Value for money? Undergraduate degrees in England and the factors that influence their worth

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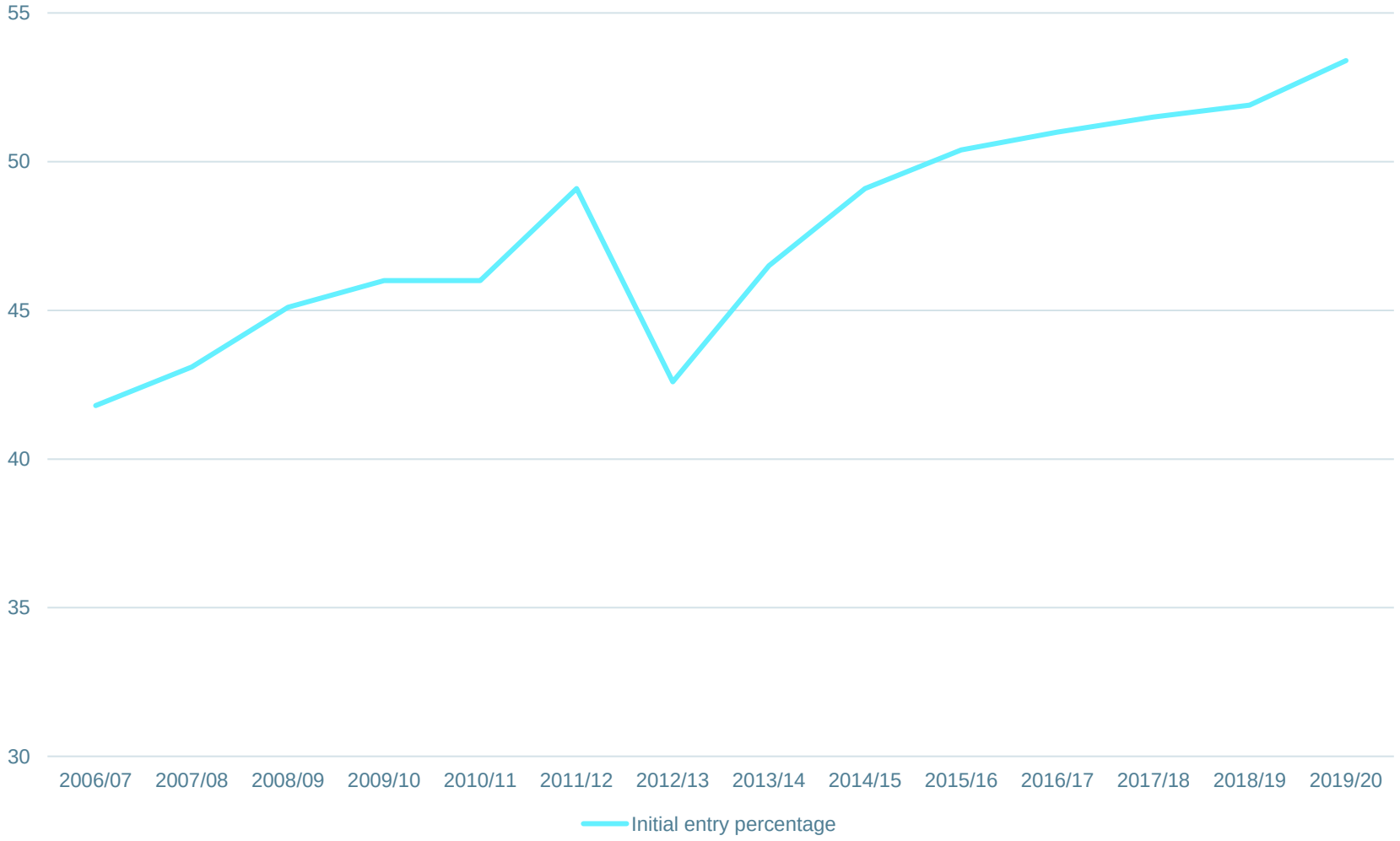
Outline

- Do people who have an undergraduate degree earn more than those without?
- Is it because of their degree?
- What are the factors that influence the ‘returns’ to an undergraduate degree?
- Are students being sold a false dream?
- Which graduates do not get graduate jobs?
- What is the impact of underemployment & what affects that?
- What does it all mean for policy and practice?

Higher Education participation



- The UK has a relatively high participation rate in higher education – more than 50% of school leavers go to HE.
- This has continued to increase over recent decades despite substantial increases in tuition fees (2006/07, 2012/13).

Fig. 1: Higher Education Initial Participation measure for English 17-30 year-olds, ONS 2020.

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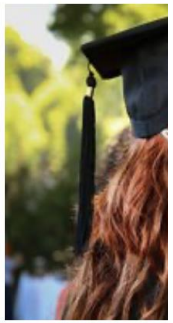

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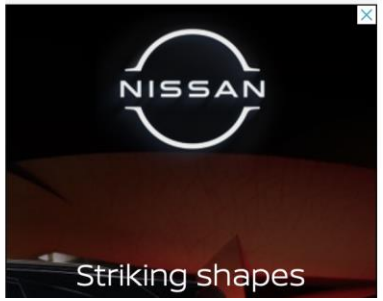
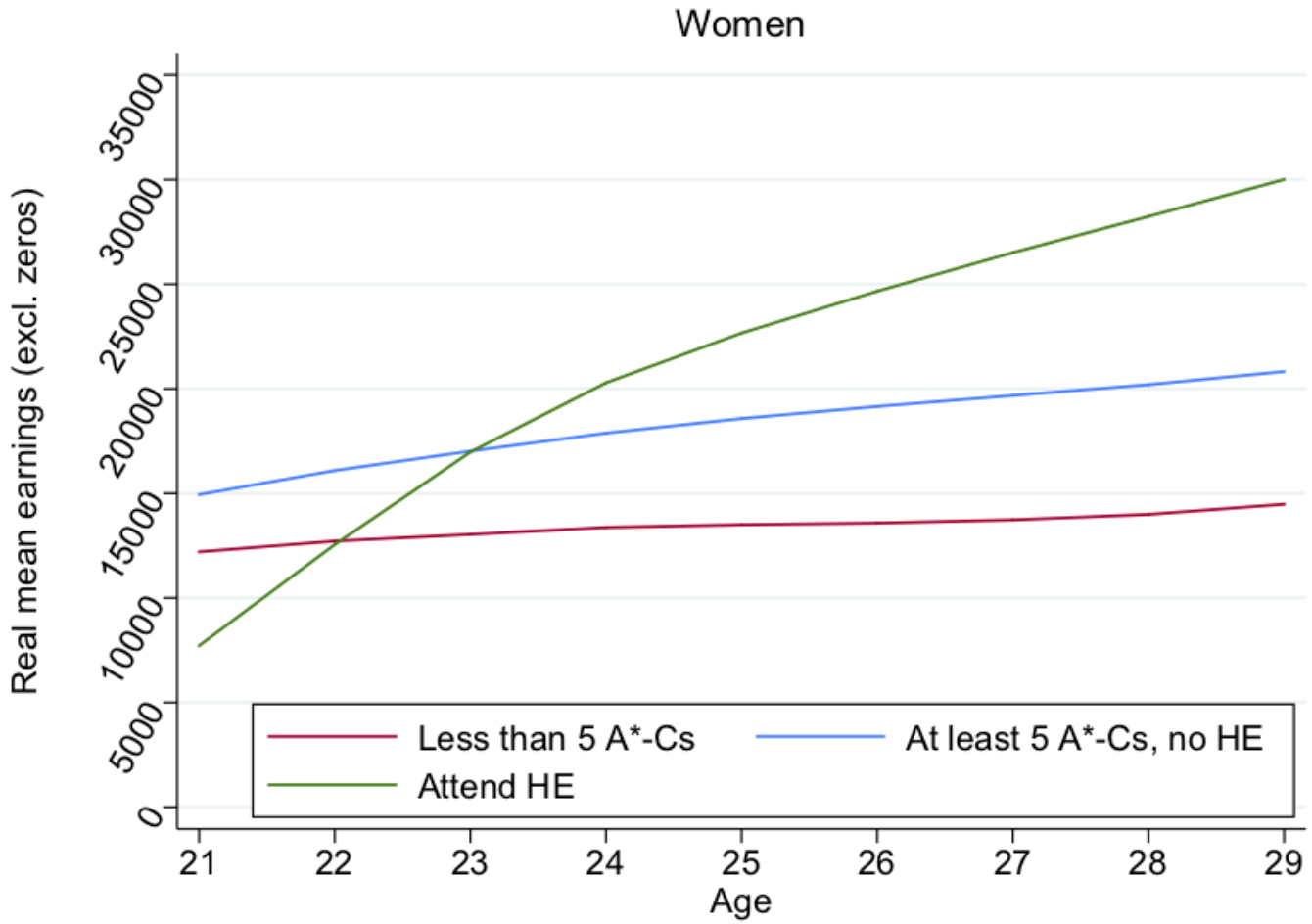


How does higher education affect earnings?



- Note: approx. 14% of 16-25 year olds have less than 5 A*-C GCSEs and this % has been stable for the decade prior to the pandemic.
- Minimal wage growth for those with this level of education.

Fig. 2: Average earnings by age and level of education, Belfield et al. 2018.

How does higher education affect earnings?

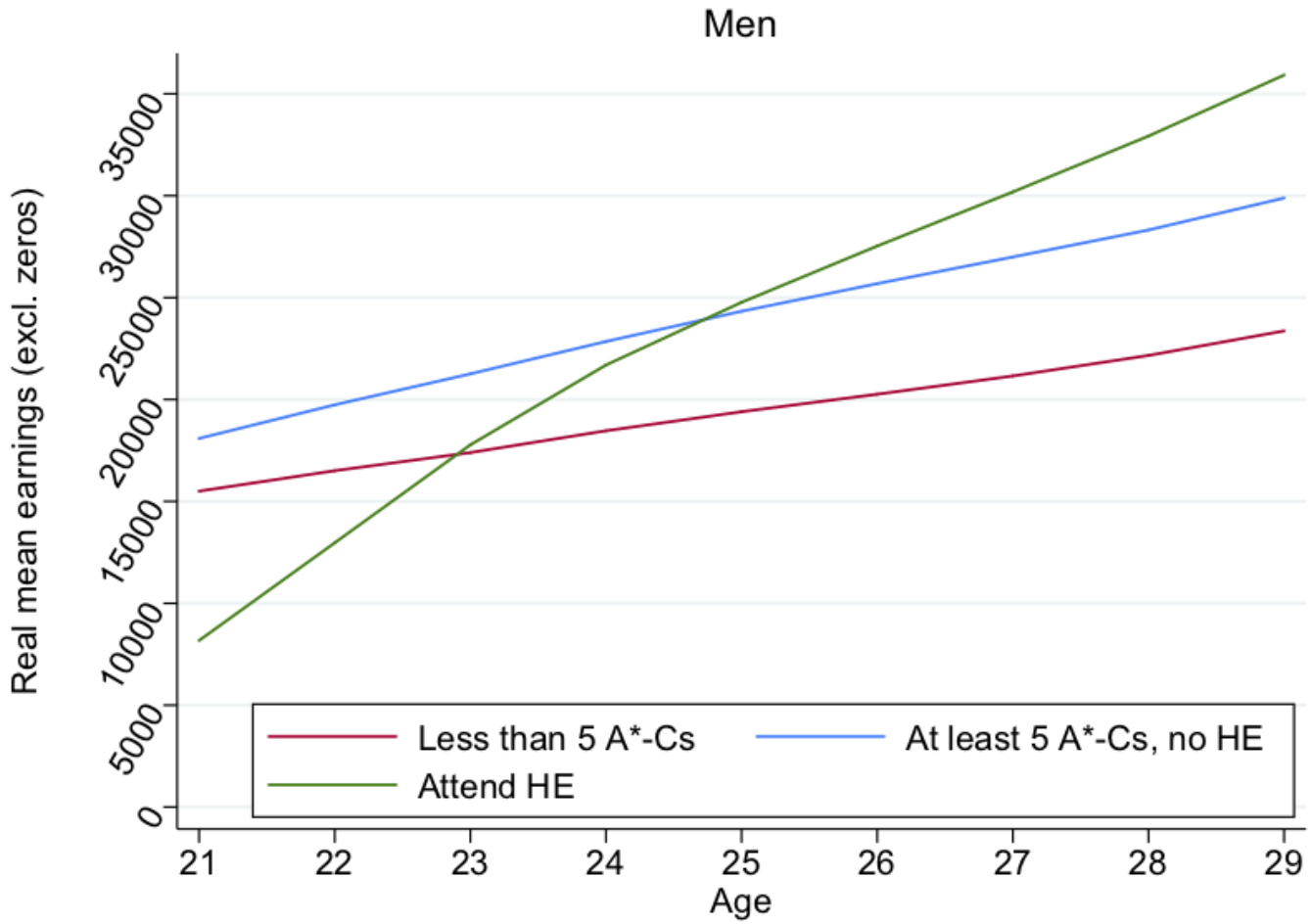


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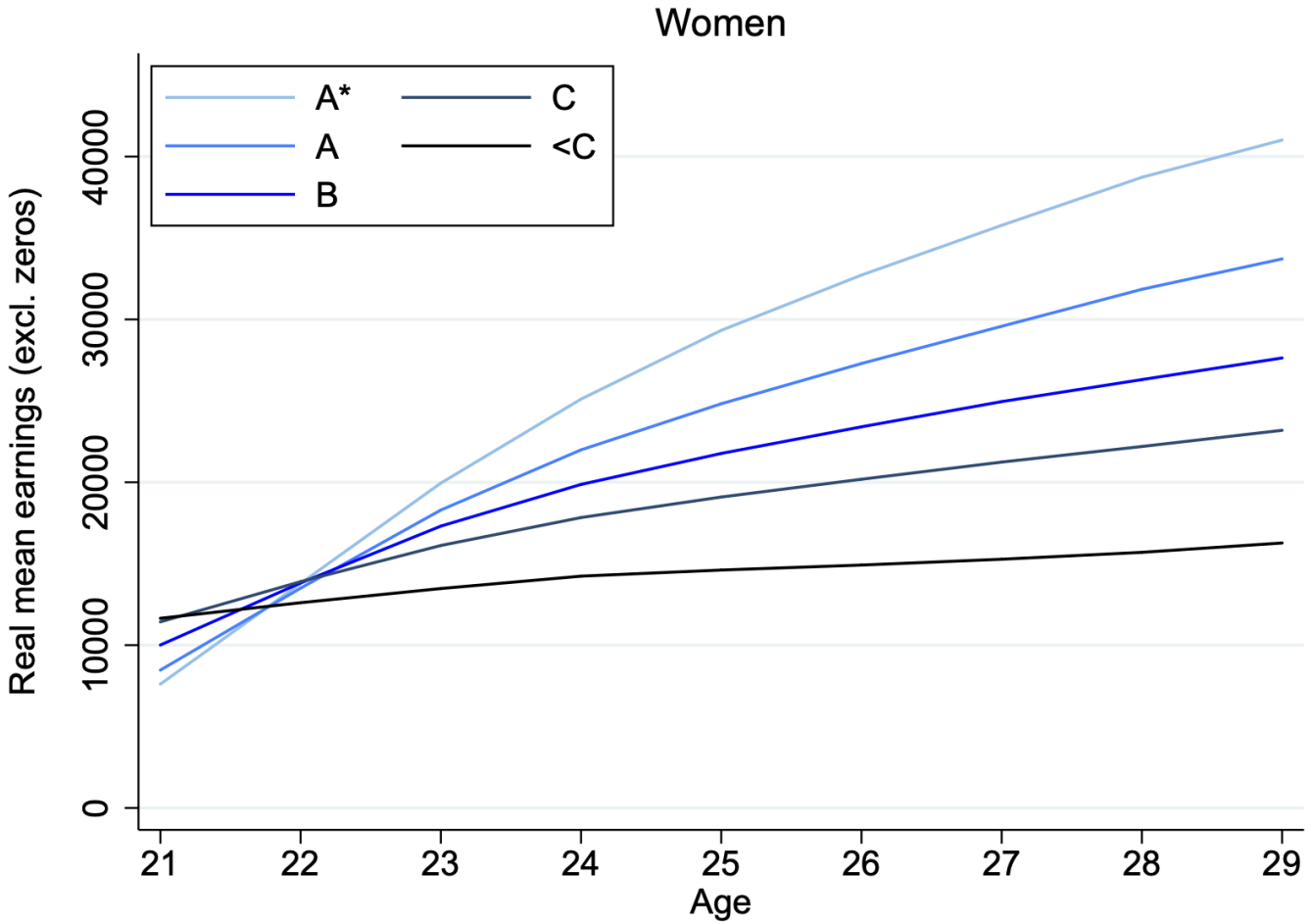
Fig. 3: Average earnings by age and level of education, Belfield et al. 2018.

