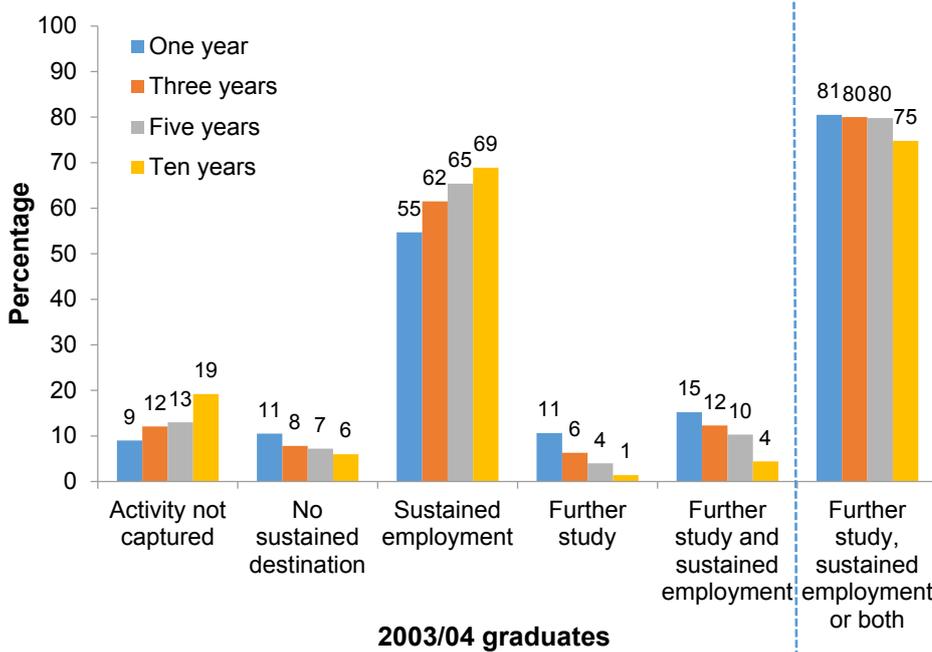




SFR36/2016 4th August 2016

This experimental statistics release presents employment and earnings outcomes for leavers of higher education one, three, five and ten years after graduation. This publication is the first of its kind to use the Longitudinal Education Outcomes (LEO) dataset to track higher education leavers as they move from higher education into the workplace.

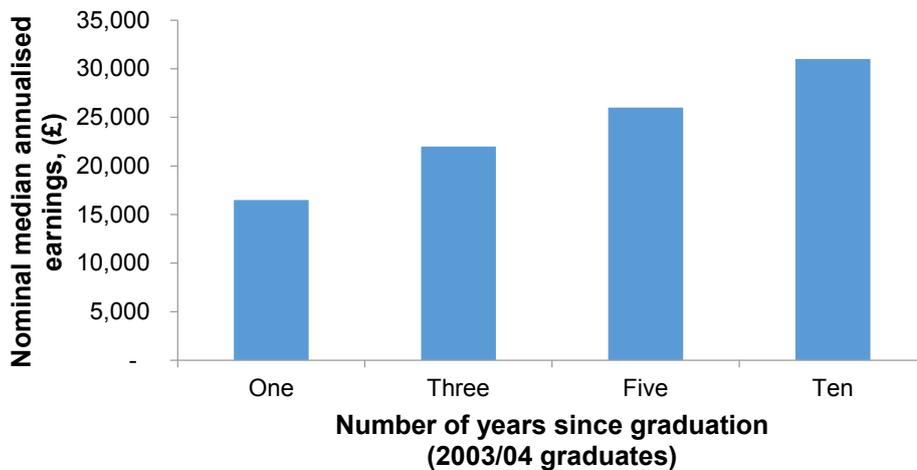
Sustained employment increases over time (2003/04 graduates)



The proportion of 2003/04 graduates in sustained employment¹ is higher ten years after graduation compared to one year after (69 per cent compared to 55 per cent).

