



Department
for Education



The impact of living costs on the returns to higher education

Research report

September 2021

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Social Science in Government

1 Introduction

Accurate estimates of the returns to different higher education courses are vital. Information on the returns to the different options students face is essential for allowing them to make an informed decision on which subjects and at which university to study. High-quality evidence on returns is also crucial for policymakers considering the design of the higher education system and the development of skills in the economy. Recent work by Belfield et al. (2018) has provided rich evidence on the returns to different higher education options using newly linked administrative data. One common criticism of that work is that it looks at gross earnings returns, and does not take into account differences in cost of living across the country. In this report, we investigate how adjusting for cost of living affects the returns to different higher education options.

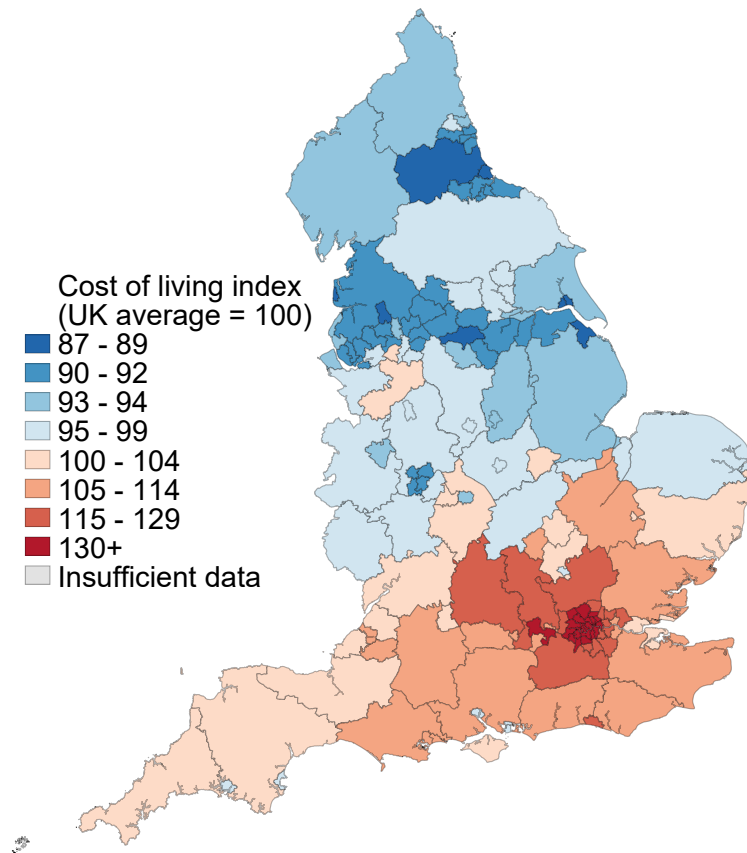
Housing costs are well known to vary widely across the country. For example, last year the average house price in Camden reached more than £1.1 million, while this was only £140,000 in County Durham. The prices of other goods and services display similar (albeit less extreme) patterns and, as a result, there is huge variation in living costs across the UK. Figure 1 highlights this variation, showing how overall living costs can be more than 10% lower than the UK average in the North of the country, but more than 30% higher than the national average in London and the South East. A salary that might allow individuals to lead a very comfortable life in County Durham might therefore leave them struggling to get by in London.

This can have important implications for how we think about the returns to attending university. We know graduates are much more geographically mobile than non-graduates and more likely to move to major cities (see Britton et al., 2021). If this means that graduates face higher living costs than non-graduates, the differences in gross incomes between these groups will overestimate the differences in their disposable income and living standards. Moreover, not only are there differences in residential location between graduates and non-graduates, but there are also very large differences in residential location across graduates who attended different universities. Figure 2 compares the residence at age 27 of graduates¹ from the University of Bolton and the London School of Economics (LSE). While virtually all University of Bolton graduates stay in the North West, those from the LSE remain concentrated in London and the South East. So while it is

¹We refer to all individuals who attended university as “graduates” throughout. This includes the small minority of individuals who started a degree but dropped out before obtaining a qualification.

true that the earnings returns to attending the LSE are substantially higher than those of attending the University of Bolton, the differences in living costs in the areas where graduates from these respective institutions live after leaving university suggest that the average University of Bolton student will need a lower level of earnings than the average LSE graduate to obtain the same standard of living. A similar argument can be applied to different subjects – for example, medical graduates end up working in hospitals all over the country, while graduates of some other subjects are much more heavily concentrated in big cities.

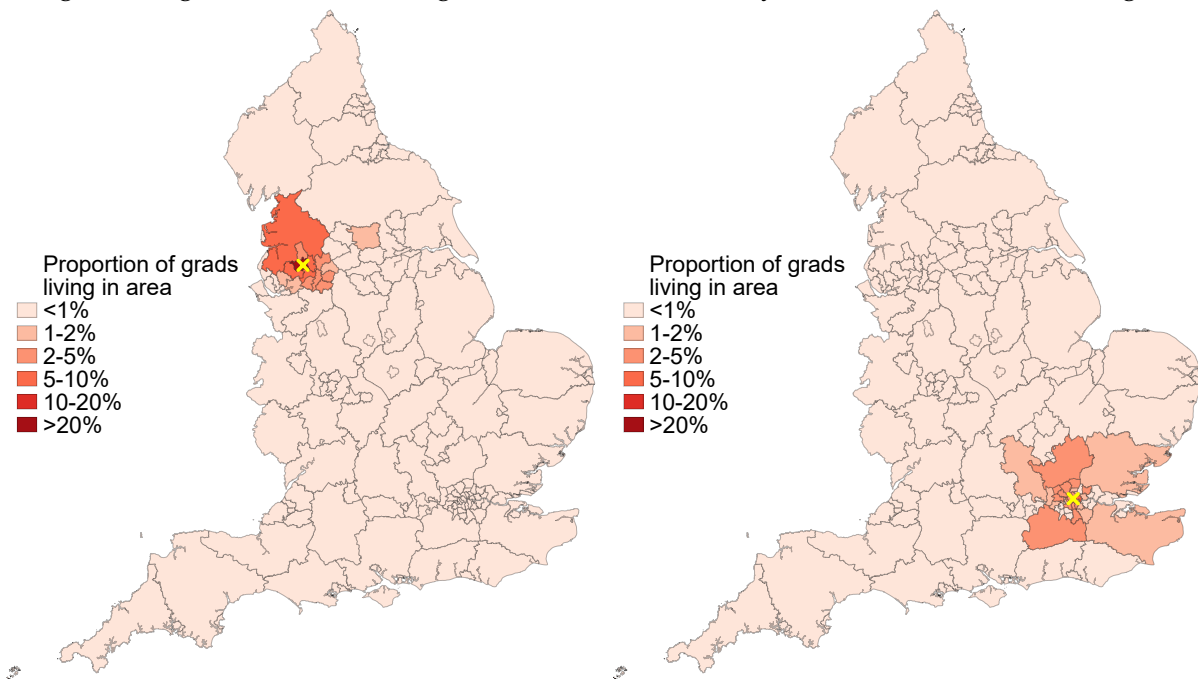
Figure 1: Cost of living variation across England



Notes: See Section 3.1 for more detail on how the cost of living index has been created.

