

The missing rung: AI’s young-worker employment gap hits 19%

On 12 August the Stanford Digital Economy Lab refreshed the most-cited dataset on AI and jobs, and the headline number moved the wrong way: the employment shortfall for 22–25-year-olds in AI-exposed occupations widened from 15% to 19%. Aggregate employment shows no displacement at all. The adjustment is running entirely through hiring that never happens, which means it costs firms nothing today and shows up in no unemployment statistic. If the finding is real, the bill arrives in the 2030s as a missing mid-career cohort — and three other credible datasets say the finding may not be real.

AT

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19% EMPLOYMENT SHORTFALL, AGES 22–25, MOST AI-EXPOSED OCCUPATIONS VS. PEERS · JUN 2026	–11% / +10% EMPLOYMENT CHANGE, AGES 22–25, MOST VS. LEAST EXPOSED QUINTILES · NOV 2022–JUN 2026	+6% TOTAL EMPLOYMENT GROWTH IN THE SAME PAYROLL SAMPLE – NO ECONOMY-WIDE DISPLACEMENT
64% OF THE RISE IN YOUNG-GRADUATE UNEMPLOYMENT ATTRIBUTED TO REMOTE WORK, NOT AI · NY FED, JUN 2026	+12% ENTRY-LEVEL HEADCOUNT GROWTH AT HIGH-INTENSITY AI ADOPTERS, 24 MONTHS ON · JUN 2026	22% HR LEADERS REPORTING A LEADER STOPPED ENTRY-LEVEL HIRING OVER AI · GARTNER, JUL 2026

I. The gap that keeps widening

Erik Brynjolfsson, Bharat Chandar and Ruyu Chen published the first version of *Canaries in the Coal Mine?* in August 2025. On 12 August 2026 they revised it with ADP payroll records through

June 2026, and the central estimate got worse rather than better. Employment among 22–25-year-olds in the two most AI-exposed occupation quintiles is now roughly 19% below where it would sit had it tracked same-aged workers in less-exposed occupations — up from about 15% in the July 2025 vintage.

The composition of that gap matters more than the headline. Young workers in the most exposed quintiles saw employment *fall* about 11% between November 2022 and June 2026, while their least-exposed peers *gained* about 10%. Over the same window, total employment in the sample rose roughly 6%. **There is no aggregate job destruction here at all — there is a redistribution of hiring away from one cohort in one set of tasks.** The sample is substantial: 3.5 to 5 million employees per month, drawn from firms covering over 26 million US workers, across roughly 600–700 occupations.

II. Technology that favours the incumbent

Most technology waves have favoured new entrants. Whoever learned the spreadsheet, the browser or the smartphone first arbitrated an advantage against people whose expertise had been built on the previous tool. This one runs the other way, and that inversion is the real landscape shift buried in the August revision.

If generative AI substitutes for codified knowledge, then the asset that a fresh graduate brings — a recently certified, formally documented body of knowledge — is precisely the asset whose marginal price is collapsing. The asset that appreciates is the one that cannot be written down: judgment about which client to push back on, which anomaly in a model matters, how this particular firm actually works. The Stanford data shows exactly that split, with mid-career and senior employment growing faster in tacit-knowledge occupations. The revision also finds women face higher average AI exposure than men, consistent with the [systematic review of 94 studies](#) that puts clerical work — roughly two-thirds female — among the most exposed categories, and flags outsourcing-dependent developing economies as a second exposed group through erosion of client-country demand.

The strategic consequence for firms is uncomfortable. The cheapest labour input just got cheaper still, but the input that AI complements — experience — can only be manufactured by employing inexperienced people for several years. Every firm has an incentive to buy that experience from someone else's payroll rather than grow it.

III. The mechanism moved from layoffs to hiring

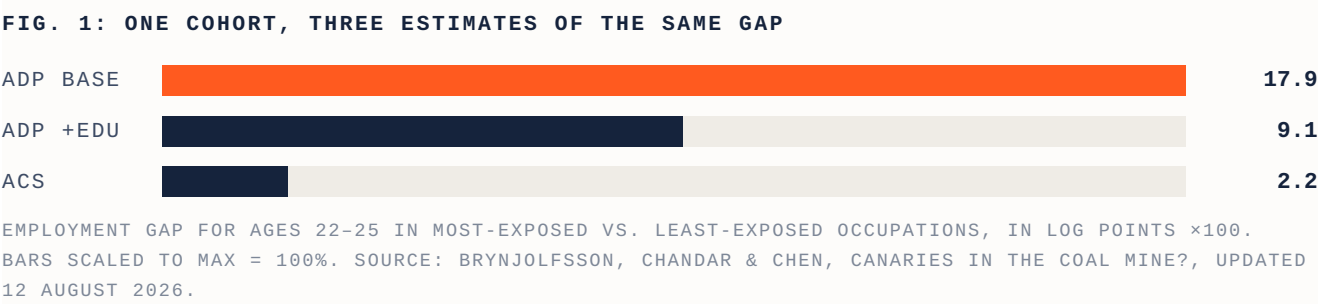
The revision's most consequential finding is procedural. The divergence is driven by *reduced hiring rates*, not elevated separations. Firms are not firing young workers in exposed roles; they

are not opening the requisition. That distinction determines everything downstream, because a hiring freeze is invisible to almost every instrument we use to detect labour-market stress.

