

The role of education systems in reproducing social inequalities in educational achievement – Evidence from Scotland

Cristina Iannelli & Markus Klein
University of Edinburgh

Effe symposium: Improving social equity through education, 4-5
May 2015, Edinburgh



Macro-level sociological approaches

- Countries differ in the degrees of inequality in educational opportunities (IEO) (*Blossfeld & Shavit 1993; Erikson & Jonsson 1996; Breen et al. 2009; Pfeffer 2008*)
- Cross-country variation associated with institutional features of education systems
 - Extent and timing of early school tracking (*Brunello & Checchi 2007; Hanushek & Wößmann 2006; Horn 2009, 2013; van Elk et al. 2011*)
 - Curriculum differentiation (*Ayalon 2006; Ayalon & Gamoran 2000; Iannelli 2013*)
 - Forms of student assessment (*Bol et al. 2014; Horn 2009; Muller & Schiller 2000*)
- Allmendinger's (1989) stratification-standardisation framework
 - Stratification: degree and design of tracking at secondary level
 - Standardisation: extent of nationwide educational standards
 - The more standardised and less stratified the system the less pronounced IEO (*Van de Werfhorst & Mijs 2010*)

Micro-level sociological approaches

- Social inequalities in educational attainment influenced by two factors (*Boudon, 1974*):
 - school performance differences
 - Socio-cultural and economic resources dependent on individual's family of origin
 - differences in educational choices
 - Benefits, costs and success probabilities dependent on individual's family of origin (*Breen & Goldthorpe 1997; Erikson & Jonsson 1996*)
 - Cross-country study on both factors (*Jackson 2013*)
 - Extent of social inequalities in school performance similar across countries
 - IEO larger in countries with strong social inequalities in educational choices
- Choice-based systems produce larger social inequalities in educational attainment

The Scottish education system

- Comprehensive school until the age of 16 (until S4)
- Post-compulsory schooling in S5/S6
- Curriculum characteristics in secondary education
 - Flexible choice of subjects: no compulsory subjects (exception: English and Maths in S3/S4) and no statutory number of subjects in the final years of secondary school
 - Subjects taken at different levels of difficulty
 - Subject choice in S3/S4 no statutory requirement for S5/S6
- Lack of standardised certification system
- HE entry process
 - Universities (disciplines) decide on HE applicants
 - Admission based on subjects and grades in subjects chosen (mostly in prestigious universities)
- Lack of standardised HE admission criteria

Social origin and subject choice

- Flexible choice of subjects
 - Students from lower social origin less confident in choosing a larger number and more demanding subjects
 - Students from higher social origin with stronger interest in academic subjects → socio-cultural environment (social networks and cultural taste)
 - HE admission based on subjects: eight subjects (English, languages, maths, history, physics, chemistry, biology and geography) ‘facilitate’ access to Russell Group universities (*Russell Group Dossier, 2011*)
 - Students from higher social origin have stronger incentives to choose ‘facilitating’ subjects since they need to go to university in order to achieve the same social status as their parents
 - Students (parents) from lower social origin are less familiar with the education system and the requirements to gain access to university
- Students from higher social origin choose more often subjects that lead to HE and more prestigious universities

AQMeN research (I)

Research question 1:

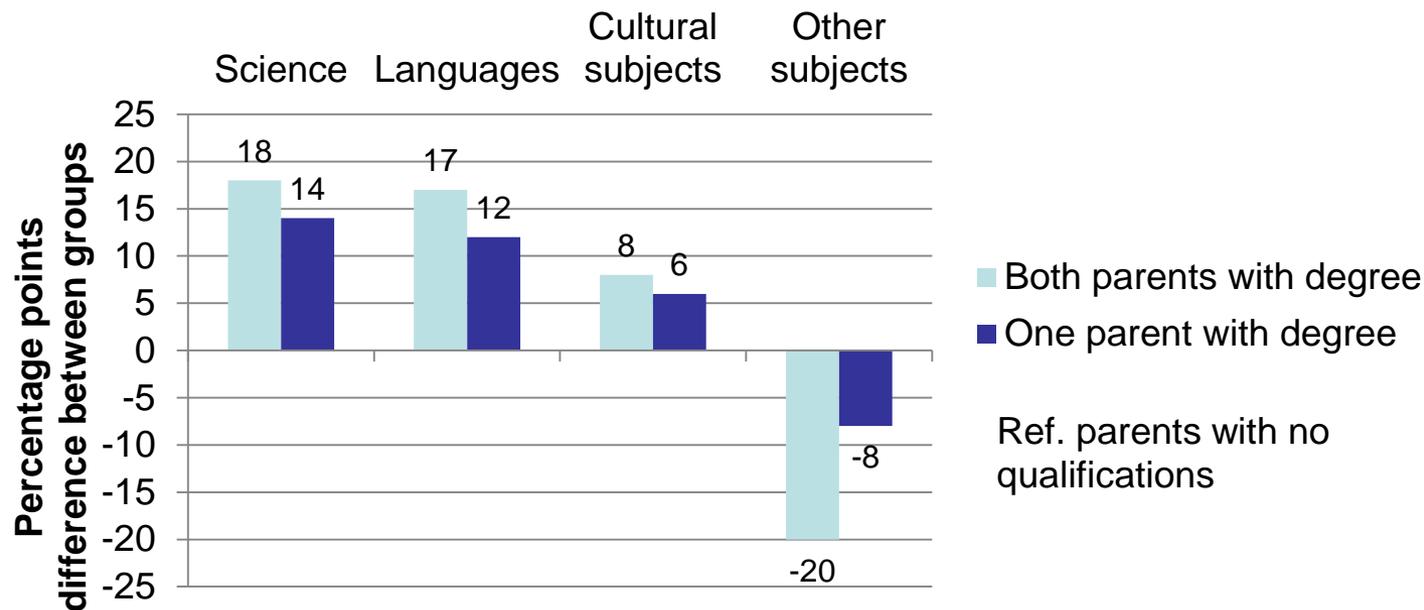
Are subject choices in lower (S3/S4) and upper (S5/S6) secondary education dependent on social origin?

Data: Scottish Longitudinal Study (SLS)

- Large-scale, anonymised linked study using data from current Scottish administrative and statistical sources (Census data 2001, school education data, 2007-2010)

Evidence

Figure 1: Percentage point differences in the probability of choosing subjects in lower secondary education (S3/S4) between students with both (one) parent(s) with a degree and students with parents with no qualifications



Source: Scottish Longitudinal Study (SLS), own calculations.

→ Social divide between ‘facilitating subjects’ (science, languages, cultural) and ‘non-facilitating subjects’ (other: technical, business, vocational)

Research question 2:

To what extent are social inequalities in subject choices in S5/S6 explained by subject choices in S3/S4?

Data: Scottish Longitudinal Study (SLS)

Evidence:

- Social inequalities in subject choices in S3/S4 are reproduced in S5/S6; large inequalities in English and Maths (compulsory in S3/S4)
- Social inequalities in subject choices in S5/S6 strongly explained by subject choices in S3/S4 → previous subject choice stronger mediator than previous attainment

Research question 3:

- *Do subject choices in upper secondary education (S5/S6) explain social inequalities in HE entry in Scotland? If so, do subject choices in upper secondary education play a stronger role for social inequalities in HE entry in a less standardised education system than in a more standardised system?*
- Comparison of Scotland and Ireland which are distinct in terms of curriculum differentiation and HE entry requirements

Data:

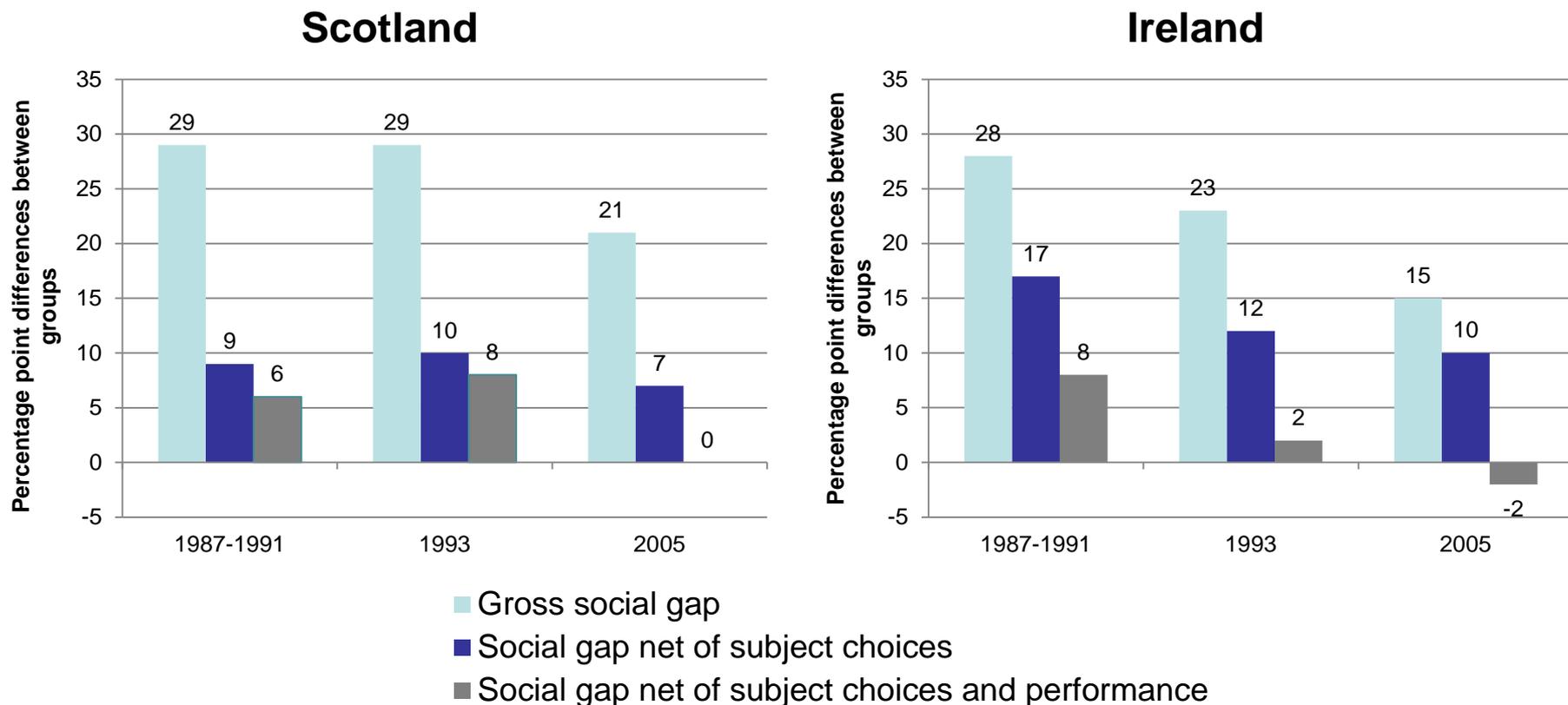
Scottish and Irish School Leaver Surveys: 1987-2005

Table 2: Education system characteristics in Scotland and Ireland

Scotland	Ireland
Upper secondary curriculum	
No compulsory subjects	Irish, English and Maths compulsory
No restriction in terms of numbers (average five)	Six to eight subjects (usually seven)
HE admission process	
Institutions (disciplines) decide on HE applicants (via UCAS)	Centralised nationally
Admission based on subjects and grades (mostly in prestigious universities)	Admission based on GPA in best six subjects

Evidence

Figure 2: Percentage point differences in the probability of HE entry between students from upper-middle and working class background



Source: Scottish and Irish School-leaver surveys, own calculations

Summary

- 1) Strong social inequalities in subject choices in lower secondary education (S3/S4) in Scotland
- 2) Social inequalities in subject choices in upper secondary education (S5/S6) are largely explained by early subject choices (S3/S4) in Scotland
- 3) Social inequalities in HE entry are more strongly explained by subject choices in upper secondary education (S5/S6) in Scotland than in Ireland; Attainment matters more in Ireland than in Scotland

Conclusions

- Early secondary subject choices are a channel towards or away from higher education in Scotland
- A low level of standardisation in terms of school curriculum and HE admission criteria contributes to social inequalities in HE entry in Scotland

