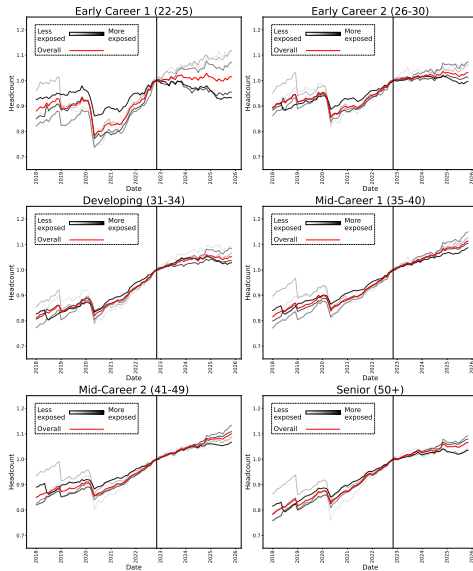
Teleworkable jobs [▶ Back](#)



Non-teleworkable jobs [▶ Back](#)

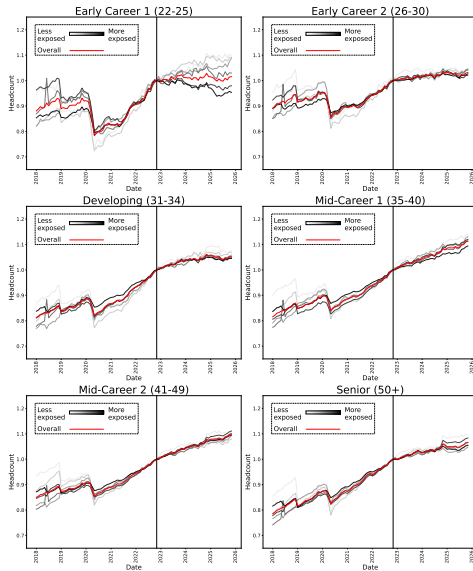


Longer horizon [▶ Back](#)



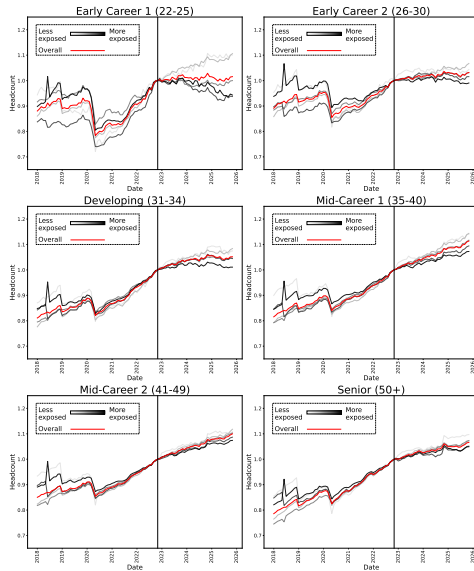
Longer horizon - Claude

[▶ Back](#)