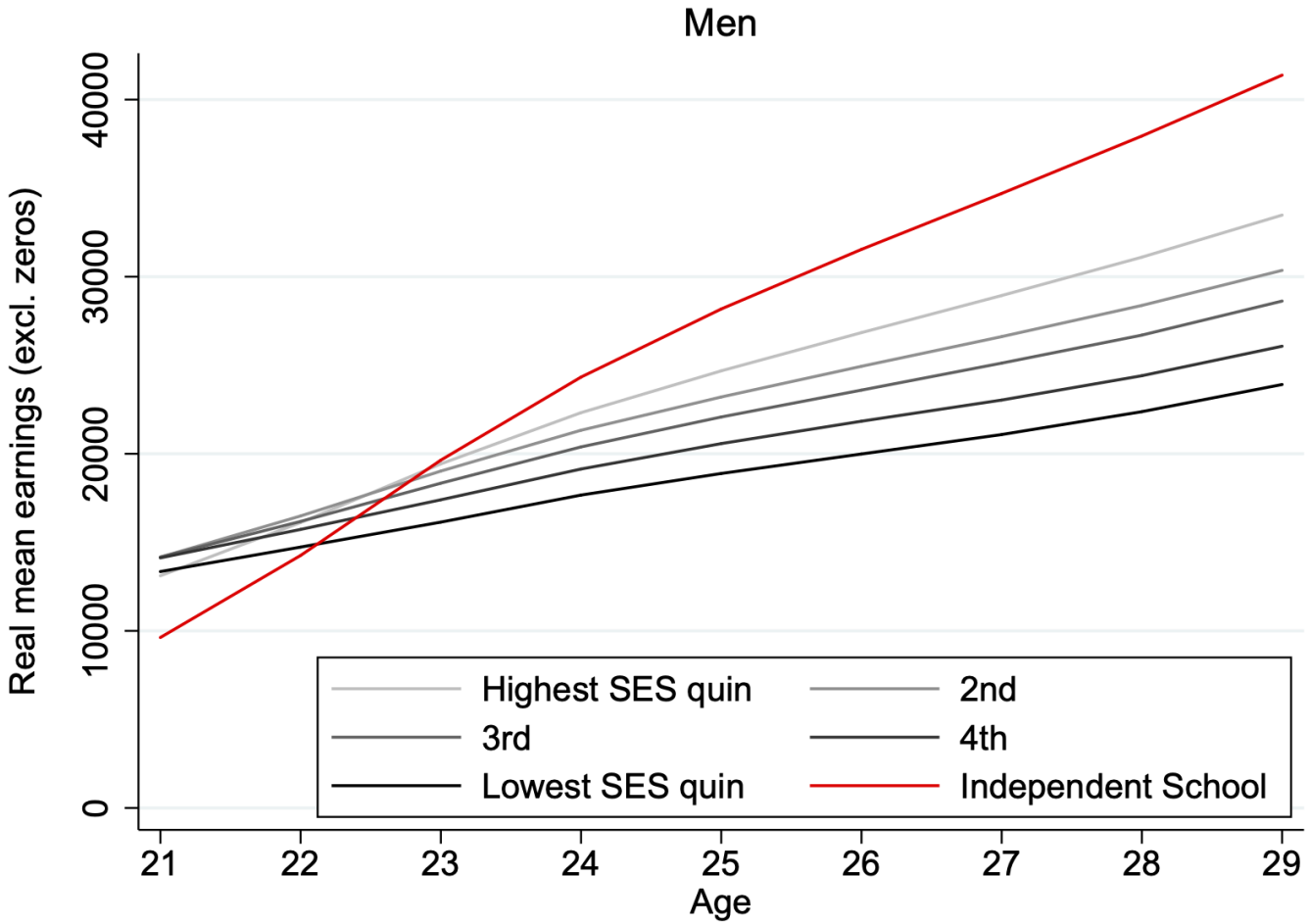
Identifying causal effects difficult…



- Earnings strongly related to attainment at GCSE maths – and those who go to HE are more likely to have a good maths grade.
- Note: ~30% do not attain a C or above in maths

Fig. 4: Average earnings by age and GCSE Maths attainment, Belfield et al. 2018.

Identifying causal effects difficult…



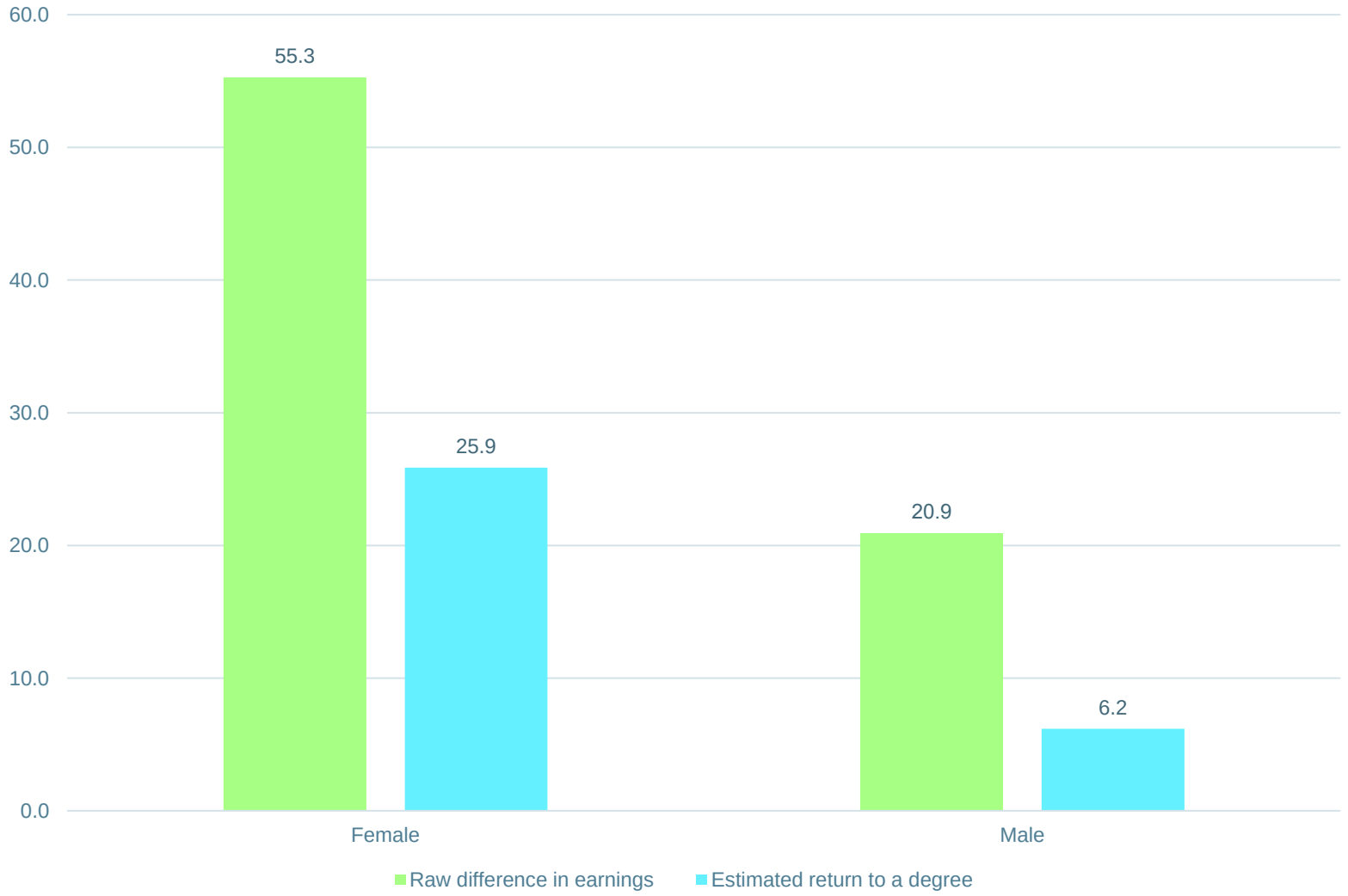
- Earnings very graded by family background – and those who go to HE are more likely to be from better off families.
- Makes it difficult to calculate the actual effect of going to HE.

Fig. 5: Average earnings by age and socio-economic status, Belfield et al. 2018.

How to estimate causal effects

- Need to take account of these differences in prior attainment, background and individual characteristics to estimate the ‘causal’ effect of HE on earnings.
- Requires data on earnings, HE subject/institution/cohort and also data on prior attainment, family background, school type etc.
- Use data from Longitudinal Education Outcomes data (LEO) that links **school** (NPD), **university** (HESA) and **earnings** (HMRC) records.
- Students born from 1986 onwards, who went to school in England we have detailed data on family background, school attainment, HE institution/subject and earnings up to age 29.

Estimated returns to a degree (age 29)



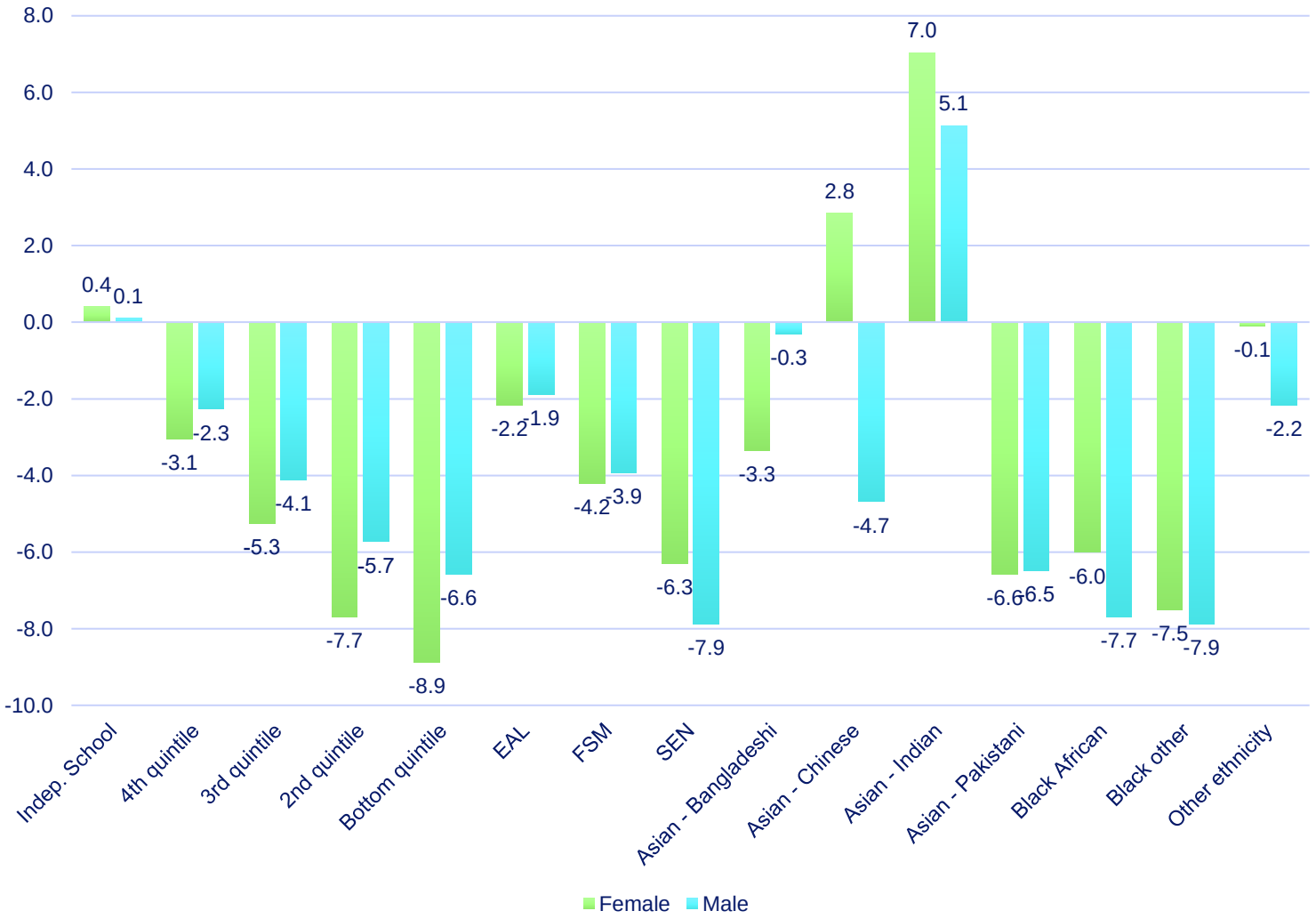
- Comparing ‘like with like’ students who did/didn’t go on to Higher Education, the return to degree at **age 29** is approx. 26% for females and 6% for males.
- Note: much of female return related to labour supply.

Fig. 6: Differences in raw earnings and conditional earnings for those who did/didn’t go to HE, Belfield et al. 2018.

Takeaways

- Takeaway #1: on average an undergraduate degree increases earnings and this is a causal relationship.

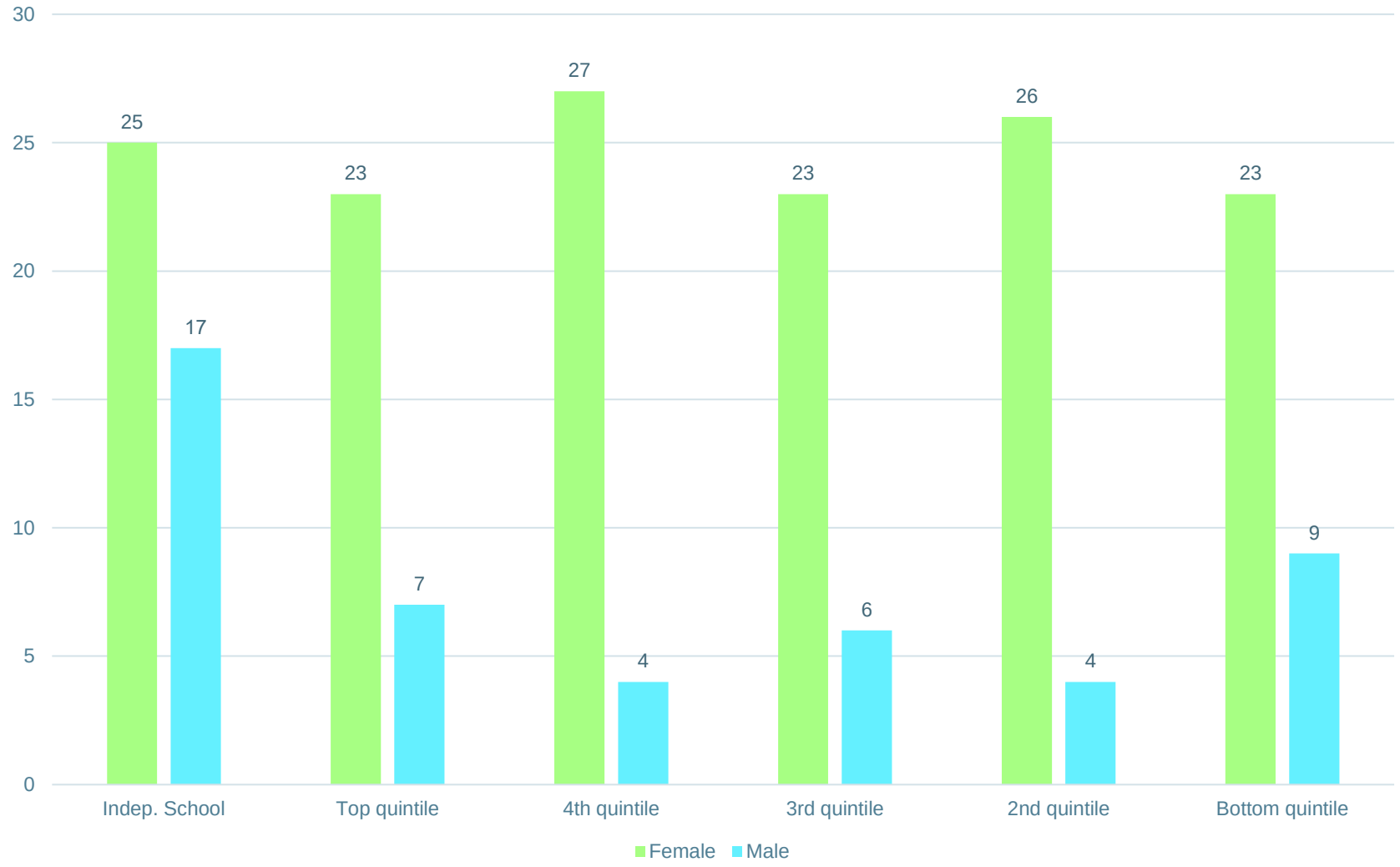
Effects of characteristics on earnings



- Not such a positive finding here: clear impacts of SES, other characteristics and ethnicity – even taking into account prior attainment, prior subject choices, home region, age started and cohort.