This leads us to ask the question of how adjusting for differences in living costs based on individuals' area of residence affects estimates of the returns to different universities and subjects. To answer this question, this report uses newly linked data on area of residence in early adulthood to explore where graduates live in early adulthood and estimate how returns to higher education (HE) change once we adjust gross earnings for differences in living costs across the country.

Figure 2: Age 27 destination of graduates from University of Bolton (left) and LSE (right)



Notes: Yellow cross marks the location of the university. Colours show the proportion of the universities' graduates who live in a given LA at age 27.

We start by showing that there are indeed large differences in where graduates from different universities live after leaving education. Around 60% of individuals who attended university in London still live there at age 27, while less than 20% of graduates from institutions outside of London live in London at age 27. For universities outside London, there is a strong negative relationship between selectivity and the shares of graduates staying in the local area, and a strong positive relationship between selectivity and moving to London. For example, around half of Oxbridge graduates live in London by age 27, while this proportion is less than 10% for the least selective universities.

As London is the place with the highest living costs in the country, this also means that universities in London and the most selective institutions outside of London see the largest decreases in returns – up to 20 percentage points – once we adjust earnings for differences in living costs. On average, individuals who attended university live in more expensive areas than those who did not, and adjusting earnings for living costs decreases average institution returns by around 3 percentage points. A few universities do see some very small increases in returns, however. These

are typically institutions that are located in lower-cost areas with large shares of graduates who are from, and stay in, the local area, as well as specialist agricultural colleges.

While the changes to returns can be quite large for some institutions, and London institutions in particular, adjusting for living costs does not materially change the overall ranking of universities. The correlation between adjusted and unadjusted returns rank is 0.97 for men and 0.96 for women. Importantly, there are no universities going from having significantly negative returns to having significantly positive returns or vice versa, once we adjust for costs of living.

When we look by subject, perhaps unsurprisingly we see only very small changes to the returns estimates when we adjust earnings for living costs. The three major counterexamples to this are economics (for which returns decrease), medicine and veterinary sciences (for both of which returns increase). Nevertheless, we do not see the overall ordering of subject returns changing very much, with economics and medicine still at the top of the distribution, and veterinary sciences moving from being one of the lowest-returning subjects to a mid-ranking subject. Otherwise, the subject estimates are broadly unchanged.

2 Data

We make use of the Longitudinal Education Outcomes (LEO) dataset, which consists of linked school records, university records and tax records for individuals who went to school in England and took their GCSEs in or after 2002. This is the same linked administrative dataset as used in Belfield et al. (2018), and we refer the reader to that report for more detail on the dataset. However, since that report was published, an additional year of tax records has become available, meaning the tax data included in the LEO dataset now run up to 2016/17. This means that for all of our results, we update the estimates of Belfield et al. (2018) by including more recent earnings data and focusing on age 30 rather than age 29, which is the oldest age at which we could observe individuals in our sample using the 2015/16 records.

In order to control for living costs, we use newly linked address records from the Department for Work and Pensions (DWP) Customer Information Spine (CIS). These records contain individuals' address of residence as recorded by their employers or when applying for benefits. We have these address records from the 2012/13 to 2016/17 tax years, giving us up to five years of resi-

dence data for each individual.² While our dataset only contains individuals who attended school in England, we observe their detailed location of residence in adulthood (at the LSOA level) even when they live in different parts of the UK. We aggregate the very-small-area-level residence up to the local authority of residence for each individual in order to be able to create robust measures of living costs. Our methodology for calculating living costs is described in more detail in Section 3.1.

3 Methodology

We estimate returns using the same methodology as in Belfield et al. (2018), namely by estimating returns in an ordinary least squares (OLS) framework using a pooled earnings model. We briefly outline this methodology and the main changes from that paper below, but refer the reader to Belfield et al. (2018) for more detail on the OLS framework or the pooled earnings model.

For our main estimates we use age 30, instead of age 29 as in the prior report, as the oldest cohort in our sample now has a median age of 30 in 2016/17, the last year of our data. This allows for growth in returns with age as much as possible while keeping our estimates within sample.³ As we still want to avoid relying solely on observations from one cohort of graduates, we include several cohorts and multiple earnings observations per individual in a pooled cross-sectional model as in Belfield et al. (2018). This enables us to estimate returns at age 30 while smoothing across several cohorts, thereby reducing the likelihood of over-fitting the model.

Specifically, for individual i from GCSE cohort $c \in \{2002, \dots, 2007\}$ at time $t \in \{-5, \dots, 0\}$, where t is the age of the individual (normalised to zero for age 30),⁴ we model log real earnings as

²More information on these data, including a discussion of potential mismeasurement, can be found in our companion paper to this report (Britton et al., 2021).

³Although this age adjustment and the addition of a new year of earnings data is the main difference between the estimates here and the previous estimates, there are some other relatively minor differences. Unlike Belfield et al. (2018), for simplicity we now use OLS instead of a weighted version of OLS (referred to as IPWRA). There are also some small changes to the sample that we use. First, we exclude the small number of individuals who do not have any address information or who live in local authorities that are too small to make adjustments. Second, we do not condition on sustained employment here and instead exclude individuals with earnings below £1,000 from the analysis. Combined, these changes only result in minor differences from the estimates in Belfield et al. (2018). For a comparison of returns at age 30 and later-life returns, see Britton et al. (2020).

⁴To be precise, this is based on the number of years since individuals took their GCSEs, but as individuals in a given GCSE cohort are virtually all born between 1 September of one year and 31 August of the next year, this is broadly equivalent to using individuals' age.

follows:

$$\begin{aligned} \ln(y_{ict}) = & X_i' \gamma + I(\text{age}_{start} > 18) + \omega_1 t + \omega_2 t^2 + \sum_{c=2003}^{2007} c \\ & + \sum_j \beta_j D_{ji} + \sum_j \beta_{1j} (D_{ji} t) + \sum_j \beta_{2j} (D_{ji} t^2) + \epsilon_{ict} \end{aligned} \quad (1)$$

That is, we model log earnings as a function of observable characteristics X_i' , a dummy for the individual not starting their degree at age 18, a quadratic in t , a set of cohort dummies based on GCSE year, the treatment of interest (D_i) and a treatment-specific quadratic trend in age ($D_i f(t)$). Our treatments of interest (D_i) will be dummies for each university when estimating university returns, and dummies for each subject when estimating subject returns. Our main results focus on earnings at age 30, or $t = 0$.

