

Tribal Tales vs Hard Data:

What Comprehensive Job Postings Data Reveal About Impact of AI on Overall Labor Market Demand as well as Demand for Fresh Graduates in Particular



UMD-LinkUp AI Maps® Project

In Collaboration with Outrigger Group

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Technical Notes

Identifying AI-Skilled Jobs

Definition: We define an “AI Job” as one that requires technical AI skills. For example, training or fine-tuning a machine learning model does require technical AI skills. In contrast, using a chatbot (via “prompt engineering” or otherwise) does not, and as such would not be counted as an AI job in our analyses.

When we launched the “UMD-LinkUp AI Maps Project” in January 2024, our jobs classifier (AI Maps Model 1.0) was developed by fine-tuning one of the best open-source transformer models publicly-available in 2023/H1. A recent test using a newly-developed ground-truth dataset of 12,000 job postings, each labeled by multiple trained students with computer science backgrounds and currently enrolled in a graduate-level STEM program, indicates that Model 1.0 is still the most accurate on a worldwide basis, including in a comparison of approaches used by academics at MIT and elsewhere. However, in terms of transformer-based ML models, 2023 feels like the stone age. This is why – in October 2025 - we transitioned to AI Maps Model 2.0, built by fine-tuning one of the world’s most powerful open-source LLMs as of 2025/H2. **The accuracy level of this new classifier – as measured on the complete text of a random sample of 40,000 job postings - is 99.6%. For more details, please see the Working Paper titled “Launching AI Maps Model 2.0” at www.aimaps.ai.**

Identifying Job Postings Targeted Explicitly at Fresh Graduates

The job posting must EXPLICITLY have at least one of the following keyword strings: no experience, no prior experience, no work experience, no experience required, no experience needed, no prior experience required, no prior experience needed, no work experience required, no work experience needed, entry-level, entry level, new graduate, new grad, recent graduate, 0-1 years, 0-1 yrs, 0 1 years, 0 1 yrs, 0 years, 0 yrs, less than 1 year, less than 1 yr

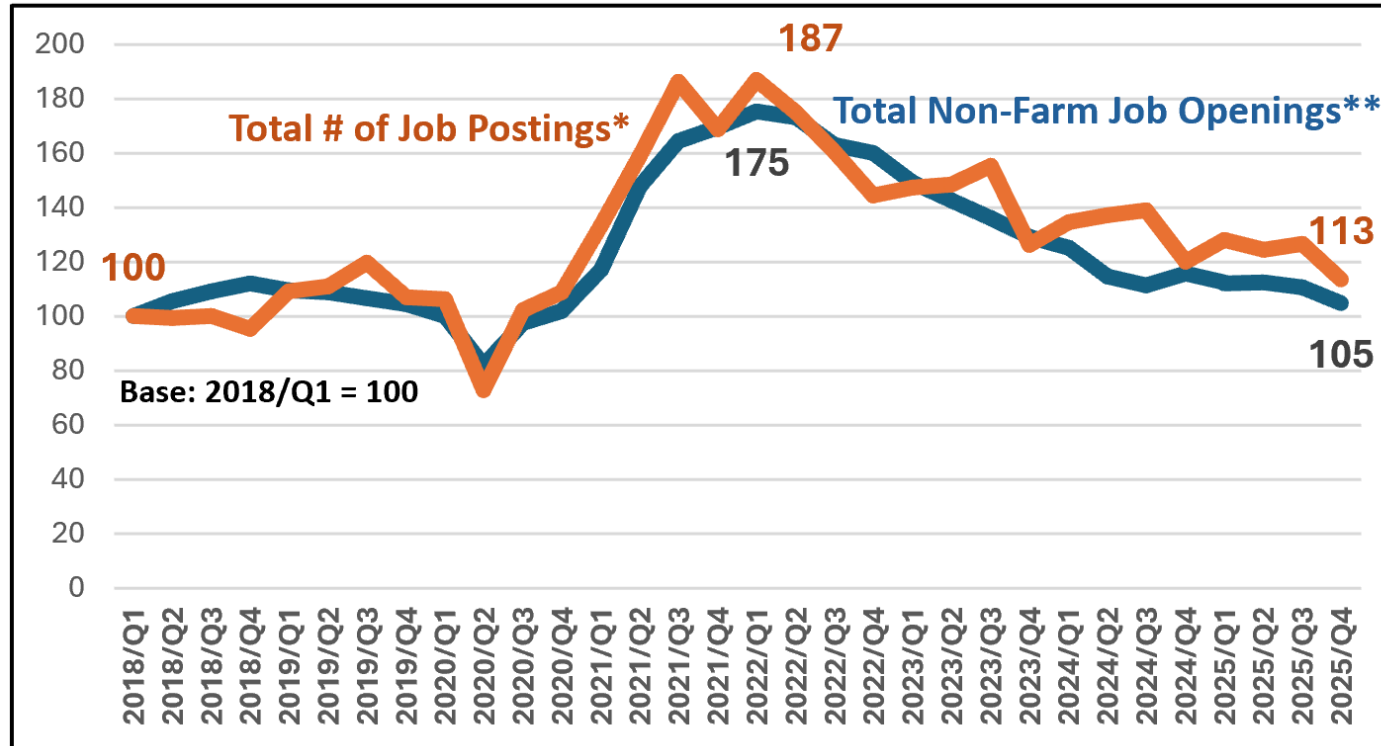
Use of the keywords approach guarantees that the job posting is targeted EXPLICITLY at Fresh Graduates. Other job postings that say nothing about required or preferred experience may implicitly also be open to Fresh Graduates. However, because of the lack of explicitness, such job postings are excluded from our analysis. This means that we may actually be under- (rather than over-) counting job openings for fresh graduates.