Fig. 7: Impacts of characteristics on earnings at age 29, Belfield et al. 2018.

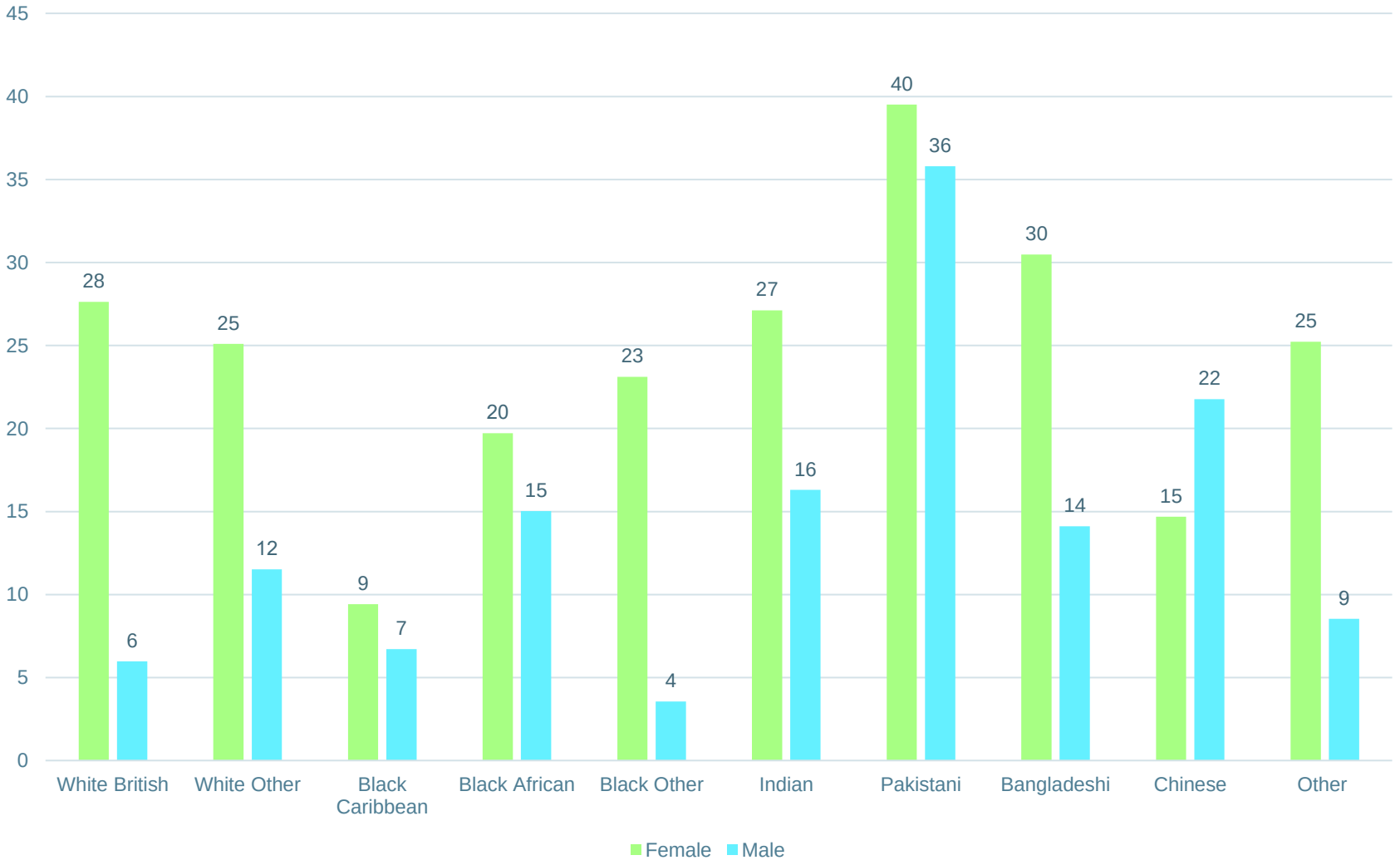
Effects of background on *returns*



- On the positive side: returns to ***going to*** HE compared to not are consistent across the distribution of socio-economic status – so HE translates into a similar earnings boost whatever the student's background.

Fig. 8: Impacts of background on returns to a degree, Belfield et al. 2018.

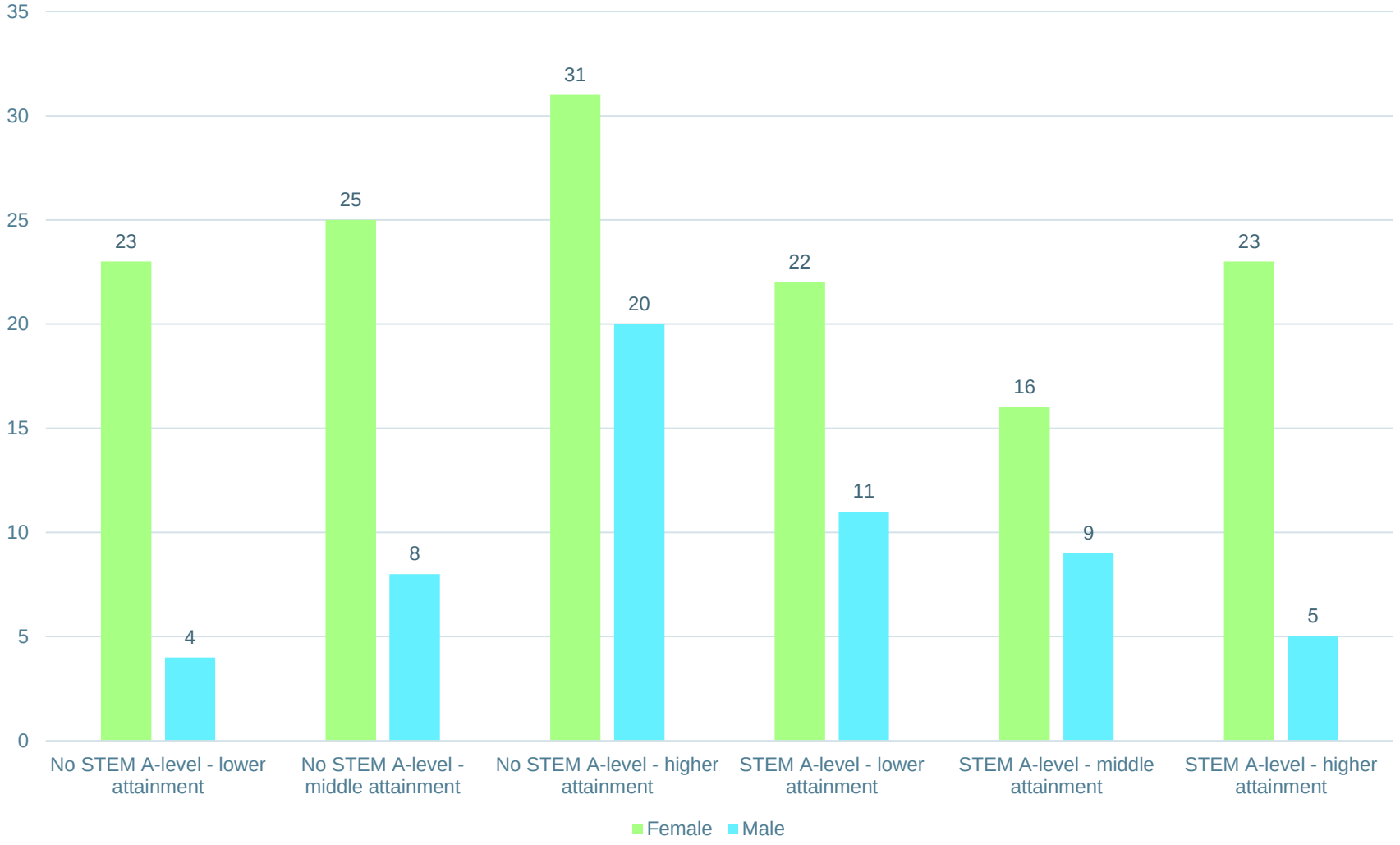
Effects of background on *returns*



- Variation in returns by ethnicity – for males, white British, Black Caribbean and Black Other have the lowest returns; for females it is Black Caribbean that is lowest

Fig. 9: Impacts of ethnicity on returns to a degree, Britton et al. 2021.

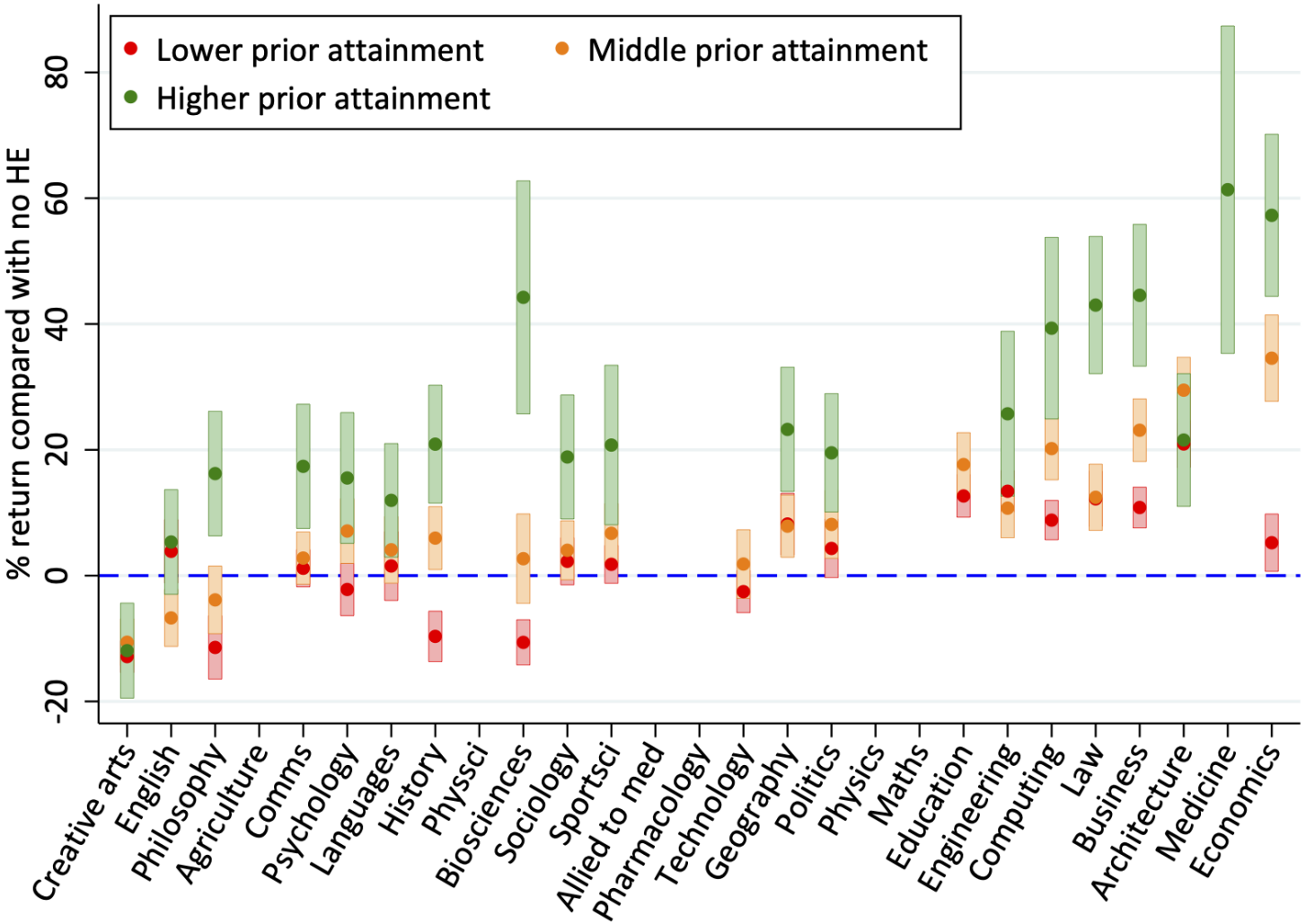
Effects of prior attainment on *returns*



- Prior attainment ***does*** affect the returns estimates:
  - Lower GCSE attainment students have lower returns, especially amongst those without a STEM A-level.

Fig. 10: Impacts of prior attainment on returns to a degree, Belfield et al. 2018.

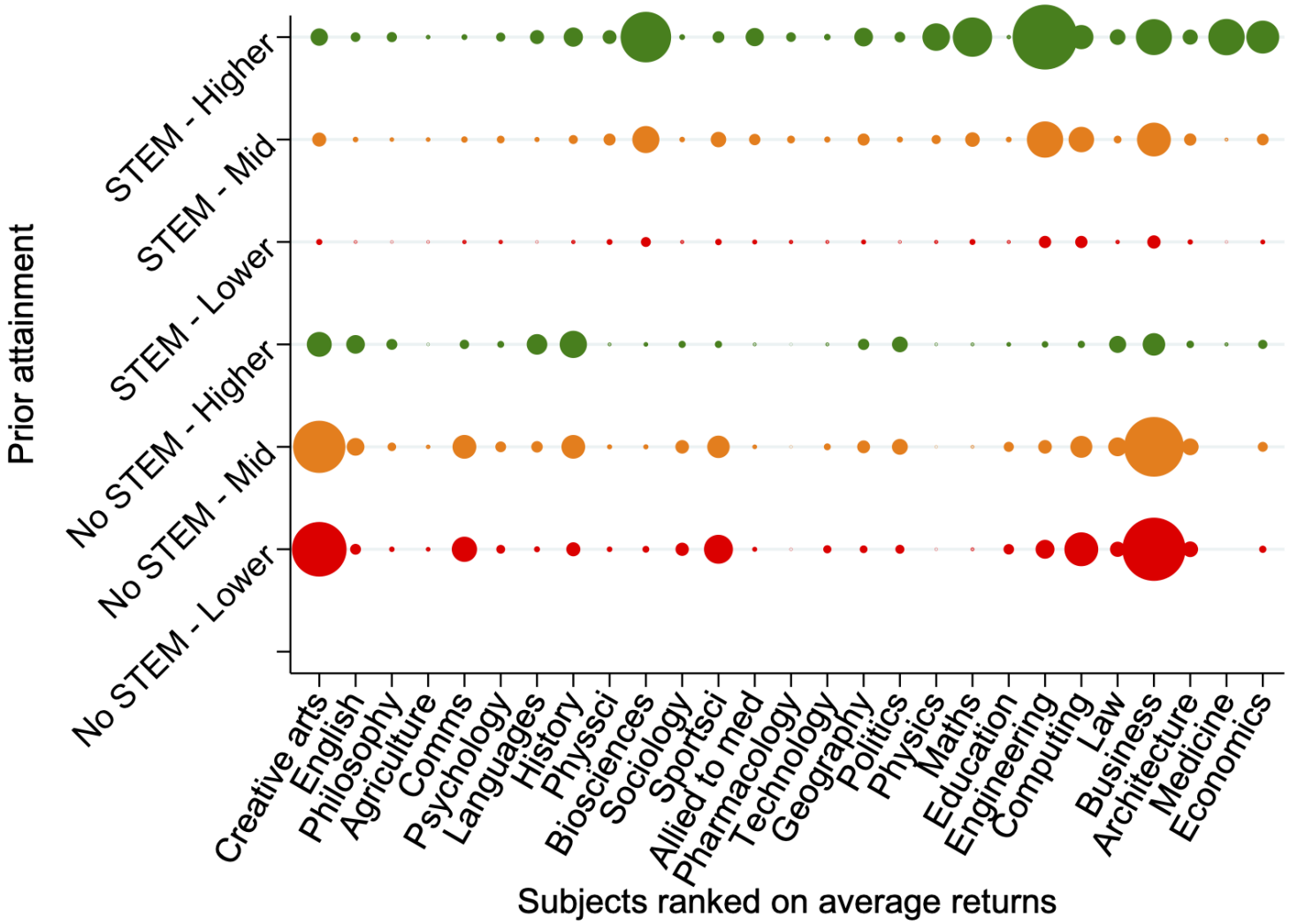
Subject returns – male, no STEM



- For males without a STEM A-level returns are lower across the board for the lowest prior attainment group.
- Lower prior attainment students in some cases getting negative returns but could have chosen higher returning subjects.