When estimating gross earnings returns, $\ln(y_{ict})$ is the log of the sum of PAYE and self-assessment (SA) earnings in 2018/19 prices. To estimate returns after adjusting earnings for living costs, we replace $\ln(y_{ict})$ by the log of the cost of living adjusted earnings. Section 3.1 explains in more detail how we construct these adjusted earnings.

As in Belfield et al. (2018), we exclude individuals who did not conceivably have the option of attending HE (those who did not achieve at least five A*-C grades at GCSE level) from the analysis and compare the returns to attending different universities and studying different subjects and the returns to not attending HE but having at least five A*-C GCSEs. As we are interested in the impact on earnings of *attending* HE (rather than receiving a degree), we also include individuals who start a degree but do not graduate from it in our treatment group. We will refer to these individuals as 'graduates' throughout, but it should be kept in mind that this group also includes a small minority of individuals who attended HE but dropped out before obtaining a qualification.

3.1 Calculating living costs

Our aim is to adjust earnings for living costs in individuals' local authority of residence. To do this, we first construct indices of the relative cost of living in each local authority across the country, following the methodology in Moretti (2013). We obtain measures of house prices, rents and the

price of goods and services for each area.⁵ These three measures are then combined into cost of living indices for each area using the ONS CPIH weights for owner-occupiers' housing costs, rents, and goods and services.⁶ We finally adjust individuals' earnings according to the cost of living index in their area of residence, and use those adjusted earnings in our returns regressions.

To illustrate how the earnings adjustment works, assume living costs (including both housing costs and the cost of goods and services) are 25% higher than the UK average in Barnet, and 25% lower than the UK average in Blackpool. If a graduate earning £30,000 lives in Barnet, those earnings will buy her 20% less than on average in the UK; her adjusted earnings will be $£30,000/1.25 = £24,000$. If the same graduate were instead to live in Blackpool, her earnings would buy her 33% more than on average in the UK. Her adjusted earnings will reflect that, and would be $£30,000/0.75 = £40,000$.

Less than 1% of those in our sample with positive earnings cannot be linked to area of residence data, or live in very small local areas such as the Isles of Scilly, which means we cannot estimate their cost-of-living-adjusted earnings. To ensure that the impact on returns from adjusting for cost of living is not due to differences in who is included in the analysis, we drop these individuals from the analysis completely.

4 Where do graduates move?

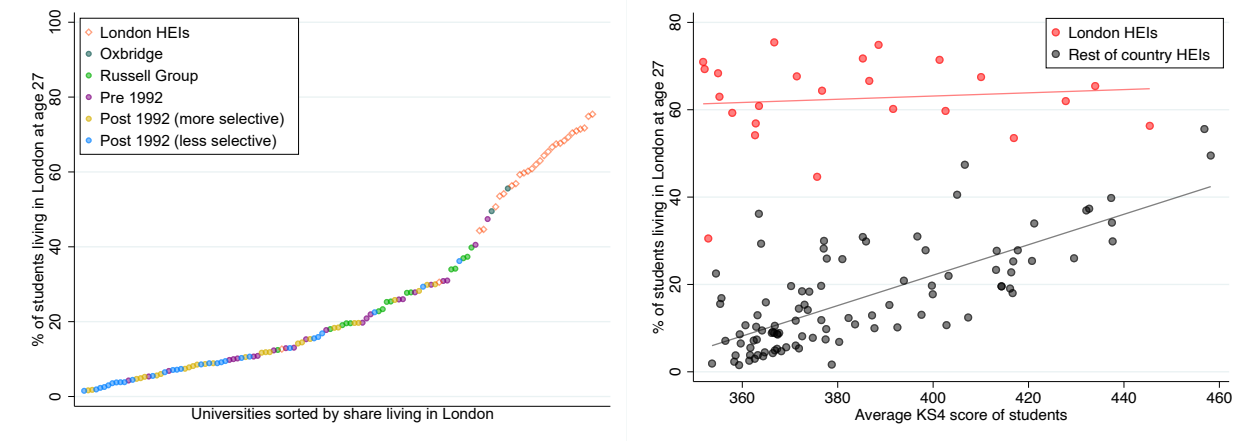
The impact of adjusting for costs of living on returns will depend on the types of areas a university's graduates end up living. Institutions for which the majority of graduates head to expensive areas such as London or the South East will see large downward adjustments, while universities located in areas with low living costs may even see increases in returns if many of their graduates

⁵House prices for England and Wales are obtained from the Office for National Statistics (ONS) dataset, 'Mean house prices for administrative geographies: HPSSA dataset 12'; for Northern Ireland, these are from the 'Northern Ireland annual descriptive house price statistics' tables from the Land and Property Services; and for Scotland, they are from the Land Register of Scotland. Rents for England are obtained from the annual ONS 'Private rental market summary statistics in England' publication; for Wales, these are from the yearly publication 'Private sector rents for Wales' from the Welsh Government; for Northern Ireland, these are obtained from the yearly 'Performance of the private rental market in Northern Ireland' reports from the Northern Irish Housing Executive; and for Scotland, these come from the 'Private sector rent statistics, Scotland, 2010 to 2020' publication. Price levels are only available at the Government Office Region level. They are taken from the ONS publication 'Relative regional consumer price levels of goods and services, UK: 2016'. We use (relative) house prices to measure owner-occupiers' housing costs, instead of rents as in CPIH. This implies a larger adjustment in the cost of living – particularly in London – than obtained using rents. Using rents would result in even smaller changes in estimated returns.

