

Understanding the limitations of graduate outcome measures in higher education

A report to GuildHE and the HEAD Trust



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Key Findings

- The **Longitudinal Employment Outcomes (LEO) data should not be used as the only measure of graduate success in the labour market. There are too many critical gaps in the data, including:**
 - Leaving out factors that have a significant influence on earnings and employment, such as many personal and family details and details about where you are working in the UK and in what industry. Our new analysis shows that without this information, the effect of specific qualifications on both the earnings and employment of graduates is significantly exaggerated;
 - Leaving out students who did not go to secondary school in England;
 - The fact that LEO data only covers graduates' earnings and employment in the early stages of their careers; and
 - The fact that LEO data provides incomplete and potentially inaccurate data on earnings from self-employment. Overall, this means LEO data should carry a prominent health warning.

- **For many degree level subjects, graduate earnings are a wholly inappropriate measure of economic value. This means that how much student loan is paid back and how much public subsidy is received – as measured through the RAB charge – will often provide a misleading estimate of the economic benefits of a degree and therefore should not be used to determine where funding is allocated.** The RAB charge is a simple, but misleading, metric because it only provides a reflection of the aggregate loans repaid by the individual borrower and *does not* capture any of the **wider economic impacts** associated with a degree that accrue **indirectly** to the Exchequer, businesses or society in general. For example, these spill-over effects for creative arts graduates have been estimated to more than double the direct impact of earnings alone.

- **The significant gaps in the LEO data mean that how much graduates earn should not be used to determine the level of tuition fees that a university can charge.** Much of the debate over variable tuition fees in higher education is impractical because:
 - The tuition fee does not act as a price 'signal' in the market place – it is the availability of loan support that is the key determinant of the feasibility of facilitating tuition fee variability. Altering the level of loan support is: impractical, regulatory burdensome, open to institutional game-playing, but most importantly, would have significant consequences on a number of government priorities, including social mobility.
 - **Some courses and specialist provision have higher delivery costs** (e.g. courses requiring specialist equipment or intensive tuition and those with a science, engineering or technology base). **The funding available should reflect this**, irrespective of graduate success in the labour market. If not, there may be a significant reduction in demand amongst individuals seeking to undertake these qualifications, and at the same time it may also reduce the ability of universities to effectively deliver courses with high fixed costs.

1 Introduction

The structure and level of higher education student support funding continue to be key policy questions for the UK Government. Perceived as financially unstable, the current arrangements have recently been the subject of numerous Parliamentary reports on higher education fees and funding, including in publications by the Lords Economic Affairs Committee [[June 2018](#)], the Treasury Select Committee [[February 2018](#)], and the Education Select Committee [[forthcoming](#)]. The Government's priorities in respect of this policy area have been further highlighted following the commissioning of the [Post-18 \(Augur\) Review](#), which has been tasked with examining how students and graduates contribute to the cost of their studies, so as to ensure transparency, sustainability, and 'value for money' of funding arrangements in post-18 education.

In parallel to this parliamentary review of the current structure of student support arrangements, and given the increasing stock of student loan debt in the National Accounts, the Office for Budget Responsibility has recently questioned current accounting practices in relation to student loans [[July 2018 Fiscal Sustainability Report](#)]. As a result, the Office for National Statistics has been tasked with providing updated guidance on how student loans should be accounted for in the National Accounts [[March 2018](#)]. The review of the current accounting treatment of student loans – and in particular the fact that it is a deliberate policy decision that loans are income-contingent and may not be repaid in full – may have the farthest reaching consequences in this ongoing investigation into higher education student support arrangements.

In this policy environment, the development of new matched data covering graduates' early scholastic record, higher education career, and post-graduation earnings/employment outcomes, has been perceived as crucial. Such data allows for the potential investigation of labour market outcomes at a very granular level, which has been suggested will provide the necessary evidence for the consideration of a range of policy alternatives with respect to higher education tuition fee and student support arrangements.

Section 2 introduces one such data source – the **Longitudinal Educational Outcomes (LEO)** data – and provides an analysis of its strengths and weaknesses in determining earnings and/or employment outcomes. The LEO data does not contain information on personal, geographic, job-related and socio-economic characteristics (unlike more traditionally-used datasets such as the Labour Force Survey (LFS)). Hence, a detailed econometric analysis of the returns to higher education qualifications is presented both in the presence *and* absence of these personal, job-related and socio-economic characteristics. This analysis illustrates whether the LEO data provides a sufficiently accurate picture of returns to higher education qualifications, specifically in comparison with alternative datasets such as the LFS.

Section 3 presents another dimension of this policy area through a discussion of the inadequacies and shortcomings of the **RAB charge**, which is a measure of the proportion of the nominal face value of the student loans that are never repaid. We discuss the extent to which the RAB charge is a short-sighted and misleading proxy for the economic benefit associated with higher education qualification attainment – in this setting, we also provide a discussion of the arguments against the introduction of variable tuition fees.

Section 4 presents a detailed analysis of the costs of current higher education student support arrangements – for students/graduates, the Exchequer and higher education institutions – as well as the costs associated with a suite of student-support alternative arrangements, proposed by GuildHE.

2 The Longitudinal Educational Outcomes (LEO) Data

The **Longitudinal Education Outcomes (LEO) data** is a set of official experimental statistics on employment and earnings outcomes of higher education graduates, by degree subject studied and university attended. **LEO data combines various administrative datasets** that cover individual-level educational attainment, employment, earnings and benefit records in England¹, including.

- **The National Pupil Database (NPD)**, which contains records on all pupils at state schools in **England (only)**. It provides information on both educational attainment and some personal characteristics of the learners. The Department for Education (DfE) also holds attainment data for pupils and students in non-maintained special schools, sixth forms and Further Education Colleges and (on occasion) independent schools².
- **The Individualised Learner Record (ILR)**, which is a register of all publicly-funded Further Education (FE) courses, at both the *learning aims* and the *learner* level. This information is collected and returned by publicly-funded colleges, training organisations, Local Authorities and employers³.
- The **Higher Education Statistics Agency (HESA)**, which collects records of students undertaking higher education across the entire United Kingdom, covering the student's entry profile and personal characteristics, module and course-level data, funding information and qualifications awarded. Reporting providers include all UK publicly-funded Higher Education Institutions (HEIs) and a number of Alternative Providers (APs), including some Further Education (FE) providers⁴.
- Labour market information comes from **HM Revenue and Customs (HMRC)** and the **Department and Work and Pensions (DWP)**. Earnings and taxes are reported by HMRC **P14** records, while employment spells are recorded in **P45** data. Information on benefit spells is reported by the **Department for Work and Pensions (DWP)**.

