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COLLEGE OF
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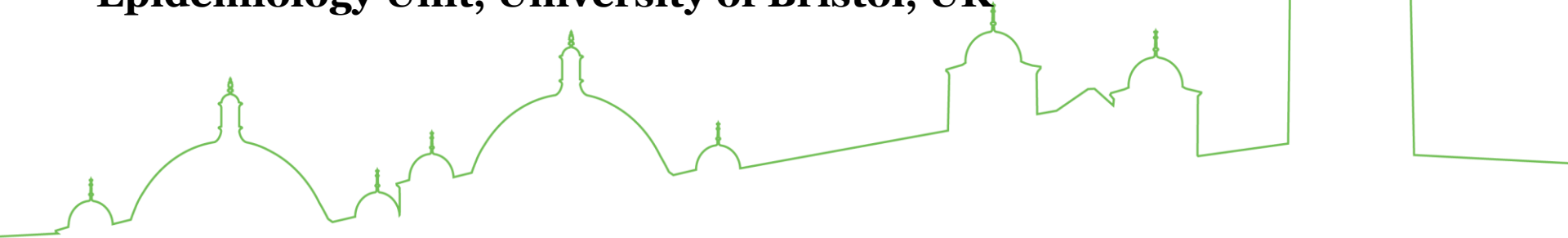
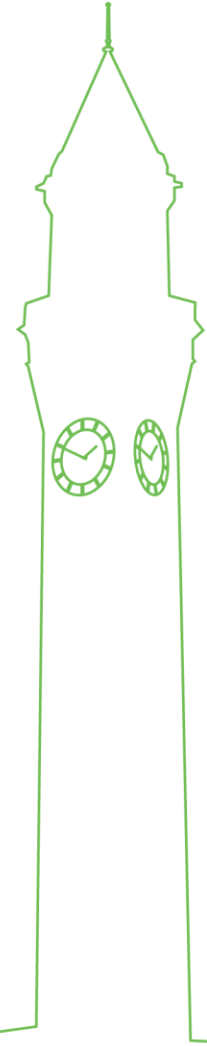


Does providing young people with information about future earnings influence post-16 subject choices?

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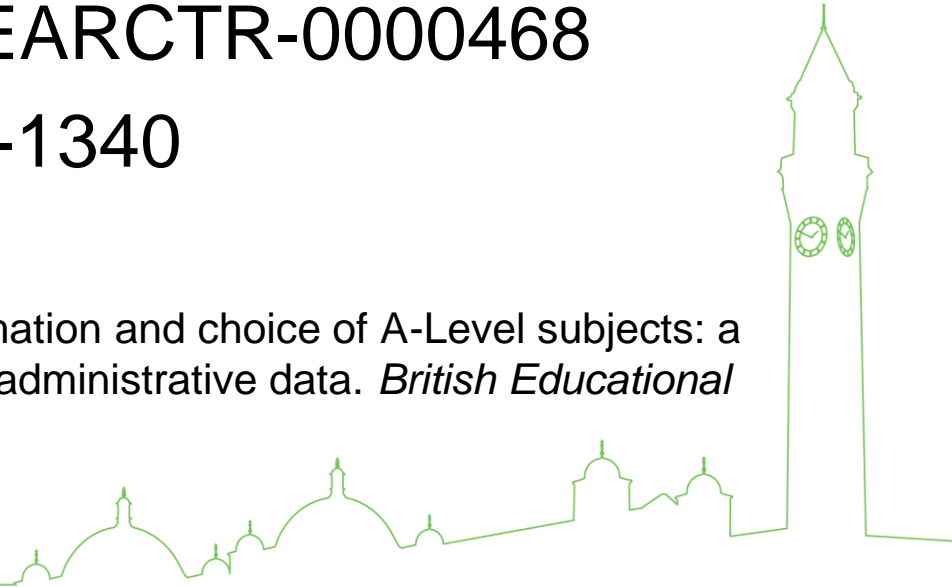
Summary

We conducted a cluster randomised trial of providing information to school students about graduate salaries. We found that the intervention encouraged more students to take Maths.

Social science registry: AEARCTR-0000468

Ethical approval: ERN_10-1340

Davies, P., Davies, N. & Qiu, T. (2017). Information and choice of A-Level subjects: a cluster randomized controlled trial with linked administrative data. *British Educational Research Journal*, 43(4), pp. 647-670.



Rationale for the study

1. Policy on subject choice at school and university is predicated on the belief that there is under-recruitment to STEM and Modern foreign languages (Roberts 2002, European Commission 2003, Browne 2010, HEFCE 2010).
2. Trying to increase STEM recruitment through financial incentives has been ill-informed and ineffective.
3. The current regime of careers information in England is not working (Davies 2012).
4. There are indications that providing young people with labour market information affects their choices (Jensen 2010, Kerr et al 2012).
5. Variations in the context in which information is made available may be important (McGuigan et al 2012).