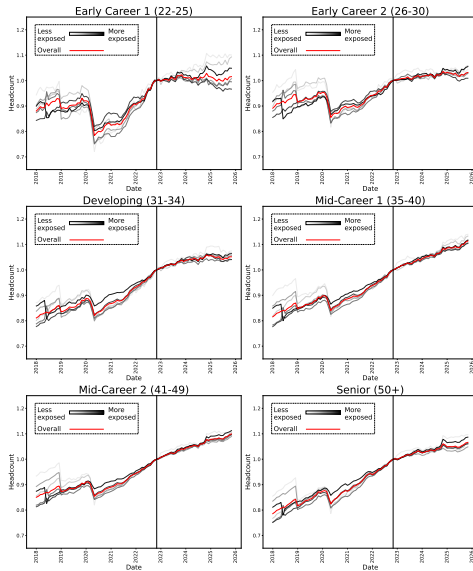


Longer horizon - Automation

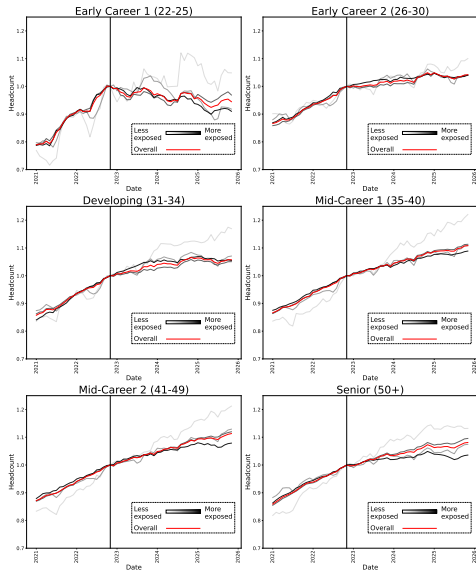
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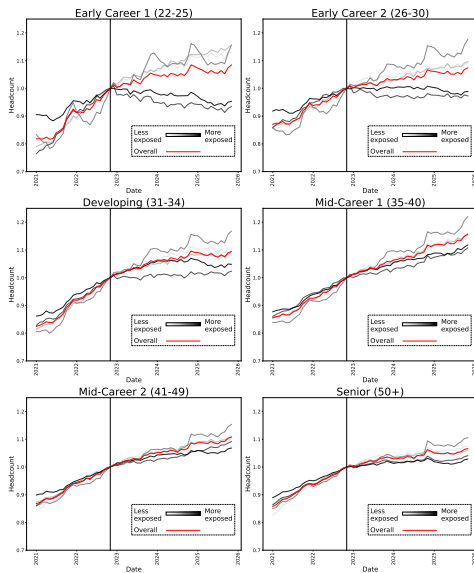
Longer horizon - Augmentation [▶ Back](#)

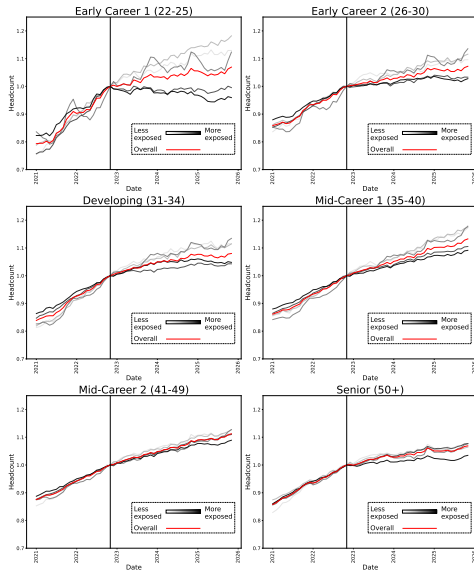


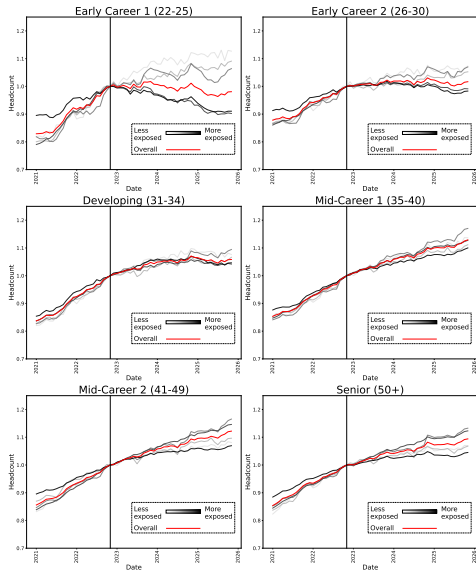
Greater than 70% college educated [▶ Back](#)



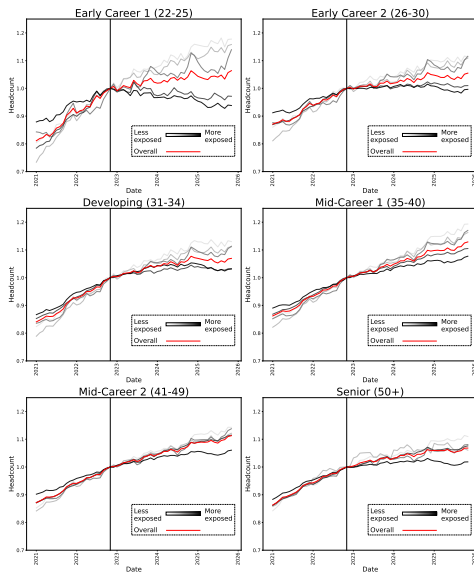
Less than 30% college educated [▶ Back](#)