2.1 What does the LEO data do?

The LEO data provides the opportunity to combine information on **scholastic achievement** (potentially from Key Stage 1 in primary school) and **labour market outcomes** (potentially to the age of 30) for an **entire cohort** of pupils (e.g. all those completing their GCSEs (Key Stage 4) in a given academic year). There are several cohorts of data now available to researchers. This administrative dataset is very rich in terms of its information on students' journeys through the public education system, as it follows them from a young age and reports extensively on learning aims, establishment characteristics, enrolment, achievement, outcomes, grades, and a number of other variables.

LEO data provides some potential advantages over survey data such as the **Labour Force Survey (LFS)**, which has traditionally been used when looking at returns to qualifications. At least on the surface, LEO data set is now considered the main administrative resource for assessing 'value for money' in higher education.

¹ See for example

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/690859/SFR15_2018_Main_text.pdf

² See <https://www.gov.uk/government/publications/national-pupil-database-user-guide-and-supporting-information>

³ See <https://www.gov.uk/government/collections/individualised-learner-record-ilr>

⁴ See <https://www.hesa.ac.uk/collection/c16051>

This is in light of the following benefits:

- Data sources such as LEO data generally **do not suffer from reporting bias** to the same extent as survey datasets, which rely on respondents accurately recalling information. For example, survey respondents may misremember events that occurred many years ago (such as qualification type or year of graduation), resulting in the potential over-estimation or under-estimation of returns. Survey respondents also typically round some numerical information, which may lead to a certain amount of **measurement error**, whereas HMRC records should accurately report earnings.
- **Attrition** is relatively absent in administrative data. All educational establishments in receipt of public funding are required to provide information on the enrolment and achievement of their learners, and it is a **legal requirement** for most companies to complete HMRC records. Survey data is more likely to suffer from attrition, since participation is optional and respondents are free to withdraw at any time during the interview, or refrain from taking part in subsequent waves of participation.
- Administrative data is not subject to **sample selection bias**, since it is a census of all students completing compulsory schooling in the same academic year. Survey data typically attempts to overcome this issue by applying survey weights to correct for representation, but weighting can only make the responses *more* representative, at best. In fact, there is nearly always a trade-off between making the sample more representative and skewing the results towards a small number of observations.

2.2 What does the LEO data not do?

Despite these benefits of the LEO data, it is important to be familiar with its **limitations** and its differences in comparison to the survey data typically used in wage and employment analyses (such as the Labour Force Survey). The main limitations of using the LEO data to determine earnings/employment outcomes are outlined below, and are contrasted with using LFS data, when relevant. These limitations are presented under the following three categories:

- Drawbacks resulting from the administrative nature of the LEO data
- Drawbacks due to the insufficient control variables included in LEO data
- Drawbacks due to the restricted cross-sectional/time-series scope of LEO data

Drawbacks resulting from the administrative nature of the LEO data

The components of the LEO data are collected for **administrative purposes** and not for the primary objective of research and analysis, which explains various omissions of detail. This has the following implications, which limit the use of LEO data in determining employment/earnings outcomes:

- Whilst LEO data allows for the derivation of yearly earnings and daily earnings⁵, unlike the LFS it **does not allow for any derivation of hourly wages**, as it does not provide information on the number of hours worked (or even whether the employment is full-time). The use of hourly earnings is the standard approach in academic circles for the identification of the earnings outcomes associated with qualification attainment. Thus, for instance, estimated wage differentials using LEO data will not discriminate between decisions to work **longer**

⁵ There is substantial uncertainty in these calculations due to missing information on employment start and end dates, in LEO data.

hours or to work **full-time** rather than part-time. In addition, there is no indication in LEO data on other key **characteristics of the job** itself (such as whether the contract is temporary or permanent). These variables have additional differential effects by gender.

- Information on **self-employment** has only recently started to appear in LEO data, with values taken from the Self-Assessment tax return. Whilst this is an improvement from the omission of all those who are self-employed (which had previously been the case), there remain a number of issues with the data. The first is that it is completely reliant on the self-employed reporting their earnings accurately. The second issue is that dates of self-employment are not required, so it is not possible to annualise earnings in a comparable way to earnings collected through the PAYE system and those reported in P14 records⁶. This is likely to be a particular issue for the sort of portfolio of working arrangements prevalent in the creative industries.
- LEO data is often not comprehensive enough or in a form that would be suitable for accurate date measurement. For example, when providing HMRC employment data it is **not a requirement** to provide exact employment start and end dates, as long as the employment spell is reported to occur during the correct tax year. Consequently, these **dates are often set to the precise start or end of the tax year**, meaning that accurate calculations of daily earnings are not possible, and a large amount of imputation must be undertaken to correct for this apparent clustering. Another key issue is that until recently, it was **not a legal requirement to report on individuals earning less than the Lower Earnings Limit**⁷, resulting in truncated data for those at the lower end of the earnings distribution.
- **Anyone who cannot be matched to an earnings record will not be included** in the estimates of the returns using LEO data. This is a function of the nature of the linking of datasets: **individuals do not have a unique identifier** which follows them through their lives, but are instead matched using *fuzzy matching* techniques on the basis of personal information such as name, gender, date of birth, and postcode. Although the match rates are generally high enough for administrative purposes, they are never entirely accurate, and there will be cases where an individual cannot be matched even if that record exists⁸. There is limited information on the reasons as to why matching might be unsuccessful, or the extent to which characteristics of those individuals that were unmatched compare to those that were.

Drawbacks due to the insufficient control variables included in LEO data

- LEO data does not control for the **characteristics of the employer**. For instance, there is no information on **firm size**, whether the employer is **public or private sector** (although some information may potentially be derived), or **where the organisation is based** (both in terms

⁶ However, it is possible to check whether individuals have received labour market benefits during the year (using the DWP data) and whether they have had any spell as employee in the tax year (using P45 data). It should be noted that the LFS does not collect any information on earnings/wages for self-employed individuals.

⁷ This is still not a requirement, but is substantially mitigated as now employers must report on all employees if at least one employee earnings more than the Lower Earnings Limit. However, the oldest LEO cohorts (which can be followed for the longest time in the labour market) are still affected by the under-reporting of low earners.