⁶These can be found in the ONS table 'Consumer price inflation, updating weights: Annex A, Table W3'.

stay in the local area. In this section, we document where graduates of different universities live as young adults, before showing the returns in the next section.⁷

Figure 3: Share of graduates in London at age 27 by institution



The main destination among graduates, and one of the areas with the highest cost of living, is London. Around one in four individuals who attended HE lives in London in early adulthood, compared with less than one in ten among those in our sample who did not attend HE. Figure 3 shows this masks a lot of variation across universities. All London universities have large shares of their graduates remaining in London after attending university. For the majority of London universities, this is more than 60% of their graduates. Amongst universities based outside of London, the main outliers are the two most selective universities in the country, Oxford and Cambridge: around half of graduates from these institutions live in London at age 27. Other high status, selective universities, such as the Russell Group universities and the older and more established pre-1992 universities, tend to have between 20 and 40% of their graduates living in London, while this is less than 20% for most post 1992 institutions.⁸ The right-hand panel of Figure 3 highlights this relationship between the share of graduates moving to London and a university’s location and selectivity more clearly. It plots a rough measure of selectivity (the average KS4 score of a university’s intake) against the share of its graduates living in London at age 27, separately for London-

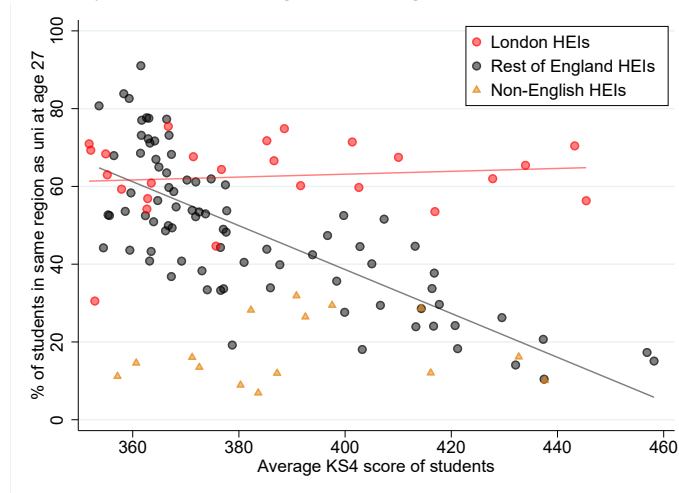
⁷Note that we report statistics on mobility based on area of residence at age 27 rather than at age 30, which is the age we use for our returns estimates. We do this because using the earlier age allows us to pool more cohorts of data, boosting our sample sizes for the descriptives.

⁸Figures A2 and A5 in the appendix show the share of students who are from London across institutions and subjects. For Oxford and Cambridge, around 20% of their students who went to school in London, which is high relative to other non-London universities and is therefore likely to explain some, but by no means all, of the high shares of their graduates living in London at age 27.

and non-London-based institutions. We see a strong positive relationship between the selectivity and the share of graduates moving to London among institutions based outside London. For London-based institutions, however, there is only a very weak relationship with selectivity, with around 60% of graduates from all London-based institutions still living there at age 27. It seems that if graduates attend university in London, they are likely to stay there, regardless of the selectivity of the university. Among those attending university outside of London, however, those at the most selective institutions are the most likely to move to London, probably chasing the higher paid jobs available there.

Figure 4 considers the rate at which graduates remain in the region where they attended university in early adulthood. The figure shows that outside of London, fewer than 20% of graduates at the most selective universities stay in the region of their university. Among the least selective institutions, however, more than half of graduates still live in the local area where they went to university by age 27. As Figure A1 in the appendix shows, there is a nearly perfectly linear relationship between the share of graduates who grew up in the same region as the university and the share who remain there at age 27. Universities that mainly serve the local area tend to have students who also stay in the local area after graduation.

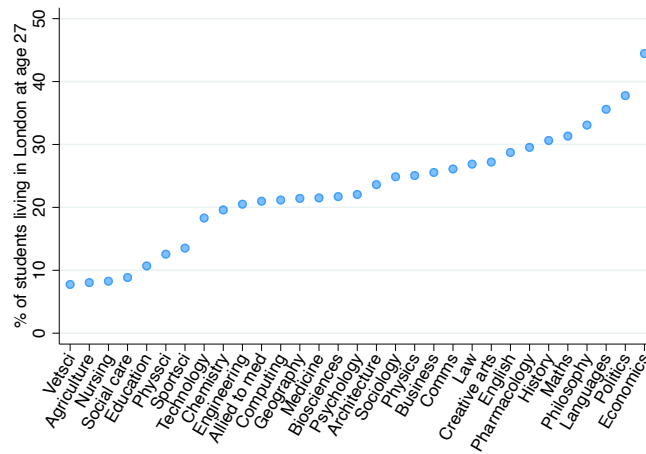
Figure 4: Share of 27-year-olds living in the region where their university is located



Not only is there a lot of variation across universities, but where people move also depends on what they studied at university. Certain subjects such as nursing, social care and education lead directly to jobs that can be found across the country. Indeed, Figure 5 shows that no more than

10% of nursing, social care and education graduates live in London. Similarly, very few graduates who studied veterinary science and agriculture end up in London. Despite graduates of medicine going on to have some of the highest earnings, jobs in medicine are also relatively spread out around the country and only just over 20% of people who studied medicine live in London at age 27. At the other end of the scale, nearly 40% of politics graduates and around 45% of economics graduates live in London in early adulthood. Again, this is probably unsurprising given that the types of jobs these degrees are associated with are disproportionately located in London and other major cities. History, maths, philosophy and languages are other subjects where more than 30% of the people who studied them live in London by age 27.

Figure 5: Share living in London at age 27 by subject studied



5 Institution returns

Having shown the large differences across universities in where graduates end up after university, we now turn to showing how adjusting for the differences in the cost of living across different areas affects the estimated returns to different institutions. Figures 6 and 7 show our estimates of the returns in terms of gross earnings at age 30 to attending each of around 125 UK universities relative to not attending HE, for women and men respectively, and compare these with returns when we adjust earnings for cost of living (CoL) differences as explained in Section 3.1 above.

Britton et al. (2021), the companion paper to this report, show that graduates tend to move to large cities, in particular London, while this is not the case for non-graduates. Consistent with this

pattern, we find that, on average, people who attended HE live in more expensive areas in early adulthood than those who did not attend HE. Once we adjust earnings for living costs, institution returns go down 3 percentage points (ppts) on average. There is, however, a lot of variation across universities. While overall there is a decrease in returns, around 20% of HEIs for men and 30% of HEIs for women actually see small (insignificant) increases in returns of between 0 and 5 ppts. These universities tend to be universities outside of the South East with large shares of graduates who are from, and stay in, the local area, or specialist agricultural colleges.

At the other end of the spectrum, we also see some very large decreases in returns of up to around 20ppts. Institutions based in London throughout the returns distribution see large downwards adjustments. The other group of universities with large decreases in returns are institutions at the very top of the returns distribution. Many of those are highly selective universities, which as we saw in Section 4 have large shares of graduates moving to London and few graduates remaining in the local area.