The proportion of graduates in sustained employment, further study or both falls by five percentage points to 75 per cent ten years after graduation. A correspondingly higher proportion are engaged in activity that cannot be captured by LEO at this time. This will include those who earn below the tax threshold, are self-employed or who are overseas.

Median earnings increase over time (2003/04 graduates)



Nominal median earnings increase as the number of years since graduation increases. For those who graduated in 2003/04, median annualised earnings were £16,500 in the first full financial year after graduation. This had risen to £31,000 ten years after graduation.

¹ Graduates are counted as being in sustained employment if they are in work for at least 1 day in 5 out of 6 months between October-March of the relevant financial year (see section 8 for full details).

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About this release

This experimental statistical release presents statistics on the employment and earnings outcomes of higher education leavers. It uses the linked administrative data that forms the Longitudinal Education Outcomes (LEO) dataset. This publication focuses on cohorts of leavers obtaining first degree qualifications from the 2003/2004 academic year onwards.

We intend to publish further experimental statistics drawing from the LEO dataset that build upon this release.

In this publication

The following tables are included in the SFR:

Table 1a Activity of all first degree graduates in the United Kingdom

Table 1b Activity of full-time first degree graduates in the United Kingdom

Table 1c Activity of part-time first degree graduates in the United Kingdom

Table 2a Annualised earnings of all first degree graduates in sustained employment in the United Kingdom

Table 2b Annualised earnings of full-time first degree graduates in sustained employment in the United Kingdom

Table 2c Annualised earnings of part-time first degree graduates in sustained employment in the United Kingdom

The technical annex provides information on the data sources, their coverage and quality and explains the methodology used in producing the data.

Feedback

As these statistics are currently experimental we welcome feedback on the methodology and definitions used.

We will be flagging questions that we would like users to comment on throughout. If you have any comments or feedback on the questions raised, please respond using the following link:

<https://consult.education.gov.uk/he-education-strategy-and-policy/higher-education-statistics>

Alternatively, you can contact us using the details provided in section 13.

1. Introduction

Background to the Longitudinal Education Outcomes (LEO) dataset

The Small Business and Enterprise Act 2015 enables Government, for the first time, to link higher education and tax data together to chart the transition of graduates from higher education into the workplace². One of the advantages of linking data from existing administrative sources is that it provides a unique insight into the destinations of graduates without imposing any additional data collection burdens on universities, employers or members of the public.

The LEO dataset links information about students, including:

- Personal characteristics such as gender, ethnic group and age;
- Education, including schools, colleges and higher education institution attended, courses taken, and qualifications achieved;
- Employment and income; and
- Benefits claimed.

It is created by combining data from the following sources:

- The National Pupil Database (NPD) held by the Department for Education (DfE);
- Higher Education Statistics Agency (HESA) data on students at UK publicly funded higher education institutions and some Alternative Providers held by DfE;
- Individualised Learner Record Data (ILR) on students at further education institutions held by DfE;
- Employment data (P45 and P14) held by Her Majesty's Revenue and Customs (HMRC);
- The National Benefit Database, Labour Market System and Juvos data held by the Department for Work and Pensions (DWP).

By combining these sources together we can look at the progress of higher education leavers into the labour market. The focus of this release is on employment and earnings outcomes of leavers from higher education, using HESA records to link graduates to HMRC and DWP data. Please see the technical annex for further information on matching processes, consideration of the strengths and weaknesses of the LEO dataset, as well as a glossary of the definitions used throughout this publication.

The privacy notice explaining how personal data in this project is shared and used can be found at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/529138/Longitudinal_education_outcomes_study_how_we_share_and_use_personal_data.pdf

This Statistical First Release provides data on graduate employment and earnings outcomes one, three, five and ten years after graduation. The Excel spreadsheet accompanying this release provides a breakdown for graduates who studied full-time and part-time.