Research questions

1. Does graduate salary information affect students' A-level subject choices in secondary schools in England?
2. Does graduate salary information affect students' beliefs about graduate salaries?



Intervention Design: Cluster RCT

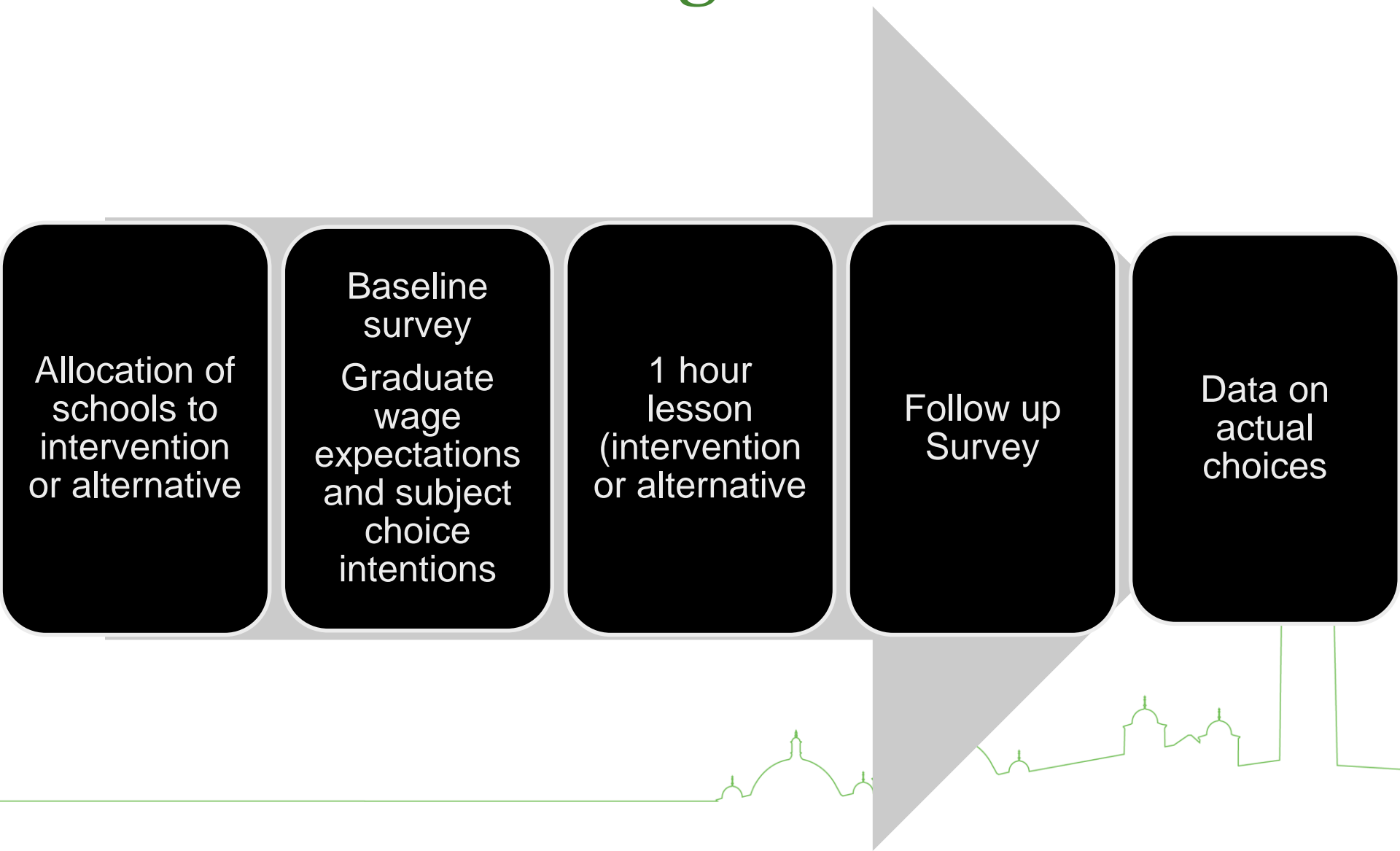
Allocation of schools to intervention or alternative

Baseline survey
Graduate wage expectations and subject choice intentions

1 hour lesson (intervention or alternative)

