

Young People and AI: What Does the Data Show?

Kristian Carter · 23 October 2026

UK payroll evidence and a policy roadmap for access to skilled employment.

Charts follow the policy roadmap. PDF charts use December 2022 as the baseline and December 2025 as the endpoint. The online report provides additional sectors and a December 2019 baseline.

Executive summary

Young workers' access to employment has weakened substantially in several UK service sectors. HMRC payroll data shows that jobs held by 18–24-year-olds in information and communication fell 30.0% between December 2022 and December 2025, compared with 2.8% for 35–49-year-olds. Finance and administrative services show longer-term declines in young workers' employment, even where total adult employment has remained stable or grown.

These changes are uneven across the economy. Young workers' jobs increased in hospitality, construction, and transport and storage over the same three-year period. The contrast raises questions about access to knowledge-based careers, although sector data cannot distinguish individual occupations or measure the quality of the opportunities gained and lost.

The evidence examined here does not establish what proportion of the decline is attributable to AI. Weaker recruitment demand, firms' earlier hiring decisions and constraints on training could also contribute. AI may reinforce these pressures by reducing demand for tasks previously assigned to junior staff. Payroll counts alone cannot separate these mechanisms, and age groups do not directly identify entry-level roles.

The policy concern is the potential loss of opportunities through which new entrants acquire experience. A sustained reduction in junior recruitment could weaken the future supply of skilled workers, irrespective of its initial cause. The proposed response combines a quarterly employment monitor and research linking AI adoption to hiring decisions with evaluated trials of paid entry routes and redesigned training. Funding should depend on additional sustained employment, demonstrable skills and progression.

Headline findings

- **A sharp age divide in information and communication.** Between December 2022 and December 2025, jobs held by 18–24-year-olds fell 30.0%, compared with 10.2% for 25–34-year-olds and 2.8% for 35–49-year-olds.
- **A longer-term decline in finance.** Jobs held by 18–24-year-olds fell 9.7% over those three years. Since December 2019, they fell 23.8%, while total jobs held by adults in the sector grew 1.7%.
- **Sector totals can conceal deterioration for young workers.** In administrative and support services, jobs held by 18–24-year-olds fell 11.9% between December 2019 and December 2025,

against growth of 0.1% across all adults.

- **The pattern is not economy-wide.** Between December 2022 and December 2025, young workers' payroll jobs grew 5.9% in hospitality, 2.6% in construction and 5.9% in transport and storage.
- **AI's contribution remains unresolved.** The age differences are consistent with several explanations, including weaker recruitment demand and changes in how firms organise work. Reduced access to early-career roles poses a training risk regardless of the immediate cause.

Data and scope

The analysis uses [HMRC's monthly payrolled employment tables](#), combining male and female employments across all nationalities. The series covers July 2014 to December 2025. Comparisons use December in each year because the figures are not seasonally adjusted.

The unit is a payrolled job, rather than a unique person, and industry describes the employer rather than the employee's occupation. Age is an imperfect indicator of career stage. The figures therefore describe employment among young workers, rather than measuring entry-level positions directly. The online charts allow comparison with both December 2019 and December 2022 to distinguish longer-term changes from developments following the introduction of widely available generative AI.

Uneven changes across sectors and age groups

Information and communication shows the clearest age gradient over the three years to December 2025. The fall among 18–24-year-olds was more than ten times the percentage decline among 35–49-year-olds. This suggests that a sector-wide contraction alone is an incomplete account of the distribution of employment losses. It does not, by itself, identify the reason younger workers were more affected.

Finance illustrates the importance of the comparison period. Between December 2022 and December 2025, jobs held by 35–49-year-olds grew 2.7%, while those held by the youngest adult group declined. The larger decline since 2019 indicates that the weakening position of young workers extends beyond the period associated with widespread access to generative AI.

The contrast with hospitality, construction and transport shows why aggregate youth employment is insufficient to assess access to particular careers. Gains in one sector can offset losses elsewhere while leaving young people with a different range of opportunities. The consequences depend on the training, progression and earnings associated with the jobs gained and lost, none of which these payroll counts measure.