Figure 6: University returns at age 30 adjusting for living costs (women)

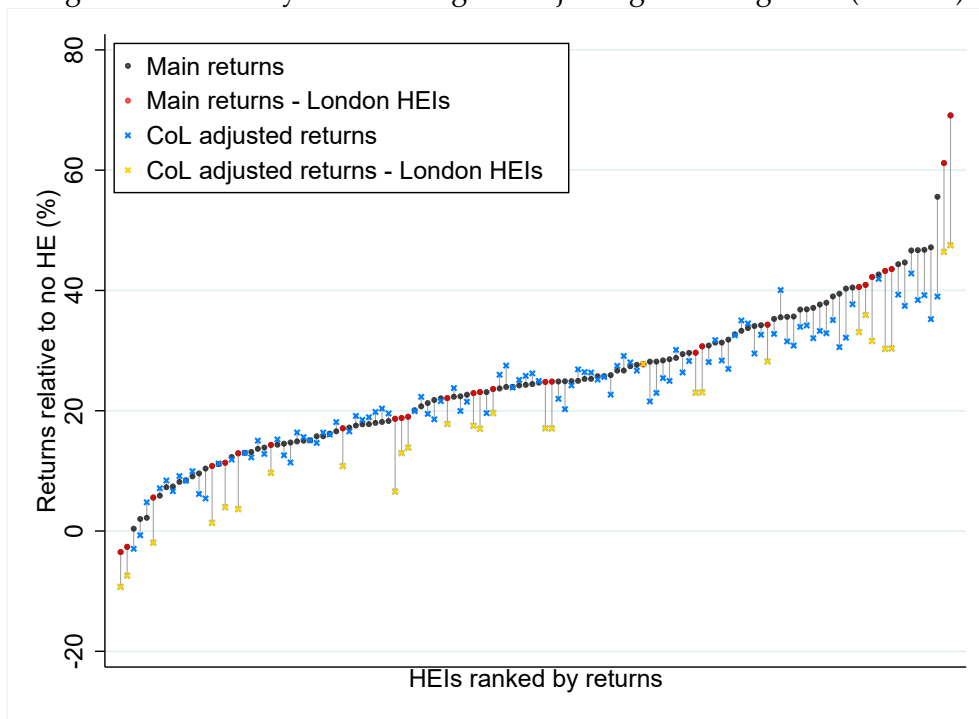
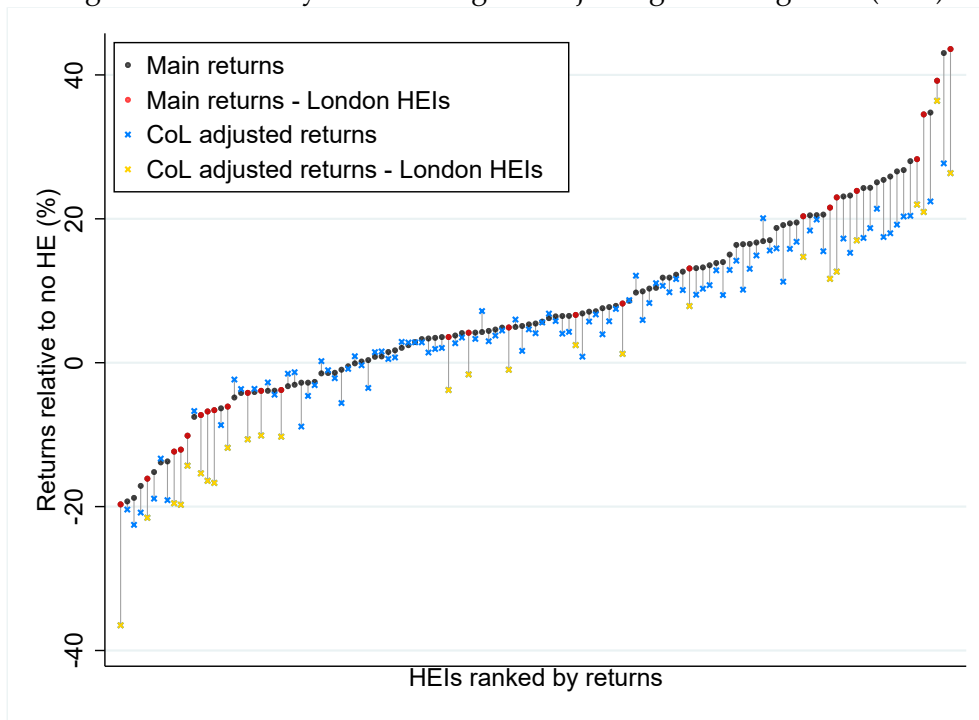
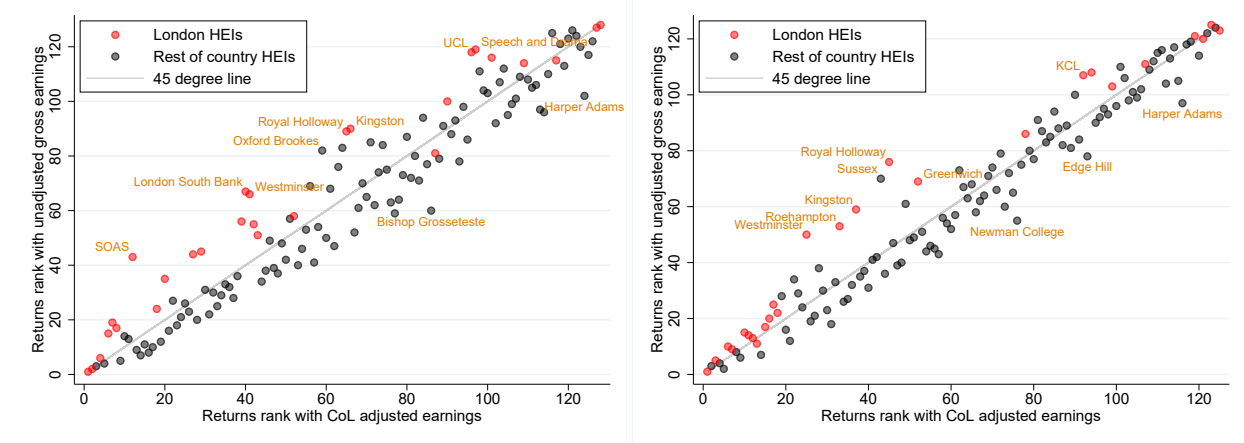


Figure 7: University returns at age 30 adjusting for living costs (men)



Due to there being large adjustments in returns at both the top and bottom of the returns distribution, the range of returns actually stays relatively constant, as does the ranking of universities. This is shown in Figure 8, which plots the returns rank in terms of gross earnings against the returns rank after adjusting for cost of living differences. We see that the overall ranking of institutions changes little: there is a correlation of 0.97 for men and 0.96 for women between adjusted and unadjusted returns rank. The main decreases in rank can be found among mid-ranked London institutions such as the University of Westminster, Royal Holloway and Kingston University, which now drop down the returns distribution. The main increases in rank are among Harper Adams, a specialist agricultural college, and Edge Hill University, Bishop Grosseteste and Newman College, where 80-90% of graduates end up in the Midlands or Yorkshire. No universities with significantly negative returns in terms of gross earnings have significantly positive returns in terms of cost of living adjusted earnings or vice versa.