Coverage

This publication looks at those who graduated with a first degree qualification from English Higher Education Institutions (HEIS) between 2003/04 and 2012/13. We have just looked at those classified as UK domiciled at their time of study. We are able to link the student records of over 95 per cent of graduates to tax and/or benefit data on average. Please see Section 9 [Data Matching and Match Rates] for more information.

The **employment data** covers those with records submitted through the Pay as you Earn (PAYE) system. The core purpose of PAYE is to collect tax and its coverage reflects this. Up until April 2013, employers

² For more information on the legal powers governing the dataset please see section 78 of the Small Business, Enterprise and Employment Act 2015 and sections 87-91 of the Education and Skills Act 2008.

were not required to supply information to HMRC for individuals who earned below the PAYE tax threshold, although for large employers these individuals were thought to be included due to the methods of data transfer. Since then, employers have been required to provide earnings information for all employees if even one employee of the company is paid above the PAYE threshold³. Please see section 7 for more information on this.

The PAYE system does not collect information on the numbers of hours worked, therefore whether an individual is working full-time or part-time cannot be ascertained.

Additionally, the dataset does not currently include self-assessment tax returns and hence employment and earnings figures will not fully reflect those who are self-employed.

All data is based on UK tax, benefit and student records only: those who move abroad to work or study after graduating are not reflected in the figures.

The methodology for defining employment and earnings outcomes is set out in section 8.

2. Results (Tables 1a, 1b & 1c)

Employment outcomes

One year after graduation

The proportion of graduates who were in either sustained employment⁴, further study, or a combination of both one year after graduation has remained stable across all cohorts since 2003/04, with approximately 4 in 5 matched graduates falling into one these categories (see table 1). Within this, graduates are most likely to be in sustained employment and least likely to be in further study without an accompanying sustained employment spell.

The patterns across all destinations are broadly similar for both full-time and part-time graduates; we therefore do not differentiate between the two and instead will focus on each graduate cohort as a whole. It should be noted that part-time graduates are more likely to have activity that is not captured or have no sustained destination than full-time graduates across all time points.

Table 1: Destination of graduates one year after graduation

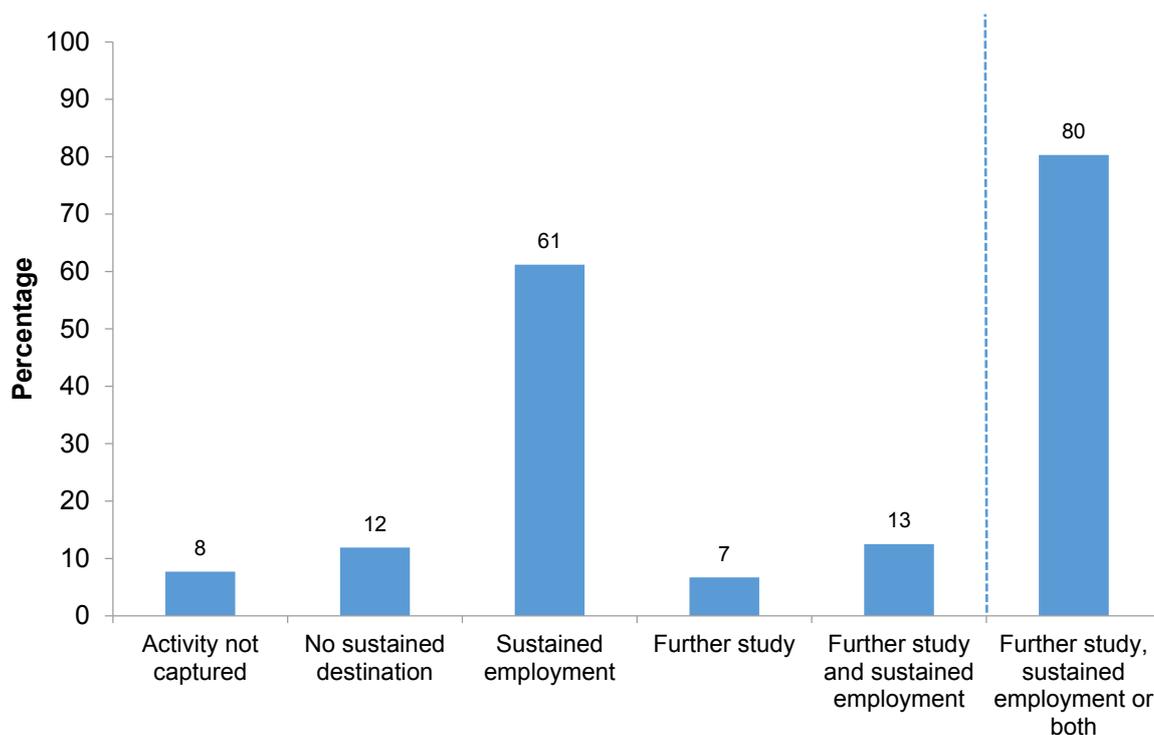
Year of graduation	Activity not captured	No sustained destination	Sustained employment	Further study	Further study and sustained employment	Further study, sustained employment or both
2012/2013	7.7%	11.9%	61.2%	6.7%	12.5%	80.3%
2011/2012	7.5%	10.4%	61.3%	7.2%	13.6%	82.1%
2010/2011	7.2%	11.8%	58.5%	8.5%	14.0%	81.0%
2009/2010	7.3%	11.2%	58.5%	8.5%	14.6%	81.6%
2008/2009	7.8%	10.7%	56.3%	9.3%	15.9%	81.5%
2007/2008	8.7%	10.8%	55.8%	9.4%	15.4%	80.5%
2006/2007	9.1%	11.4%	54.9%	9.8%	14.9%	79.5%
2005/2006	10.3%	10.6%	54.7%	10.2%	14.2%	79.1%
2004/2005	9.8%	10.3%	54.7%	10.5%	14.8%	80.0%
2003/2004	9.0%	10.5%	54.7%	10.6%	15.2%	80.5%