The Big Picture



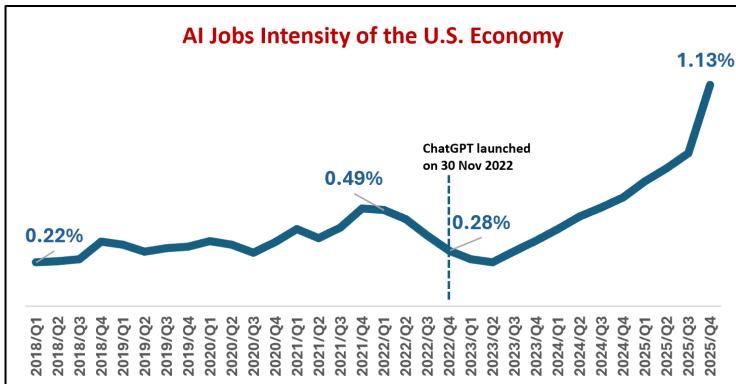
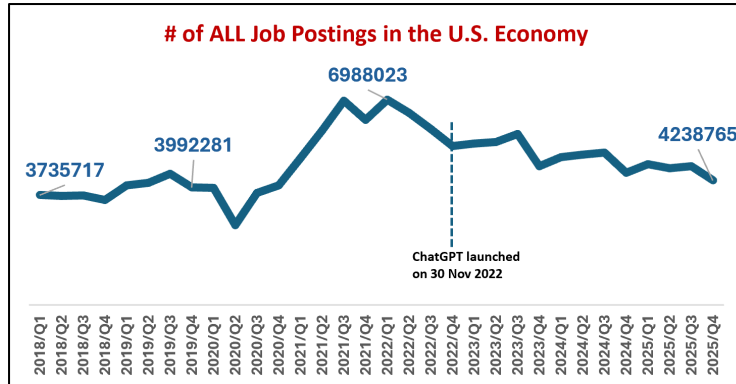
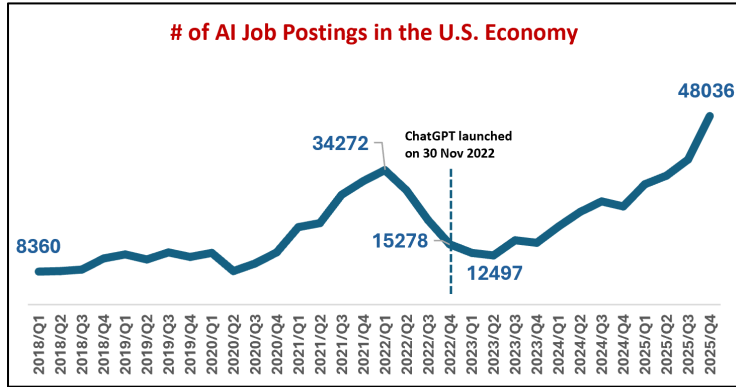
How Useful Is Job Postings Data?



*Source: LinkUp

**Source: Job Openings and Labor Turnover Survey (JOLTS), Bureau of Labor Statistics

- Job postings data capture job postings on the career pages of almost all employers in the U.S. economy (about 155 million job postings since 2018/Q1).
- For each quarter, we count only the new postings during that quarter and exclude any postings that carry over from one quarter to the next. As a result, there's no double-counting.
- Thus, they are an extremely accurate and near-comprehensive barometer of LABOR DEMAND in the U.S. economy (with the proviso that they do not include very small low-tech employers who may not have any web-based career pages at all).
- While job postings measure labor demand rather than realized hiring, they remain the most comprehensive high-frequency indicator of employer intent available.
- Unlike job postings, other measures of labor demand often rely on either surveys (such as the widely followed BLS "Job Openings and Labor Turnover Survey") or non-representative samples such as anecdotal data from specific companies. Their comprehensiveness makes job postings data MORE RELIABLE than any other measure of labor demand.
- That said, as the chart shows, job postings data are extremely highly correlated with the BLS/JOLTS data.
- Compared to every other measure, an additional advantage of job postings data is that, because of their granularity, they can be disaggregated easily by industry, occupation, geography, and time.