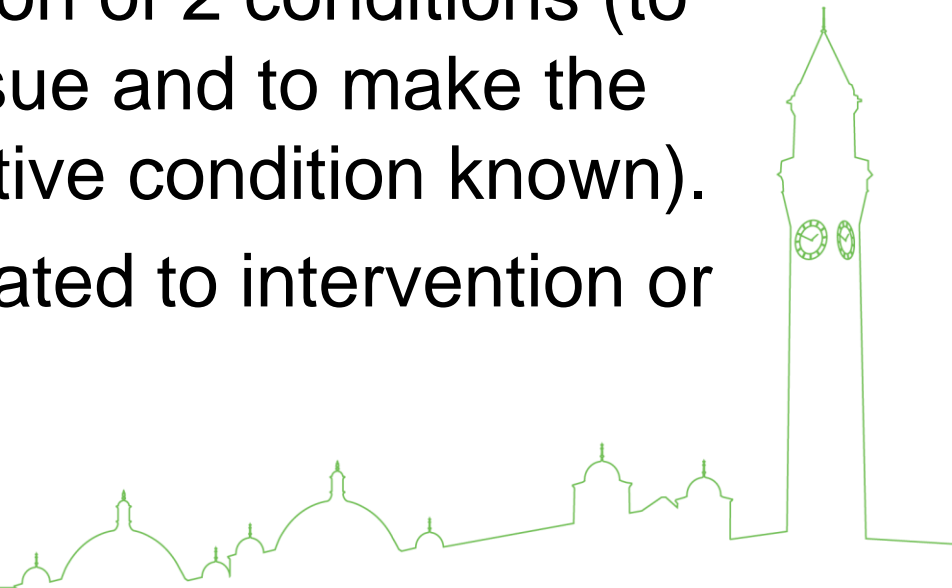
Follow up Survey

Data on actual choices



Intervention Design: Sample

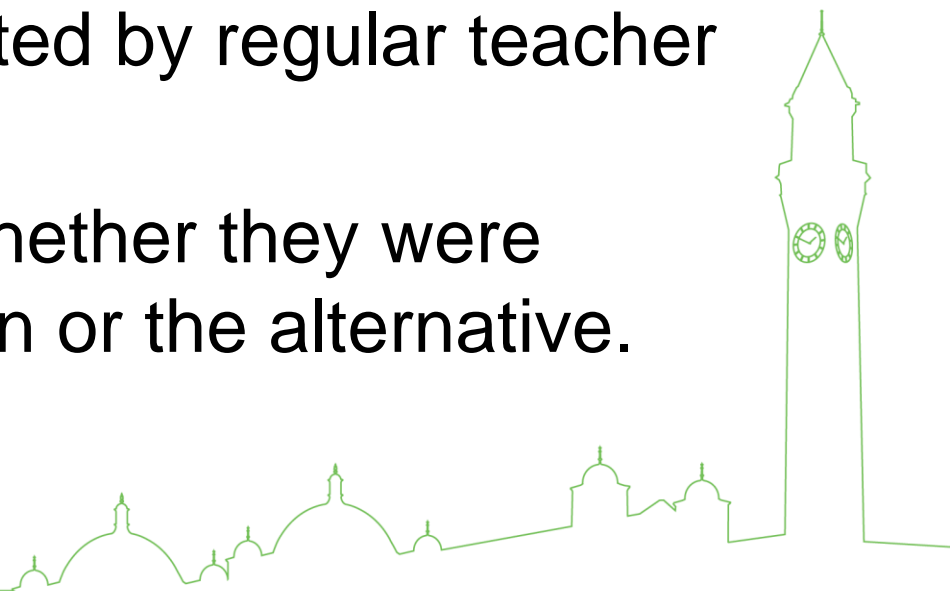
- Schools with 6th forms >100 approached in random order in large geographical area.
- Stratified recruitment of 30 state schools and 20 private schools
- RCT involved comparison of 2 conditions (to address the placebo issue and to make the treatment in the alternative condition known).
- Schools randomly allocated to intervention or control



Balance in the arms of the trial	Group 1	Group 2	p-value
Male	49.5%	43.5%	0.52
Expected Maths grade	6.57	6.53	0.87
Expected English grade	6.47	6.49	0.93
State school	73.8%	57.8%	0.26
White	71.8%	78.0%	0.23
Father professional or managerial	58.9%	56.4%	0.67
Mother professional or managerial	44.1%	41.9%	0.62
Student aspires for professional or managerial job	82.5%	79.6%	0.47
Graduate father	50.4%	47.0%	0.58
Graduate mother	45.7%	44.0%	0.78
Eligible for free school meals	7.8%	11.4%	0.43
Salary very important for choice of subject	54.3%	51.3%	0.23

Implementation

- Two alternative one hour lessons prepared for use with 15/16 year-olds before they had made 16-18 choices.
- Lessons with teacher guidance sent to schools to be implemented by regular teacher (for authenticity)
- Schools did not know whether they were receiving the intervention or the alternative.



Data used in the intervention lesson

Degree subject	Female Grad av. Salary (age 30)	Male Grad. Av. Salary (age 30)	Female % diff from A levels	Male % diff from A levels
Art	£26,000	£26,500	18	-4
Business or Financial	£30,000	£33,500	36	22
Education	£32,250	£33,500	47	22
Engineering	£30,000	£36,750	36	34
History	£26,000	£30,000	18	9
Languages	£27,000	£31,500	23	15
Law	£32,750	£34,000	49	24
Maths or Computing	£31,250	£36,500	42	33
Politics	£26,000	£30,500	18	11
Psychology	£27,000	£31,500	23	15
Science	£28,000	£33,000	27	20

Source: O'Leary & Sloane 2011

Data used in the alternative lesson

Advice typically available...