Policy implication:

- Education policies should not overlook the importance of educational choices for improving educational attainment
- In Scotland, providing clear information and support in curriculum decisions in secondary school is crucial for reducing social inequalities
 - Stress the long-term consequences of subject choices for HE entry and life course outcomes

References

- Allmendinger, J. (1989) Educational Systems and Labor Market Outcomes, *European Sociological Review*, 5(3), 231-250.
- Ayalon, H. (2006) Nonhierarchical Curriculum Differentiation and Inequality in Achievement: A Different Story of More of the Same?, *Teachers College Record*, 108(6), 1186-1213.
- Ayalon, H. & Gamoran, A. (2000) Stratification in Academic Secondary Programs and Educational Inequality in Israel and the United States, *Comparative Education Review*, 44(1), 54-80.
- Blossfeld, H.-P. & Shavit, Y. (1993) *Persistent Inequality. Changing Educational Attainment in Thirteen Countries* (Boulder, Colorado, Westview Press).
- Bol, T., Witschge, J., Van de Werfhorst, H. G. & Dronkers, J. (2014) Curricular Tracking and Central Examinations: Counterbalancing the Impact of Social Background on Student Achievement in 36 Countries, *Social Forces*, 94(4), 1545-1572.
- Boudon, R. (1974) *Education, Opportunity, and Social Inequality: Changing Prospects in Western Society* (New York: Wiley).
- Breen, R. & Goldthorpe, J. H. (1997) Explaining Educational Differentials: Towards a Formal Rational Action Theory, *Rationality and Society*, 9(3), 275-305.
- Breen, R., Luijckx, R., Müller, W. & Pollak, R. (2009) Nonpersistent Inequality in Educational Attainment: Evidence from Eight European Countries, *American Journal of Sociology*, 114(5), 1475-1521.
- Brunello, G. & Checchi, D. (2007) Does School Tracking Affect Equality of Opportunity? New International Evidence, *Economic Policy*, 22(52), 781-861.
- Erikson, R. & Jonsson, J. O. (1996) *Can Education Be Equalized? The Swedish Case in Comparative Perspective* (Boulder, Colorado, Westview Press).
- Hanushek, E. A. & Wößmann, L. (2006) Does Educational Tracking Affect Performance and Inequality? Differences-in-Differences Evidence Across Countries, *The Economic Journal*, 116(March), C63-C76.
- Horn, D. (2009) Age of Selection Counts: A Cross-country Analysis of Educational Institutions, *Educational Research and Evaluation: An International Journal on Theory and Practice*, 15(4), 343-366.
- Iannelli, C. (2013) The Role of School Curriculum in Social Mobility, *British Journal of Sociology of Education*, 34(5/6), 907-928.
- Jackson, M. (2013) *Determined to Succeed? Performance versus Choice in Educational Attainment* (Stanford: Stanford University Press).
- Muller, C. & Schiller, K. S. (2000). Leveling the Playing Field? Students' Educational Attainment and States' Performance Testing, *Sociology of Education*, 73, 196-218.
- Pfeffer, F. T. (2008) Persistent Inequality in Educational Attainment and its Institutional Context, *European Sociological Review*, 1-23.
- Russell Group. (2011). Informed Choices, <http://www.russellgroup.ac.uk/informed-choices>
- van de Werfhorst, H. G. & Mijs, J. J. B. (2010) Achievement Inequality and the Institutional Structure of Educational Systems: A Comparative Perspective, *Annual Review of Sociology*, 36, 407-428.
- van Elk, R., van der Steeg, M., & Webbink, D. (2011) Does the Timing of Tracking Affect Higher Education Completion?, *Economics of Education Review*, 30, 1009-1021.

Disclaimer

The help provided by staff of the Longitudinal Studies Centre – Scotland (LSCS) is acknowledged.

The LSCS is supported by the ESRC/JISC, the Scottish Funding Council, the Chief Scientist's Office and the Scottish Government. The authors alone are responsible for the interpretation of the data. Census output is Crown copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

For more information on the SLS, please visit:

<http://sls.lscs.ac.uk>