AI Jobs Intensity = Ratio of AI Job Postings to ALL Job Postings

Job Postings Data Do Not Support Narratives That AI is Negatively Affecting Labor Market Demand

- Economy-wide data on job postings provide no empirical support to conjectural narratives that the explosive growth of AI is hurting job demand in the U.S. economy – at least not yet.
- **Overheating during 2020/Q2-2022/Q1.** Job postings across all types peaked in 2022/Q1 at 6,988,023. This was the same quarter when, pre-ChatGPT, # of AI job postings peaked at 34,272. Two major factors drove the overheating: (a) rapid reopening after recovery from the pandemic, and (b) the massive fiscal stimulus of 2021.
- **Cooling off after the over-hiring.** After the over-hiring binge, employers began the path to normalization by slowing the pace of new hiring. This normalization happened across all industry sectors and all types of jobs, including AI jobs.
- **AI explosion after ChatGPT launch.** The launch of ChatGPT on November 30, 2022 triggered a sharp reversal in the demand for AI jobs (i.e., jobs requiring technical AI skills). In 2025/Q4, AI job postings accounted for 1.13% of all job postings, up dramatically from 0.28% in 2022/Q4.
- **# of ALL job postings continues to decline slowly.** Even as the demand for technically-skilled AI labor continues to explode, the # of ALL job postings shows only a slow decline, reflecting both a low-hire-low-fire scenario as well as concerns about a possible economic slowdown triggered by higher tariffs, rather than any AI effect.
- **# of ALL job postings in 2025/Q4 exceeds the # in any pre-Covid period.** Despite the recent cooling off, the total # of ALL job postings in 2025/Q4 exceeds the total # in any pre-Covid period - despite the fact that AI job postings in 2025/Q4 were 6-times as large as in 2018/Q1 (48,036 vs. 8,360).

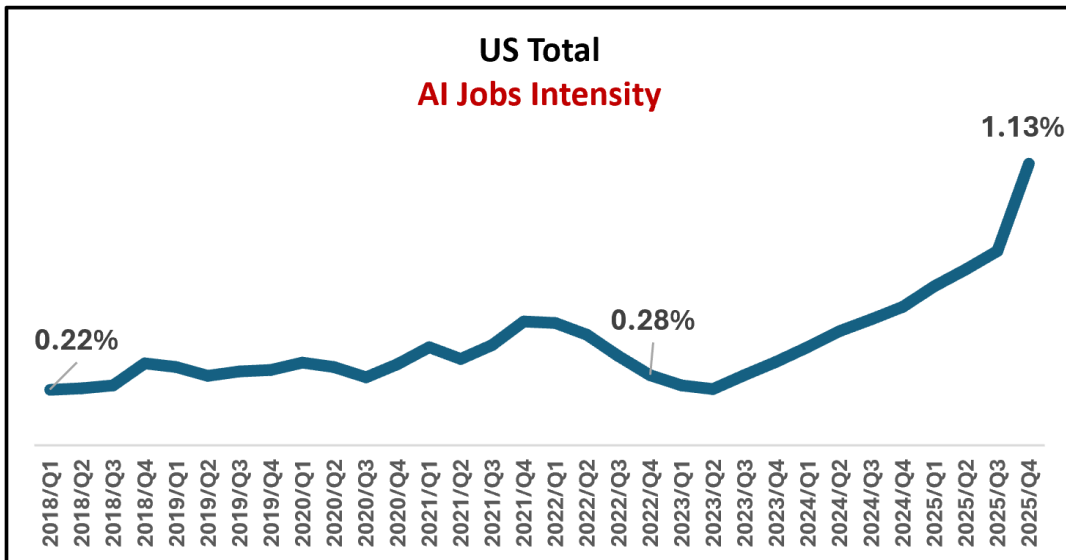
AI's Impact on Overall Labor Market Demand

Making Sense of the Tribal Tales....