1 Enjoyment - it's important to **choose subjects you enjoy** doing. Even if you are good at a certain subject, you might not actually enjoy it all that much.

There's no point going through sixth form or college and never looking forward to lessons because you don't like them. This in turn may make you feel you can't cope with the work and make you feel stressed in the long-term.

3 Strengths - read through the syllabuses for subjects you are considering doing to see whether they **play to your strengths**.

For example, if you excel at creative writing, then an English Language A level would be a better option than English Literature

2 Workload – another good reason to read through the syllabuses of each subject you are considering is to **check how they are assessed**.

Advice becoming available...

...From the Russell Group Universities 'Informed Choices'

'Hard' Subjects

Facilitating Subjects

Biology
Chemistry
English (Literature)
Geography
History
Languages (Ancient and Modern)
Mathematics and Further Mathematics

Other Subjects 'providing suitable preparation'

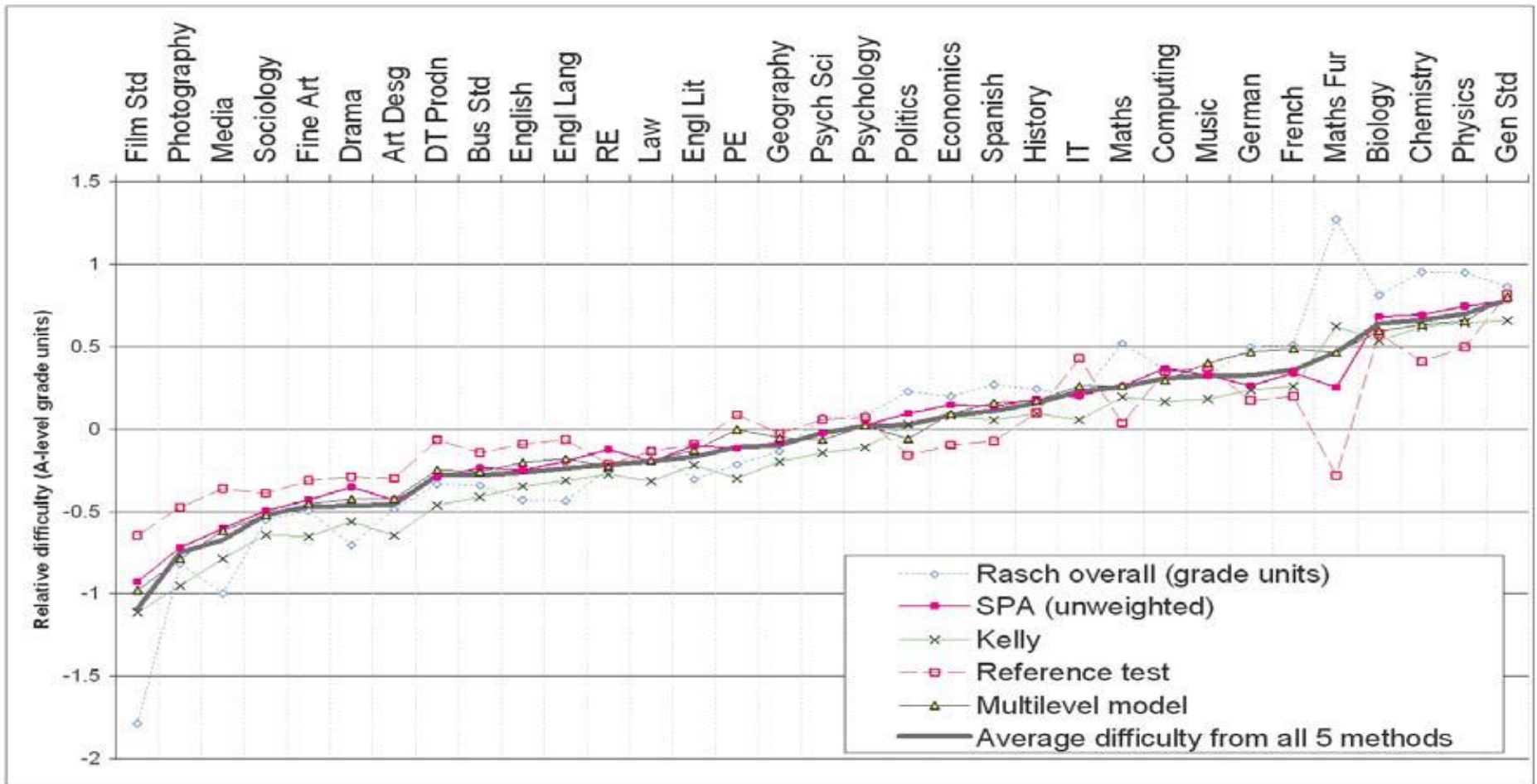
Economics
Religious Studies
Welsh
(amongst others)

'Soft' Subjects

Subjects 'with a practical or vocational bias'