The knowledge economy and the manual economy

The sector differences raise a question about where young people can enter employment. Between December 2022 and December 2025, jobs held by 18–24-year-olds fell 30.0% in information and communication and 9.7% in finance. Over the same period, they grew in construction, hospitality, and transport and storage. Employment in sectors associated with knowledge-based work has therefore offered less protection to young workers than employment in several sectors with substantial physical or in-person activity.

A possible explanation concerns the tasks through which new employees become productive. In knowledge-based roles, these can include preparing documents, processing information and producing initial analysis or code. Where AI can undertake parts of that work, employers may have greater scope to concentrate responsibility among experienced staff. In work requiring physical delivery, on-site execution or direct service, substituting software for additional labour involves different constraints. This provides a hypothesis for the observed divergence, rather than a finding established by the payroll data.

The distinction is also less clear at sector level than the labels suggest. Construction includes design and commercial roles; finance includes administrative and customer-service work. Manual occupations require knowledge and judgement, while knowledge-based businesses depend on operational staff. These figures cannot show whether a software developer employed by a construction company has experienced the same pressures as one employed by a technology company. Testing the explanation requires occupational and task-level evidence.

For education and careers policy, the implication is to examine entry routes rather than assume that a sector's technological sophistication guarantees opportunities for new entrants. Equally, growth in young workers' jobs in a sector does not establish that those jobs offer better pay, security or progression. Advice to students and investment in training should reflect both access to a first job and the opportunities available after it.

The policy objective should be to sustain credible routes into skilled work across both parts of the economy. That includes supervised experience in knowledge-based occupations and effective technical training for work involving physical systems and services. A shift in the distribution of young workers' jobs should prompt scrutiny of the opportunities being created and lost, rather than an assumption that gains in one sector compensate fully for losses in another.

What the wider evidence indicates

A [June 2026 analysis by LinkedIn and the government's AI & the Future of Work Unit](#) reported a 27% annual decline in entry-level software engineering hiring, compared with a 14% fall in UK hiring overall as of April. Across the labour market, entry-level hiring was declining broadly in line with hiring overall. These findings place software recruitment within a wider slowdown, while identifying a particularly large fall in that occupation.

US research provides a further basis for investigating AI's role. Erik Brynjolfsson, Bharat Chandar and Ruyu Chen's [analysis of ADP payroll data](#) finds weaker employment outcomes for younger workers in occupations more exposed to AI. Their revised analysis identifies reduced hiring as the principal adjustment. Differences in age groups, occupational measures and labour markets prevent a direct comparison with the UK sector figures.

Timing also requires careful treatment. In a [February 2026 research note](#), the Stanford authors found that the employment divergence became significant in 2024 under their most extensive controls. They attributed earlier declines at least partly to other factors. This supports examining whether AI reinforces an existing recruitment slowdown, rather than attributing the entire decline since 2022 to a single technological change.

How much of the decline can be attributed to AI?

The evidence examined here does not support a numerical estimate of AI's contribution. The 30.0% fall in young workers' jobs in information and communication measures the total change over three years. It does not measure jobs displaced by AI. Neither the difference between age groups nor the gap between sectors can be assigned to AI without estimating what employment would have been in its absence.

Several other mechanisms could produce the observed pattern. Firms reducing recruitment after a period of expansion may retain experienced staff while limiting new appointments. Weaker demand can make employers less willing to invest in training, while constraints on supervision can favour applicants able to work independently. Changes in the size and composition of age groups can also affect payroll totals. These explanations need to be tested alongside AI adoption.

AI could contribute through several channels. It might replace tasks within existing jobs, enable experienced employees to absorb work previously allocated to juniors, or reduce recruitment as firms anticipate future productivity gains. The employment effect could therefore appear as fewer new appointments rather than recorded redundancies. Conversely, productivity gains could support expansion and additional recruitment. The payroll totals show the combined outcome of these decisions, without identifying their individual effects.

The US findings strengthen the case for investigating reduced hiring in AI-exposed occupations. They do not provide a percentage that can be transferred to the UK. Similarly, the difference between the LinkedIn software hiring decline and the wider hiring decline is not an estimate of AI displacement. Occupations can respond differently to the same economic conditions, and software recruitment may have followed a different path even without generative AI.