Fig. 11: Subject returns by prior attainment and amongst non STEM A-level holding students, Belfield et al. 2018.

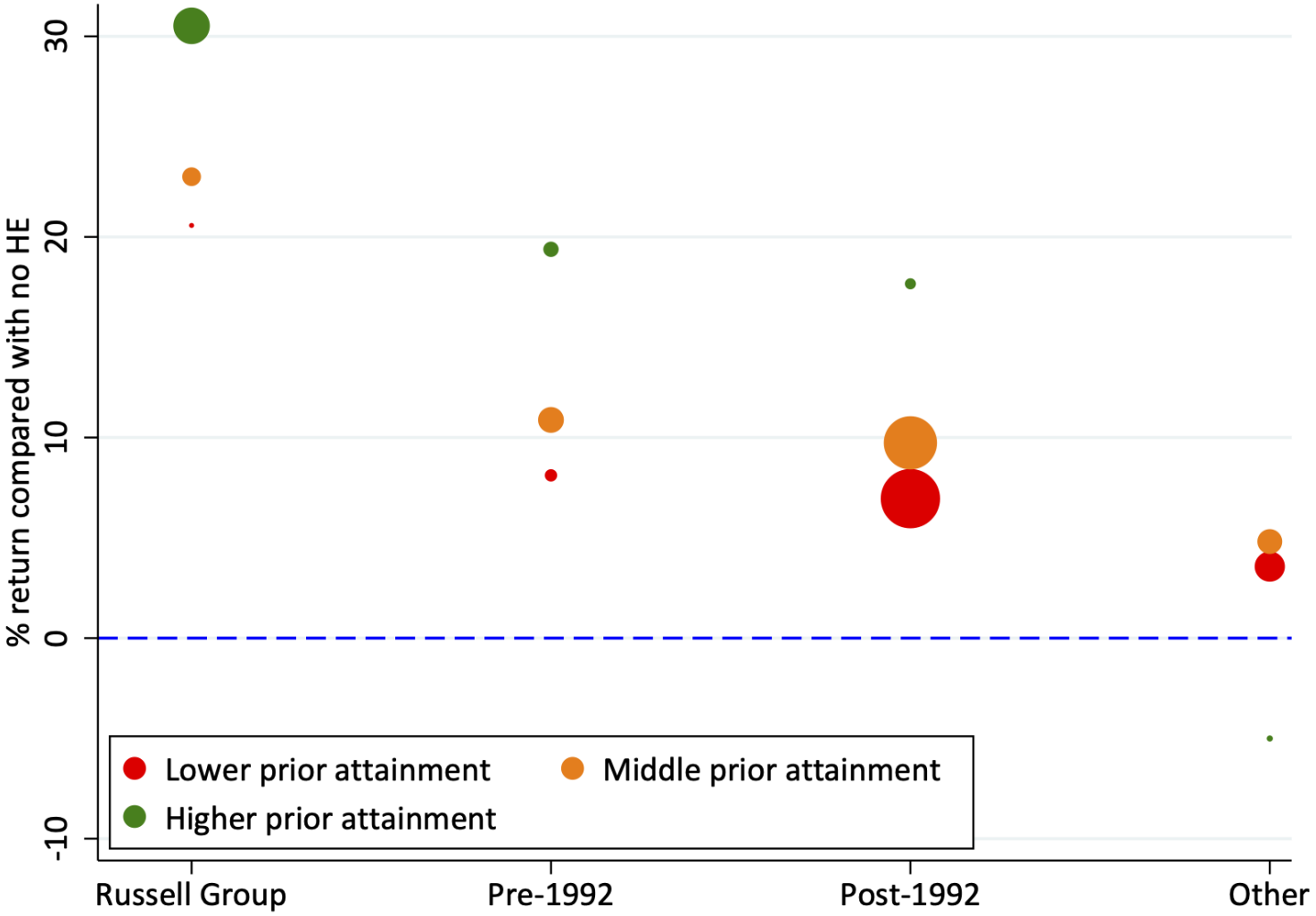
Subject choices – male



- Choice of subject does explain some of the difference in returns to HE:
  - Low attaining non-STEM A-level students much more likely to study creative arts but also many study Business/Computing

Fig. 12: Subject choice by prior attainment and STEM A-level holding or not, Belfield et al. 2018.

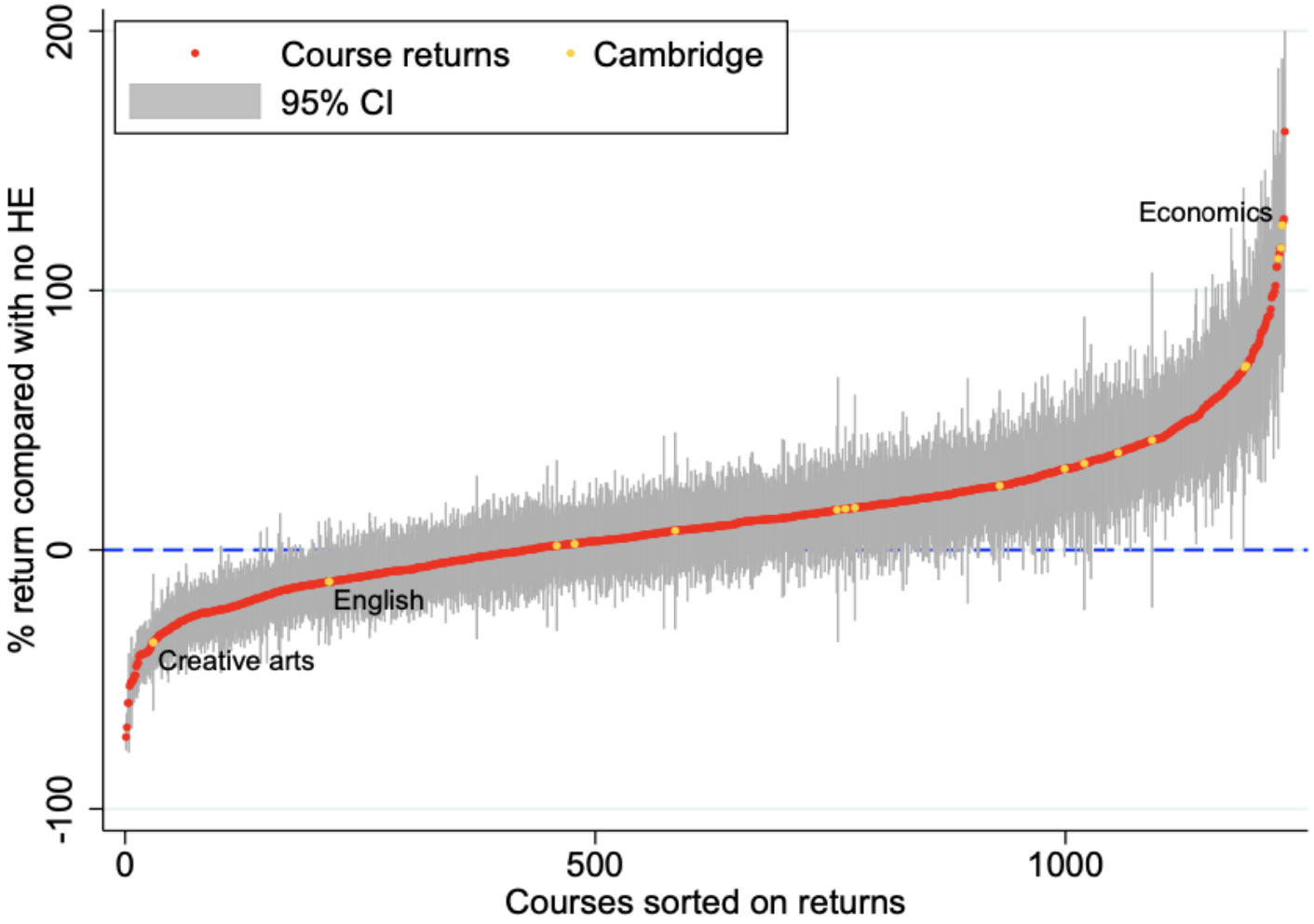
HEI type returns – male, no STEM



- Type of HEI attended explains some of the difference in returns to HE:
  - Non-STEM A-level students much more likely to go to post-1992 and 'other' HEIs.
  - But they have lower returns at ***all types***.

Fig. 13: Subject choice by prior attainment and STEM A-level holding or not, Belfield et al. 2018.

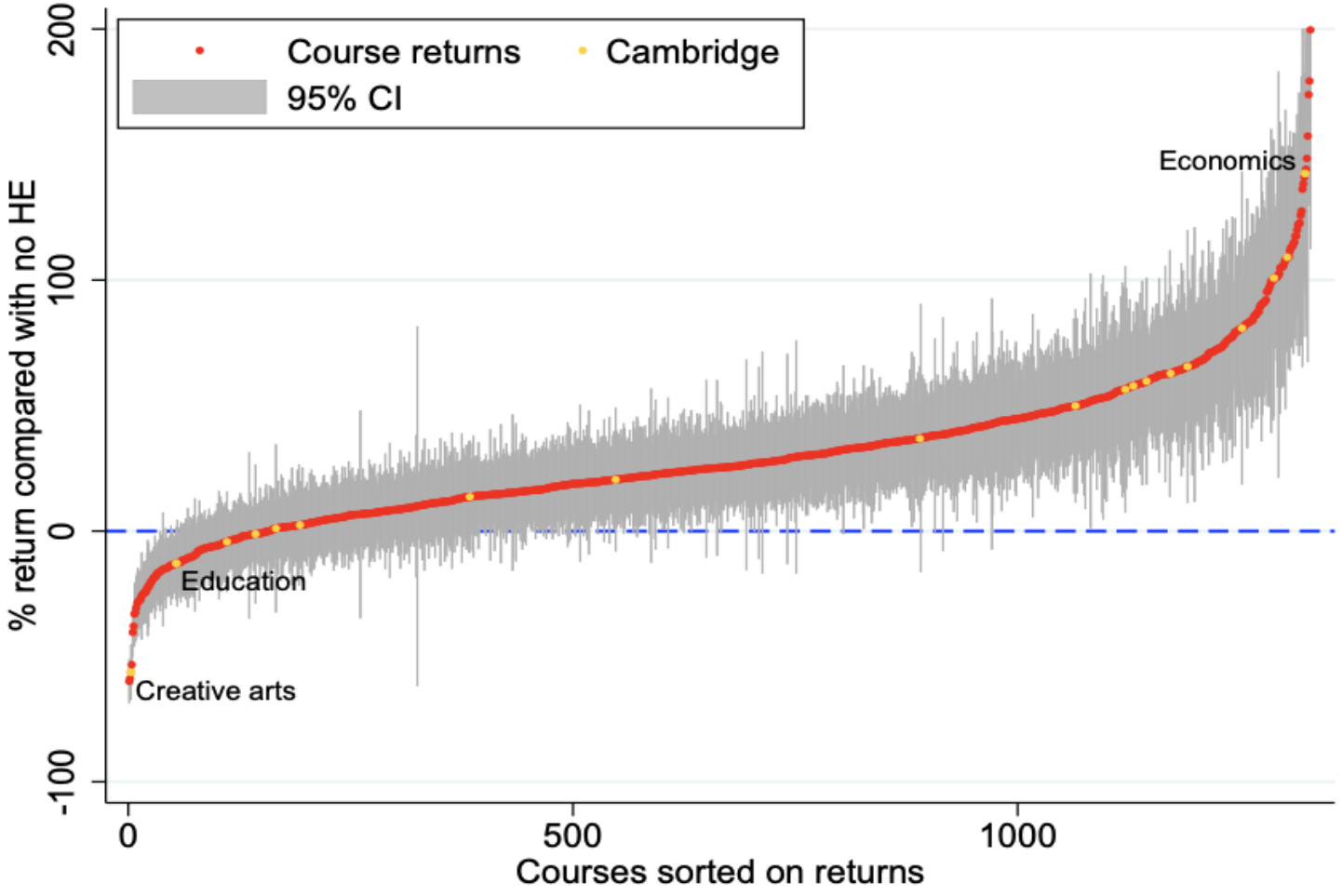
Course level returns – male



- Many of the negative estimated returns for courses are not statistically significant
  - Large variation in returns even within Cambridge – English and CA have negative returns.

Fig. 14: Course level returns at age 29 for males, Belfield et al. 2018.

Course level returns – female



- Many of the negative estimated returns for courses are not statistically significant
  - Large variation in returns even within Cambridge – Education and CA have negative returns.

Fig. 15: Course level returns at age 29 for females, Belfield et al. 2018.

Takeaways

- Takeaway #1: on average an undergraduate degree increases earnings and this is a causal relationship.
- Takeaway #2: there is a lot of variation around the average – no HEI has positive returns for all subjects; no subject has positive returns at all HEIs.

Graduate employment…

Graduate employment: 6-months and 3-and-a-half years after graduation

	6-months after graduation		3-and-a-half years after graduation	
Graduate job	33,346	49.5%	45,275	67.2%
Underemployed	14,906	22.1%	9,575	14.2%
Not known (job)	656	1.0%	739	1.1%
Unemployed	5,226	7.8%	1,654	2.5%
Further study	10,873	16.1%	8,122	12.1%
Inactive	2,374	3.5%	2,016	3.0%
TOTAL	67,381	100.0%	67,381	100.0%

Estimates from Dickson, Donnelly, Kameshwara and Lazetic (2023) using HESA and DLHE linked data.

Characteristics of the underemployed graduates

- Compared to those in a graduate job 6-months after graduation, the underemployed graduates are:
  - Demographics: . . . more likely to be female, young, and from a state school; less likely to be from an independent school; they have notably lower UCAS points on entry to HE than those who go on to get graduate jobs (147 vs 158).
  - Background: . . . more likely to be first-in-family to go to HE, more likely to be from a low HE participation area, more likely to have parents who did a lower SOC job.
  - Higher Education: . . . much less likely to be RG graduates; much more likely to have been to an 'Other HEI'; much less likely to be a STEM graduate, much more likely humanities, social sciences and Arts.

