

IMPACT ASSESSMENT OF STEM INITIATIVES IN WIDENING PARTICIPATION

Pallavi Amitava Banerjee

School of Education, Durham University, Durham, UK

The augmenting demand for highly skilled Science, Technology, Engineering and Mathematics (STEM) graduates has led to the evolution of numerous initiatives to enthuse young learners to participate in STEM subjects. Significant investments in human capital have steered an increased participation in higher education during the last thirty years in United Kingdom. However, it could be argued that, this knowledge economy might create greater social and economic polarisation, between those in relatively well paid, secure knowledge related occupations and those in lower skill jobs. One way of dampening this anticipated polarity could be by motivating students from deprived backgrounds to participate in STEM education.

It would thus be interesting to see how effective have the policies been in increasing participation of students from lower socio-economic classes. This research is an attempt to answer the research questions:

- 1. What is the impact of STEM initiatives in widening participation of students from lower socio-economic backgrounds in terms of educational attainment?
- 2. Do equally qualified students from different socio-economic backgrounds follow similar learning trajectories after being exposed to similar STEM Initiatives?
- 3. Can STEM Initiatives outweigh barriers to participation?

English secondary and middle deemed secondary schools following the National Curriculum exposed to some chosen STEM activities from 2008-2013 constituted the sample. Within this sample, secondary schools with a high percentage of pupils eligible for free school meals (fsm) as reflected in the National Pupil Database, constituted the intervention group. Whilst, secondary schools with a low percentage of fsm eligible pupils participating in STEM enrichment activities formed the comparator group. Students from disadvantaged backgrounds have been typically shown to perform not so well academically. GCSE performances and continued participation in STEM subjects of both groups were analysed and compared with the national average. The study suggests participation has been slowly and steadily widening for decades. Research findings from secondary data analysis and experimental phase will be discussed.

Building on outcome evaluation, this empirical research focusses on STEM initiatives with similar goals and looks for their long term effects spanning educational attainment and participation. It can be envisaged that key findings and recommendations obtained from the study, upon implementation will assist the Government to evaluate initiatives wanting to reverse current STEM trends and achieve its 'Science and Innovation Investment Framework' targets.

*Email address for correspondence p.a.banerjee@durham.ac.uk