⁸ Recent analysis of the LEO data on pupils going through GCSEs between 2001/02 and 2003/04 showed that “the proportion of pupils not matching to HMRC or DWP was around 10% for the 2001/02 KS4 cohort, declining to 9.4% and 8.3% for the 2002/03 and 2003/04 KS4 cohort respectively. The match rate was higher for male pupils (6.5% unmatched compared to 12% for females), and for higher level qualifications, but the difference was relatively small in aggregate, due to the low incidence of unmatched cases (9% overall). In particular female pupils with academic qualifications (A-levels and GCSEs) were slightly under represented in the group matched to HMRC/DWP data.” (<http://cver.lse.ac.uk/textonly/cver/pubs/cverdp007.pdf> section 2.1)

of head office and the establishment at which the individual is working). Additionally, although the HMRC P45 data contains a ‘trade class’ indicator⁹, this classification does not correspond exactly to the SIC (industry) code classification, and as such, it is **not possible to identify the sector of employment** of an individual. Location and industry of employment are critically important factors when attempting to understand the contribution of degree level qualifications to employment and earnings outcomes. This will particularly impact employment and earnings in the rural economy and - for the many people who choose to study and subsequently work in their home region - graduates of institutions outside London and the South East.

- Looking at personal characteristics, the LEO data does not report any **measure of family background** or **family characteristics** (e.g. parental education, marital status, number of children etc.). Although it is the case that the LEO data contains information on primary and secondary school attainment, it is also well established that parental education strongly influences the scholastic attainment and subsequent earnings of their children, with individuals being much more likely to go to university if one or both of their parents also did so¹⁰. These parental characteristics are in no way accounted for.
- Other personal characteristics such as **marital status**, **number of children** (and age of youngest child), **household composition**, and the **existence of health problems** are also variables that affect earnings and employment outcomes (and typically have a different impact on males and females). There is no information on these characteristics contained within LEO data, with the only (relatively crude) socio-economic information on family background being whether the pupil was registered for Free Schools Meals (FSM).

Drawbacks due to the restricted cross-sectional/time-series scope of LEO data

- LEO data **does not include anyone without an English state secondary school education or graduates who go abroad** after the completion of their degree. This means that for higher education institutions in Scotland, Wales and Northern Ireland, it is only individuals with schooling in England that might be part of any subsequent analysis. This fact has not been sufficiently reported in existing analyses and has often been confused with the decision not to report findings for small institutions. There is no reason to believe that the characteristics of individuals entering higher education in a different Home Nation are representative of those that do not, and again, insufficient analysis of this has been undertaken to date.
- One factor that is particularly problematic with the LEO data at present is that **individuals can only be followed up to approximately age 30**¹¹ (and much younger for more recent cohorts that are, for example, affected by the higher compulsory school leaving age of 18). This is relatively early on in an individual’s labour market career, and so any analysis can

⁹ Formed of a prefix letter identifying the class of trade (e.g. limited company, sole trader etc.) and the Trade Classification Number (TCN) for the scheme (a 4 digit number representing the nature of the business (e.g. newsagents)). See <https://www.gov.uk/hmrc-internal-manuals/payee-manual/payee20175>

¹⁰ It is also the case that more educated (and typically wealthier) parents tend to take a more active role in the lives of their children, both in terms of help with mastering course content, but also with respect to participating in extra-curricular activities and imparting some level of ambition and self-motivation – all of which put their children in a much stronger position when they enter the labour market (see also, Sutton Trust (2014), [here](#)).

¹¹ Assuming that the collection of LEO data and its distribution to researchers for analysis continues, this will obviously cease to be an issue. However, decades will need to pass before individuals will be old enough for researchers to look at earnings at each stage of the lifecycle using this data. In the meantime, other sources of data such as the LFS must continue to be used for this purpose.

only provide **very preliminary estimates** of post-graduation outcomes, particularly in professions with less structured career paths such as the creative industries.

- Related to the previous point, earnings trajectories can vary widely over time. It is entirely possible that some individuals could start on a particularly high wage that remains relatively static, while others may take a low initial starting salary and progress through a number of pay rises and promotions that ultimately result in higher lifetime earnings. LEO data could therefore incorrectly value degrees which are correlated with **higher starting salaries** as a better return on investment, due to lack of information about earnings at a later age. An additional implication of this is that **LEO does not yet capture mature students**, which may make up relatively large intake for a given subject (for instance nursing and Subject Allied to Medicine). In contrast, the LFS covers individuals across the entire age spectrum.
- As with most data sets, the LEO data only considers the direct **labour market benefits** to the individual in possession of the qualification, but says little in relation to the economic benefits that might be accumulated elsewhere – by the Exchequer or by society as a whole. For instance, for an individual who has a degree and subsequently enters the teaching profession (without a PGCE), any analysis of LEO data would identify that this individual achieves median earnings (approximately), but would not capture the largely positive spill-over effects of them being a teacher.

To summarise, although there is value associated with the LEO data, it should not be assumed that it is a definitive source for assessing the labour market returns to higher education qualifications. **There are a large number of critical information gaps in the data** with regards to its scope and purpose, but also in the context of the control variables it contains, and its evidence gaps resulting from the fact that it is administrative data collected for an entirely different purpose.

Essentially, **before any long lasting policy decisions are made on the basis of LEO data, further investigation of a number of these issues is required.**

2.3 What does the LEO data not do? An example using the Labour Force Survey

The increasing reliance on LEO data to assess labour market returns to higher education, requires a greater understanding of the extent to which the limitations described in Section 2.2 impact the accuracy of estimated earnings and employment returns generated using this dataset. In particular, as discussed, LEO data suffers **critical information gaps** on a number of characteristics such as job/employer related characteristics, personal/family characteristics and regional characteristics. In the wider economic literature, these characteristics have been shown to impact individual earnings and the probability of being in employment. As such, excluding them reduces the accuracy of the estimated returns produced by LEO data.

In contrast to the LEO data, the Labour Force survey includes a number of personal, family, employer, job-related and regional characteristics. The availability of this information from the LFS thus allows us to evaluate how estimated returns are impacted by including or excluding these categories of variables. In order to investigate the sensitivity of estimates to the inclusion or exclusion of these characteristics, using the LFS, we provide estimates of the labour market outcomes associated with undergraduate degrees compared to two or more GCE A-Levels (by gender) using two different model specifications:

- **Simple model** - Under the “simple model” specification, earnings and employment returns are computed controlling for the year of the survey only, with the various personal, family, employer, job-related and regional characteristics *excluded* in the analysis. This approach acts as a proxy for analyses based on the LEO data.
- **Complete model** - Under the “complete model” specification, earnings and employment returns are estimated *controlling for* personal, family, employer, job-related and regional characteristics. A list of characteristics included in the specification is provided in Table 1.