Persistence of graduate underemployment

				3-and-a-half years after graduation					
6-months after graduation ↓			Graduate job	Underemployed	Not known (job)	Unemployed	Further study	Inactive	Total
Graduate job	**49.5%**	33,346	**79.7%**	7.1%	0.9%	1.3%	8.7%	2.3%	100.0%
Underemployed	**22.1%**	14,906	52.1%	**30.3%**	0.9%	2.3%	11.8%	2.7%	100.0%
Not known (job)	**1.0%**	656	66.2%	13.6%	**1.4%**	4.1%	13.3%	1.5%	100.0%
Unemployed	**7.8%**	5,226	47.3%	26.4%	2.0%	**9.4%**	10.8%	4.2%	100.0%
Further study	**16.1%**	10,873	63.8%	8.1%	1.0%	2.4%	**23.0%**	1.7%	100.0%
Inactive	**3.5%**	2,374	46.2%	13.9%	3.5%	4.8%	12.6%	**19.0%**	100.0%
Total	**100.0%**	67,381	67.2%	14.2%	1.1%	2.5%	12.1%	3.0%	100.0%

Is it a causal effect?

Dependent variable: underemployed 3-and-a-half years after graduation				
	(1)	(2)	(3)	(4)
Graduate job (Reference Category)				
Underemployed	0.29***	0.25***	0.25***	**0.24*** **
Not known (jobs)	0.09***	0.08***	0.08***	0.08***
Unemployed	0.28***	0.25***	0.24***	0.24***
Further study	0.03***	0.03***	0.03***	0.03***
Inactive	0.15***	0.14***	0.14***	0.13***
HE related controls	X	✔	✔	✔
Prior attainment controls	X	X	✔	✔
Background controls	X	X	X	✔

Takeaways

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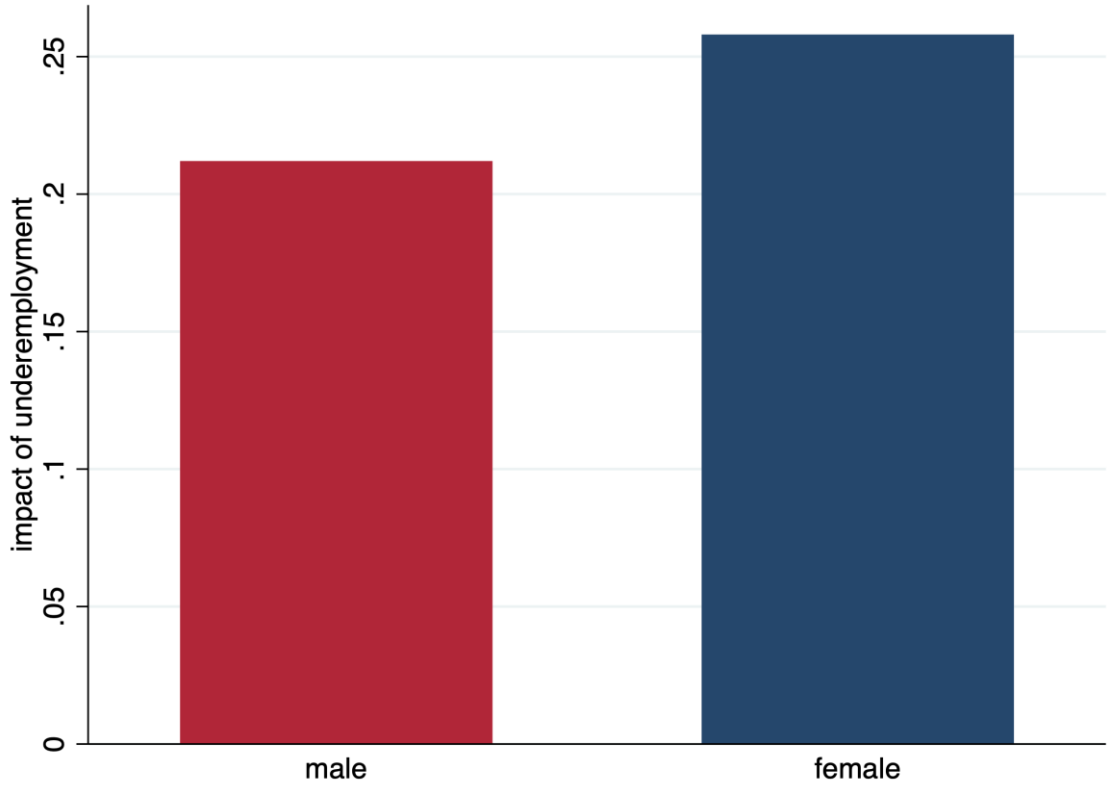
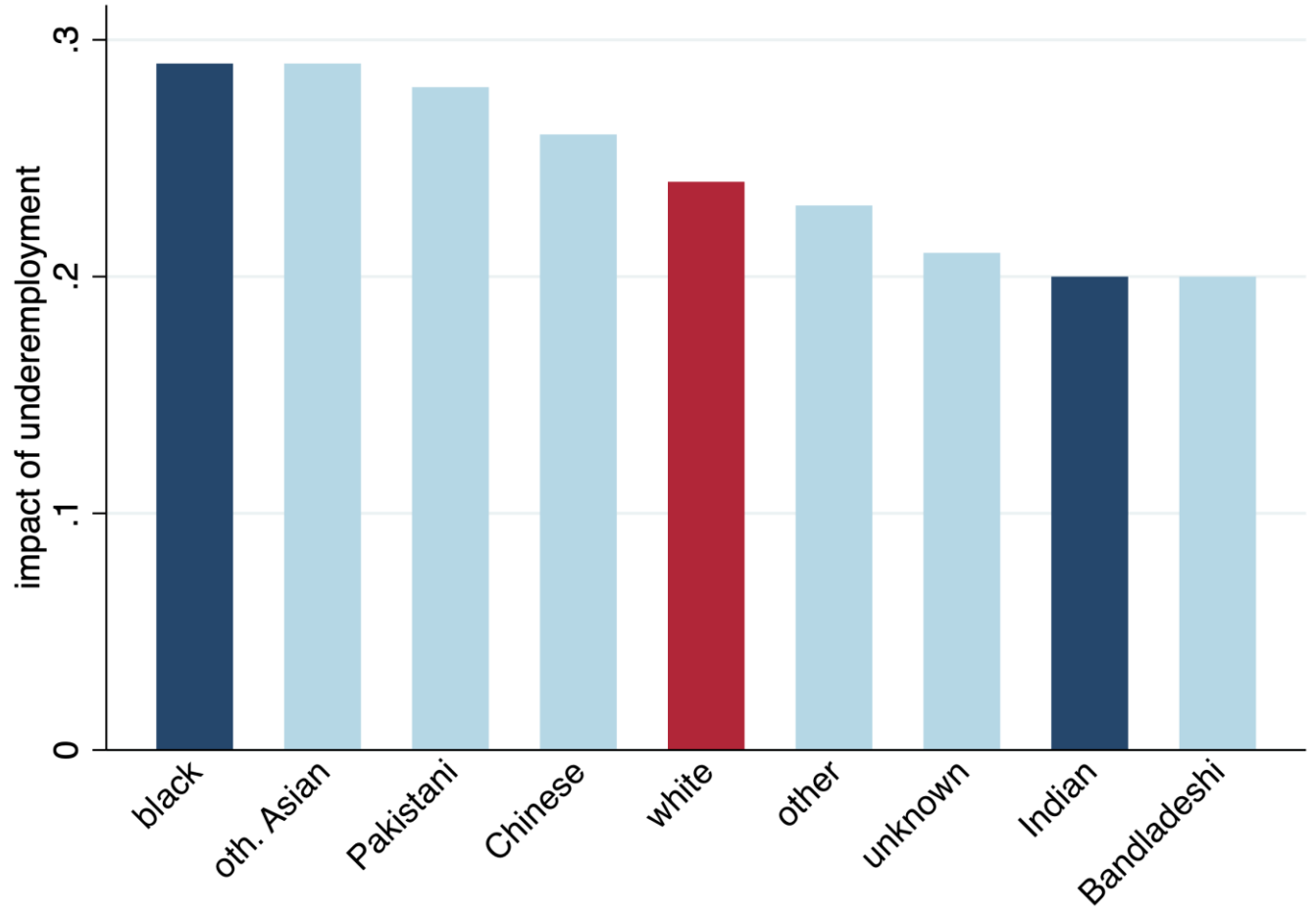
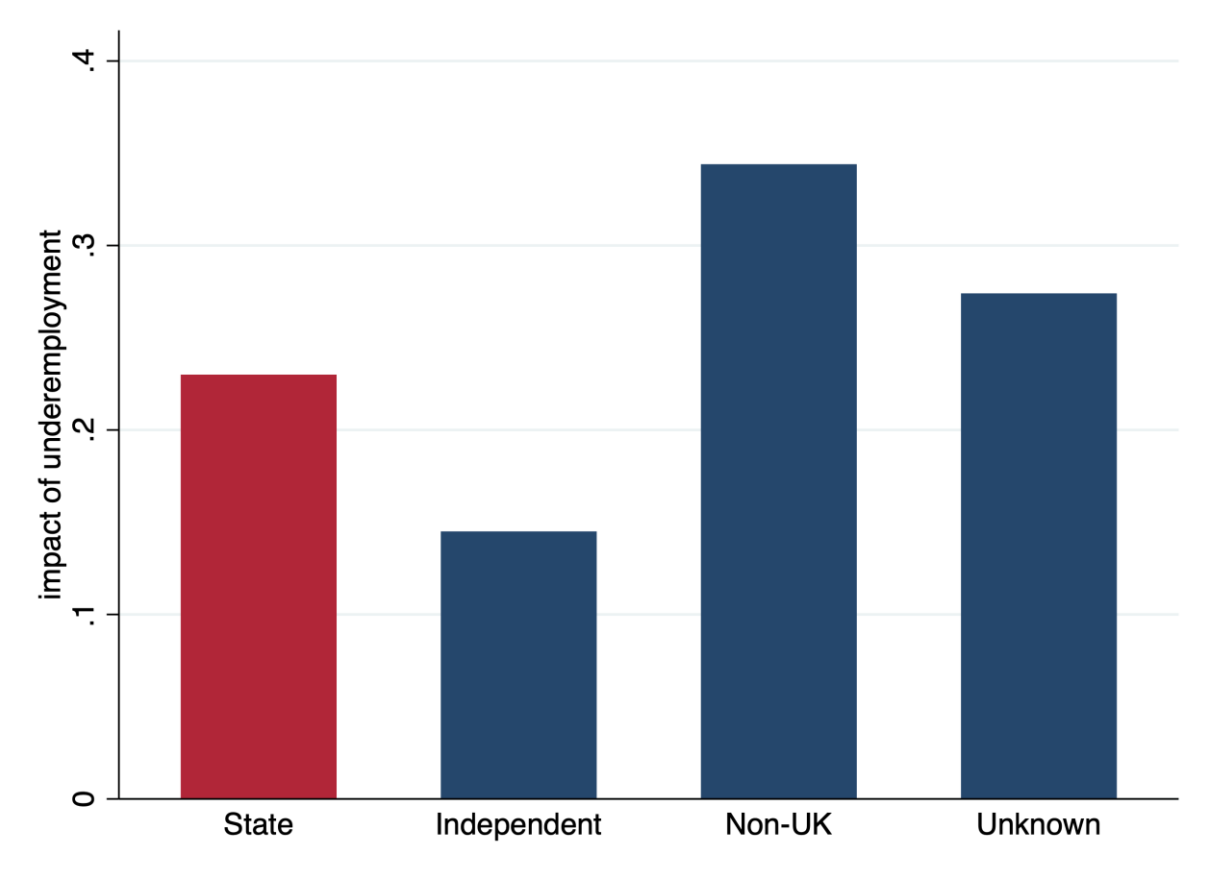
- Takeaway #2: there is a lot of variation around the average – no HEI has positive returns for all subjects; no subject has positive returns at all HEIs.
- Takeaway #3: failure to get a graduate job post-university has a substantial negative effect on graduate job prospects 3-years later.

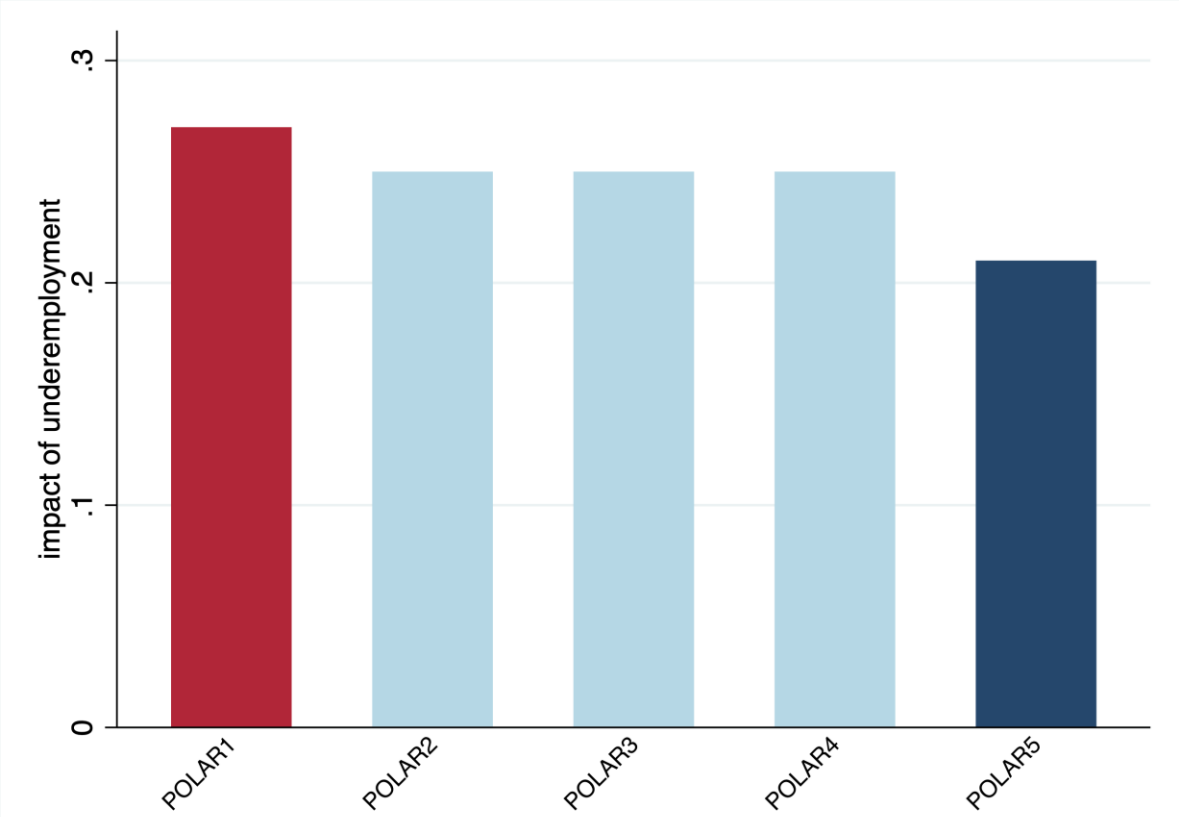
Is the effect worse for certain types of graduate? Gender/Ethnicity



