SES gaps in HE participation: what drives them and how have they changed over time?

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Motivation: rising socio-economic inequalities in HE participation and degree acquisition over time

Difference in HE participation/degree acquisition rates between those in the top and bottom income quintile groups

- HE participation at age 19
- Degree acquisition by age 23

Motivation: what has happened since then?

- Fees and student support arrangements have changed dramatically
  - 1998: upfront tuition fees of around £1,000 are introduced
    - No fee loans
  - 2006-07: deferred fees of up to £3,000 can now be charged
    - Though no longer payable upfront, and accompanied by a 0% real interest rate fee loan, repayable only above an income threshold and written off after a period of time
  - 2012-13: deferred fee cap raised to £9,000
    - Still repaid after graduation (above a higher threshold), but with a positive real interest rate while studying and for the richest graduates, and written off after a longer period
- SES differences in some measures of attainment have been falling
SES gap in terms of % getting 5 A*-C grades in GCSEs and equivalents has fallen substantially.

% pupils getting 5 A*-C grades in GCSEs and equivalents

2010-2012 figures based on SFR 04/2013: GCSE and Equivalent Attainment by Pupil Characteristics in England.
2004-2005 figures based on authors’ calculations using Key Stage 4 and PLASC data.
Motivation: what does this mean for SES gaps in HE participation over recent past and in future?

• Changes to student finance:
  – Concerns that prospect of high fees/debt levels would create a barrier to participation for poorer students and hence increase SES gaps

• Prior attainment:
  – Given key role in driving HE participation, poorer students “catching up” with their better off peers may decrease SES gaps

• Empirical question . . .
Plan for today

• Document socio-economic differences in participation overall and at high status institutions, and how these have changed over time

• Explore the extent to which these gaps can be explained by differences in other characteristics, especially prior attainment
  – Has the explanatory power of these factors changed over time?

• What might this mean for future SES gaps in HE participation?
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
  – Limited background characteristics for those in state schools
    • e.g. gender, ethnicity, FSM eligibility, home postcode

• Higher Education Statistics Agency (HESA) data
  – Census of students attending UK universities: 2004-05 to 2011-12 here

• Linked NPD-HESA data:
  – Enables us to follow these cohorts of individuals from the end of primary school through to potential HE participation at age 18 or 19
  – Focus on state school pupils because of problems linking private school pupils to HESA data in 2004-05; crucial for looking at changes over time
    • Other work suggests omitting private school pupils won’t unduly bias our results
Outcomes

• Participation at any UK HE institution 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)

• Amongst the cohort first eligible to go to university in 2010-11:
  – 35.5% of state school pupils participated at age 18 or 19
  – 9.8% attended a high status institution (27.6% of participants)
Measure of socio-economic status

- Combine FSM eligibility at age 16 with measures of local area deprivation based on pupils’ home postcode at age 16 using PCA
  - Index of Multiple Deprivation score (SOA level; approx. 700 HHs)
  - ACORN group (postcode level; approx. 15 HHs)
  - % of population from 2001 census (OA level; approx. 150 HHs):
    - Who work in higher or lower managerial/professional occupations
    - Whose highest educational qualification is NQF Level 3 or above
    - Who own (either outright or through a mortgage) their home

- Split state school population into quintile groups based on this index
HE participation in 2004-05 and 2010-11, by SES

% pupils going to university at age 18/19

<table>
<thead>
<tr>
<th>SES quintile group</th>
<th>2004-05</th>
<th>2010-11</th>
<th>Difference (highest - lowest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest SES quintile group</td>
<td>12%</td>
<td>19%</td>
<td>39.9ppts</td>
</tr>
<tr>
<td>2nd</td>
<td>19%</td>
<td>26%</td>
<td>7.1ppts</td>
</tr>
<tr>
<td>3rd</td>
<td>28%</td>
<td>34%</td>
<td>6.2ppts</td>
</tr>
<tr>
<td>4th</td>
<td>37%</td>
<td>43%</td>
<td>6.3ppts</td>
</tr>
<tr>
<td>Highest SES quintile group</td>
<td>52%</td>
<td>56%</td>
<td>4ppts</td>
</tr>
</tbody>
</table>

Source: authors’ calculations based on linked schools and universities administrative data for the cohorts first eligible to start university in 2004-05 and 2010-11 (who sat their GCSEs in 2001-02 and 2007-08 respectively)
High status participation in 2004-05 and 2010-11, by SES

% pupils attending a high status institution at age 18/19

<table>
<thead>
<tr>
<th>SES quintile group</th>
<th>2004-05</th>
<th>2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest SES</td>
<td>2.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>2nd</td>
<td>4.1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>3rd</td>
<td>7.4%</td>
<td>7.7%</td>
</tr>
<tr>
<td>4th</td>
<td>12.2%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Highest SES</td>
<td>21.6%</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

Difference (highest - lowest): 19.4pts, 18.6pts

Source: authors’ calculations based on linked schools and universities administrative data for the cohorts first eligible to start university in 2004-05 and 2010-11 (who sat their GCSEs in 2001-02 and 2007-08 respectively)
What drives SES differences in HE participation and has this changed over time?