Following a standard approach taken from the academic literature, all estimates provided here have been obtained using wave-1 Labour Force Survey information. The estimates have been produced using LFS data for the quarters 2004 Q2 to 2017 Q4, inclusive. Throughout the analysis, given the fact that LEO data only contains information on individuals in their first ten years post-graduation, the data used was restricted to individuals aged 35 and below.

Table 1 List of characteristics included in the ‘simple’ and ‘complete’ models

| Type of variable | Type of Characteristic | Characteristic | Restricted model | | Complete model | |
|-------------------|------------------------|---|---------------------|-----------------------|---------------------|-----------------------|
| | | | Earnings regression | Employment Regression | Earnings regression | Employment Regression |
| Dependent | | Hourly wage (in logs) | ✓ | | ✓ | |
| | | Employment status | | ✓ | | ✓ |
| Control variables | Attainment | Undergraduate degree as highest qualification | ✓ | ✓ | ✓ | ✓ |
| | Job-related | Temporary job | | | ✓ | |
| | | Part-time job | | | ✓ | |
| | Employer | Large working place | | | ✓ | |
| | Personal & Family | Age* | | | ✓ | ✓ |
| | | Ethnicity | | | ✓ | ✓ |
| | | Marital status | | | ✓ | ✓ |
| | | Number of children | | | ✓ | ✓ |
| | Regional | Region of residence | | | ✓ | ✓ |
| | Other | Year of the survey | ✓ | ✓ | ✓ | ✓ |

Note: *Age is included both linearly and quadratic. Source: London Economics’ analysis

Overall, the analysis indicates that the absence of personal, regional and job-related characteristics results in an over-estimation of both earnings and employment returns.

In more detail, using the **simple model**, the estimated **earnings premiums** associated with an undergraduate degree were estimated to be **0.25** and **0.28** for men and women respectively. However, once the additional characteristics were accounted for in the **complete model**, the estimated earnings premiums declined to **0.16** for men (a drop of **36%**), and **0.17** for women (a drop of **39%**).

The inclusion of controls relating to personal, family, employer, job-related and regional characteristics results in a **36% and 39% reduction in the estimate of the earnings premium** for men and women respectively.

Table 2 Earnings premium associated with an undergraduate degree compared to two or more A-Levels for individuals aged 35 and below, by gender and model specification

| | Males | | | Females | | |
|--------------|--------------|----------------|-----------|--------------|----------------|--------------|
| | Simple model | Complete model | % decline | Simple model | Complete model | % difference |
| All subjects | 0.25*** | 0.16*** | ↓36% | 0.28*** | 0.17*** | ↓39% |

Note: The figures presented are raw coefficients and have **not been exponentiated**; ***indicates that the coefficient is statistically different from 0 at a 1% level; “% difference” computed on unrounded figures.

Source: London Economics’ analysis of Labour Force Survey (2004-2017)

In relation to employment outcomes, the analysis suggests that **employment returns** are also sensitive to the model specification and the inclusion of the set of control variables detailed in Table 1. Inclusion of these additional variables lowers the estimated employment returns by **70%** for men and **50%** for women. A breakdown of the estimated employment returns by gender and model specification is provided in Table 3.

Table 3 Employment returns associated with an undergraduate degree compared to two or more A-Levels for individuals aged 35 and below, by gender and model specification

| | Male | | | Female | | |
|---------------------|--------------|----------------|--------------|--------------|----------------|--------------|
| | Simple model | Complete model | % difference | Simple model | Complete model | % difference |
| All subjects | 0.02*** | 0.01* | ↓70% | 0.07*** | 0.03*** | ↓56% |

Note: ***indicates that the coefficient is statistically different from 0 at a 1% level; *indicates that the coefficient is statistically different from 0 at a 10% level; “% difference” computed on unrounded figures.

Source: London Economics’ analysis of Labour Force Survey (2004-2017)

Overall, **analysis indicates that the absence of personal, family, employer, job-related and regional characteristics results in an over-estimation of the effect of specific qualifications on both earnings and employment returns.**

This implies that in the analysis of graduate outcomes **using LEO data, a significant component of the identified return will be as a result of these other characteristics, but wrongly attributed to the qualification in question.** This bias could have significant policy implications if LEO data is being used to proxy the ‘quality’ of higher education provision or to provide an assessment of value for money for specific qualifications.

3 Graduate repayments and public subsidy: the RAB Charge and differential fees

One of the key policy questions surrounding the level and structure of higher education student-support relates to the extent of graduate repayment of student maintenance and fee loans. The size of the public purse maintenance and fee loan subsidy is measured by the **Resource Accounting and Budgeting** charge (RAB charge).

3.1 What is the RAB charge, and its limitations as a metric?

The **RAB charge calculates the proportion of the nominal student loan book that would not be expected to be repaid (in present value terms)**. Under the current student support regime, non-repayment of maintenance/tuition loans occurs as a result of debt forgiveness after 30 years or in the case of permanent disability or death. Based on graduate earnings profiles (from the LFS) and the administrative information relating to the criteria for repayment of loans, the estimate of the aggregate RAB Charge (across all borrowers) stands at approximately **45.1%** across full time and part-time graduates¹². This implies that for every £1,000 in loans that are provided by the government, approximately £549 would be expected to be repaid (in present value terms) with the remaining £451 being 'lost' to the public purse, as a result of write-offs.

The size of the RAB charge is impacted by a number of factors. In particular, **higher graduate earnings** will result in an **increase** in the amount of student loans repaid, and consequently a **lower RAB charge**. Similarly, **reducing the threshold for repayment, increasing the rate of repayment above the threshold, and reducing the volume of loans issued** (for instance linked to a possible introduction of maintenance grants) will all result in a **reduction in the aggregate RAB charge**. **Increasing the interest rate charged on student loans** also **reduces** the RAB charge, as higher interest rates extend the period of repayment and subsequent loan receipts. From a more technical perspective, reducing the **discount rate** (which has the effect of increasing the present value of future loan repayments) also results in a **reduction** in the RAB charge.

Although the most commonly cited metric is the *aggregate* RAB charge across all borrowers (i.e. the **45.1%**), it is important to note that the RAB charge is a reflection of the aggregate loans repaid by the **individual** borrower **directly** through HM Revenue and Customs, but does not capture any of the **wider economic impacts** associated with qualification attainment that might accrue **indirectly** to the Exchequer, businesses or society more generally. Therefore, the RAB charge is an especially short-sighted measure of the contribution of qualification attainment, as it is only accounts for graduate earnings, and not graduate economic contribution.