A credible attribution estimate would require information on when firms adopted AI, how intensively they used it and which tasks changed. Employment and recruitment outcomes could then be compared with those of otherwise similar firms, accounting for earlier trends and concurrent changes in demand. The analysis would also need to distinguish actual adoption from plans to adopt, and reduced hiring from increased departures.

The supported conclusion is that AI is a plausible contributor to the deterioration in some entry routes, with its UK contribution still unquantified in the evidence presented here. There is insufficient basis to assign it most of the decline, or to assume its contribution is negligible. A useful next step is to measure whether adoption changes junior recruitment and training within firms, rather than infer an attributable share from the timing of an aggregate fall.

Implications for skills and policy

A sustained reduction in early-career opportunities could weaken the development of future expertise. Junior roles provide productive work and supervised learning. If employers automate or redistribute the tasks through which new entrants previously acquired experience, they will need alternative ways to develop those capabilities. Improved productivity and effective training are compatible, but the latter requires deliberate provision.

There is also a potential collective investment problem. An individual firm may find it cheaper to recruit experienced workers than to train new entrants, particularly if trained staff can move to competitors. If this approach becomes widespread, the future supply of experienced workers may fall short of employers' requirements. This risk exists whether the initial reduction in junior hiring is driven by AI or by wider commercial pressures.

A policy roadmap

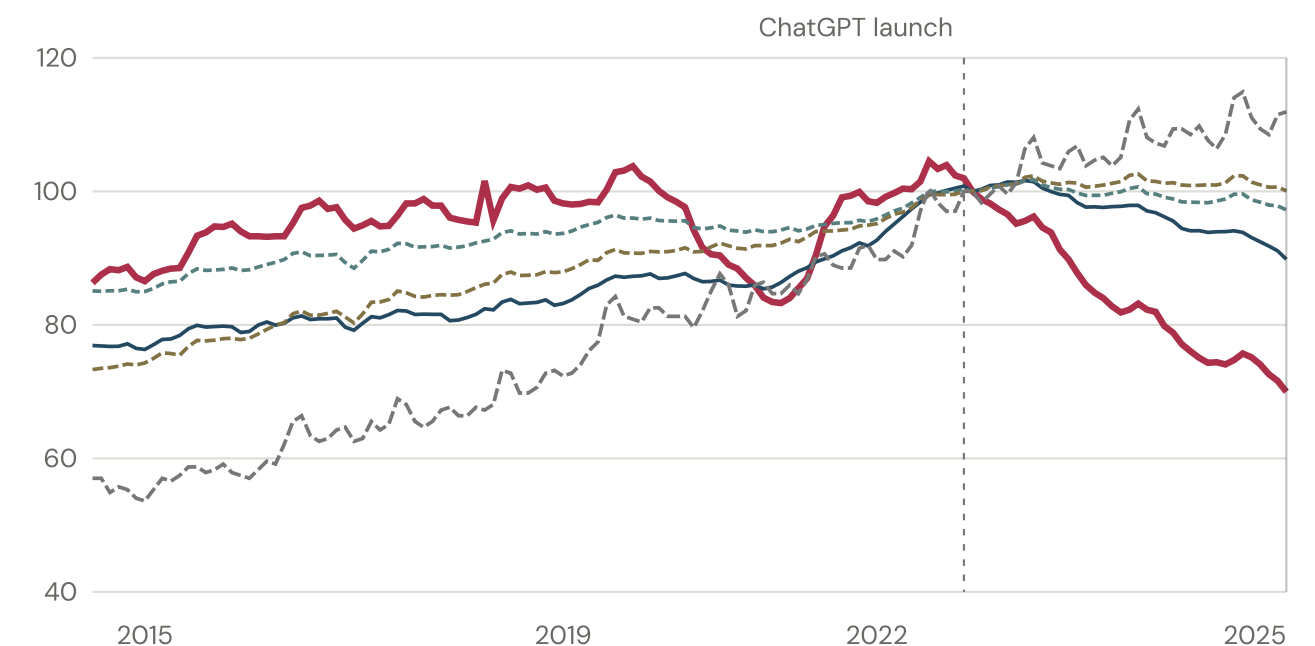
The response should combine better measurement with practical tests of how employers can maintain routes into skilled work. The following proposals prioritise paid experience, assessable training and evidence of sustained progression. They would address weaknesses in early-career employment without depending on a prior conclusion about AI's share of the decline.

