HE participation and outcomes: differences by SES and secondary school characteristics

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Motivation

• Education a key driver of social mobility, yet large socio-economic gaps remain in HE participation and degree outcomes

• Much work to “widen” participation focuses on those sitting A-levels; but previous work suggests earlier attainment is important

• Key questions of interest:
  – When is the most productive period to intervene to improve HE participation amongst those from disadvantaged backgrounds?
  – What role can and do schools play in shaping HE participation decisions and subsequent performance? Can think of two routes:
    • Indirect: via attainment
    • Direct: e.g. via careers advice, application assistance, non-cognitive skills, etc
Plan for today

• Document differences in HE participation and outcomes on the basis of socio-economic status and secondary school performance
• Explore the extent to which these differences can be explained by:
  • Selection into schools (background characteristics and KS2 results)
  • Differential performance at Key Stage 4
  • Differential performance at Key Stage 5
  • For degree outcomes: university attended and subject studied
Data

• Linked NPD-ILR-HESA data
• National Pupil Database (NPD)
  – Census of pupils taking GCSEs in England: 2001-02 to 2007-08 here
  – Key Stage test results at ages 11, 16 and 18 for those who sat them
  – Key Stage 4 school identifiers for all pupils
  – Plus limited background characteristics for state school pupils
    • e.g. gender, ethnicity, FSM eligibility, local area characteristics based on home postcode
• NISVQ and ILR data
  – Census of those taking qualifications in FE colleges; but only limited info
• Higher Education Statistics Agency (HESA) data
  – Census of students attending UK universities: 2004-05 to 2011-12 here
  – Includes information on institution attended, qualification and subject studied, and qualification outcomes, e.g. completion and degree class
Data

Linked NPD-ILR-HESA data enables us to:

• Follow the population of secondary school pupils in England from age 11 through to potential HE participation at age 18 or 19
• Follow the population of UK university participants who went to school in England from HE entry to degree completion

Compared to HESA data alone it gives us:

• Richer information about earlier measures of attainment, enabling us to investigate the “critical periods” for potential intervention
• e.g. at Key Stage 4:
  – Grades in English and Maths
  – No. of GCSEs in EBacc and other subjects at particular grades
  – Summary measures of overall performance (including equivalents)
Key covariates of interest

- **Socio-economic status**
  - Combine FSM eligibility at age 16 with measures of local area deprivation based on pupils’ home postcode at age 16
  - Split state school population into quintile groups based on this index
  - Add private school students to top quintile group

- **School performance:**
  - % of pupils in school achieving at least 5 A*-C grades at GCSE
  - Pupils split into quintile groups on the basis of this measure
  - Accompanying report also considers school type, school value-added, whether school has a sixth form and % of pupils eligible for FSM
HE participation
Outcomes: HE participation

- Participation at any UK university for the first time at age 18 or 19
- Participation at a “high status” institution, where high status is:
  - Russell Group institutions (20 in total pre-2012)
  - Plus any UK university with a 2001 average RAE score higher than the lowest amongst the Russell Group (an extra 21 institutions)

- Focus on cohorts first eligible to participate 2004-05 to 2010-11
  - 34.7% participated for the first time at age 18 or 19
  - 12.0% attended a high status institution (34.7% of participants)
HE participation: differences by socio-economic status
HE participation overall and at high status institutions for state school pupils first eligible to go in 2010-11, by SES

% pupils going to university at age 18/19: highest SES quintile group including state school pupils only

- Lowest SES quintile group
  - HE participation overall: 19%
  - HE participation at a high status institution: 2.9%

- 2nd quintile group
  - HE participation overall: 26%
  - HE participation at a high status institution: 4.8%

- 3rd quintile group
  - HE participation overall: 34%
  - HE participation at a high status institution: 7.7%

- 4th quintile group
  - HE participation overall: 43%
  - HE participation at a high status institution: 12.2%

- Highest SES quintile group
  - HE participation overall: 56%
  - HE participation at a high status institution: 21.5%

Difference (highest - lowest): 36.8 ppts

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Source: authors’ calculations based on linked schools and universities administrative data for the cohort first eligible to start university in 2010-11 (who sat their GCSEs in 2007-08)
HE participation overall and at high status institutions for all pupils first eligible to go in 2010-11, by SES

% pupils going to university at age 18/19: highest SES quintile group including state and private school pupils

Source: authors’ calculations based on linked schools and universities administrative data for the cohort first eligible to start university in 2010-11 (who sat their GCSEs in 2007-08)
What explains differences in HE participation between pupils from most and least deprived backgrounds?