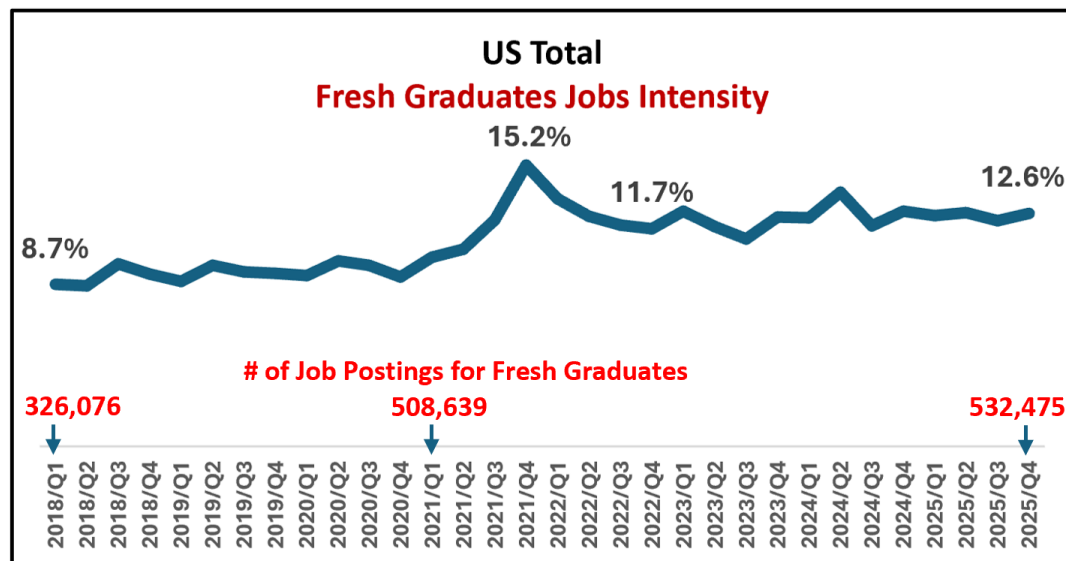
- **Over-Generalization from Specific Cases.** We firmly believe that there indeed are specific companies and specific functions where AI has resulted in reduced demand for human labor. However, much of the tribal narrative tends to over-generalize and assume that this is true of most companies and most functions.
- **AI-Washing.** In some cases, CEOs invoke AI to explain layoffs that may reflect broader post-pandemic over-hiring and cost-cutting rather than clear evidence of AI-driven labor substitution. Readers should be cautious about interpreting layoff announcements as evidence of AI substituting for labor.
- **Resource Reallocation.** All hyperscalers are making extremely large investments in data centers. Given the ensuing budget constraints, they're on a well-justified hunt for cost efficiencies across other lines of business. This hunt often results in layoffs, even though they may not suggest that these layoffs are triggered by AI substituting for human labor. Every one of the biggest hyperscalers (Amazon, Microsoft, Google, and Meta) employed more people at the end of 2025 than they did at the end of 2023. The tribal narrative focuses only on the layoffs and ignores the new hiring that took place in these very same companies, in parallel.
- **Ignoring New Job Creation.** At every technology inflection in history, job destruction has been accompanied by new job creation elsewhere (other possibly new functions, and other possibly new industries). Even when AI substitution is real, the tribal narrative focuses on job destruction and ignores new job creation elsewhere.

Could the Future be Different?

- **Possibly, but it's too early to tell.** Despite the explosion in AI use since 2022/Q4, there is no empirical evidence yet that AI is killing jobs at the economy level. Thus, one just has to wait and see.



AI Jobs Intensity = # of AI job postings/# of All job postings



Fresh Graduates Jobs Intensity = # of job postings targeted explicitly at Fresh Graduates/# of All job postings

There Is Also Zero Evidence That AI Is Destroying Jobs For Fresh Graduates (It's Likely Helping Fresh Graduates)

- Economy-wide data on job postings also provide no empirical support to conjectural narratives that AI is killing or even dampening labor market demand for fresh graduates.
- Since the launch of ChatGPT in 2022/Q4, Fresh Graduates Jobs Intensity has actually increased from 11.7% in that quarter to 12.6% in 2025/Q4.
- In 2025/Q4, Fresh Graduates Jobs Intensity was solidly higher than at any time during the last 8 years (with the exception of the hiring frenzy immediately post-pandemic). It was 12.6% in 2025/Q4 vs. 8.7% in 2018/Q1.
- In raw numbers as well, the total # of job postings for fresh graduates was 532,475 in 2025/Q4, fully 63% greater than 326,076 in 2018/Q1 – despite the recent low-fire-low-hire scenario.

AI's Impact on Demand for Fresh Graduates

Making Sense of the Tribal Tales....