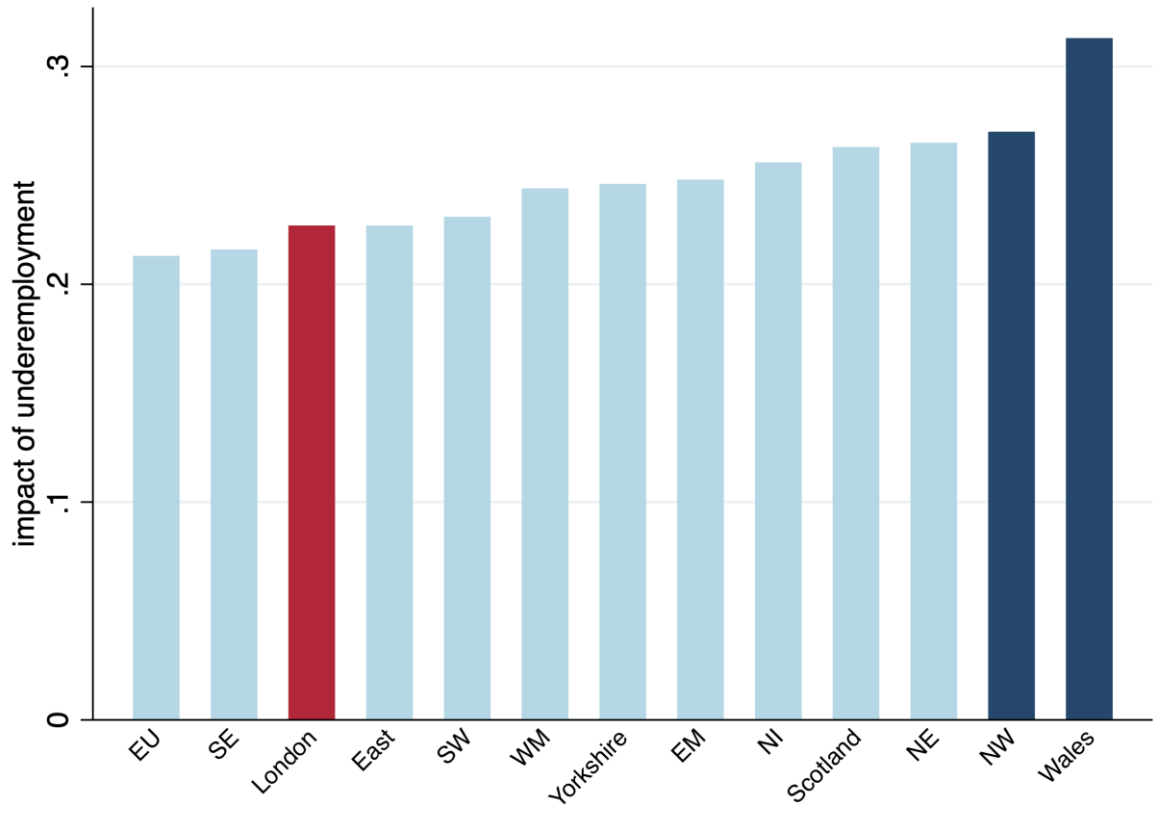


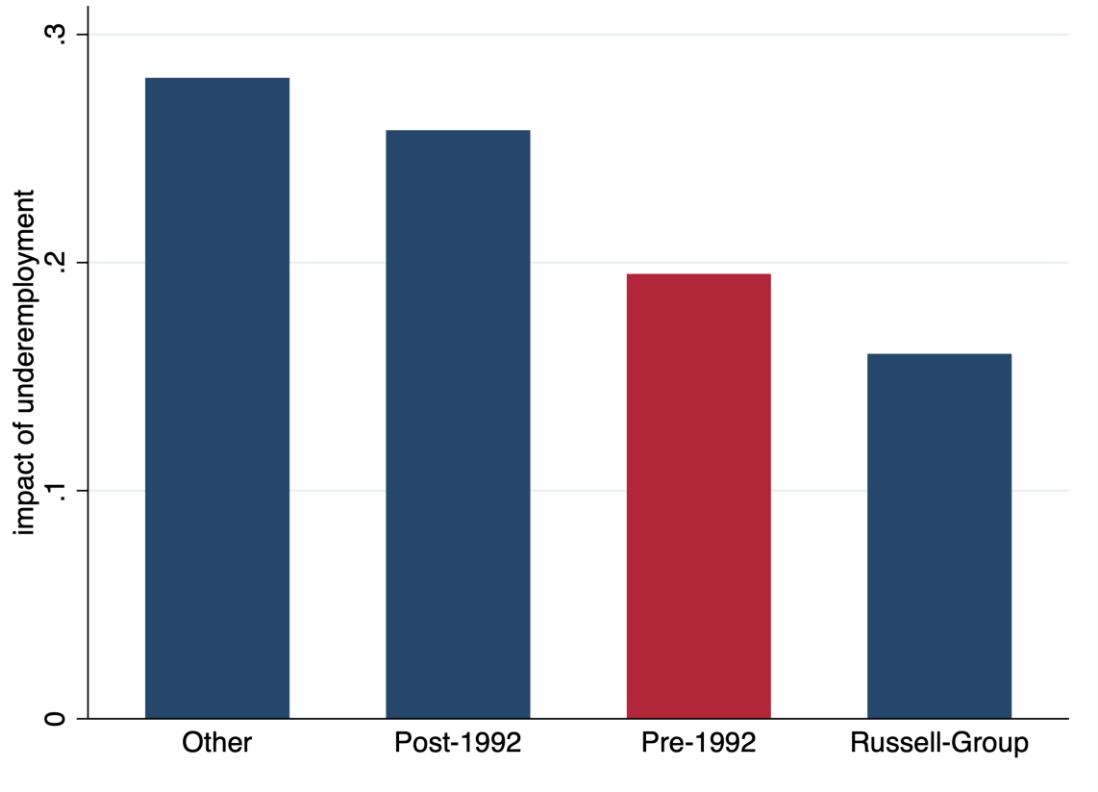
Is the effect worse for certain types of graduate? School type/POLAR



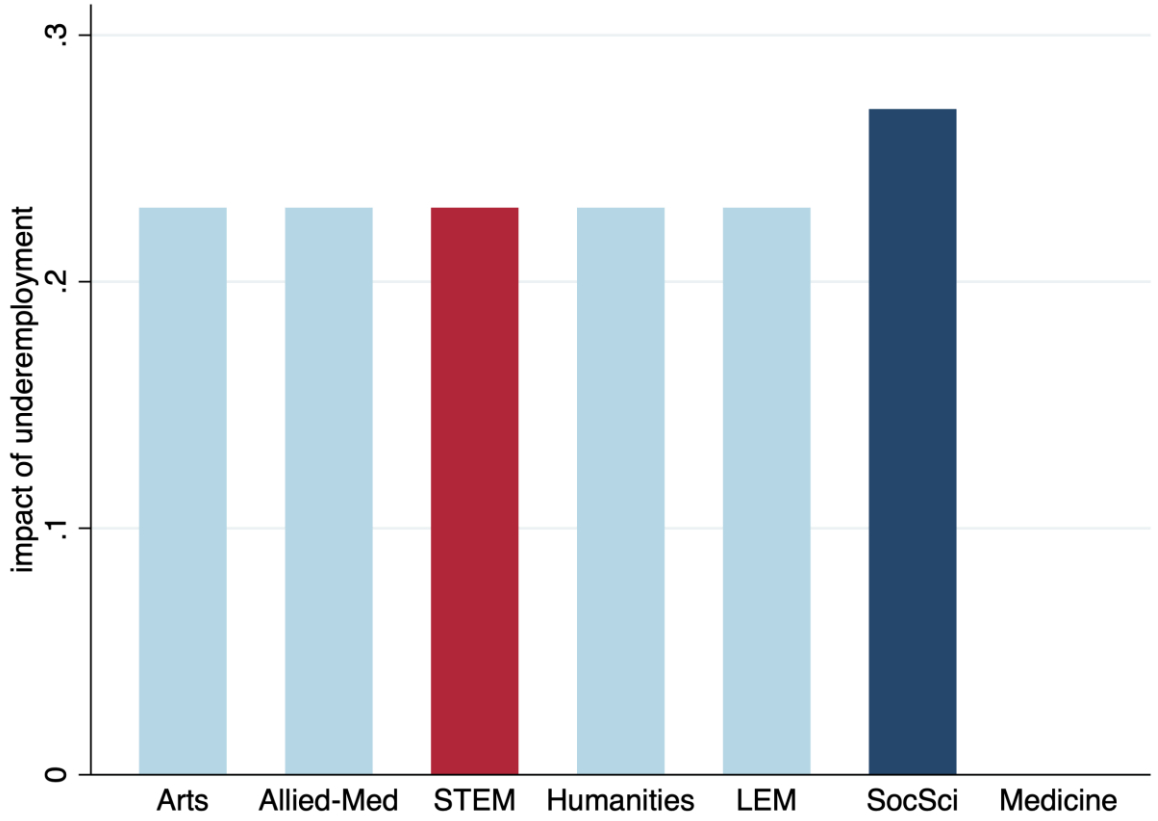


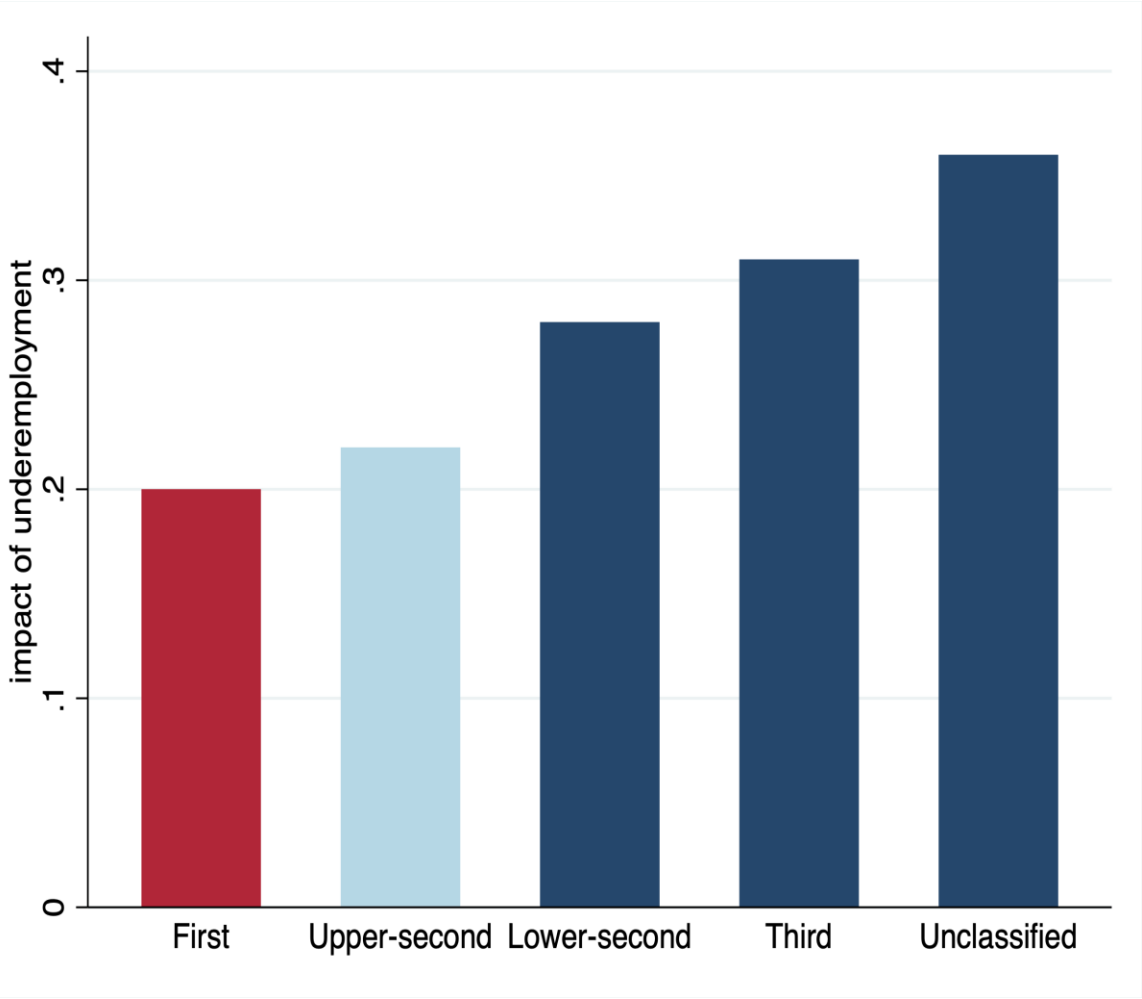
Is the effect worse for certain types of graduate? Region/HEI type





Is the effect worse for certain types of graduate? Degree subject/Class





Is the effect worse for certain types of graduate?

- The effect of early underemployment is exacerbated for graduates with certain characteristics: female; black; from Wales or the North-West; post-1992 or ‘Other’ HEI; Social Science subject; lower attainment at HE and from a state or non-UK school.

- These characteristics tend to have a level effect – increasing the probability of underemployment 6-months after graduation – but also have an interaction to make the effect of early underemployment worse.

- Particularly important for policy to focus on labour market transition and attachment to graduate job for students in these categories.

What does it all mean for policy and practice?

- Going to university is still a worthwhile investment on average:
  - For men it increases net lifetime earnings by approx. £130,000 in present value terms; for women the figure is approx. £100,000.
- A lot of variation at the course level…
  - The courses with the lowest (negative) values are dominated by subjects that are not studied for their earning potential (Creative Arts, English, Languages, Psychology, Agriculture…).
  - But some Business, Computing and Law degrees at newer Universities have negative returns.
  - No HEI has positive average returns for all subjects; no subject has positive average returns at all HEIs.

What does it all mean for policy and practice?

- A lot of the variation in returns is driven by subject and institution but also prior attainment…
  - For men in particular returns graded by prior attainment – HE experience translates into different levels of earnings, it is not just subject/HEI driving differences.
- Low returns for low prior attainment without a STEM A-level particularly important with regard to HE expansion…
  - Across all other prior attainment groups, nearly two-thirds of students already attend HE, in low prior attainment group it is only one-third.
  - 70% of students with 5 A*-C grades who did not attend HE are in the low prior attainment/no STEM group.
- To extent that HE expansion is from this no-STEM/low attainment group, returns are likely to be lower.
- But WP and HE expansion are not the same thing. . .

What does it all mean for policy and practice?

- Information, advice and guidance in schools and colleges is vital to ensure that students understand variation in returns, and likely returns for students with a similar prior attainment profile.
- There are good options for all students with 5A*-C GCSEs but not all are equally good (and some are bad).
- Funding currently biases students away from FE courses and towards (funded) HE courses which may not be right for them.
- New Lifelong Learning Entitlement aims to fix this…

What does it all mean for policy and practice?

- Underemployment work highlights the importance of the transition from higher education to the labour market.

- Analysis suggests large part of the persistence of graduate underemployment is a 'scarring effect' ⇒ paramount to reduce early graduate underemployment – especially as persistently underemployed make up half of the total 3½ years after graduation.

- Additional impacts for graduates from certain less traditional HE backgrounds highlights need for tailored support for particular groups of students.

What does it all mean for policy and practice?

- Challenge for careers service/HE sector as underemployment effects on later graduate outcomes are as large as unemployment effects – but the underemployed are a much greater proportion of graduates at 6-months than the unemployed (approx. 3 x greater).

- Specific employment support to target underemployed graduates in first year post-graduation ⇒ reduce gaps in CV, focus on providing graduate-level employment experiences (funded internships?).

Takeaways

- Takeaway #1: on average an undergraduate degree increases earnings and this is a causal relationship.
- Takeaway #2: there is a lot of variation around the average – no HEI has positive returns for all subjects; no subject has positive returns at all HEIs.
- Takeaway #3: failure to get a graduate job post-university has a substantial negative effect on graduate job prospects 3-years later.
- Takeaway #4: IAG vital to match students to right courses (HE or FE); challenge for sector to support successful transition into the graduate labour market – esp. for WP students.

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- Takeaway #4: IAG vital to match students to right courses (HE or FE); challenge for sector to support successful transition into the graduate labour market – esp. for WP students.

Are students being sold a false dream?

- No.

- But there is more to be done to ensure young people make the right choices for them post-compulsory education – not skewed by (a) believing that HE pays a high return regardless of subject, institution and how hard you work…; (b) a funding system that pushes people towards HE and away from FE.

- There is more to be done to help graduates transition into the labour market, particularly those from WP backgrounds.