Source: authors’ calculations based on linked schools and universities administrative data for the cohort first eligible to start university in 2010-11 (who sat their GCSEs in 2007-08)

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HE participation: differences by school performance
HE participation at age 18/19, by school performance

Source: authors’ calculations based on linked schools and universities administrative data for the cohorts first eligible to start university between 2004-05 and 2010-11 (who sat their GCSEs between 2001-02 and 2007-08 respectively)
What explains differences in HE participation between pupils attending highest and lowest performing schools?

![Bar chart showing percentage point differences in HE participation overall and at high status institutions](chart)

- **Raw (accounting for cohort):** 46.6ppts
- **Plus individual characteristics and Key Stage 2 results:** 24.3ppts
- **Plus Key Stage 4 and equivalent results:** 20.5ppts
- **Plus Key Stage 5 and equivalent results:** -0.4ppts

**Source:** Authors' calculations based on linked schools and universities administrative data for the cohorts first eligible to start university between 2004-05 and 2010-11 (who sat their GCSEs between 2001-02 and 2007-08 respectively)
Summary

• Large differences in HE participation overall and at high status institutions on the basis of SES and school performance
  – Interestingly slightly larger by school performance
• But these gaps can largely be explained by differences in prior attainment between pupils from different backgrounds and schools
  – Especially participation at high status institutions
• Particularly emphasise the substantial explanatory power of KS4
  – Gaps by SES much reduced and by school performance virtually eliminated
  – Addition of Key Stage 5 controls adds little to this picture
• Suggests that, to the extent that schools affect their pupils’ chances of going to university, it comes mainly via increasing KS4 attainment
• Further suggests that secondary school is a potentially vital period for interventions to “widen” participation in HE
Drop-out, degree completion and degree class
Outcomes: drop-out

• Drop-out in first or second year:
  – Defined only for those who went to university at age 18 or 19
  – Focus on those who leave the sector completely; anyone who transfers to another university is included in the zeroes

• Need to be able to observe three years of data to define measure
  – Means focus on those first eligible to go 2004-05 to 2008-09

• 11.5% drop-out on our measure

• Slightly lower (9.7%) if we focus on full-time first degree entrants
Outcomes: degree completion and degree class

- For both outcomes, focus on those completing within 5 years
  - Means need to be able to observe 5 years of data to define measure
  - Hence focus on those first eligible to go in 2004-05 to 2006-07

- Degree completion:
  - Defined for those who went to university at age 18 or 19 to study full-time for a first degree in a non-medical subject
  - 78.2% complete their degree within 5 years on our definition

- Graduate with a 1st or a 2:1:
  - Sample as above but additionally restricted to those who complete their degree within 5 years
  - 64.6% of degree completers graduate with a 1st or a 2:1 on our definition
HE outcomes, by quintile of school performance

- Dropout within 2 years
- Complete degree within 5 years
- Graduate with a first or 2:1

Source: authors’ calculations based on linked NPD-HESA data for the cohorts first eligible to start university between 2004-05 and 2008-09 for drop-out, and between 2004-05 and 2006-07 for degree completion and degree class
What explains differences in HE participation between pupils attending highest and lowest performing schools?

Source: authors’ calculations based on linked NPD-HESA data for the cohorts first eligible to start university between 2004-05 and 2008-09 for drop-out, and between 2004-05 and 2006-07 for degree completion and degree class.
Summary

• Differences in HE outcomes smaller, on average, than participation, and in expected direction (but amongst selected sample)

• Relationships reverse once we account for attainment at KS4
  – Pupils from high-performing schools more likely to drop out, less likely to complete degree and less likely to get first or 2:1 than pupils with similar characteristics and attainment from low-performing schools

• Cannot be certain what drives it, but suggests that pupils from low performing schools with the same attainment as those from high performing schools have, on average, higher “potential”
  – May be something universities want to account for in making entry offers
  – There is some evidence consistent with differential offers by SES
    • Those from the most deprived backgrounds who make it to high status institutions have lower attainment, on average, than those from less deprived backgrounds
Relevant published work


• Crawford, C. (2012), *Socio-economic gaps in HE participation: how have they changed over time?*, IFS Briefing Note BN133.