To demonstrate this point, there have been some previous analyses assessing the RAB charge associated with different occupations. For instance, compared to the average RAB charge of **45.1%** across all full-time and part-time graduates, reflecting both individual earnings and labour market participation, the RAB charge for female **nurses, school teachers** and **social workers** have been estimated to be **78.8%, 83.5%** and **85.3%** respectively. The present value of total loan repayments for each of these occupations is estimated at **£9,600, £9,700** and **£6,600** respectively. However, given the positive social contribution that these professionals make to the UK economy (which are not explicitly reflected in the market system), the high RAB charge associated with these professions has *not* been used to argue that these degree-level subjects are unworthy of continued public

¹² London Economics (2018), Presentation to WonkHE Proceed with Caution conference (3rd July 2018) ([here](#))

funding, or that individuals entering these professions should be required to fund their own studies. In fact, the opposite is the case, with extensive financial incentives available in these professions to aid and support recruitment and retention in these occupations (for example, *Get into Teaching* training scholarships are available up to £32,000 in some subject areas).

In a similar vein, although the earnings of many arts graduates appear relatively low according to LEO data, in part reflecting the nature of the careers associated with these qualifications, **the economic benefit generated by the arts graduates – accrued in part by the Exchequer – is substantial**. For instance, recent analysis ([here](#)) of the economic contribution of the arts and culture industry to the UK indicates that aggregate Gross value Added (GVA) stands at an estimated **£24.5 billion**, of which **£20 billion** relates to direct contribution of the industry, and a further **£4.5 billion** is associated with wider spill-over effects.

Of particular relevance is that the average gross salary earned in the arts and culture industry stands at **£30,789** per employee, while an additional **£42,420** in gross salary per employee was accrued elsewhere in the economy as a result of spillover effects from the arts and cultural sector of the economy. These spillovers are generated as a result of the purchase of goods and services through the extensive supply chains supporting the arts and culture industries, as well as the expenditure of those individuals working in these industries. In essence, **if these additional spillover effects were captured in any assessment of the economic contribution of arts graduates at an individual level, the estimate of the RAB charge would be significantly lower**.

3.2 What does this imply for tuition fee policy?

Given the emerging reliance on the RAB charge as a proxy for ‘value for money’ in higher education and, in particular, the use of LEO data as a measure of the relative benefits associated with higher education qualification attainment, there have been a number of suggestions that differential tuition fees should exist in the higher education landscape. It is argued that this will serve the purpose of reflecting the differential outcomes seen across degree-level subjects, specifically in terms of earnings/employment returns and Exchequer benefits (for which the RAB charge is a proxy).

In part, this desire for a market in higher education reflects a long standing government objective to support **competitive markets** more generally, whereby markets should be allowed to ‘exist’ when and where possible. Following the introduction of differential top-up fees in 2006 (when up-front fees were replaced by income-contingent deferred fee loans) and the subsequent increase in tuition fees to £9,000 in 2012, there has been very limited variation in the fees charged by providers. This lack of ‘price’ variation has been cited by many as neither reflecting the quality of education provision by different higher education institutions, nor the value to the individual or the Exchequer associated with the funding of different higher education degrees. As such, there have been a number of interventions suggesting that different maximum tuition fees be charged by degree subject and/or institution. Proponents of this approach have cited the Australian system of higher education funding as a case study for the possibility of this approach.

3.3 The disadvantages and impracticalities of differential tuition fees

There are a number of reasons why differentiated fees would be neither beneficial nor practical in the UK higher-education context, not least because the advocacy of this policy arises from a narrow view of empirical analyses based on the LEO data and the RAB charge. It is also important to note that the introduction of variable fees in England would have consequential - and likely distorting - impacts on higher education in the other Home Nations of the UK.

One of the most fundamental reasons as to why there has been almost no differentiated fees in the higher education UK marketplace in recent years, is because the **tuition fee does not operate as a 'price'** as in a standard marketplace, due to the structure of current student-support arrangements. In particular, as tuition fee loans are available to all eligible learners to cover the entire tuition fee, **it is the availability of loan support that is the key determinant of tuition fee variability**. More specifically, if tuition fees were increased without any corresponding increase in the level of loan support (or there was a reduction in the level of loan support for the current fee), then higher education institutions would need to either accept that individuals would have to pay the difference between the tuition fee and available loan support (with a negative impact on the demand for these courses), or make up the shortfall through offering loans to prospective students themselves. It is only through the amendment of loan support – and the consequential impact on the 'actual' fees paid by future prospective students – that the fees might shift from current levels.

Amending loan support would undoubtedly have a detrimental impact on those individuals unable to pay up-front, and would signal a shift back to a system that operated in England before 2006 (where fees were paid up-front). **This would run entirely counter to the government's long term social mobility aspirations**, and given the current political environment, would be unlikely to be socially or electorally palatable. Furthermore, requiring students to pay some component of their fees up-front would undoubtedly impact a number of key professions, thereby possibly harming a number of other key government policy objectives. A recent example illustrates the impact of reducing the level of student support on take-up with the removal of NHS Bursaries for prospective nurses and allied health professionals, and the replacement of fee and maintenance grants with loans. The effective increase in the economic cost for prospective students (by 71%) resulted in a sharp decline in student numbers, thereby exacerbating the shortage of allied health professionals entering the NHS (London Economics (2016)¹³).

A **second** major argument against the introduction of variable loans is that if the higher education institution offered loans themselves, **the regulatory requirements faced by many HEIs offering credit to prospective students would be both economically costly and institutionally unmanageable**. With the possibility of universities becoming lenders (and as a consequence, having to have in-house infrastructure in place to gather repayments and enforce debt collection), combined with the additional costs associated with the administration of loans, there would probably be very little incentive to actually charge the higher tuition fee. Thus, the move towards 'total marketisation', with universities operating fully-fledged commercial operations, might not be an entirely welcome outcome, both inside and outside higher education institutions.