Thank you

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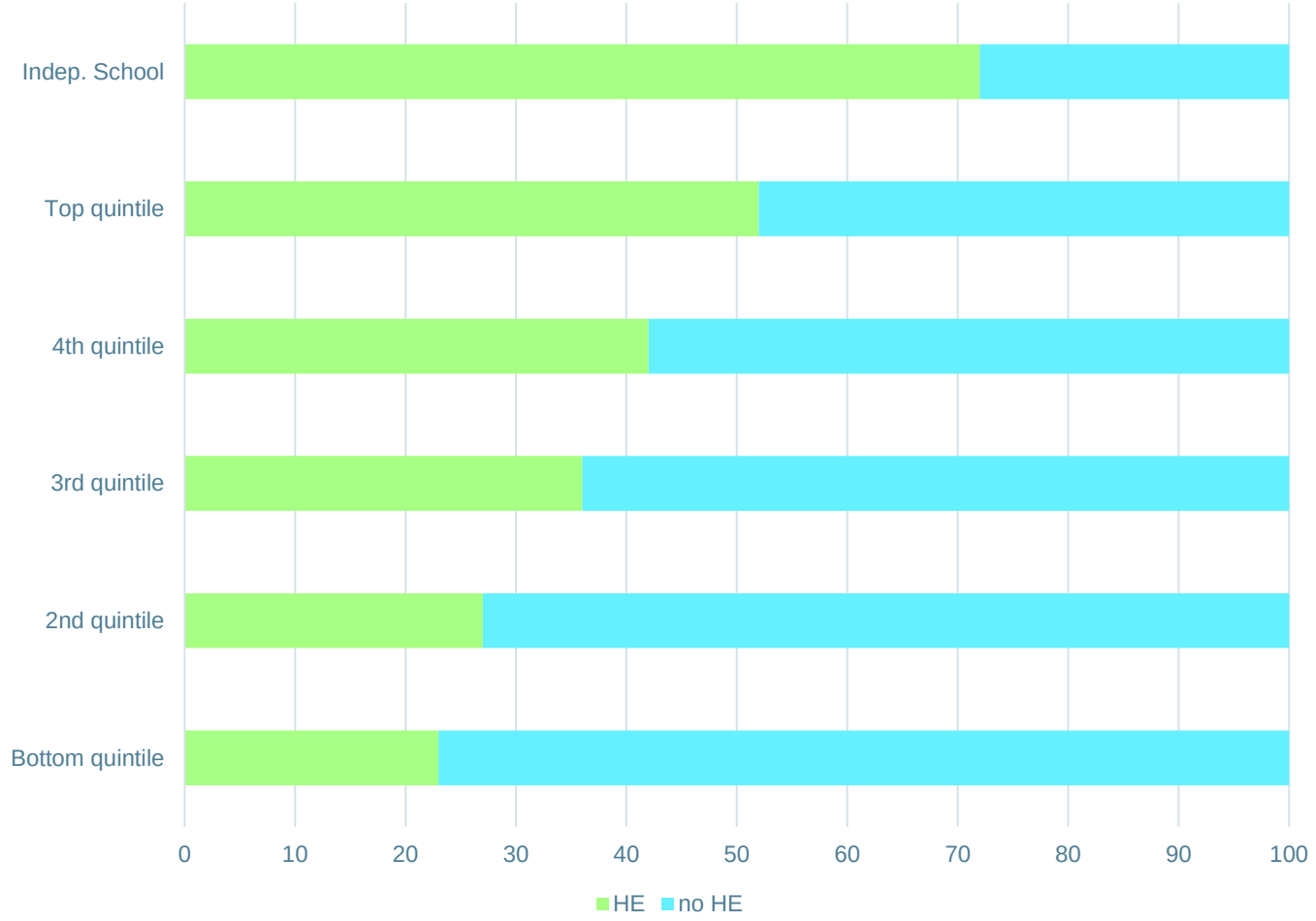
Appendix

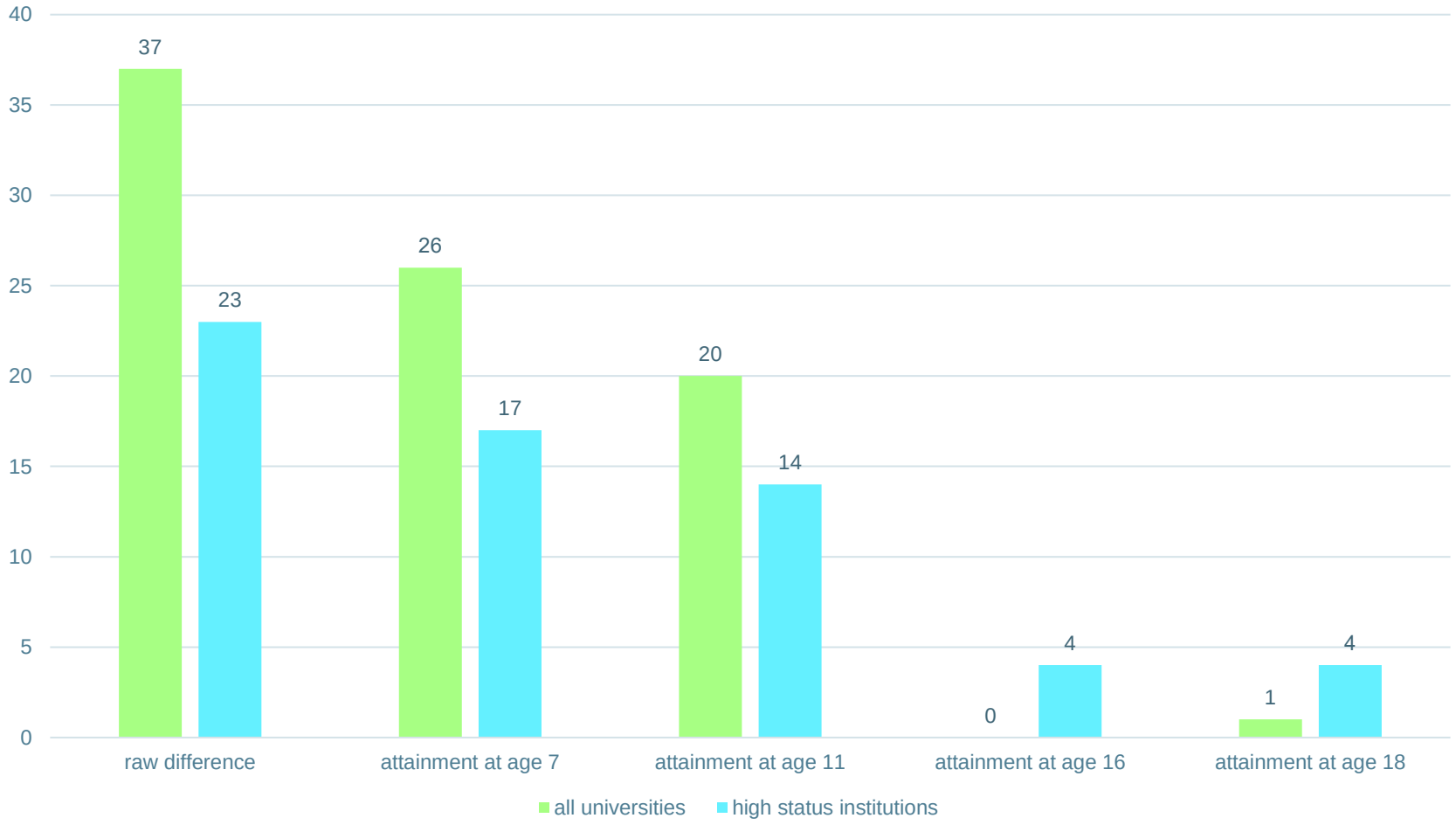
Uneven rates by socio-economic background…



- Participation is graded by background – those from better off families are much more likely to attend HE.

Fig. 2: Higher Education Participation by background, Britton et al., 2021.

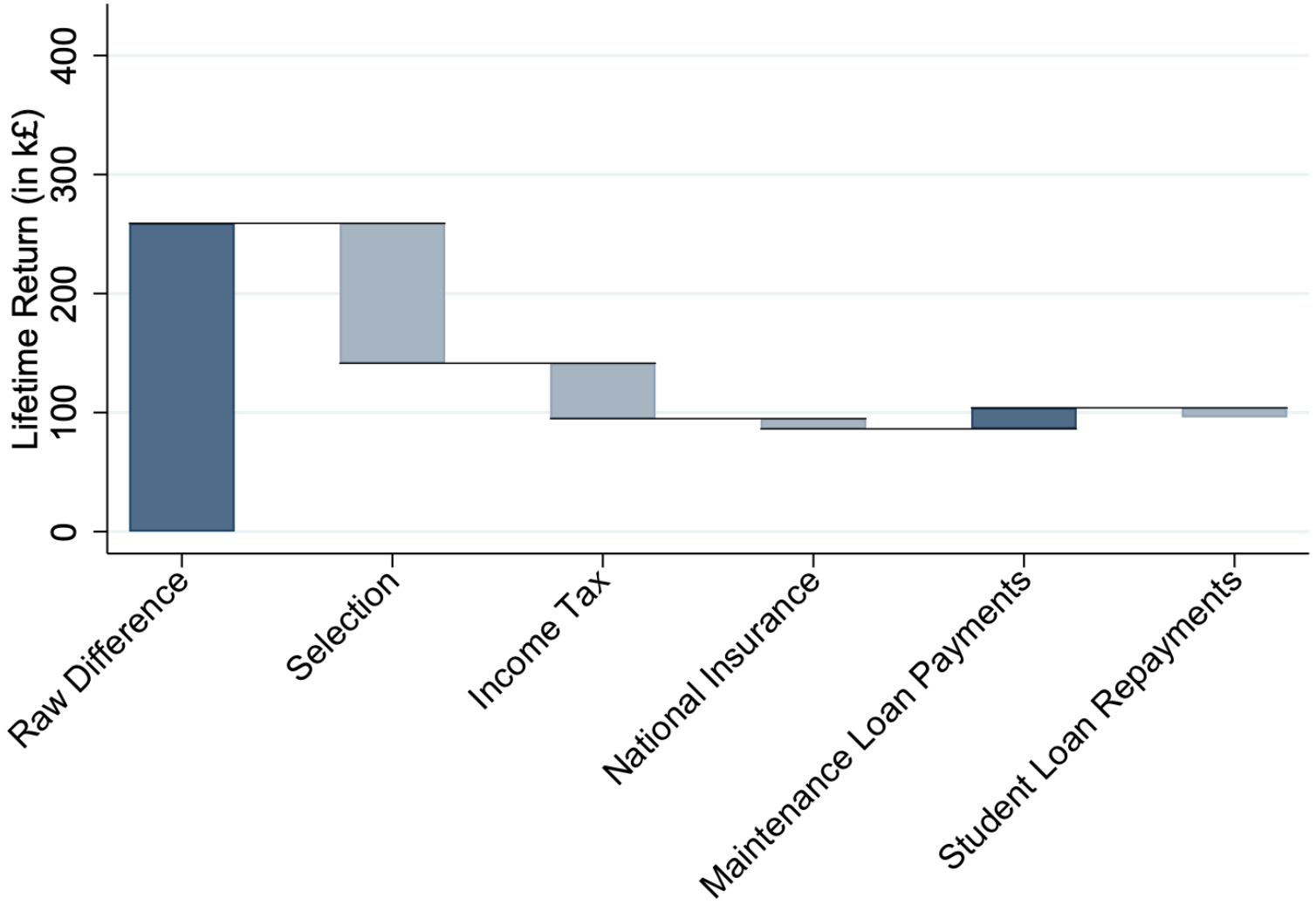
Differences related to prior attainment



- Almost all of the difference in attendance between those from the best-off 20% of families and the worst-off 20% of families is explained by attainment in school.

Fig. 3: Differences in the % of state school students from the richest and poorest 20% of families who go to university, controlling for attainment at different ages. Crawford et al., 2016.

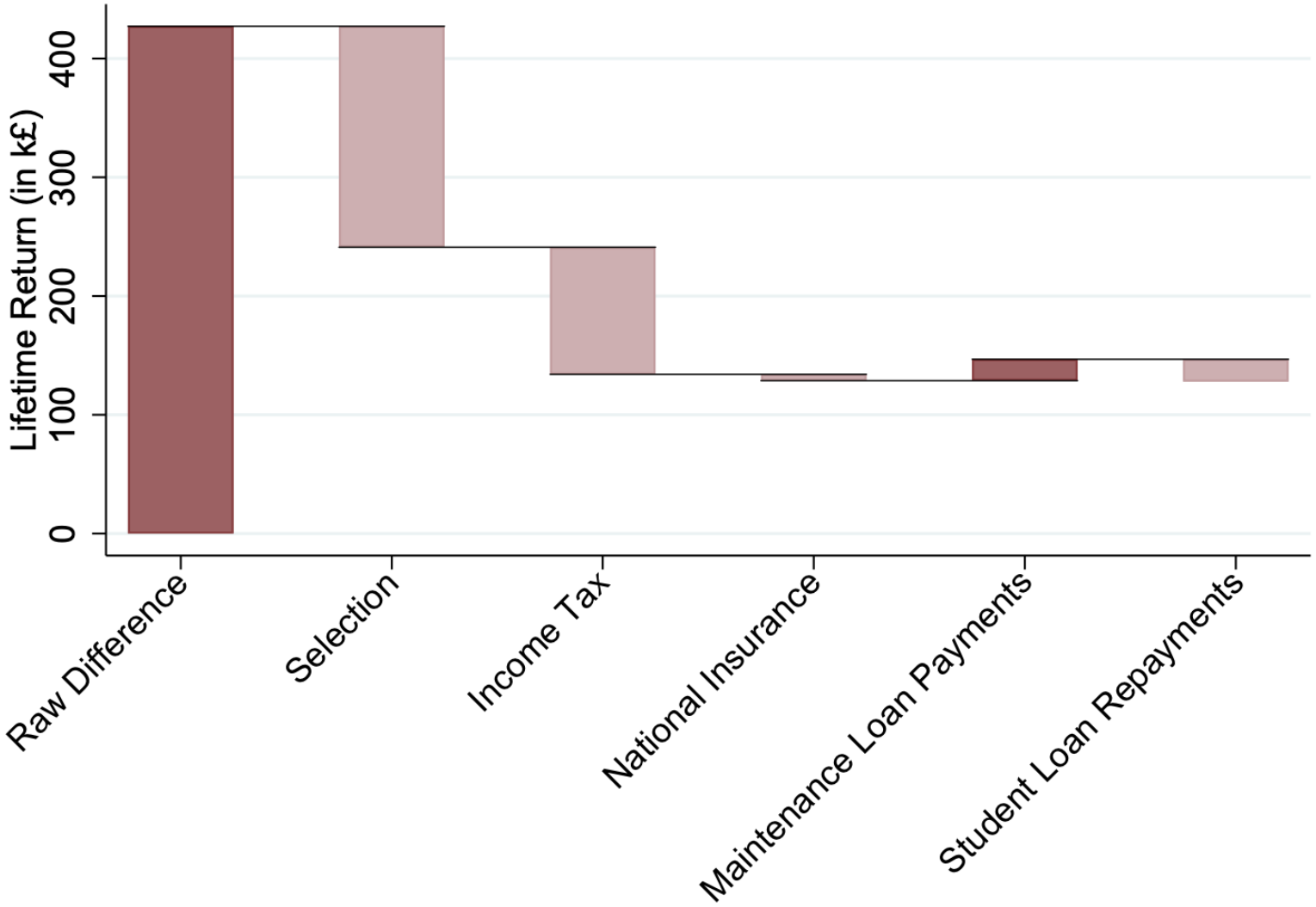
Lifetime returns for females



- Comparing ‘like with like’ students who did/didn’t go on to Higher Education, the return to degree over the lifetime is estimated to be approx. £100,000 for women. This is taking into account loan repayments and higher income tax.

Fig. 7: Lifetime returns to HE, female, Britton et al. 2020.

