Square pegs in round holes?
Potential elite university participants in low-performing post-16 institutions

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Research questions

How many potential elite university participants take A-levels in schools/colleges where top grades are not the norm?

Do these high-attaining learners face additional barriers to elite university access associated with being “unusual” within their schools?
Understanding Opportunities

How do high-attaining learners from schools with low average attainment navigate the process of applying to university?

Mixed methods project

• **Qualitative case studies of 45 learners** with high GCSE grades, in five “low-performing” KS5 institutions, Years 12 and 13 (2013-15).

• **Secondary analysis** of HE outcomes of ALL learners with high attainment at GCSE in the Longitudinal Study of Young People in England (LSYPE)
  • Nationally representative cohort surveyed annually from ages 14 to 21, potentially entering university in 2008 (age 18) or 2009 (age 19)
  • We use data on learners with **KS4 points in the top 25%** nationally in 2006 – high-attaining (HA) learners (**N=2200**)
  • Focus on **Russell Group (RG) participation** (32% of sample, cf 88% HE overall)
## Distribution of HA learners across school types

<table>
<thead>
<tr>
<th>KS5 institution performance category</th>
<th>% of institutions nationally</th>
<th>Average KS5 points per student</th>
<th>% of HA learners (N=2200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-performing</td>
<td>Top 20%</td>
<td>More than 862 points ~ABB at A-level + B at AS-level</td>
<td>31%</td>
</tr>
<tr>
<td>Average-performing</td>
<td>Middle 40%</td>
<td>680-862 points</td>
<td>47%</td>
</tr>
<tr>
<td>Low-performing</td>
<td>Bottom 40%</td>
<td>Less than 680 points ~BCC at A-level</td>
<td>22%</td>
</tr>
</tbody>
</table>

Over 1 in 5 potential elite university participants sit A-levels in ‘low-performing’ schools, where academic excellence is not the norm.
Potential elite university applicants are more than 3 times as likely to end up at a RG university if they attend a high- rather than low-performing institution.

Potential explanations

Differential intakes (the kinds of HA learners who go to different schools)?

Differential academic performance after arrival (A-level subject choices and grades)?

Differences in encouraging and supporting RG application among similarly qualified students?
The role of GCSE (KS4) attainment at 16

Predicted school RG premiums, after adjustment for KS4 attainment of HA learners in low-performing schools

- Differences in the average overall KS4 points score of HA learners between school types explains virtually *none* of the RG premium
- Differences in the “portfolio” of KS4 points, however, explains *two-thirds* of the RG premium
- HA learners with a lower share of points accounted for by their best 8 GCSEs (i.e. points spread in a more diffuse way across subjects)
  - Are significantly less likely to attend RG
  - Tend to be clustered in LP schools
The role of economic, social, cultural capital of HA learners at 16

- HA learners starting A-levels in LP schools disproportionately have individual characteristics that, conditional on KS4 performance, are associated with a lower probability of RG participation.
- Differences in individual characteristics, even for learners with the same GCSE performance, explain a further 15% of the RG premium.
- If HA learners in average schools had the same KS4 attainment and characteristics as those in LP schools, their RG participation rate would not be significantly different.
The role of A-level (KS5) performance at 18

- Average A-level equivalent entries by Year 13 are 3.5, 3.9 and 4.5 for HA learners in low-, average- and high-performing schools respectively.

- More entries alone can account for half of the raw high-performing school RG premium.

- In addition, the mix of subjects between “facilitating” A/AS levels, other A/AS levels, and other KS5 qualifications accounts for a further 12-13% of the premiums.

- Finally, adjusting for the fact that HA learners in LP schools tend to achieve slightly lower A-level grades (given their portfolio choices) leaves no significant RG premium associated with school performance.
Summary

If HA learners in average-performing schools had the same composition as those in LP schools at entry in terms of GCSE achievement and individual characteristics, their RG rate would fall from 30% to 18% (compared to the 15% observed in LP schools).

The fall for HA learners in high-performing schools is predicted to be from 46% to 22%.

Intake characteristics therefore explain a huge proportion of the RG premium – in one sense the premium is largely a selection effect (consistent with Crawford, 2014, on 11-16 institutions)
Summary

Viewed another way, the RG premium is explained by the fact that learners in higher-performing schools take more and better A-levels, and achieve higher grades in them.

It’s about **what happens (academically)** in schools post-16.

Either way, the results seem to imply there is **little role for non-academic factors** at the school level (such as IAG or peer effects) in promoting RG participation (similar to Chowdry et al., 2013)
Policy implications for low-performing schools

Two factors that stand out as crucially important for RG access are:

• *Mix* of qualifications at 16 in terms of numbers of different types of grades (conditional on total points score)

  All GCSE points are equal, but some are more equal than others...

• Parental education

These factors significantly predict

• # A-level entries
• # facilitating A-level entries conditional on total entries
• A-level grades, conditional on number and mix of entries
• RG participation independently of A-level grades
Policy implications for low-performing schools

Two factors that stand out as crucially important for RG access are:

- *Mix* of qualifications at 16 in terms of numbers of different types of grades (conditional on total points score)
- Parental education

These points apply to all HA learners, regardless of the type of school they are in. It just happens that there are a lot more “first in family” learners with disadvantageous GCSE portfolios in LP schools than in other schools.