Figure 8: Gross earnings returns rank against CoL-adjusted returns rank - women (left) and men (right)



Notes: The labels identify the ten universities with the largest changes in rank. Returns are ranked from low to high, i.e. institutions in the top right have the highest returns, those in the bottom left the lowest returns. Institutions to the right of the 45 degree line have higher returns rank once we adjust for cost of living; institutions to the left have a lower returns rank after adjusting for cost of living.

We also check the robustness of these results to how we adjust for region of residence in Appendix B. We estimate returns when we adjust for the local area’s mean earnings rather than living costs and find that while there are some differences in the returns for individual universities, the overall patterns are quantitatively very similar. Returns when adjusting by local area mean pay tend to be within a couple of percentage points of those when we adjust for cost of living. London and the South West are areas where costs of living are relatively high compared with mean earnings. Accordingly, universities in London and the South West (which tend to have relatively many graduates who also end up in these areas) see slightly higher returns by around 1.5% on average when adjusting for mean earnings rather than cost of living. Universities in Scotland, where earnings are relatively high compared with the cost of living, see small decreases in returns of around 2-2.5% on average.

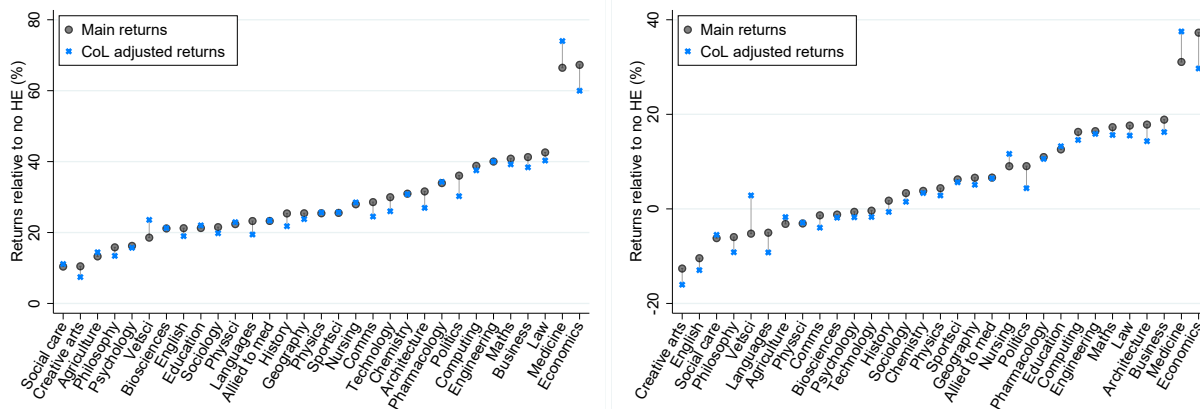
6 Subject returns

As we saw in Section 4, not only does area of residence differ across universities, but it also varies widely across subjects of study. In this section, we will explore how this affects returns to different subjects. Figure 9 shows our returns estimates by subject in terms of gross earnings at age 30 and compares these with returns adjusting earnings for the cost of living.

Veterinary sciences and medicine see the largest increases in returns of between 5 and 8%. This does little to alter the ranking of medicine, moving it from being the second-highest-returning subject to being the highest, but veterinary sciences moves up the subject returns ranking considerably. This is especially true for men, with the sign of the returns estimate flipping from negative to positive once we adjust for cost of living in the area where veterinary science graduates live. Nursing, agriculture, social care and education all also see increased returns, in the range of roughly 0.5-3%, which does little to alter their ranking. All these subjects lead to jobs that can be found spread out around the country, and have relatively low shares of graduates living in expensive areas such as London as we saw in Section 4.

As for the institution returns estimates, we find a small overall decrease in average returns, as graduates tend to live in more expensive areas than non-graduates. Unsurprisingly, given we saw that nearly half of economics graduates end up in London, economics has the largest decrease in returns, of 8% for men and 7% for women. With adjusted returns of around 60% for women and 30% for men, returns to economics are still comfortably higher than for any other subject other than medicine, even when we take the high cost of living for many economics graduates into account. We find smaller decreases in returns for other subjects throughout the returns distribution, such as politics and architecture at the top end and languages and creative arts at the bottom end. Again, these changes are highly related to the share of graduates who end up in London. Overall though, the changes in returns are not large enough to substantially alter the ranking of subjects. The one exception is veterinary sciences, which looks considerably more attractive in terms of returns once we account for cost of living differences.

Figure 9: Subject returns at age 30 adjusting for living costs - women (left) and men (right)



7 Conclusion

This report uses newly linked administrative data on individuals' location of residence in adulthood to determine how the returns to different types of higher education change once we adjust earnings for the differences in cost of living across the country. The rationale for this is that if graduates from a given university move to areas with very high living costs, they will need a higher income to obtain the same disposable income as individuals who live in areas with lower living costs.

We find that there are dramatic differences in where individuals end up living depending on the location and selectivity of universities. Graduates from the highest-return universities – which mostly are also the most selective universities – are unlikely to stay in the region of their university and are very likely to end up living in London in early adulthood. Adjusting their graduates' earnings for the higher cost of living in London and the other areas they tend to end up considerably reduces the returns for these institutions. Even with this adjustment, however, most of these universities remain at the top of the returns distribution. The largest changes in terms of ranking are instead among mid-ranked London institutions, which drop down the returns distribution, and a few specialist agricultural colleges⁹ as well as lower-ranked institutions where virtually all graduates remain in the local area of the university (often based in the West Midlands or North

⁹Harper Adams University has the second-highest increase in returns rank. Writtle College also moves up the returns ranking, though by less.

West), which move up the ranking. For the vast majority of universities, however, their returns ranking remains remarkably unaffected by adjusting earnings for living costs. Similarly, when we look at subjects, adjusting for living costs does little to alter the ranking of subjects in terms of returns.