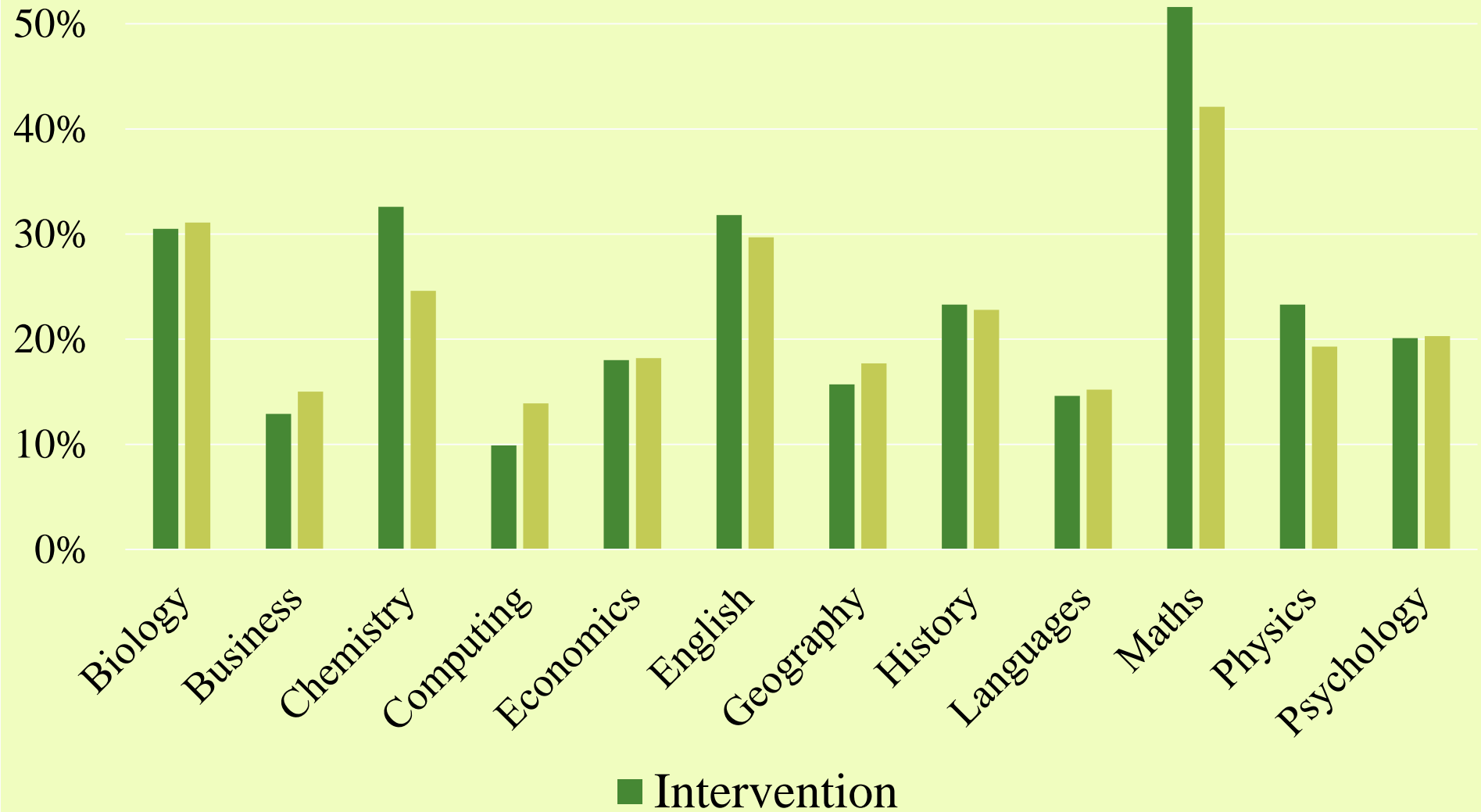
Art and Design
Business Studies
Media Studies
Photography
(amongst others)

And the kind of information teachers have a broad knowledge of (as evidenced by guidance given to students)...

