

SOCIAL INEQUALITIES IN EDUCATION: CHOICES OF STEM SUBJECT IN SCOTLAND

Using PISA and SQA Data to investigate the influence of pupils’ social class and academic performance on STEM subject choices



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AFFILIATIONS

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01. MOTIVATION

Differentiated curricula and educational tracks have been associated with greater inequality.

Increasing participation of disadvantaged groups in Science, Technology, Engineering, and Mathematics (STEM) field has become a key priority.

The importance of post-compulsory educational choices: Certain STEM-related degrees require qualifications in certain subjects.

02. RESEARCH QUESTIONS

- 1) Socioeconomic gaps in choices and attainment at National 5 and Higher between service class I and working class pupils?
- 2) The role of academic performance in explaining socioeconomic gaps?

Important definitions

Service class I: professionals, large enterprise employers, higher managers
Working class: skilled workers, unskilled workers, farm labours

STEM subjects: Mathematics, Physics, Biology, Chemistry

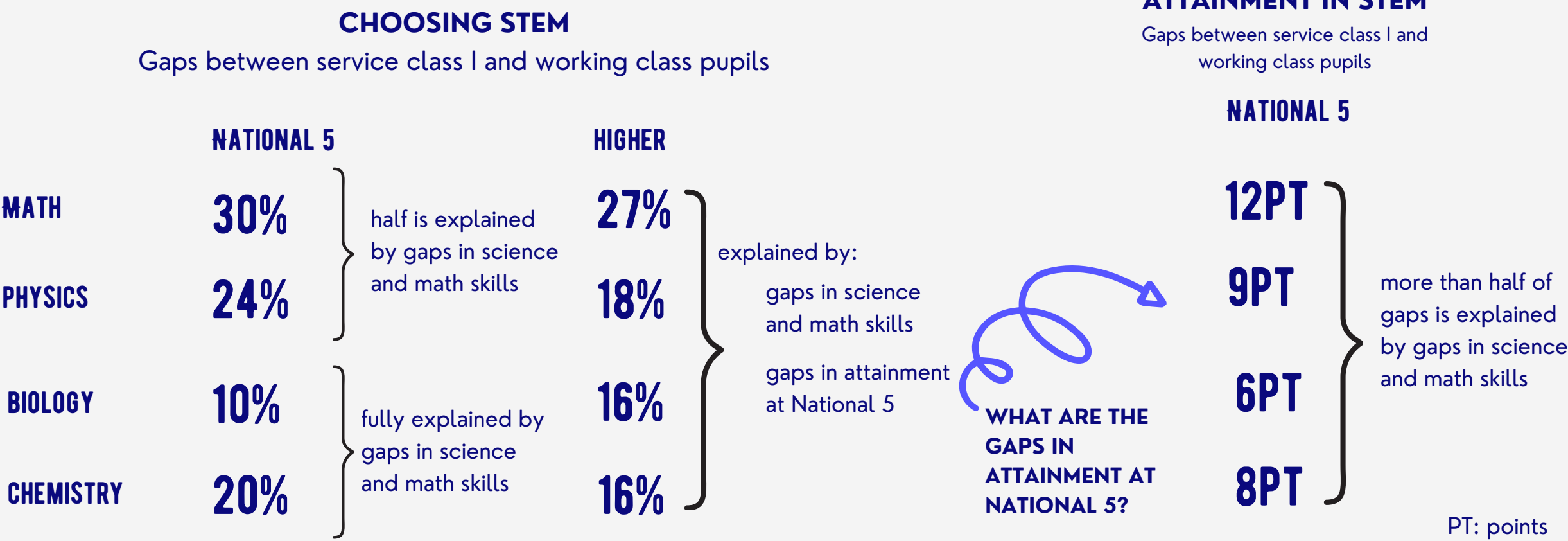
National 5: the first nationally assessed post-compulsory qualifications
Higher: qualifications that pupils can take after their National 5

03. DATA & METHODS

DATA: A linkage of TWO datasets
Dataset 1: Programme for International Student Assessment (PISA) 2015
Dataset 2: Scottish Qualifications Authority (SQA) examination records 2014 - 2018

METHODS
Choices of S/M subjects are modelled using multilevel logistic
Attainment in S/M subjects is modelled using mixed models (random effects)

04. PRELIMINARY FINDINGS



05. PRELIMINARY TAKEAWAYS

- 1) Service class I pupils are more likely to choose STEM subjects at National 5 and Higher; size of gaps and explanatory factors varied within STEM subjects.
- 2) There is a lingering effect of being service class I pupils on choices and attainment in Mathematics and Physics.
- 3) Attainment at National 5 plays a big role in explaining social class gaps in choices and attainment in S/M subjects at Higher.
- 4) Improving science skills among less advantaged pupils, e.g., knowledge of science, scientific enquiry, data and evidence interpretations, would contribute to narrowing down social class gaps in STEM.

IMPORTANT!
Preliminary findings. Take with caution.