If LP schools (or other agencies) could target support activities to HA learners with these characteristics, with regard to A-level subject choice but also to standards of A-level achievement, the pay-off in terms of RG participation is potentially large.
Extra slides
Limitations

Relatively small sample size and large number of highly correlated predictors means analysis is not suitable for teasing out specific individual factors conditionally associated with RG participation

However, the direction of a number of effects is consistent with our qualitative work and other literature. Factors negatively associated with RG participation

- Preference to live at home during university
- Reported concerns over financing university
- Planning to pursue a specific job (instrumental view of university)

The LSYPE only allows us to model university attendance. But, again as our case studies and other work emphasises, this is the outcome of a series of factors:

- Applications, predicted grades, offers, achieved grades, re-takes/applications, take-up of place
- Policy recommendations could be strengthened by knowing how HA learners in LP schools fare at each of these stages
High-attaining (HA) learners

- N=2200, **23%** of eligible LSYPE sample
- All but 89/2200 (3% weighted) achieved 5 A*-C including English and Maths at GCSE
- Min KS4 points = 476; average =563 (~=8 grade A*, 2 grade A)
- Have very high levels of aspiration for HE in general: 88% report very/fairly likely to go to university at 14, rising to 93% at 16
- **88% in HE by age 19** (compared with 29% on non-HA learners), **32% in RG** (compared with 2.5% non-HA learners)
Low- and higher-performing schools

Distribution of high-attaining learners across school KS5 performance categories

- High (20% nationally): 31%
- Average (40% nationally): 47%
- Low (40% nationally): 22%

School types by school KS5 performance category (# HA learners)

- Independent
  - Low: 23%
  - Average: 39%
  - High: 27%
- State selective
  - Low: 6%
  - Average: 32%
  - High: 8%
- Foundation /voluntary
  - Low: 32%
  - Average: 9%
  - High: 2%
- Community schools
  - Low: 8%
  - Average: 32%
  - High: 17%
- FE college
  - Low: 24%
  - Average: 41%
  - High: 4%

School mobility by school KS5 performance category (# HA learners)

- No 6th form in age 16 school
  - Low: 25%
  - Average: 15%
  - High: 16%
- Switched school for other reasons
  - Low: 60%
  - Average: 66%
  - High: 61%
- Same school as age 16
  - Low: 21%
  - Average: 13%
  - High: 23%
Methods

Logistic regression with different groups controls

DV = 1 if learner attended Russell Group (RG) university by age 19

Results presented as differences in marginal mean probabilities calculated over the low-performing school sample only

Answers the question: If HA learners in higher-performing schools looked more like those in low-performing schools along certain dimensions, how much is their RG participation rate predicted to fall?

Not necessarily the same as asking what would happen if HA learners in low-performing schools looked more like those in higher-performing schools

Simulations are focused on the LP school group, taking their characteristics as given

Results attempt to “explain” the RG premium in higher-performing schools through different sets of factors. (Premium = the excess over the 15% rate observed in LP schools)
The role of specific characteristics at 16

Very few characteristics are *individually* significant predictors of RG once KS4 attainment is controlled (collinear, and under-powered with N=2200), but jointly they increase the pseudo R-squared from .20 to .27

Below the sign of the (conditional) association with RG is shown if p<.2, * indicates <.05

<table>
<thead>
<tr>
<th></th>
<th>Significantly associated with school performance type?</th>
<th>Associated with RG participation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Non-white ethnicity</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Parental education</td>
<td>+</td>
<td>+*</td>
</tr>
<tr>
<td>Parental occupational class</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Means-tested benefits</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Parents own home</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Single parent household</td>
<td></td>
<td></td>
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<tr>
<td>Non-English languages in home</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
The role of specific characteristics at 16

<table>
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<tr>
<th>Characteristic</th>
<th>Significantly associated with school performance type?</th>
<th>Associated with RG participation?</th>
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<tbody>
<tr>
<td>Academic self-concept at 14</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Belief that can affect and control events at 15</td>
<td>~</td>
<td></td>
</tr>
<tr>
<td>Positive attitudes to secondary school 14-16</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Favourite subject at 15</td>
<td>~</td>
<td>~*</td>
</tr>
<tr>
<td>Engagement with cultural activities age 14/15</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Prefers to live at home while at uni (Y12)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Aspires to self-employment</td>
<td>-</td>
<td>-*</td>
</tr>
<tr>
<td>Choice of uni course motivated by specific job aspiration</td>
<td>-</td>
<td>-*</td>
</tr>
<tr>
<td>Choice of uni course motivated by salary</td>
<td></td>
<td>+*</td>
</tr>
</tbody>
</table>

~ indicates non-monotonic relationship
The role of specific characteristics at 16

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<th>Characteristics</th>
<th>Significantly associated with school performance type?</th>
<th>Associated with RG participation?*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental confidence in navigating education system</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Advice from family on Y10 &amp; post-16 choices</td>
<td></td>
<td>~*</td>
</tr>
<tr>
<td>YP had private tuition age 14-16</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Parent rating at 14 of likelihood YP will attend uni</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>YP reports most friends will go to uni (Y12)</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>YP feels well-informed about university funding options (Y12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever deterred from uni for financial reasons (Y12)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>General negative attitudes to debt (Y12)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Engagement with cultural activities age 14/15</td>
<td>+</td>
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Two schools, two approaches to A-level subject choice

King Edward VI Camp Hill School for Boys

1190 av KS5 pps in 2008 (1200 = 4 A*)
Grammar school
Entry requirements: 5 grade A*/B GCSEs inc Maths, grade C English, plus grade A in subject studied
A-level subjects offered: **16** of which 10 facilitating (cf Eton 19/12)
93% RG participation rate in 2014

Cadbury College

720 av KS5 pps in 2008 (= 3 B)
Sixth form college
Entry requirements for AS-level: 3 grade B, 2 grade C GCSEs inc English, plus subject specific (e.g. B in 2 Sciences & Maths for Chemistry)
A-level subjects offered: **35** of which 10 facilitating, 10 BTEC Level 3
75% **HE** participation rate in 2014