Supposing that the government determines that the practicalities of implementing a differentiated loans support system can be achieved through the auspices of the Student Loan Company, the **third issue** related to differentiated student loan support is that to implement such a policy in practice, there is a requirement for the government or the regulator to determine exactly which courses or institutions (or course *and* institution combinations) might be allowed to charge higher fees. Given the information presented in previous sections, it is insufficient to simply consider the LEO data (or the associated RAB charge) and determine which courses might charge higher or lower fees – even more so given the **variation in earnings within different courses and institutions**. For instance, the LEO data (as with all other survey data) suggests that the graduate earnings premium achieved by men is greater than women, and as a result, men have a lower RAB charge than women (see Section 4). Based on LEO data, the conclusion would be that, on average, for a man and a women

¹³ London Economics (2016), The Impact of the 2015 Comprehensive Spending Review on Higher Education Fees and Funding Arrangements in Subjects Allied to Medicine", a report for Unison and the National Union of Students, May 2016 ([here](#))

undertaking the same higher education degree course at the same institution, the woman should receive less in loan support than the man. This is clearly an outcome based on a simplistic understanding of incomplete and misleading metrics that consider short-term graduate earnings to be the sole higher-education outcome of importance. This is evidently inadequate grounds for policy outcomes to be justifiable, especially in light of the conclusions of Section 2 and Section 3.1.

The **final** difficulty in the potential alignment of tuition fees, and tuition fee loans, to graduate outcomes, relates to the **cost of delivery** of university courses. Currently, there is explicit government recognition that different university degree programmes have different delivery costs. This is reflected in the additional government funding for some specialist learning environments and subjects (for instance in medicine and dentistry, and STEM subjects). Additional funding occurs in spite of the fact that many individuals undertaking these qualifications often go on and become some of the highest earning graduates. If any attempt were made to break the link between the cost of provision and the level of student loan support, the impact would be to reduce demand amongst those individuals seeking to undertake these qualifications, but at the same time reduce the ability of universities to effectively deliver courses with high fixed costs. The overall result would be a general contraction of the market in these high cost subjects, combined with an increase in the average cost of provision.

4 Alternatives for student support

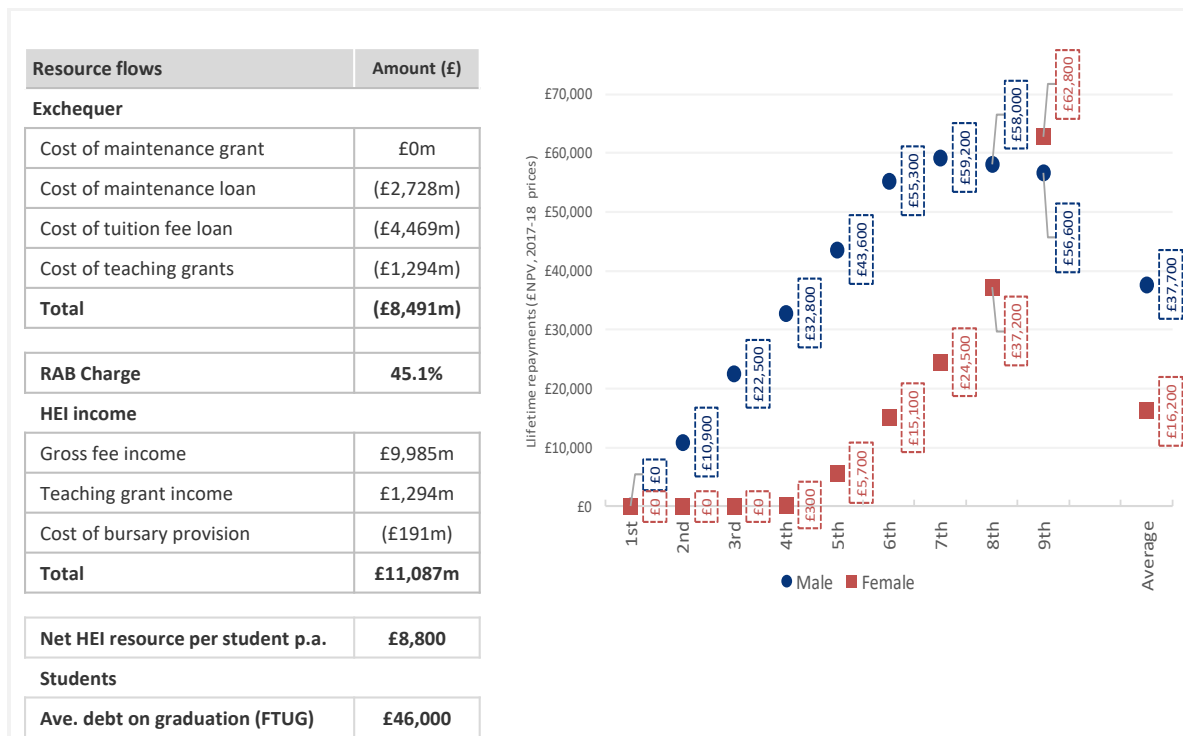
In this section, a detailed analysis of the current costs of higher education student support arrangements is presented. Additionally, the costs associated with alternative student-support approaches, proposed by GuildHE to support part-time study and student maintenance, are also detailed.

4.1 Current Higher Education Student Support Arrangements

Under the baseline scenario of the current higher-education student support arrangements, the total Exchequer cost of the HE system in England stands at **£8.491bn** per cohort, consisting of **£2.728bn** and **£4.469bn** in maintenance and tuition fee loans respectively that are never repaid, and **£1.294bn** in teaching grants paid to higher education institutions. HEIs receive **£9.985bn** in fee income and **£1.294bn** in Teaching Grant – offset by **£191m** in student bursaries.

Under current student support arrangements, the RAB charge (or the proportion of the nominal face value of the loan that is written off) was estimated to be **45.1%**. Average loan repayments by men were estimated to be **£37,700** and **£16,200** for women (FT UG Degrees). It is estimated that **81%** of students never fully repay their loan.

Figure 1 Current HE student Support arrangements



Note: All monetary values have been discounted to net present values (using standard HMT Green Book discount rates), and are presented in constant 2017/18 prices. All monetary values per student have been rounded to the nearest £100. Debt on graduation and expected lifetime repayments per student are presented for full-time undergraduate degree students only. Gross fee income refers to fee income before the deduction of fee bursaries provided to students. As a result of the Access agreements in place, HEIs may incur significantly more costs associated with ensuring access, success and progression outcomes for students ([here](#))

London Economics' analysis

4.2 Alternative Higher Education Student Support Arrangements

GuildHE has proposed alternative policies to support part-time study, help address student poverty and make the overall funding regime more progressive:

1. A re-introduction of **maintenance grants for full-time students** at 2015-16 'continuing student' level with partial reduction in maintenance loans *or* the option of enhanced maintenance grants.
2. Introduction of **maintenance grants for part-time students** on a pro-rata basis (based on study intensity of each individual student)
3. Provision of additional £1,000 in **Teaching Grant for part-time study provision with associated reduction in fees** (and fee loans and linked bursaries)
4. A **zero real rate of interest** on the first £10,000 of earnings above the repayment threshold
5. A maximum **interest rate** of 4%

These policies have been modelled using the current repayment threshold of £25,000 *and* the repayment threshold that would have occurred had the previous £21,000 threshold increased in line with prices, as originally promised.