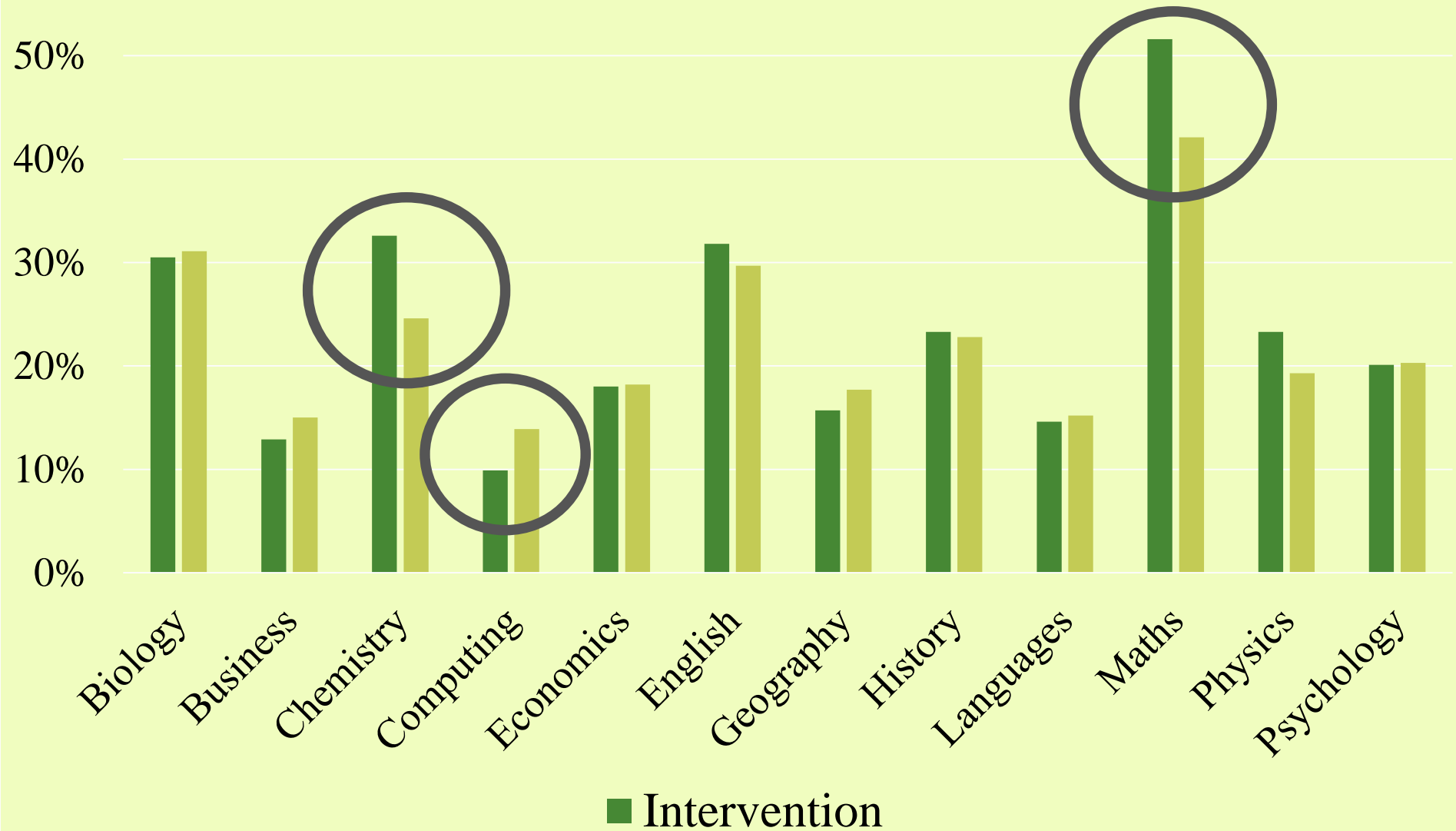


Results

The effect of the intervention lesson on actual choices compared to the alternative lesson



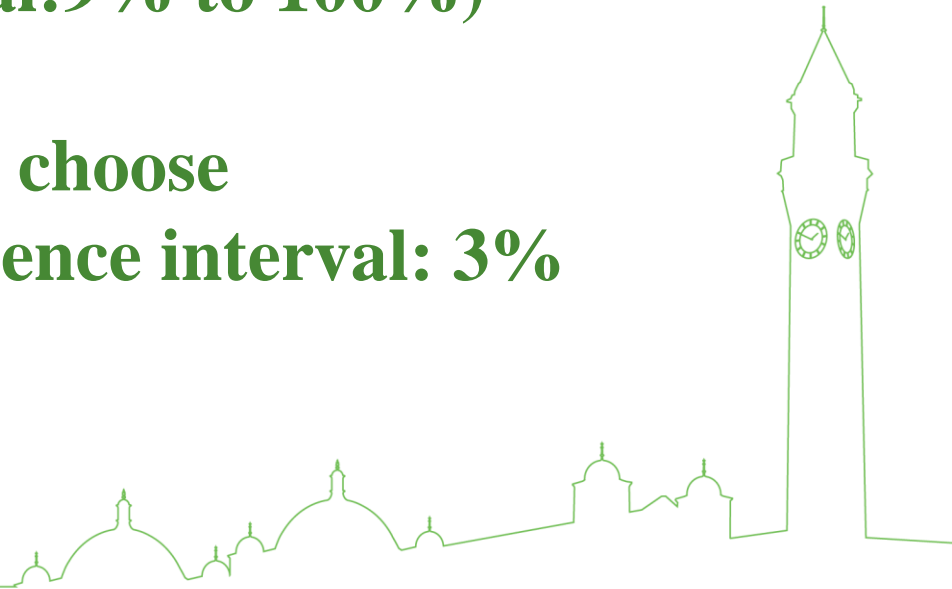
The effect of the intervention lesson on actual choices compared to the alternative lesson