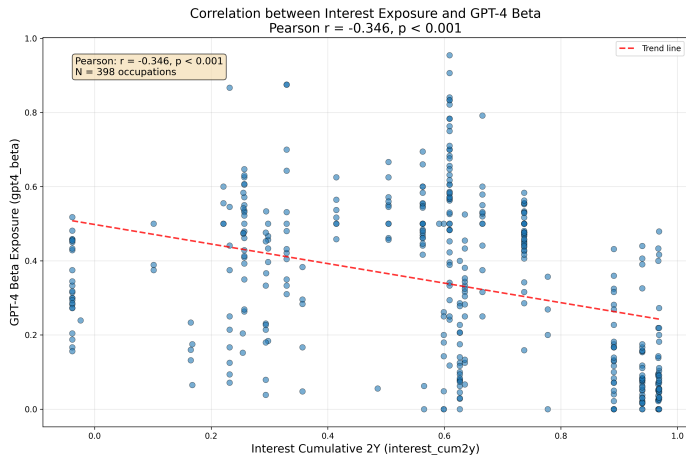




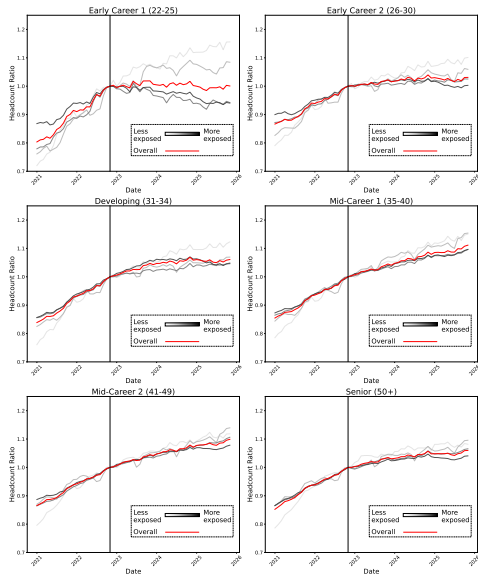
Including part-time and temporary workers [▶ Back](#)



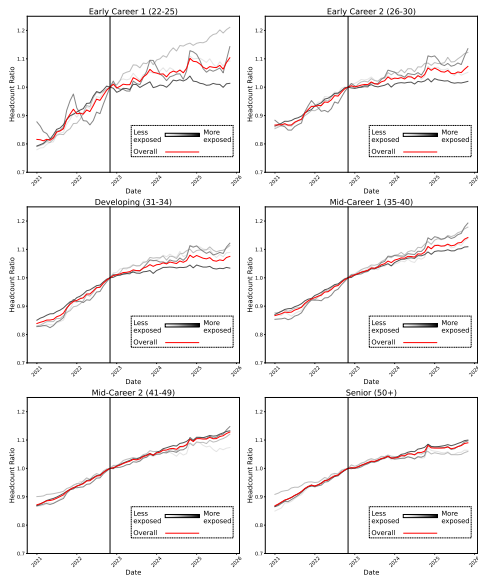
Correlation between interest rate and AI exposure [▶ Back](#)



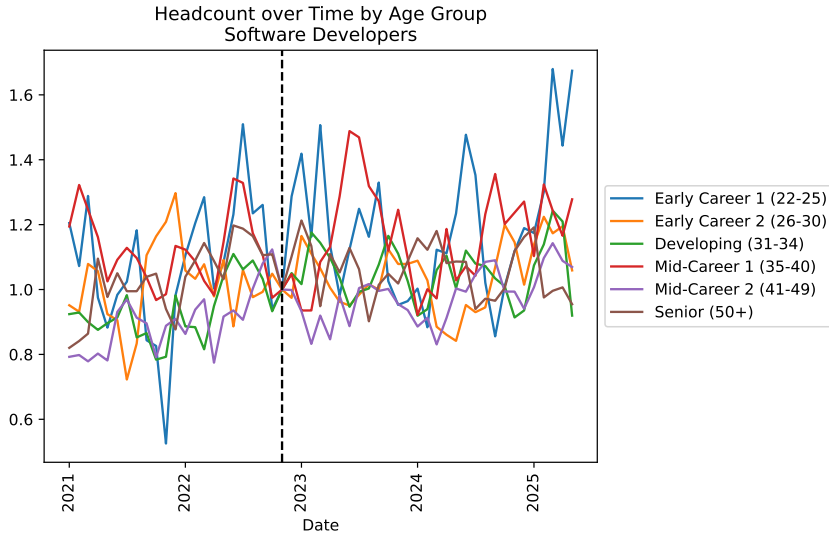
Low interest-rate exposure occupations [▶ Back](#)