As there are potential sub-alternatives, three alternative student-support arrangement options were formulated:

- **Scenario 1:** full suite of policy options, with a re-introduction of maintenance grants at 2015-16 'continuing student' level with partial reduction in maintenance loans and a repayment threshold of £25,000 (set to increase with inflation)
- **Scenario 2:** full suite of policy options, with a re-introduction of maintenance grants at 2015-16 'continuing student' level with partial reduction in maintenance loans and a repayment threshold that would have occurred had the previous £21,000 threshold increased in line with inflation
- **Scenario 3:** full suite of policy options, with enhanced maintenance grants (above 2015-16 'continuing student' level) and a repayment threshold that would have occurred had the previous £21,000 threshold increased in line with inflation

Presentation of Results:

Scenario 1

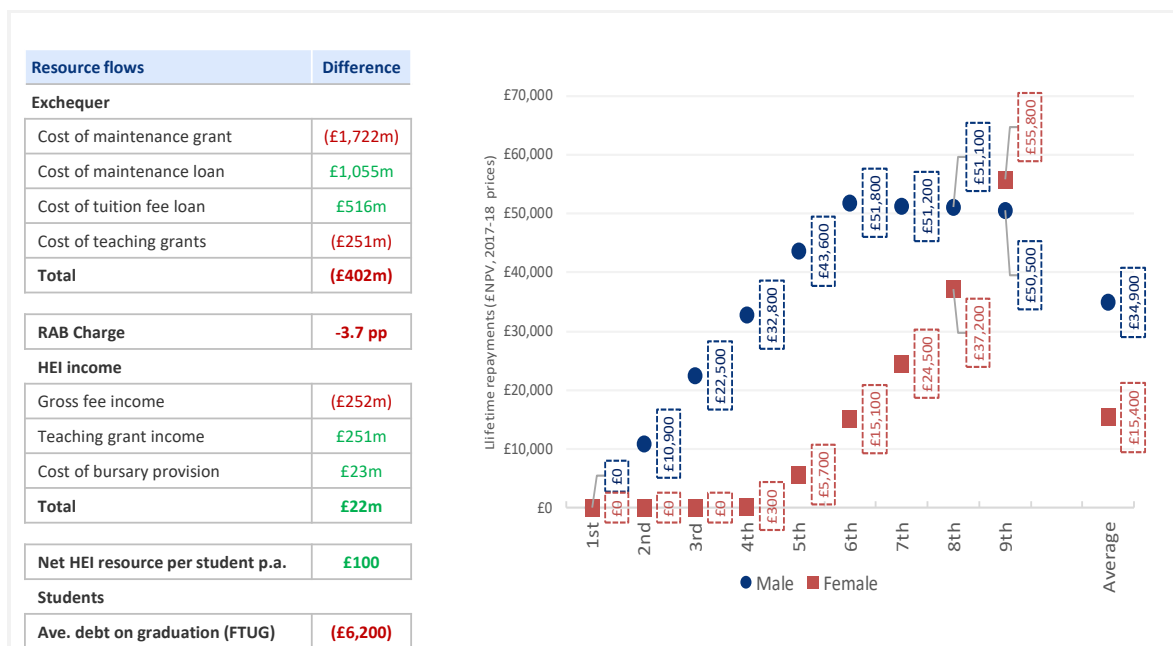
The combination of the suite of proposed policies in Scenario 1 results in an increase in the total cost to the Exchequer by **£402 million**. The cost of re-introducing maintenance grants at 2015-16 levels – with a pro-rata provision for part-time students – would amount to **1.722bn**. However, this is offset by the fact that the level of maintenance loans are reduced, as well as the fact that the maximum interest charged has been increased to **4%**. This results in approximately **£1.571bn** of savings (resulting in a net cost of **£151 million**). The final main component of cost relates to the **£251 million** in additional Teaching Grant costs provided to universities in England for part time provision.

The impact of these changes is that the RAB charge declines marginally (by **3.7 percentage points**) – to **41.4%**. Students graduate with approximately **£39,800** in loans, which is approximately **£6,200** less than under the Baseline scenario. Despite this reduction in the average level of debt on graduation, the average repayments made by graduates falls less than proportionately – with male graduates on average paying approximately **£2,800** less on average compared to the Baseline, and

female graduates making approximately **£800** less in repayments. The benefit of these reductions in loan repayments is concentrated amongst the highest earning graduates.

For higher education institutions, the average level of resource per student increases by approximately **£100** as a result of the increased Teaching Grant associated with part-time students. However, this is partially offset by the reduction in fee income (and the reduction in fee bursaries). Overall, higher education institutions' financial position improves by approximately **£22 million** per cohort.

Figure 2 Scenario 1: Full suite of policy options with £25,000 threshold



Re-introduction of 2015-16 Maintenance Grants (Max £3,482); Reduced maintenance loan levels; PT pro-rata; Additional £1,000 T Grant for PT students with reduction in PT fee level, bursaries, and fee loans; Repayment threshold £25,000 (increasing with inflation); Max Interest rate 4%; Zero real rate of interest on £10,000 earnings above repayment threshold.