- **Over-Dramatization.** A recent headline in a leading media outlet observed, “Young Graduates Face the Grimmiest Job Market in Years.” Given various factors that are leading to a slow decline in overall labor market demand (see Slide 6), it is true that there’s also a slow decline in the demand for fresh graduates. That said, in 2025/Q4, the # of job postings targeted EXPLICITLY at fresh graduates was higher than in any quarter until the start of re-opening from the pandemic in 2021/Q2. In fact, job postings for fresh graduates were 63% higher in 2025/Q4 than in 2018/Q1 and 43% higher than in 2019/Q4 (just prior to the pandemic).
- **Overlooking the Fact that Demand for Fresh Techies Remains Robust.** Coding is rightly regarded as one of the “killer apps” of the GenAI age. Reports abound about how an AI coding agent can do the work of 10 software engineers. So, if any occupation were to be decimated by AI, software engineering would be candidate #1. What is overlooked however is that the mountain of code that an AI agent can create must be reviewed for accuracy, security, and compliance before it can be deployed. To-date, the code review and needed edits must be done by humans. Can one imagine a bank, an insurance company, a pharma, or a retail chain relying on vibe-coding for its internal processes? Yes, AI can help write more code. But organizations continue to need both AI and humans. When it comes to enterprise software, “almost-good” is still not good enough.

*Looking at job postings data by O*NET occupational codes, we find that in “Mathematical and Computer Occupations” (think software engineers, data scientists, and the like), the # of job postings for fresh graduates in 2025/Q4 was 55% greater than in 2018/Q1, 40% greater than in 2019/Q4, 8.5% greater than in 2023/Q4, and virtually the same as in 2024/Q4.*

- **Overlooking the Possibility that AI Can be a Plus for Fresh Graduates.** Since the launch of ChatGPT, there have been a number of empirical studies on who uses AI tools more and, among AI users, who benefits more in terms of productivity and output quality. Bulk of the evidence concludes that (unless the work requires deep skills in key complementary tasks not amenable to AI), younger less experienced workers benefit more from AI tools than more experienced ones. This appears logical since a key capability of AI is that it can bring to the user accumulated knowledge from the near-universe of training data.

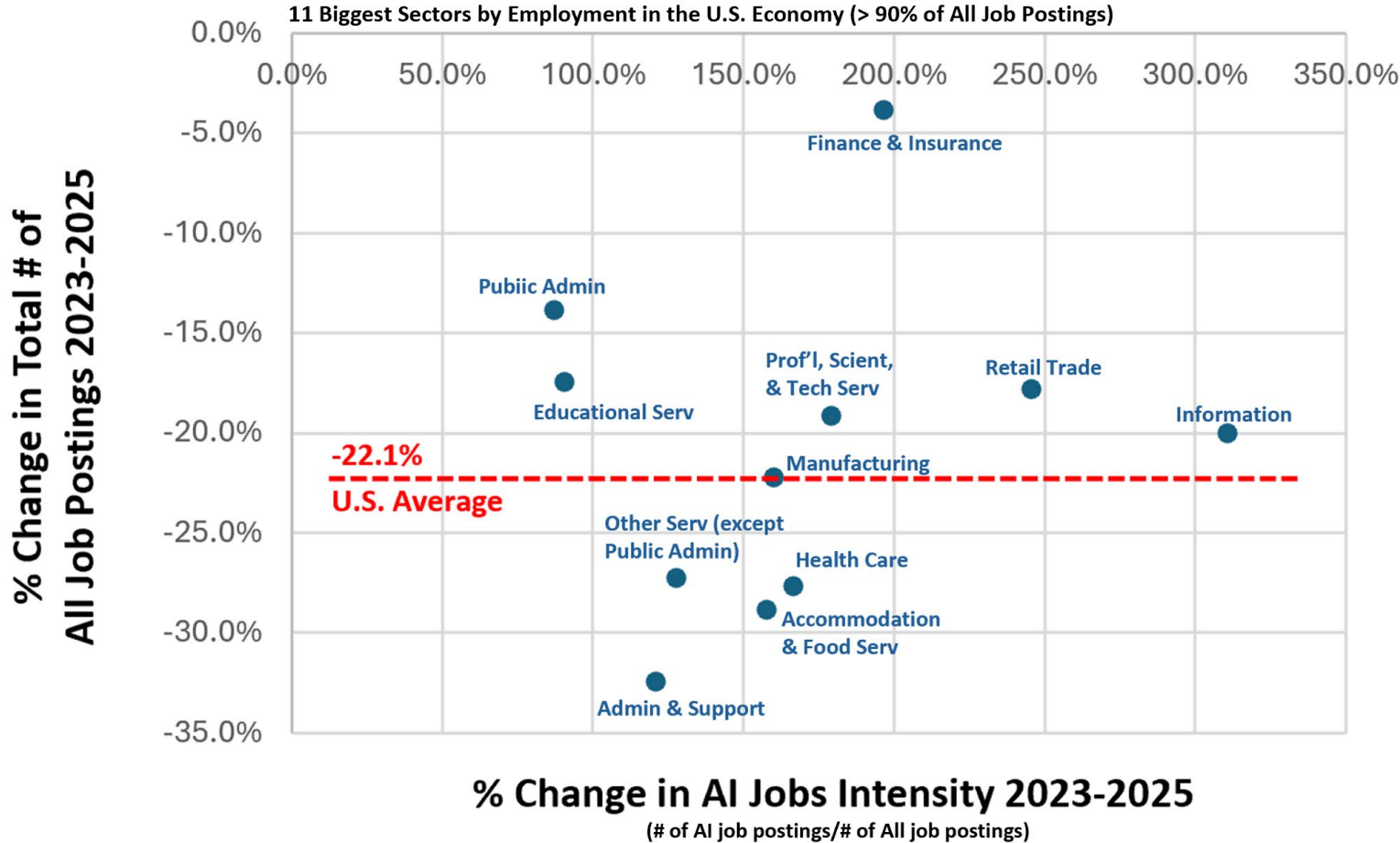
Younger workers have historically been more open to new technologies (especially a technology such as AI, which they get exposed to in college). Also, on average, they’re a lot less expensive than older more experienced workers. Thus, when facing a situation where AI can substitute for human labor, a rational employer is more likely to prefer a younger over an older employee.



