

Skills or Degree? The Rise of Skill-Based Hiring for AI and Green Jobs

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Executive Summary

This study investigates whether employers in emerging sectors — specifically Artificial Intelligence (AI) and sustainability (green jobs) — are shifting recruitment criteria away from formal qualifications toward demonstrable skills. Authored by Fabian Stephany and submitted to arXiv in December 2023 (revised November 2024), the research draws on approximately eleven million online job vacancies in the UK spanning 2018 to mid-2024. The authors argue that labour shortages in AI and green roles are driving a structural shift toward skill-based hiring. Key findings indicate that AI role postings grew by 21% as a proportion of all job postings from 2018 to 2023, while university degree requirements for those roles declined by 15% over the same period. Regression analysis reveals that AI skills carry a wage premium of 23%, surpassing the value of university degrees at all levels below PhD (which commands 33%). For green roles, degree wage premiums are similarly diminished. The authors conclude that alternative credentialing pathways — including apprenticeships, MOOCs, vocational training, micro-certificates, and bootcamps — represent viable mechanisms for expanding the talent pool in high-demand emerging occupations.

Key Insights

1. AI job postings grew by 21% as a proportion of all UK online vacancies from 2018 to 2023, with acceleration observed into 2024, signalling sustained and rising employer demand.
2. University degree requirements in AI job postings declined by 15% between 2018 and 2023, providing quantitative evidence of a shift away from formal qualification-based screening in this sector.
3. AI skills command a wage premium of 23%, exceeding the return on university degrees at all levels below PhD (33%), suggesting that skill signals are increasingly valued over credential signals in AI labour markets.

Practical Takeaways

- Organisations hiring for AI and green roles are increasingly deprioritising degree requirements as a screening criterion, with observable implications for how job postings are structured and talent pools are defined.
- Alternative credentialing formats such as MOOCs, micro-certificates, apprenticeships, and bootcamps are identified in the research as mechanisms for addressing documented talent shortages in AI and sustainability roles.

Critical Analysis

Strengths: The study's primary strength is its large-scale empirical dataset — approximately 11 million UK job vacancies over six years — which provides a robust longitudinal foundation for trend analysis. The use of regression analysis to isolate wage premiums adds methodological rigour. The dual focus on AI and green jobs is timely and addresses a genuine gap in labour economics literature. **Limitations:** The dataset is restricted to the United Kingdom, limiting the generalisability of findings to other labour markets with different educational systems, hiring norms, or regulatory frameworks. The reliance on online job postings introduces selection bias, as not all vacancies are advertised online and posting language may not accurately reflect actual hiring decisions. The study measures stated requirements in job ads rather than actual hiring outcomes, which is a significant methodological constraint. Additionally, the paper is a preprint hosted on arXiv and has not undergone formal peer review as of the available submission history, which warrants caution in treating findings as settled. The recommendation for alternative credentialing pathways, while grounded in the findings, edges toward prescriptive conclusions that go beyond what the observational data strictly supports.

Organizational Practice

The article describes employer practices of revising job posting criteria for AI and green roles, specifically reducing stated university degree requirements while increasingly emphasising specific technical skills. This practice — referred to as skill-based hiring — involves broadening the talent pool by accepting alternative credentials such as vocational qualifications, MOOCs, bootcamp certificates, and on-the-job training in lieu of traditional degree requirements.

Strategic Implications

The findings point toward a structural decoupling of formal educational credentials from hiring eligibility in high-growth technical fields, particularly AI. If this trend extends beyond the UK, organisations may face pressure to redesign job architecture and compensation frameworks that have historically been anchored to degree attainment. The observed wage premium for AI skills over degrees (below PhD level) suggests that skills-based classification systems may become more relevant to compensation benchmarking. The parallel trend in green jobs implies that sustainability-related roles may follow a similar credentialing trajectory, with implications for workforce planning in sectors undergoing rapid regulatory and technological change.

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