

International Journal of Population Data Science

Journal Website: www.ijpds.org



A-Level Science Choices in Wales: Patterns, Predictors and Possibilities

Sophie Bartlett¹, Robert French¹, Lowri O'Donovan¹, Katy Huxley¹, and Tony Whiffen²

¹Cardiff University, Cardiff, United Kingdom

²Welsh Government, Cardiff, United Kingdom

Objective

This study replicates, updates, and extends a 2014 study in England to examine factors influencing A-level science participation in Wales. It explores pupil-, school-, and regional-level factors, comparing participation in science and non-science courses, and analyses how these associations evolve over time and across national contexts.

of post-16 science courses in Wales remains poor. Using administrative data to identify predictors of science uptake will inform where interventions are best targeted to promote life chances and career prospects across all pupils in Wales.

Methods

We employ a multi-level modelling approach on education administrative datasets in the SAIL Databank to identify predictors of science uptake at Key Stage (KS) 5. As per the method in Homer et al. (2014), we explore uptake of science and non-science courses according to science attainment at KS4, gender, socioeconomic status, and KS4 science pathway. We also expand the model to explore additional factors: ethnicity, special educational needs status (pupil-level), Welsh- versus English-medium schools (school-level), and urban versus rural and local authorities (regional-level). A two-level random intercepts logistic regression model is computed to account for hierarchical structure of pupil data.

Results

Findings present more recent patterns of participation in post-16 science, and compare patterns and predictors within Wales and England education systems. Expansion of the model to explore additional factors also fills the gap in research on the role of local geography and school medium on science uptake, thus furthering understanding of the role of school- and regional-level factors in pupils' subject choice. Results demonstrate circumstances that both maximise and threaten the likelihood of post-16 science uptake in Wales, thus informing areas for attention and intervention.

Conclusion

As scientific advancement accelerates, science literacy is increasingly necessitated across all vocations. However, pursuit



Temporary page!

\LaTeX was unable to guess the total number of pages correctly. As there was some unprocessed data that should have been added to the final page this extra page has been added to receive it.

If you rerun the document (without altering it) this surplus page will go away, because \LaTeX now knows how many pages to expect for this document.