- Investigate the extent to which SES differences in HE participation can be explained by other characteristics, by successively adding:
  - Individual characteristics (gender, ethnicity, special educational needs, month of birth, English as a second language) and school fixed effects
  - Key Stage 2 attainment (age 11)
  - Key Stage 4 attainment (age 16)
  - Key Stage 5 attainment (age 18)

- Has the proportion of the gap we can explain changed over time?
What explains differences in participation between most and least deprived quintile groups in 2004-05 and 2010-11?

### Graph

<table>
<thead>
<tr>
<th>Component</th>
<th>2004-05</th>
<th>2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw</td>
<td>39.9ppts</td>
<td>36.8ppts</td>
</tr>
<tr>
<td>Plus individual characteristics and school fixed effects</td>
<td>36.8ppts</td>
<td>36.8ppts</td>
</tr>
<tr>
<td>Plus Key Stage 2 results</td>
<td>3.8ppts</td>
<td>3.8ppts</td>
</tr>
<tr>
<td>Plus Key Stage 4 results</td>
<td>4.3ppts</td>
<td>4.3ppts</td>
</tr>
<tr>
<td>Plus Key Stage 5 results</td>
<td>3.1ppts</td>
<td>3.1ppts</td>
</tr>
<tr>
<td>% of raw gap explained</td>
<td>89.2%</td>
<td>91.6%</td>
</tr>
</tbody>
</table>

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What about high status participation?

- 19.4% in 2004-05, 18.6% in 2010-11
- Plus individual characteristics and school fixed effects:
  - 2004-05: 19.4% → 18.6% (0.8%)
  - 2010-11: 18.6% → 18.4% (0.2%)
- Plus Key Stage 2 results:
  - 2004-05: 18.6% → 18.4% (0.2%)
  - 2010-11: 18.4% → 18.2% (0.2%)
- Plus Key Stage 4 results:
  - 2004-05: 18.4% → 18.2% (0.2%)
  - 2010-11: 18.2% → 18.0% (0.2%)
- Plus Key Stage 5 results:
  - 2004-05: 18.2% → 18.0% (0.2%)
  - 2010-11: 18.0% → 17.8% (0.2%)
- % of raw gap explained:
  - 2004-05: 91.2%
  - 2010-11: 93.0%
What might happen to SES gaps in future?

- Reduction in SES gap in % of cohort achieving 5 A*-C grades in GCSEs and equivalents sped up amongst cohorts following ours
  - Might suggest further falls in SES gaps in HE participation
  - But reduction in gap is not so strong if we ignore GCSE equivalents
SES gap in % of pupils getting 5 A*-C grades at GCSE including English and Maths has not fallen much.

What might happen to SES gaps in future?

- Reduction in SES gap in % of cohort achieving 5 A*-C grades in GCSEs and equivalents sped up amongst cohorts following ours
  - Might suggest further falls in SES gaps in HE participation
  - But reduction in gap is not so strong if we ignore GCSE equivalents
- Further substantial rise in tuition fees (and associated student support via grants and loans) in 2012-13
  - UCAS data suggests fewer applications in total, but % of 18 year olds from disadvantaged backgrounds being accepted continued to rise
  - Saw a similar pattern in terms of entry at 18 or 19 around 2006-07 . . .
HE participation at age 18 or 19 (state school pupils)

Year | Most deprived quintile | 2nd quintile | Middle quintile | 4th quintile | Least deprived quintile
--- | --- | --- | --- | --- | ---
2004–05 | 39.9ppts |  |  |  | 50%
2005–06 | 39.2ppts |  |  |  | 50%
2006–07 | 37.6ppts |  |  |  | 50%
2007–08 | 37.5ppts |  |  |  | 50%
2008–09 | 37.5ppts |  |  |  | 50%
2009–10 | 37.3ppts |  |  |  | 50%
2010–11 | 36.8ppts |  |  |  | 50%

Difference (least–most)
Summary and conclusions (1)

• Socio-economic differences in HE participation are large:
  – The most advantaged fifth of state school pupils were, on average, 40 ppts (more than 4 times) more likely to go to university at age 18 or 19 in 2004-05 than the least advantaged fifth of state school pupils
  – Gap at high status universities was 19.4ppts (nearly 10 times more likely)

• Vast majority (around 90%) of this gap can be explained by differences in other characteristics, notably attainment at KS4/KS5
  – Unexplained gap between highest and lowest quintile groups is 4.3ppts for participation overall and 1.7ppts for high status participation

• Highlights potential importance of earlier interventions to increase KS4/KS5 attainment in raising HE participation rates
  – But remaining SES differences are significant; why are similarly qualified kids from deprived backgrounds still less likely to go to university?
Summary and conclusions (2)

- HE participation rates increased rapidly over this period:
  - By almost 6ppts overall between 2004-05 and 2011-12
  - But little change in participation at high status institutions
- Participation increased more rapidly for disadvantaged pupils
  - Gap between most and least deprived groups fell from 40ppts to 37ppts
    - Most advantaged now around 3 (rather than 4) times more likely to go
  - Absolute reduction in high status participation small (less than 1ppt)
    - But most advantaged now around 7 (rather than 10) times more likely to go
- Improved relative performance of deprived pupils in earlier achievement tests partly explains decrease in participation gap
- Will this continue? No obvious negative signs so far . . .