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Scenario 2

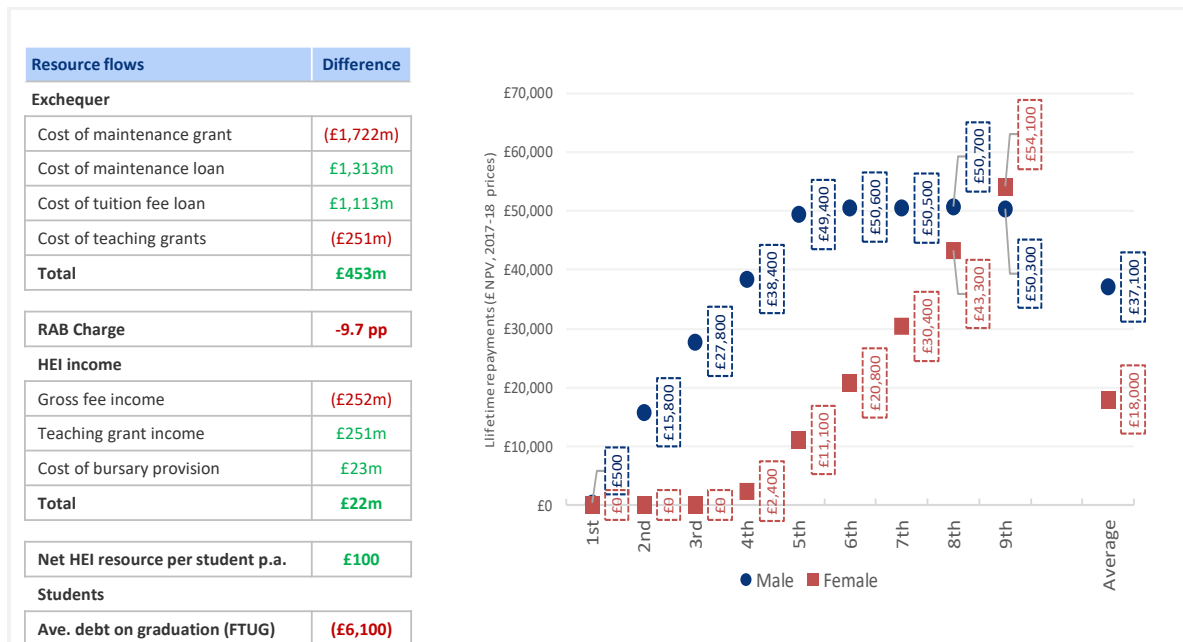
Although Scenario 1 illustrates the costs associated with a number of different policy options, the most expensive element of the student loan repayment system (in the Baseline scenario) currently relates to the threshold for repayment – and in particular the fact that the threshold increased from £21,000 to £25,000. This policy had the impact of raising the Exchequer cost per cohort from **£5.637 billion** to **£8.491 billion** – an increase of approximately 50%.

In this context, Scenario 2 presents the impact of the same suite of policy options, although this time adopting the original threshold of £21,000, uprated for inflation (as opposed to being frozen for four years). Had the original threshold been inflation-adjusted from the point where the first cohort of graduates would have been eligible to repay, it would have stood at **£22,731**.

The impact of this change is sizeable. Rather than the suite of policies costing the Exchequer an additional **£402 million**, the reduced repayment threshold would save the Exchequer approximately **£855 million** per cohort (compared to Scenario 1) and result in an overall cost saving of **£453 million** per cohort, compared to the current baseline. In particular, the reduction in costs is driven predominantly by the savings associated with the reduction in the RAB charge (**9.7 percentage points**) associated with tuition fee and maintenance loans (resulting in savings of **£1,113 million** and

£1,313 million respectively). Linked to this, average loan repayments increase by approximately **£2,200** for male graduates and **£2,400** per female graduates, with the greatest increase in repayments (compared to Scenario 1) occurring at the lower end of the earnings distribution. Counter-intuitively, higher earning graduates repay marginally less in this scenario, because they start to repay the capital more quickly than under the £25,000 threshold.

Figure 3 Scenario 2: Full suite of policy options with £21,000 ‘counterfactual’ threshold



Re-introduction of 2015-16 Maintenance Grants (Max £3,482); Reduced maintenance loan levels; PT pro-rata; Additional £1,000 T Grant for PT students with reduction in PT fee level, bursaries, and fee loans; Repayment threshold £21,000 (increasing with earnings (2%) since 2015-16 (£22,731 in 2020-21)); Max Interest rate 4%; Zero real rate of interest on £10,000 earnings above repayment threshold

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Scenario 3

Compared to the Baseline scenario, under Scenario 2, graduates are expected to make an additional £900 in loan repayments in real terms over the repayment period (on average). To compensate for this, it is possible to increase the maximum level of maintenance grants by **£350 per annum** (equivalent to an expected £900 over the course of an undergraduate degree after accounting for non-completion). The effect of this measure is to ‘hand back’ **£263 million** to students in aggregate (after some savings are achieved in relation to maintenance loans).

Considering the Baseline scenario level of current Exchequer costs, it would be possible to increase the maximum maintenance grant to approximately **£4,100** per annum, without making this proposed system any more expensive than the current student support arrangements. This is presented in Figure 4.

Figure 4 Scenario 3 – Scenario 2 with increased maintenance grant

Enhanced Maintenance Grants (Max £3,832); Reduced maintenance loan levels; PT pro-rata; Additional £1,000 T Grant for PT students with reduction in PT fee level, bursaries, and fee loans; Repayment threshold £21,000 (increasing with earnings growth (2%) since 2015-16); Max Interest rate 4%; Zero real rate of interest on £10,000 earnings above repayment threshold.

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5 Conclusions

In light of the on-going focus amongst policymakers on the sustainability of higher education fees and funding arrangements, the need for evidence-based policy in this area has never been greater. With this in mind, the availability of the Longitudinal Education Outcomes (LEO) data has been perceived as a ‘game changer’, allowing for the assessment of the value (and ‘quality’) of higher education provision, and for the subsequent dictation of the allocation of public funding.

While the analysis presented here demonstrates that the use of LEO data does have some benefits, it also draws attention to the fact that the LEO data is undoubtedly **lacking in a number of respects**. These **limitations are significant enough to cause systematic inaccuracies in analyses based on the data, and may be particularly problematic if critical policy decisions are based on the LEO findings**.

As Section 2 demonstrates in detail, one of the most relevant of these limitations is the inability of the LEO dataset to control for a number of personal, socio-economic, regional and job-related characteristics, which results in an overestimate of the labour market returns to qualifications. In particular, any analysis based on LEO data will wrongly assign a proportion of the labour market outcomes associated with higher education attainment to the qualification itself, rather than to the person in possession of the qualification. This is particularly problematic if LEO data is being used to proxy the ‘quality’ of higher education provision or to provide an assessment of value for money.

Linked to this, the RAB charge (or the proportion of maintenance and fee loans written off by the Exchequer) is a very commonly quoted metric in the higher education policy landscape. It is inversely related to graduate earnings, and has been considered as another key measure of the value for money, to the Exchequer, associated with different higher education courses. However, although simple, it is potentially **very misleading** because it only provides a reflection of the aggregate loans repaid by the **individual** borrower **directly** through HM Revenue and Customs, and *does not* capture any of the **wider economic impacts** associated with an individual’s qualification attainment that might accrue **indirectly** to the Exchequer, businesses or society in general.

As such, for many degree level subjects, the **RAB charge provides an inaccurate estimate of the economic benefits** associated with government funding of higher education, and **should not be used to determine where higher education funding is allocated**. Instead, funding should be allocated to reflect the costs of delivery that higher education institutions incur, with those subject areas associated with high fixed costs receiving additional funding, to maintain quality.

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