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Mapping Inclusive Pathways into STEM Careers

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Objectives

This study examines when and how inequalities emerge in transitions from education to STEM employment. By tracking educational and early career pathways, it identifies barriers for underrepresented groups and assesses the role of employers in fostering inclusive STEM workplaces. The findings aim to inform targeted interventions for equitable STEM career access.

Methods

This study uses de-identified data from the Longitudinal Educational Outcomes (LEO) dataset to map individual pathways from school to STEM employment, focusing on labour market outcomes at age 30. It employs statistical modelling to track disparities in STEM participation by gender, socioeconomic background, and ethnicity, identifying where inequalities emerge—whether in school performance, post-16 education choices, university progression, or labour market entry. A key focus is the role of employers in STEM inclusion, assessed through firm-level workforce recruitment, retention and pay progression. The study explores how early-career employment shifts STEM workforce composition and how important firm differences are in building and maintaining a diverse STEM workforce.

Results

Inequalities emerge at distinct points in the school-to-work transition for different groups. For young people from socioeconomically disadvantaged backgrounds, lower chances of employment in STEM industries by age 30 are explained mainly by lower school performance at age 16. In contrast, for young women, school attainment and post-16 education choices explain little of the gender gap in STEM employment, indicating that labour market factors play a more significant role. Preliminary analysis suggests that employers may be key gatekeepers, with differential hiring and progression patterns across firm, highlighting the need for employer-driven inclusion strategies.

Conclusions

Educational attainment alone does not fully account for STEM career inequalities. Socioeconomic disparities emerge early, while gender gaps in STEM employment are shaped by decisions in early career. Employers may play a critical role in shaping inclusive STEM careers, underscoring the need for policies that address inclusive recruitment and career progression in STEM fields.

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