The new analytical wrinkle is a split between codified and tacit knowledge — formal, documented, teachable expertise versus the kind acquired only by doing the work. Entry-level employment grew more slowly in codified-knowledge occupations; mid-career and senior employment grew faster in tacit-knowledge ones. The authors call this “directionally consistent” with generative AI substituting for codified knowledge while complementing tacit knowledge. Survey evidence points the same way: [Gartner reported on 27 July 2026](#) that 22% of 110 HR leaders had at least one business leader stop entry-level hiring because of AI automation — while 95% of organisations had deployed AI and only 20% reported significant or transformational value from it.

IV. The same question, three answers

Here is where honesty is required. The 19% figure is not robust, and the authors say so first and loudest. Their own baseline coefficient for the most-exposed 22–25 cohort is -0.179 log points. Add a control for the college-educated share of an occupation and it attenuates to -0.091 — roughly halving. Run the same test on American Community Survey data for 2022–2024 and the gap collapses to -0.022 , an order of magnitude smaller, leading the authors to warn against extrapolating ADP-scale magnitudes to the whole economy. They also flag divergent pre-trends that predate ChatGPT, and note their compensation measure excludes bonuses, commissions and equity — precisely the pay components that dominate in the most exposed, highest-income occupations.



Two independent datasets point the other way entirely. On [1 June 2026](#), Natalia Emanuel, Emma Harrington and Amanda Pallais estimated that remote work explains 64% of the rise in unemployment among young college graduates between 2017–19 and 2022–24, noting the uptick predates AI diffusion and survives controls for occupational AI exposure. And on [30 June 2026](#), Ramp's economics lab, pairing spending data from over 21,000 firms with Revelio Labs workforce records, found that high-intensity AI adopters grew *entry-level* headcount 12% in the two years after adoption and raised entry-level workforce share by 1.15 points against controls.

Pulling against both, a systematic review of 94 studies published in 2026 found entry- and mid-level posting declines of 14–41% in software and content roles — evidence it reads as displacement rather than transformation.

The honest range is therefore wide enough to be policy-relevant on its own. Treat the ACS estimate as the floor and the ADP baseline as the ceiling and they differ by a factor of eight for the same cohort in the same years. Any intervention sized off the ceiling is eight times too large if the floor is right. That is not a rounding error; it is the entire question.

We do not estimate a causal impact of AI.

THE AUTHORS OF THE MOST-CITED EVIDENCE ON AI AND EMPLOYMENT, IN THE PAPER WHOSE 19% FIGURE IS NOW ROUTINELY QUOTED AS PROOF OF AI DISPLACEMENT. BRYNJOLFSSON, CHANDAR & CHEN, CANARIES IN THE COAL MINE?, 12 AUGUST 2026.

v. A cost with no invoice

Trace the channels and the asymmetry becomes clear. On **productivity**, the evidence is weak in exactly the place the thesis needs it strong: Gartner's 20%-realising-value figure sits awkwardly beside 95% deployment, and Ramp found effects only above roughly \$30 per employee per month of AI spend, appearing 6–12 months after adoption. On **labour**, the effect is not displacement but a change in the shape of demand — fewer codified-knowledge entry roles, more tacit-knowledge senior ones, with women facing higher average exposure. On **prices**, nothing moved: the Stanford paper finds adjustment through employment levels, not base pay, so the usual signal that labour has become scarce or abundant is simply absent.

The **market-structure** channel is the one nobody is measuring. The Stanford panel deliberately excludes firm entry and exit, and the authors observe that AI-native startups look leaner, more technical and more senior. If the frontier of new firm formation is being built without a junior tier, the training function that used to be a byproduct of employment has quietly been removed from the economy — and no firm has an incentive to restore it, because the returns to training a 23-year-old accrue mostly to that worker's next employer.

This is judgment, not measurement, and it should be read as such: a hiring freeze imposes no cost on this year's income statement and leaves no trace in this year's unemployment rate. Its cost is a cohort that reaches its early thirties without the tacit knowledge the same paper says AI complements. If that is what is happening, the liability lands around 2032–2035 — comfortably outside every forecast horizon currently used to justify AI capital expenditure.