Deeper Dive

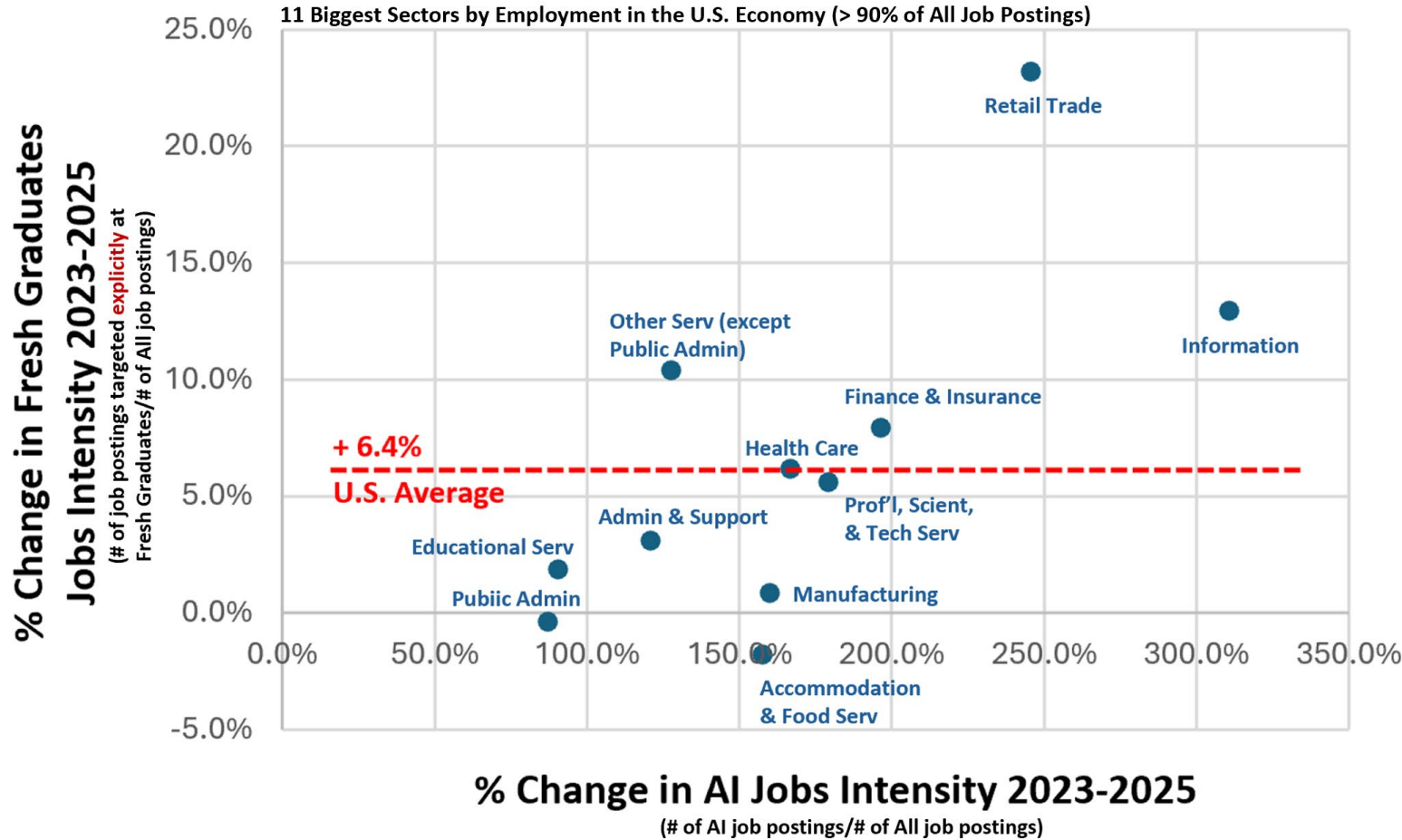


AI Jobs Intensity vs. All Job Postings: Changes 2023-2025



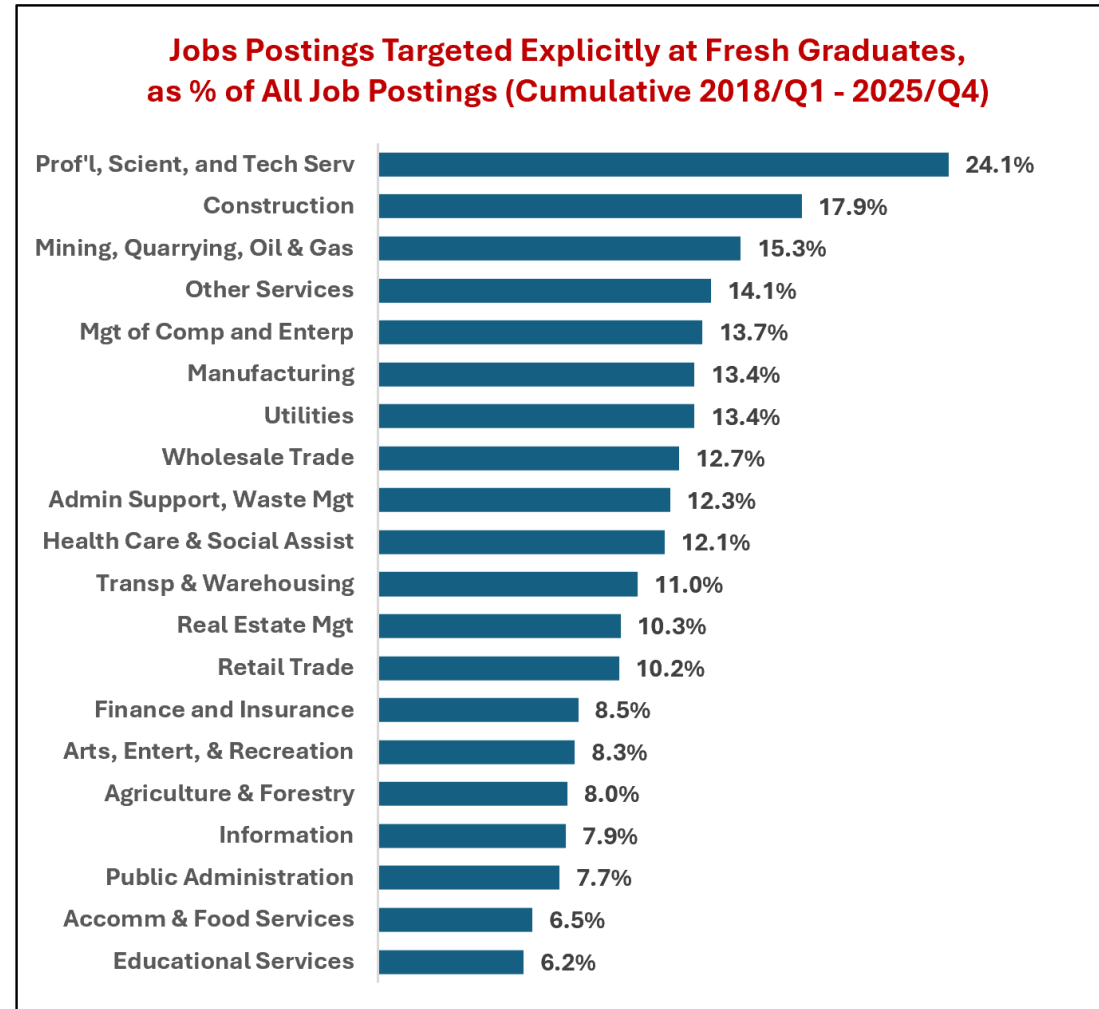
- Across sectors, there is no obvious correlation between increase in AI Jobs Intensity and decline in # of job postings.
- Of course, correlation \neq causation.
- “Information” and “Retail Trade” sectors exhibit the two highest increases in AI Jobs Intensity but changes in job postings that are slightly better than U.S. average (i.e., smaller decline).
- “Finance and Insurance” sector exhibits the 3rd highest increase in AI Jobs Intensity but changes in job postings that are much better than U.S. average (i.e., smallest decline).
- “Professional, Scientific, and Technical Services” sector exhibits the 4th highest increase in AI Jobs Intensity but changes in job postings that are slightly better than U.S. average (i.e., smaller decline).