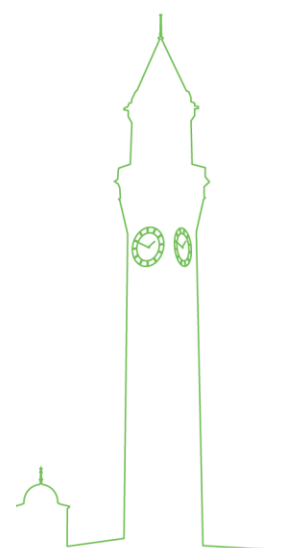
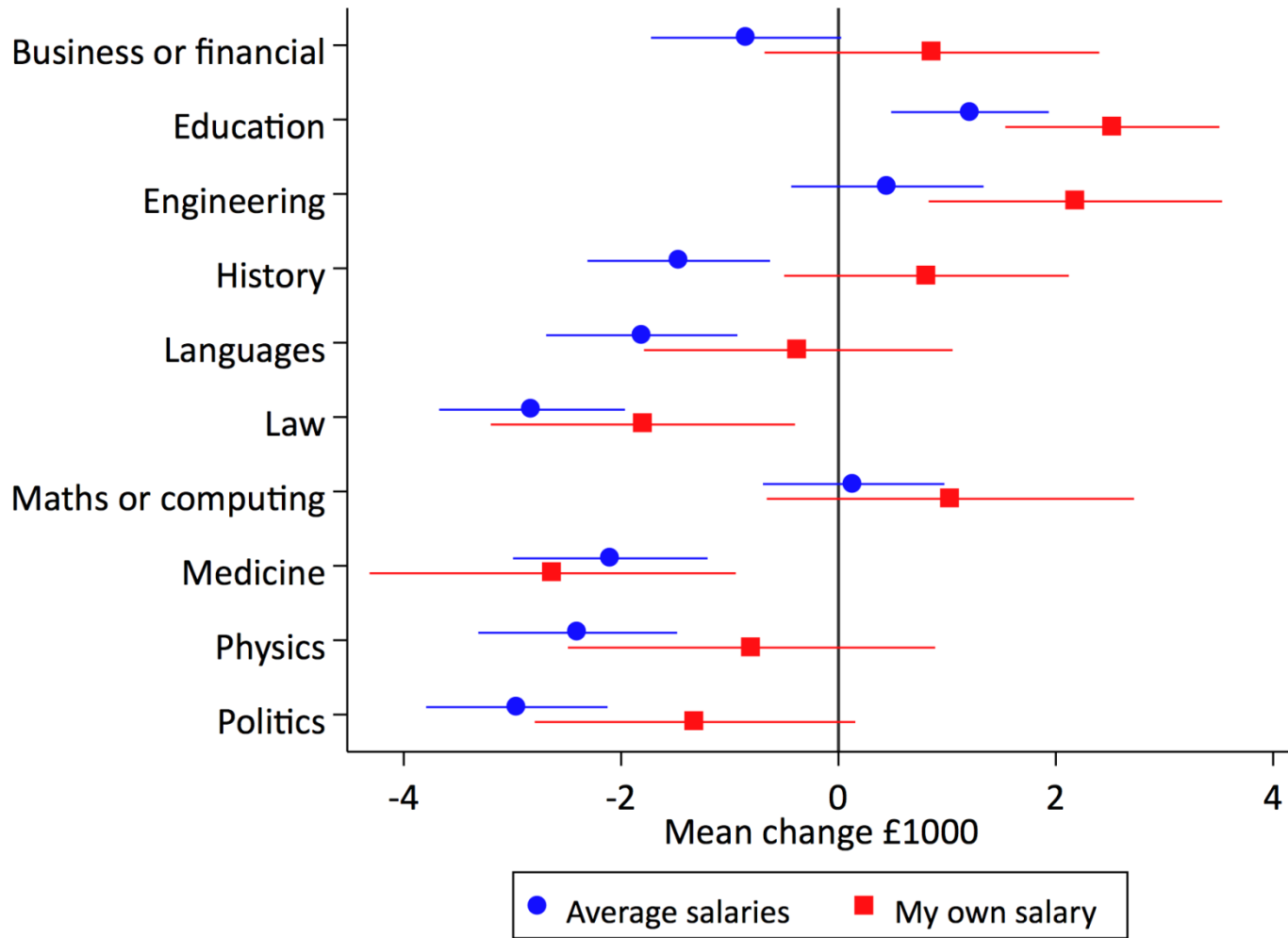
**After controlling for base line intentions
and stratification variables:**