³ The threshold for the 2016-17 tax year is £11,000.

⁴ Graduates are counted as being in sustained employment if they are in work for at least 1 day in 5 out of 6 months between October-March of the relevant financial year (see section 8 for further detail).

Figure 1 shows the breakdown of destinations for 2012/13 graduates, the most recent cohort for which data one year after graduation is available. 19.6 per cent of graduates in this cohort were flagged as either having activity that is not captured (matched DWP's Customer information System (CIS) but with no employment record in the financial year) or as having no sustained destination (an unsustained employment spell or an 'out-of-work' benefits spell).⁵ This proportion is broadly stable across all cohorts, although 2012/13 graduates are more likely to have no sustained destination and less likely to have activity that is not captured than 2003/04 graduates.

Figure 1: Destination of 2012/13 graduates one year after graduation



The proportion of graduates in sustained employment one year after graduation has increased steadily since 2003/04 to a high of 61.2 per cent for 2012/13 graduates. In contrast, the proportion of graduates in further study only has decreased in the same timeframe, from 10.6 per cent for 2003/04 graduates to 6.7 per cent for the 2012/13 cohort. The proportion of graduates in both sustained employment and further study remained broadly stable until 2008/09, but has decreased year-on-year since then from a high of 15.9 per cent to 12.5 per cent for 2012/13 graduates.

Three years after graduation

The proportion of graduates in sustained employment, further study or both three years after graduation is very similar across all cohorts (see table 2). As with figures for one year after graduation, cohorts in more recent years are more likely to be in sustained employment and less likely to be in further study than cohorts in earlier years.

⁵ Further detail on the destination categories used is given in Section 8 [Methodology].