1. **Establish a quarterly early-career employment monitor.** HMRC and the ONS, working with the Department for Science, Innovation and Technology, should publish a consistent account of young workers' employment by sector and, where data permit, occupation. It should distinguish job counts, recruitment and departures, show the pre-2022 history, and report changes relative to the relevant population. Publication should include reusable data and clear revision notes, enabling researchers to test whether apparent changes persist.
2. **Measure employment decisions alongside AI adoption.** Government should commission a longitudinal employer study recording adoption dates, tasks affected, junior recruitment and training provision. Researchers should compare outcomes with similar employers and examine trends before adoption. The study should publish its methods in advance and report findings even where no employment effect is detected. This would provide a firmer basis for attribution than comparisons between broad sectors.
3. **Pilot paid entry routes in sectors with declining youth employment.** Government and participating employers should jointly fund time-limited trials of junior roles with named supervisors, protected learning time and defined competencies. Employers should contribute to costs and explain how each role creates additional training capacity. Independent evaluation should compare participants' employment, earnings and progression after 12 and 24 months with a suitable comparison group, including whether support subsidised recruitment that would have happened anyway.
4. **Redesign training around work performed with AI.** Employers, professional bodies and training providers should identify which introductory tasks are changing and specify how new entrants will acquire the judgement those tasks previously developed. Programmes should include supervised responsibility, checking automated outputs and completing substantive work. Assessment should test independent competence alongside effective tool use. Equivalent attention should go to technical and manual occupations, with training decisions informed by local demand and credible progression routes.
5. **Make expansion conditional on demonstrated results.** Before launching pilots, government should set a timetable for independent review and criteria for continuation. These should include additional sustained employment, skills gained, cost per successful outcome and access for people without existing professional networks. Providers should report drop-out rates and unsuccessful outcomes as well as placements. Funding should expand approaches that demonstrate benefits and end or redesign those that do not.

These proposals would make access to a first skilled job an explicit part of the response to technological change. They would also test whether new forms of training can produce experienced workers as the tasks available to beginners change. The relevant outcome is a viable route from initial employment to independent competence.

Payrolled employment by age and sector

Information and communication. Dec 2022 = 100. Full monthly history, July 2014 to December 2025.



Age	Jobs, Dec 2025	Dec 2025 vs Dec 2022
● 18–24	85,300	–30.0%
● 25–34	377,000	–10.2%
● 35–49	506,700	–2.8%
● 50–64	274,800	+0.1%
● 65+	26,300	+11.9%