**Students in Lesson A were 48% more
likely to take Maths,
(95% confidence interval: 9% to 100%)**

**And 43% more likely to choose
Chemistry, (95% Confidence interval: 3%
to 98%)**



Change in expected graduate salaries



Change in intentions to study subjects

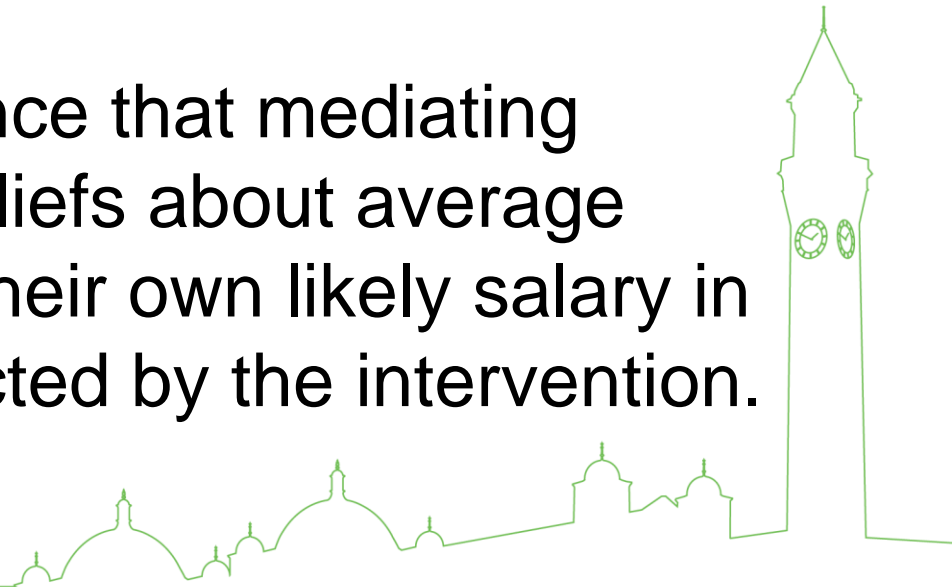
	Mean	interval		p
Biology	-0.20	-0.31	-0.08	0.002
Business	0.06	-0.04	0.16	0.24
Chemistry	-0.16	-0.27	-0.05	0.004
Computing	0.09	-0.02	0.19	0.10
Economics	-0.07	-0.16	0.01	0.09
English	-0.12	-0.21	-0.02	0.01
Geography	-0.12	-0.20	-0.04	0.003
History	-0.02	-0.12	0.07	0.64
Languages	-0.09	-0.18	0.00	0.04
Maths	-0.05	-0.16	0.06	0.36
Physics	-0.09	-0.19	0.00	0.05
Psychology	0.05	-0.06	0.17	0.36

Change in intentions to study subjects

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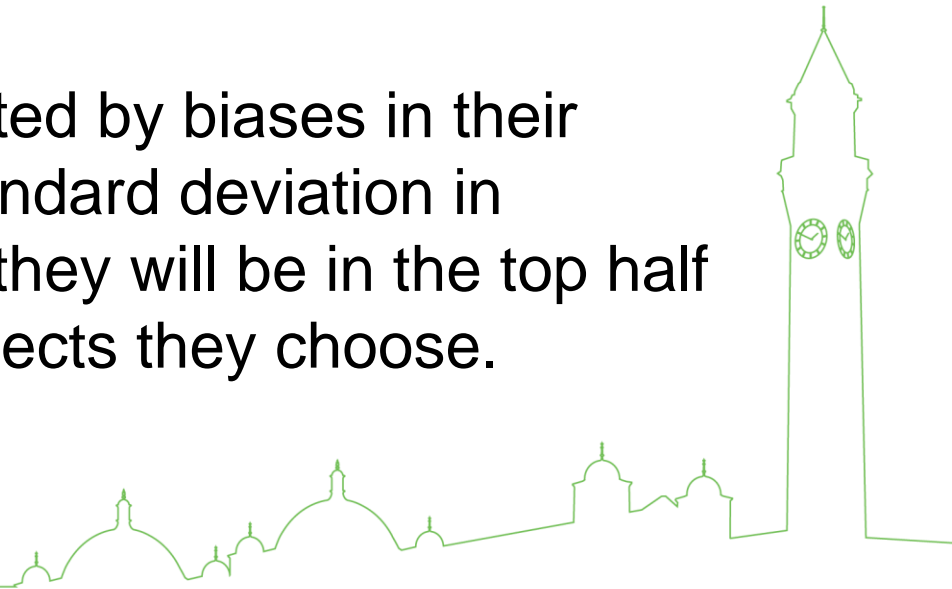
Summary

- We found that an hour-long lesson on information about graduate wages affected students' beliefs about, and choice of, subject.
- Given their intentions, they were more likely to take mathematics and less likely to take biology and computing.
- We found strong evidence that mediating factors such as their beliefs about average graduate salaries and their own likely salary in each subject were affected by the intervention.



Implications

- If (on grounds of employability) we want students to choose subjects that are better rewarded in the labour market, we should let them know. It will affect their choices.
- Existing (and previous policy) is out of line with evidence and offers misleading incentives to students.
- Students' choices are affected by biases in their beliefs about the size of standard deviation in graduate wages and belief they will be in the top half of wage distribution for subjects they choose.



Thank you

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