Table 2: Destination of graduates three years after graduation

Year of graduation	Activity not captured	No sustained destination	Sustained employment	Further study	Further study and sustained employment	Further study, sustained employment or both
2010/2011	11.3%	8.6%	65.6%	4.4%	10.1%	80.1%
2009/2010	11.4%	7.7%	66.1%	4.2%	10.6%	80.9%
2008/2009	10.6%	8.8%	64.1%	4.9%	11.6%	80.5%
2007/2008	10.4%	7.8%	63.6%	5.4%	12.8%	81.8%
2006/2007	11.0%	7.7%	62.4%	5.9%	13.0%	81.3%
2005/2006	11.5%	7.9%	61.9%	5.9%	12.9%	80.6%
2004/2005	11.2%	8.5%	61.6%	6.0%	12.6%	80.3%
2003/2004	12.1%	7.8%	61.5%	6.3%	12.3%	80.0%

Across all cohorts, the proportion of graduates in some combination of sustained employment, further study or both three years after graduation has remained stable since one year after graduation. However, there are changes in the composition of this broader category: the proportion of graduates in sustained employment three years after graduation is higher than figures one year after graduation, whereas graduates are less likely to be in further study at the three year time point.

The proportion of graduates with activity that cannot be captured or who have no sustained destination remains at around 20 per cent across all cohorts; however, graduates are more likely to have activity that is not captured and less likely to have an unsustained destination than they were one year after graduation.

Five years after graduation

The patterns observed between one and three years after graduation continue to strengthen at five years after graduation (see table 3). Graduates are more likely to be in sustained employment at the five year time point than they were one or three years after graduation, and are less likely to be in further study. Indeed, only 2.8 per cent of graduates in the 2008/09 cohort were in further study at any point in the financial year five years after graduating.

However, the proportion of graduates who are in further study, sustained employment (or both) falls between three and five years after graduating. This is more pronounced for later cohorts: the 2007/08 and 2008/09 cohorts both saw a 2.2 percentage point fall in the proportion of graduates in sustained employment or further study (or both), whereas the corresponding fall for 2003/04 graduates was only 0.2 percentage points.

Compared to one and three years after graduation, the proportion of graduates who have no sustained destination after five years continues to fall, and the proportion with activity that cannot be captured continues to rise.

Table 3: Destination of graduates five years after graduation

Year of graduation	Activity not captured	No sustained destination	Sustained employment	Further study	Further study and sustained employment	Further study, sustained employment or both
2008/2009	14.2%	7.5%	67.4%	2.8%	8.0%	78.3%
2007/2008	13.8%	6.6%	67.9%	2.9%	8.8%	79.6%
2006/2007	13.2%	7.6%	66.6%	3.3%	9.3%	79.2%
2005/2006	12.9%	6.9%	66.5%	3.7%	10.0%	80.2%
2004/2005	13.1%	7.0%	65.7%	3.9%	10.3%	79.9%
2003/2004	13.0%	7.2%	65.4%	4.0%	10.3%	79.8%