Overall, we find that adjusting for living costs can substantially decrease the earnings returns to some institutions and subjects, but does little to change their ranking and hence only has a limited impact on which institutions and subjects are the best choice in terms of returns. Importantly, there are no universities going from having significantly negative returns to having significantly positive returns or vice versa, once we adjust for costs of living.

We also note that while adjusting earnings returns for costs of living gives a better reflection of individuals' change in disposable income than gross earnings returns, it will not always fully reflect differences in living standards. Higher living costs can reflect the amenities of an area. For example, an individual might prefer to spend more to live in a very expensive area rather than a much cheaper area if the expensive area is safer, has better schools or is generally more pleasant to live in. As a result, we believe there are pros and cons to approaches that do and do not adjust earnings returns for where people live, and that there is potentially important information in both about the impact of higher education on earnings and living standards. The fact that the differences between the two approaches are relatively minor adds to their credibility as useful estimates of the financial gains people are likely to achieve when choosing between different institutions or studying different subjects.

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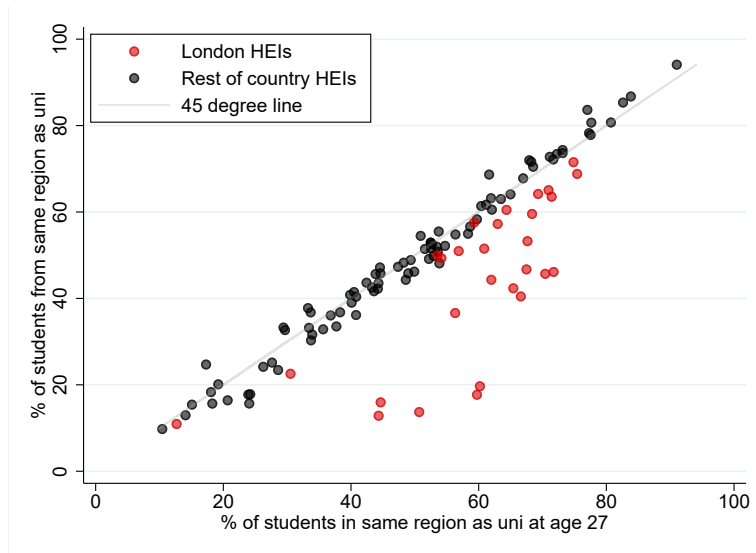
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Appendix

A Additional descriptives

Figure A1: Share of students from university region against share living in university region at age 27



Notes: Region defined as upper tier local authority. Region of origin based on where the individual’s school at age 16 was located.

Figure A2: Share of students who attended school in London by university type

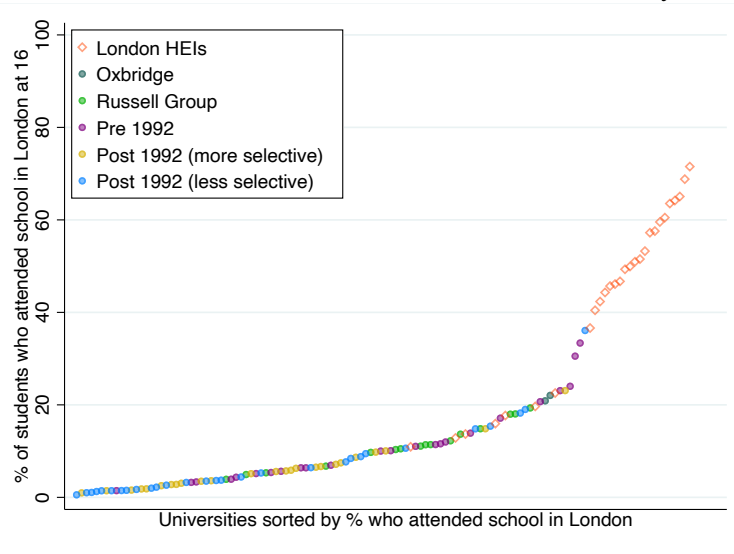
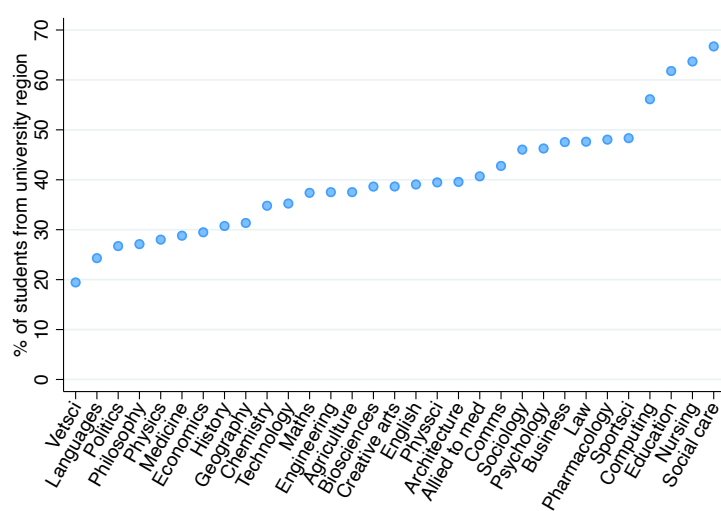


Figure A3: Share from same region as university region by subject



Notes: Region of origin based on the local authority where the individual's school at age 16 was located.

Figure A4: Share living in same region as university at age 27 by subject

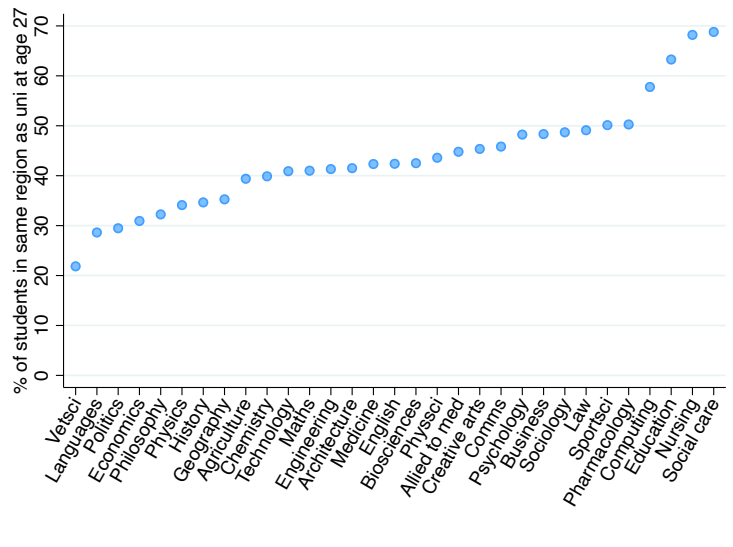
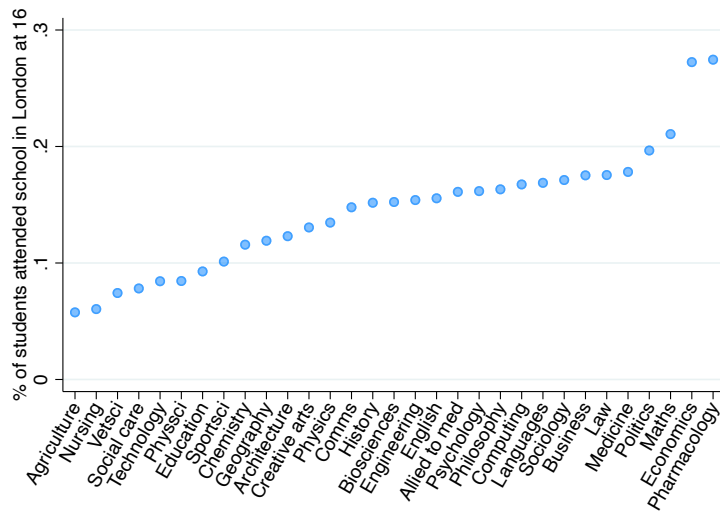