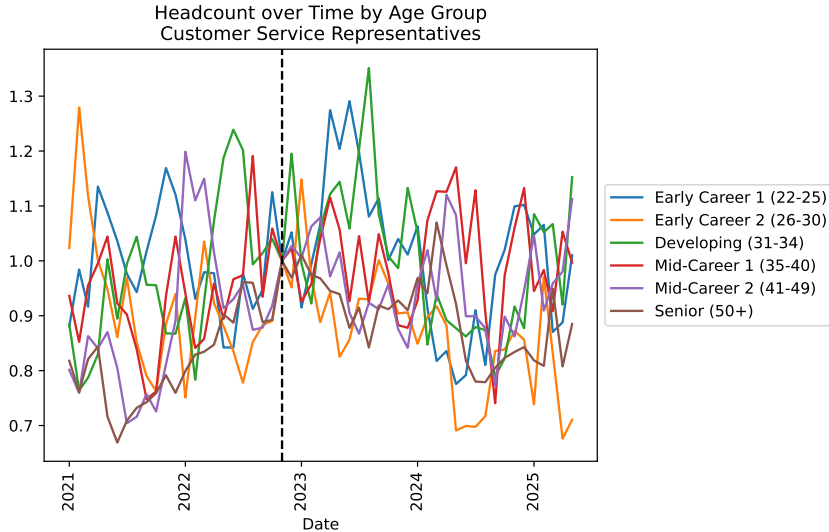
High interest-rate exposure occupations [▶ Back](#)



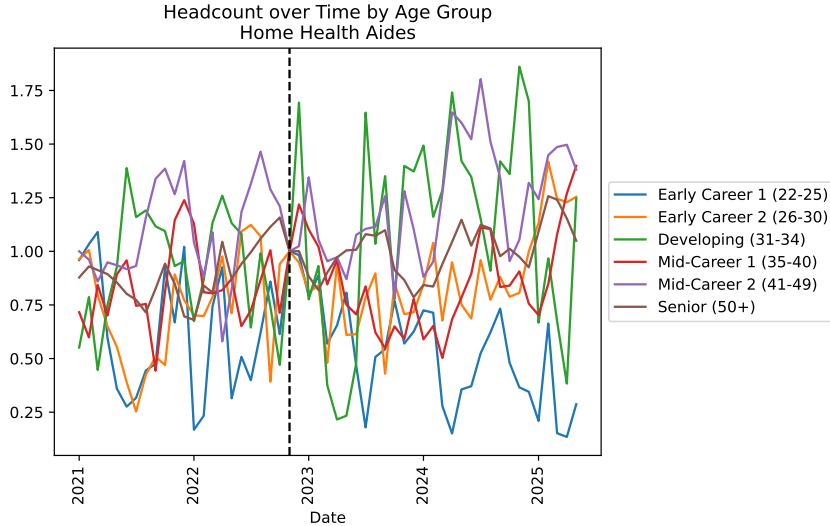
Software developers in the CPS [▶ Back](#)



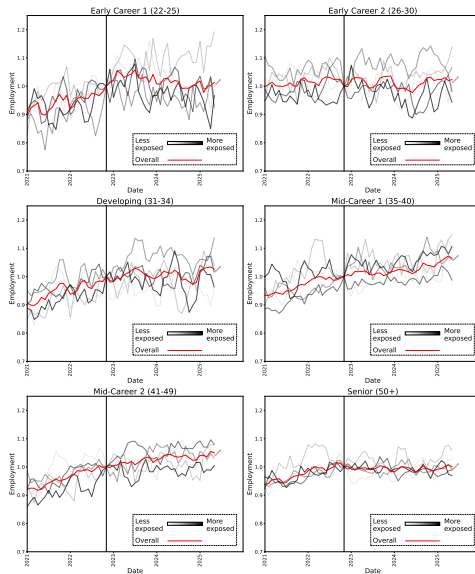
Customer service in the CPS [▶ Back](#)



Health aides in the CPS [▶ Back](#)



By exposure quintile in the CPS [▶ Back](#)



BRYNJOLFSSON, E. (2022): “The Turing Trap: The Promise and Peril of Human-Like Artificial Intelligence,” *Daedalus*, 151, 272–287.

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