AI Jobs Intensity vs. Fresh Graduates Jobs Intensity: Changes 2023-2025

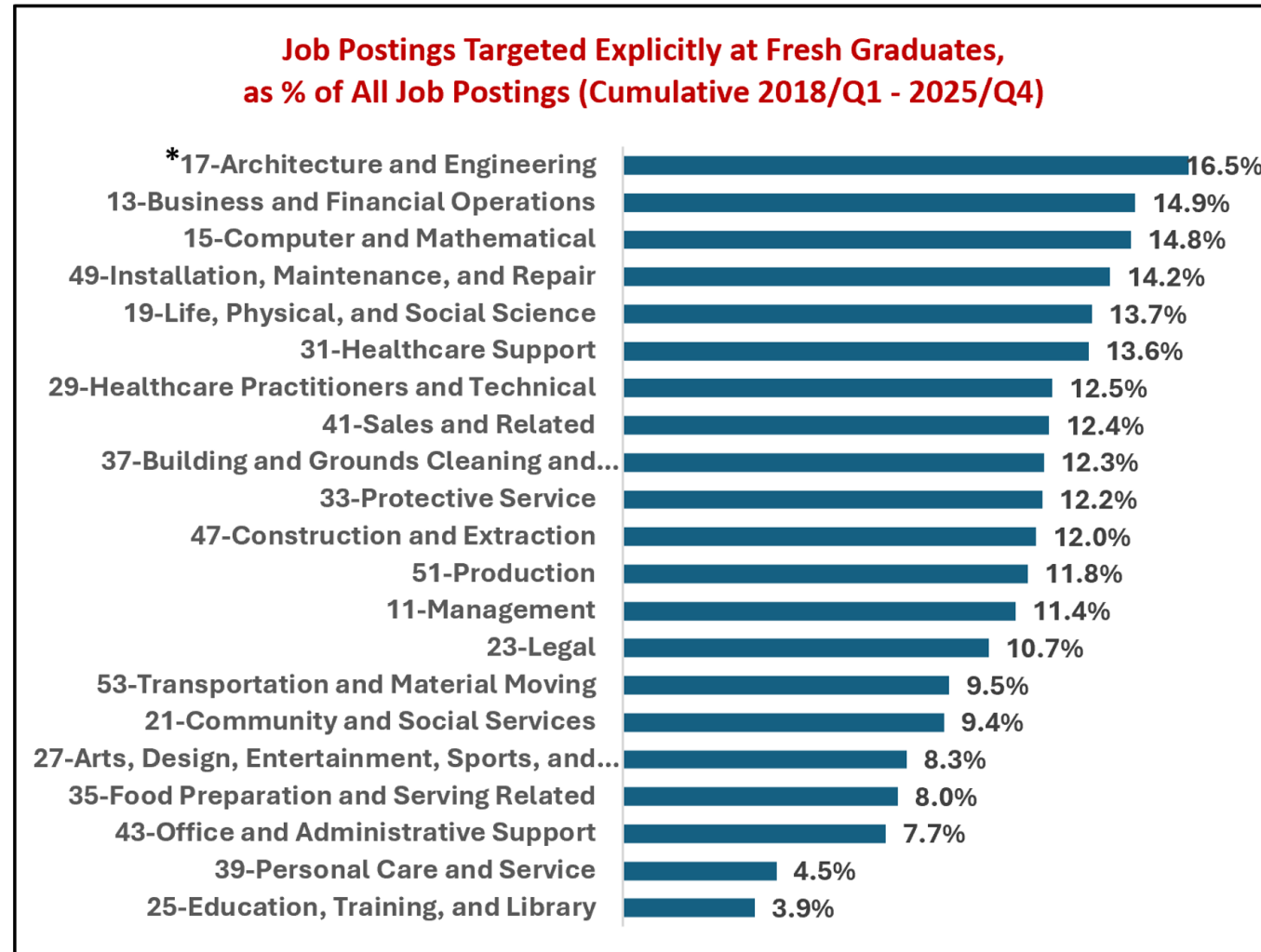


- **Note: Correlation ≠ Causation.**
- **With the important caveat that correlation does not imply causation, sector-level data suggest that increases in AI Jobs Intensity are positively associated with increases in Fresh Graduates Jobs Intensity.**
- **These data are consistent with the argument that, as employers increase their investments in AI, they favor fresh graduates over more experienced employees.**
- **“Information” and “Retail Trade” sectors exhibit the two highest increases in AI Jobs Intensity as well as the two highest increases in Fresh Graduates Jobs Intensity.**
- **“Finance and Insurance” sector exhibits the 3rd highest increase in AI Jobs Intensity along with a better than average increase in Fresh Graduates Jobs Intensity.**

Most-to-Least Friendly SECTORS...for Fresh Graduates



Most-to-Least Friendly OCCUPATIONS...for Fresh Graduates



*2-Digit O*NET Code

Note: We dropped O*NET codes "45-Farming, Fishing, and Forestry" and "55-Military Specific" due to very small numbers of job postings.

Most-to-Least Friendly STATES...for Fresh Graduates