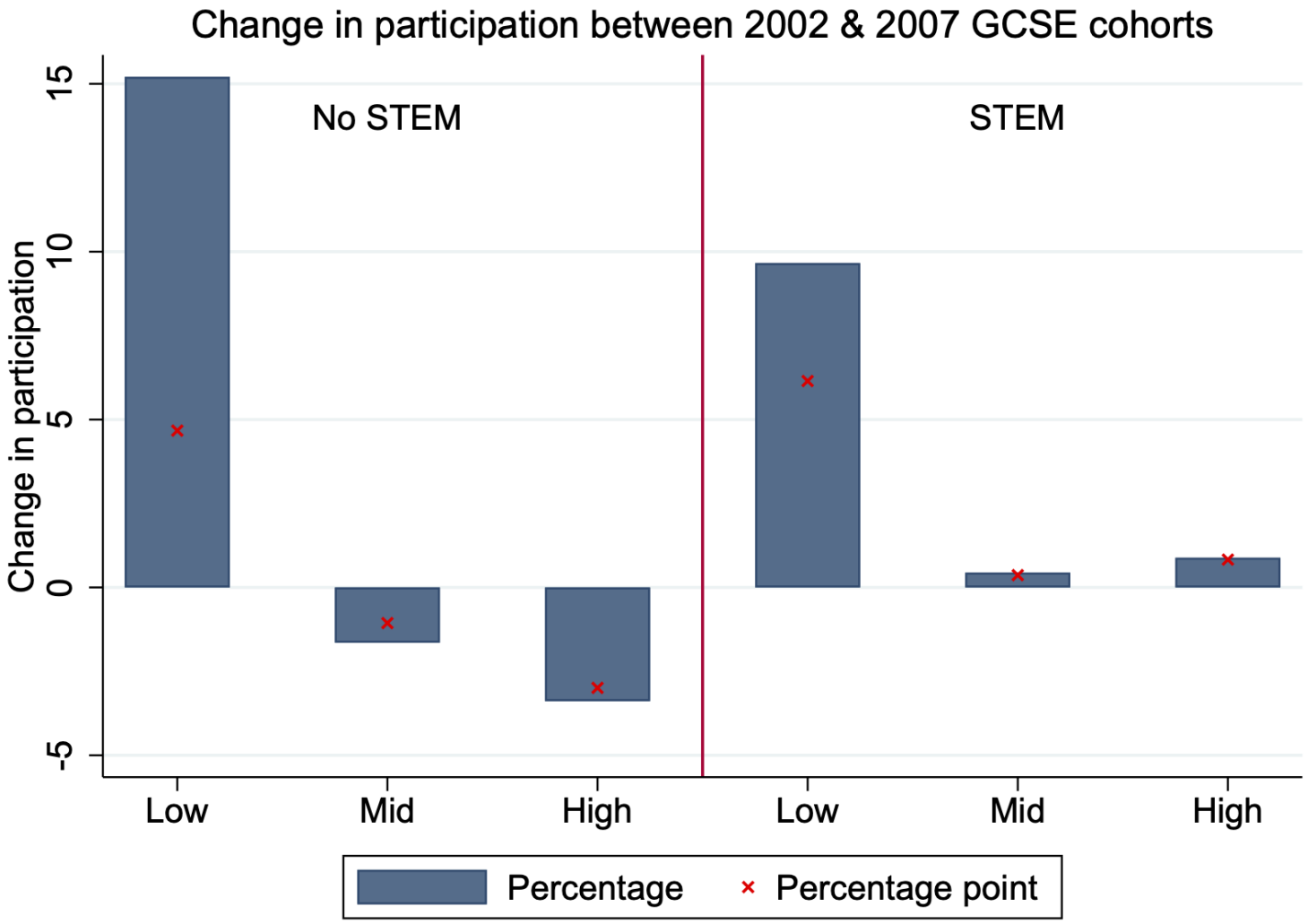
Lifetime returns for males



- Comparing ‘like with like’ students who did/didn’t go on to Higher Education, the return to degree over the lifetime is estimated to be £130,000 for men. This is taking into account loan repayments and higher income tax.

Fig. 8: Lifetime returns to HE, male, Britton et al. 2020.

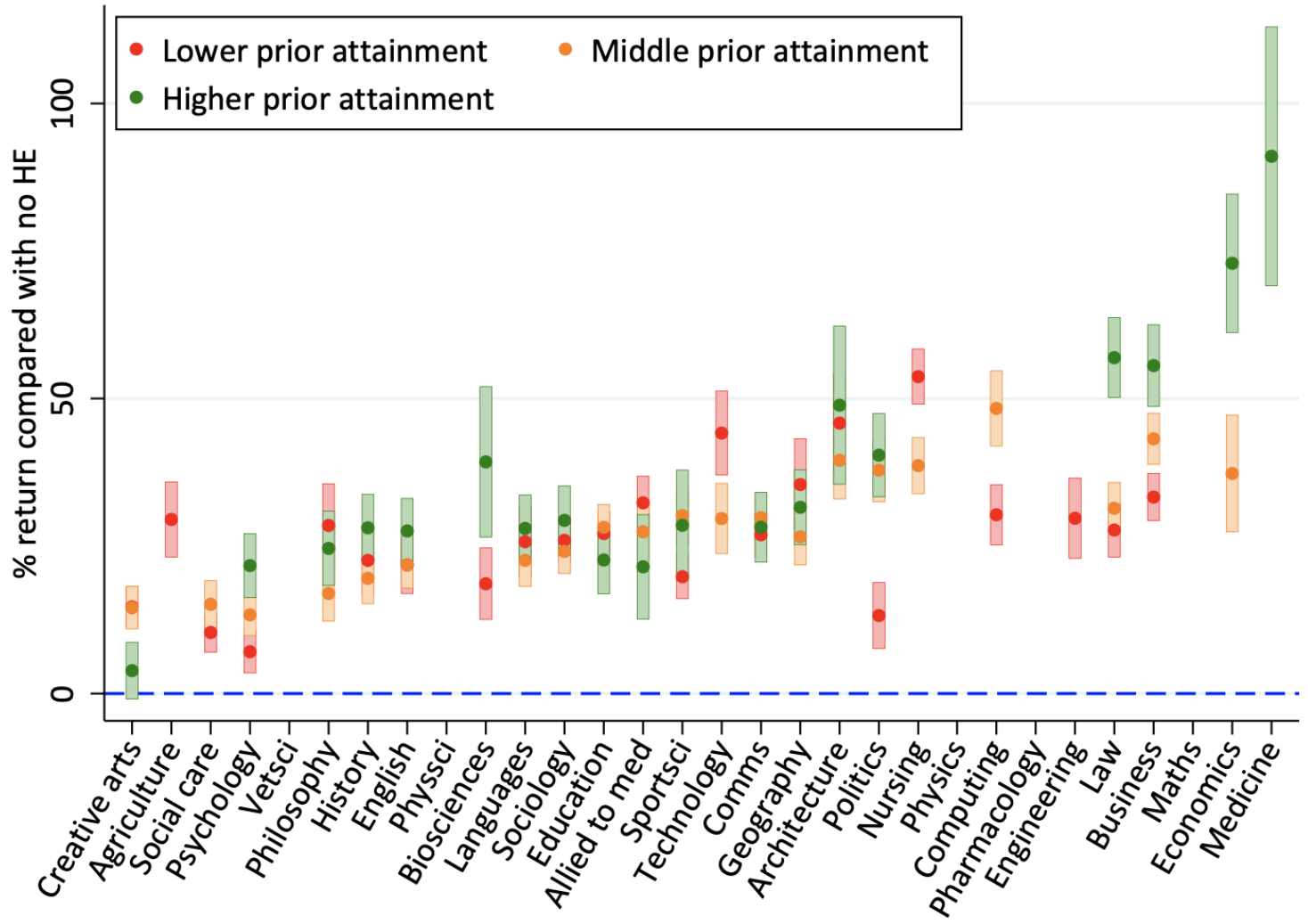
Changes in participation



- The expansion over the years of our data (GCSE cohorts 2002 to 2007) was driven by lower prior attainment students, both with/without STEM A-levels.

Fig. 18: Change in participation by prior attainment and STEM A-level holding or not, Belfield et al. 2018.

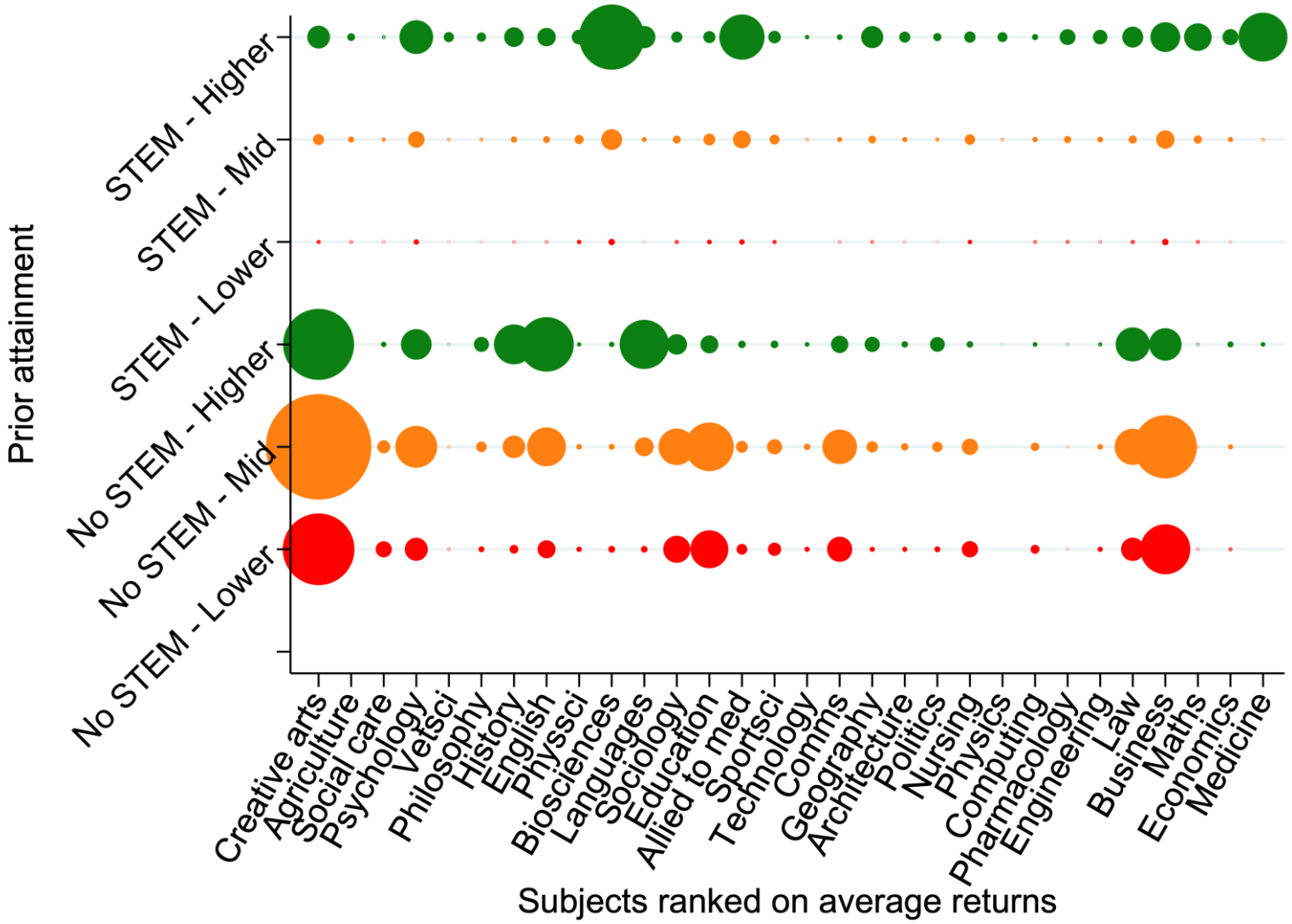
Subject returns – female, no STEM



- For females without a STEM A-level there remain good returns regardless of choice of subject.
- Lower prior attainment students generally have lower returns in each area.

Fig. 16: Subject returns by prior attainment and amongst non STEM A-level holding students, Belfield et al. 2018.

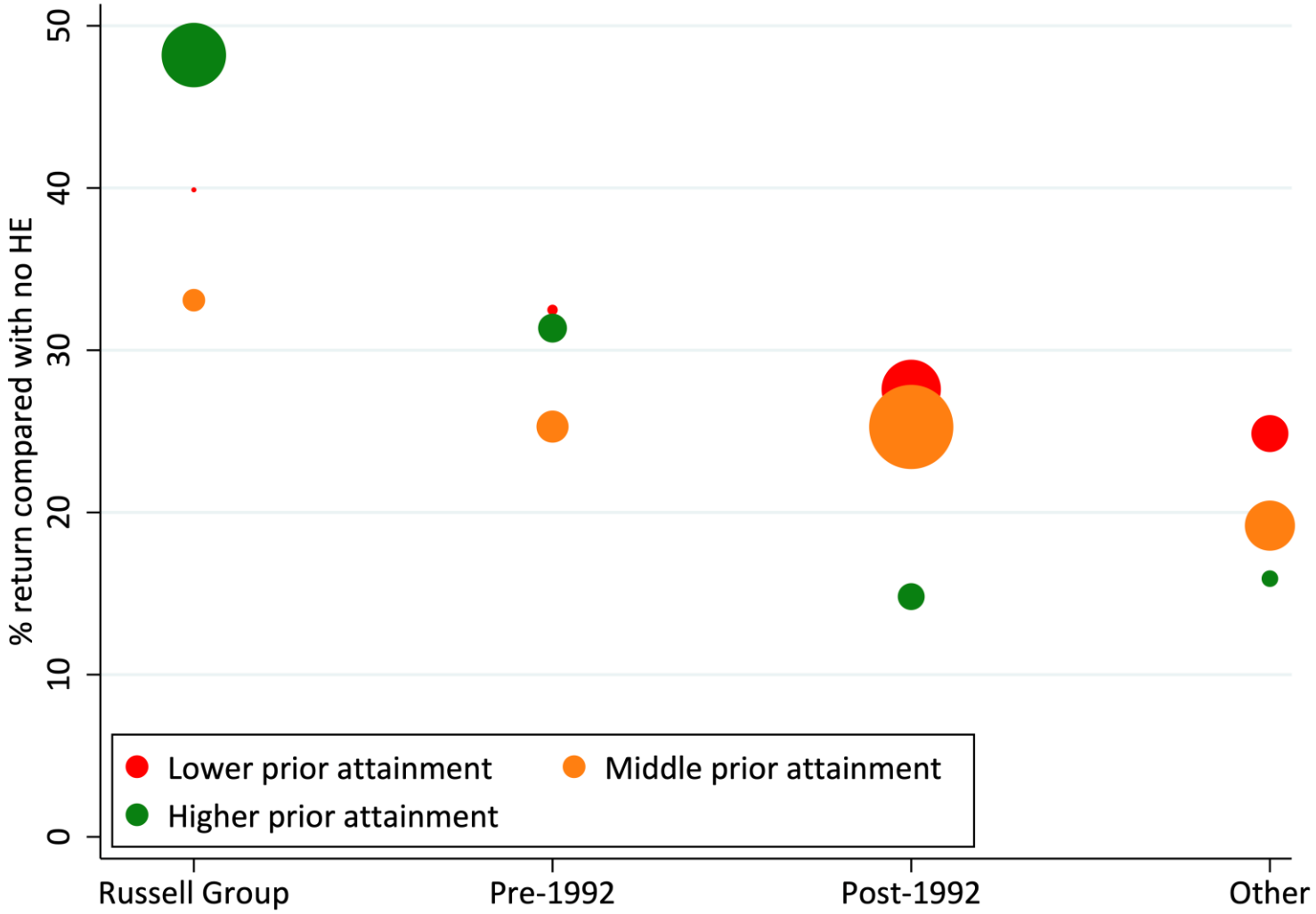
Subject choices – female



- Choice of subject does explain some of the difference in returns to HE:
  - Non-STEM A-level students much more likely to study creative arts and humanities subjects.

Fig. 12: Subject choice by prior attainment and STEM A-level holding or not, Belfield et al. 2018.

HEI type returns – female, no STEM



- Type of HEI attended does explain some of the difference in returns to HE for lower attaining:
  - More likely to go to post-1992 or 'other' institutions.
  - Returns still good at all HEI types.

Fig. 14: Subject choice by prior attainment and STEM A-level holding or not, Belfield et al. 2018.