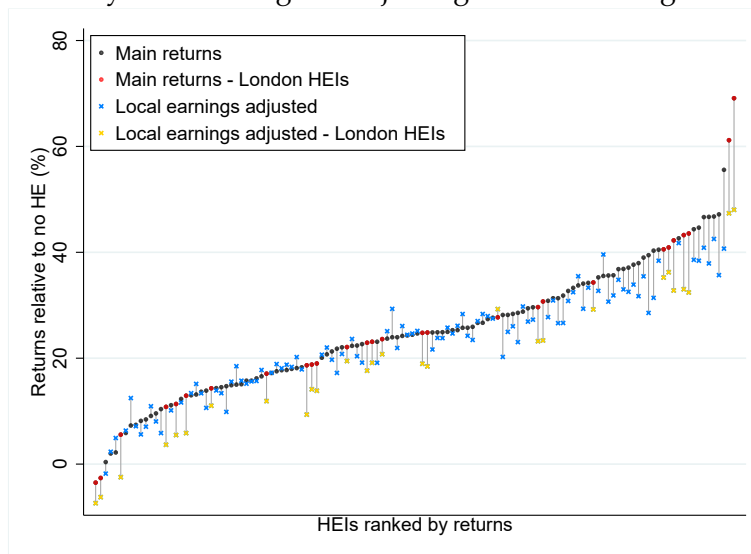
Figure A5: Share who attended school in London at 16 by subject



B Adjusting for earnings in the local labour market

To adjust for average earnings in the local area, we obtain annual mean earnings by local authority for each year from 2013 to 2016.¹⁰ Using these mean earnings measures, we construct indices for the local authority level of earnings, relative to UK average earnings in the same year. As with the adjustment for local living costs, we then adjust individuals' earnings according to the index in their area of residence, and use those adjusted earnings in our returns regressions.

Figure A6: University returns at age 30 adjusting for local average earnings (women)



¹⁰These estimates are published by the ONS in the table 'Earnings and hours worked, place of residence by local authority: ASHE Table 8'.

Figure A7: University returns at age 30 adjusting for local average earnings (men)

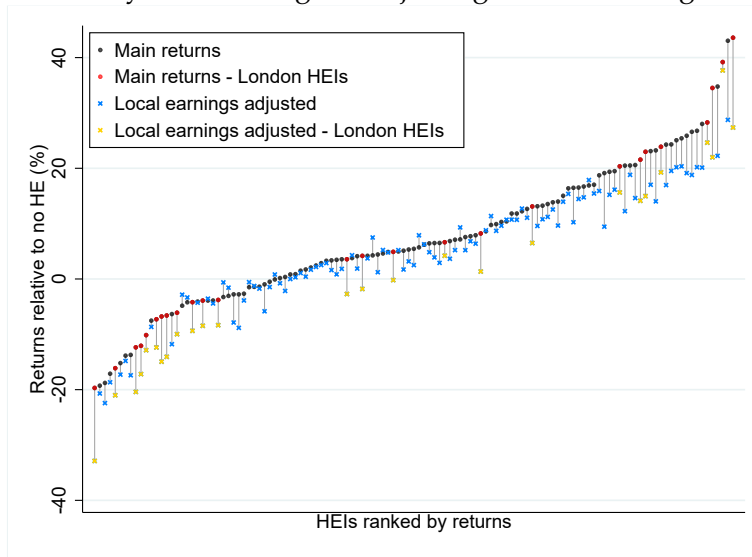
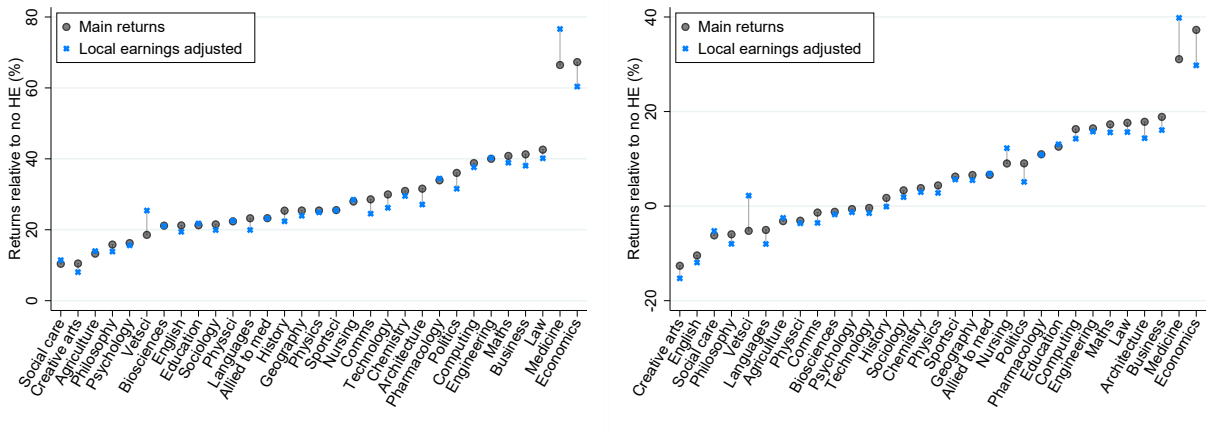


Figure A8: Subject returns at age 30 adjusting for local average earnings - women (left) and men (right)





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ISBN: 978-1-83870-278-6

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