VI. Why the aggregate data will be last to know

The July 2026 Employment Situation, released 7 August, showed nonfarm payrolls down 23,000 and unemployment steady at 4.1%. Nothing in that print distinguishes an AI-driven entry-level freeze from ordinary cyclical softness, and a hiring-side adjustment concentrated in one age band inside particular occupations is close to invisible at that resolution. Meanwhile recent-graduate unemployment ran at 5.7% in June 2026 against 4.1% for all workers — a spread consistent with the thesis and equally consistent with the remote-work explanation.

Firm surveys are the better instrument, and they say something specific. Writing on 5 August 2026, New York Fed research director Kartik Athreya reported that AI use among district service firms rose from 25% to 40% between the August 2024 and August 2025 survey waves, with 44% expected within six months; manufacturers went from 16% to 26%, heading for 33%. Yet those same firms report very few AI-driven layoffs, intend to retrain rather than fire, and anticipate cutting hiring plans — especially for college-educated workers. Adoption is climbing steeply while the labour-market effect stays confined to the hiring margin. That is the pattern to watch, and it is not the one the displacement debate is set up to detect.

FIG. 2: ADOPTION CLIMBS, LAYOFFS DON'T



SHARE OF NEW YORK FED DISTRICT FIRMS REPORTING AI USE, AUGUST 2024 AND AUGUST 2025 SURVEY WAVES. BARS SCALED TO MAX = 100%. SOURCE: ATHREYA, AI'S IMPACT ON LABOR AND HIRING, LIBERTY STREET ECONOMICS, 5 AUGUST 2026.

VII. How it plays out: three scenarios

Rough two-to-five-year horizons. Probabilities are our analytical judgment, not estimates drawn from any source.

1 · Baseline — composition, not contraction ~55%

2026-2029 · GRADUAL

The gap keeps widening slowly, into the low twenties by late 2027, while aggregate employment stays healthy and the argument never resolves because the datasets never converge. Watch for: the next *Canaries* revision landing between 20% and 24%; New York Fed firm surveys continuing to pair rising adoption with hiring-plan cuts for college-educated workers and near-zero AI layoffs; a widening pay premium for tacit-knowledge roles while base pay in exposed entry roles stays flat.

2 · Acceleration — the gap breaks into the aggregate ~20%

2027–2029 · FAST

Fact four inverts: separations start rising alongside depressed hiring, and the effect climbs the age distribution into the 26–35 cohort. Watch for: separation rates for exposed occupations diverging in ADP data rather than only hiring rates; survey measures of AI-driven entry-level hiring freezes moving from 22% toward 40%; consecutive negative payroll months concentrated in professional and business services and information rather than spread across sectors.

3 · Stall — it was the macro and the office all along ~25%

2026–2028 · SLOW

The skeptics are right: remote work and a soft cycle explain most of it, and as return-to-office mandates spread and rates ease the gap narrows without AI adoption slowing at all. Watch for: a *Canaries* revision in which the gap falls rather than rises; the recent-graduate unemployment spread over the all-worker rate compressing back toward its 2017–19 level; adopter-panel data continuing to show entry-level headcount growth at the firms buying the most AI.

WHAT WOULD FALSIFY THIS THESIS

Three things would break it, and two are already visible in current data. First, the survey-scale evidence: if the ACS-style estimate of roughly 2% rather than the ADP estimate of 18% is the representative one, there is no entry-level crisis to price and the whole argument is a sampling artefact — the paper's own authors warn against extrapolating their magnitudes economy-wide. Second, the strongest counter-case, sourced: Emanuel, Harrington and Pallais attribute 64% of the young-graduate unemployment rise to remote work and show the uptick began before AI diffused, while Ramp's 21,000-firm panel finds heavy AI adopters grew entry-level headcount 12%. If both hold, the causal arrow we have drawn is pointing at the wrong variable. Third, and decisively: if the next revision shows the gap narrowing while adoption keeps climbing, the mechanism we have described does not exist.

WHAT TO WATCH, IN ORDER

1. The next *Canaries in the Coal Mine* revision from the Stanford Digital Economy Lab — the series has been updated roughly annually, most recently 12 August 2026; the number to check is whether the gap crosses 20%.
2. The New York Fed Regional Business Surveys AI supplement, next wave due August 2026 and reported on Liberty Street Economics — specifically whether hiring-plan cuts for college-educated workers deepen while AI layoffs stay near zero.
3. Monthly BLS Employment Situation releases from September 2026 onward — professional and business services, information, and financial activities payrolls, plus unemployment for ages 20–24, as the first place an aggregate signal could appear.
4. The New York Fed's recent-graduate labour market page, updated quarterly — whether the 5.7% recent-graduate rate converges toward or diverges further from the 4.1% all-worker rate.
5. Adopter-panel updates from Ramp and Revelio Labs, following the 30 June 2026 release — whether the +12% entry-level effect at high-intensity adopters survives another twelve months of adoption or fades as tooling matures.

SOURCES

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