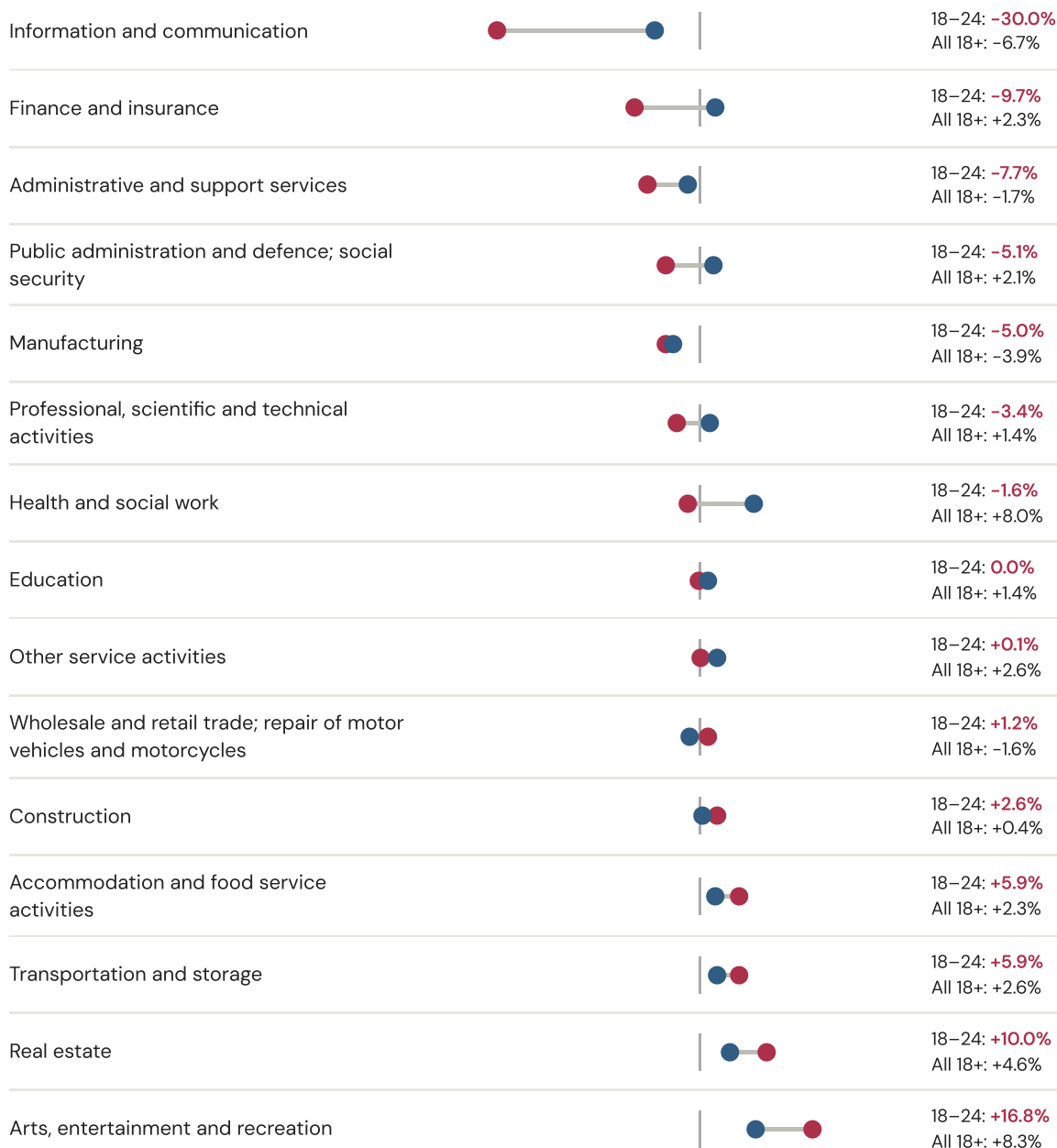
Source: HMRC. Monthly figures are not seasonally adjusted. The launch marker provides chronological context; it does not identify a causal effect. Colours and line patterns distinguish age groups; the table gives exact published counts after aggregation.

Sector employment changes by age

Change from Dec 2022 to December 2025

• **Workers aged 18–24** • **All workers aged 18+**

Shared scale: –40% to +30%. Vertical marks show zero change.



Fifteen sectors, ordered by the change for young workers. Agriculture, mining, energy and water are omitted here but available in the interactive online report. The mixed households, extraterritorial and unknown category is also excluded from this comparison because it includes employers with no assigned industry. All adults includes the 18–24 group.

Data, sources and calculation notes

HMRC, July 2014 to December 2025 release, updated 22 May 2026. [Download original ODS workbook](#). [Chart observations \(CSV\)](#).

Use Nationality = Total only; sum Female and Male for each month, sector and age. Exclude Under 18. Index = monthly count ÷ baseline count × 100. Percentage change = final count ÷ baseline count × 100 – 100. Suppressed cells remain missing and break chart lines. Totals are sums of the five adult age bands and are unavailable if any component is suppressed.

Employers' current industry classifications apply across the historical series. These are jobs, not unique people, job vacancies or measured AI exposure. December-to-December comparisons avoid comparing different seasonal months. The table shows December 2025 counts and changes from December 2022. Figures end in December 2025, not today.

Source: HM Revenue & Customs. Contains public sector information licensed under the [Open Government Licence v3.0](#).

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Independent analysis. The findings and policy proposals are the author's and do not imply endorsement by the organisations cited. Payroll data covers July 2014 to December 2025; source release updated 22 May 2026. Calculations and interpretation may change as data is revised.