Ten years after graduation

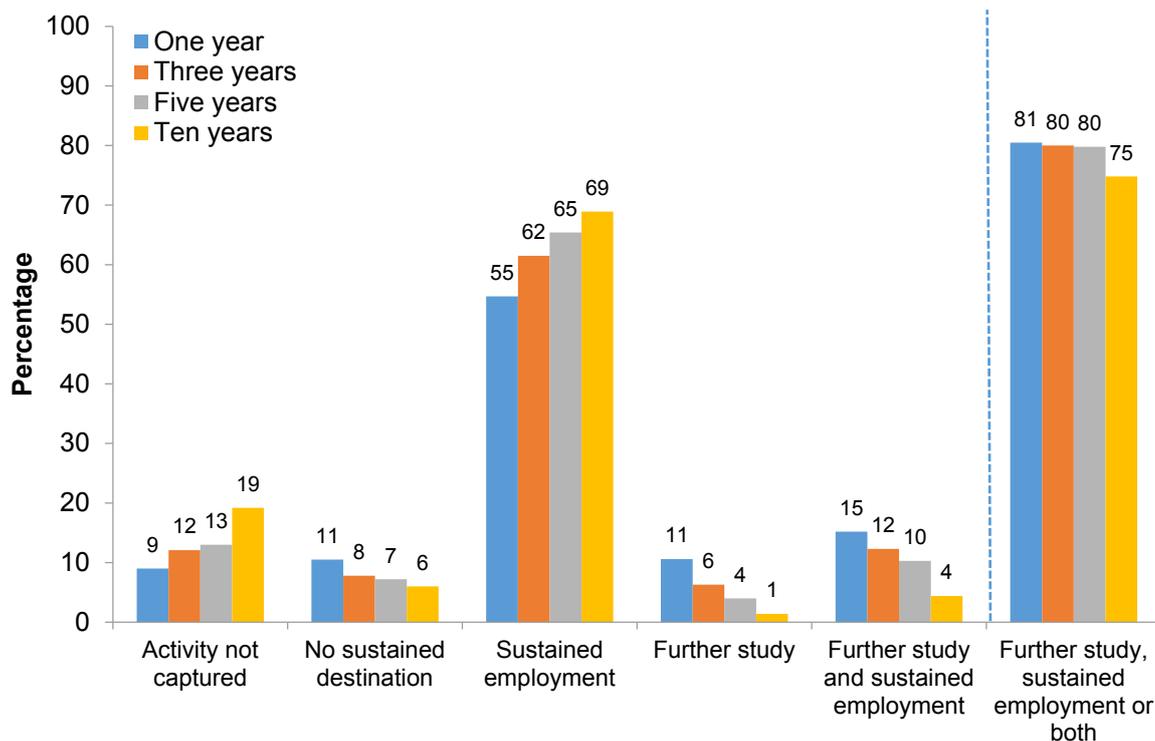
The 2003/04 graduating cohort represents the first group for which graduates can be reliably matched to employment outcomes ten tax years after graduation. Figure 2 shows the destination of 2003/04 graduates at one, three, five and ten year time points.

Table 4: Destination of 2003/04 graduates ten years after graduation

Year of graduation	Activity not captured	No sustained destination	Sustained employment	Further study	Further study and sustained employment	Further study, sustained employment or both
2003/2004	19.2%	6.0%	68.9%	1.4%	4.4%	74.8%

Looking at the cohort of students that graduated in 2003/04, we see that the proportion in employment or further study (or both) fell between five and ten years after graduation, from 79.9 per cent to 74.8 per cent. This decrease is a result of the proportion of graduates in further study falling without a fully offsetting rise in sustained employment outcomes. By the 2014/15 financial year only 1.4 per cent of those who graduated in 2003/04 were engaged in further study only and 4.4 per cent in conjunction with sustained employment, reflecting a 2.6 and 5.9 percentage point fall respectively compared to five years after graduation. This compares to a 4.5 percentage point rise in the proportion of graduates engaged in sustained employment.

Figure 2: Destination of 2003/04 graduates one, three, five and ten years after graduation



Outcomes ten years after graduation also have the largest proportion of graduates in the ‘activity not captured’ category: 19.2 per cent of graduates were engaged in activity that cannot be captured by LEO. The proportion of graduates without a sustained destination falls to its lowest level at 6 per cent.

Earnings

Median annualised earnings have been calculated for those classified as being in sustained employment only. Only those with a valid earnings record for the financial year in question are included, due to changes in HMRC’s reporting systems the coverage of the earnings data has improved overtime. Improvements were noticeable for the 2009/10 financial year again in 2013/14 (these changes are outlined in more detail in section 7).

Annualised earnings are calculated by taking the average daily wage across the financial year grossed up to the equivalent annual figure (see Section 8 [Methodology] for more details)⁶. All earnings presented in this publication and the accompanying tables are nominal: they are not adjusted for inflation.

Figure 3 shows the median annualised earnings for each graduate cohort one, three and five years post graduation. These figures are for graduates who studied both full-time and part-time time and are expressed in nominal terms. Earnings for the first full financial year post graduation have risen slightly over time. Those graduating in 2003/04 had median annualised earnings of £16,500⁷ one year after graduation compared to £18,500 for those who graduated in 2012/13. Within this trend we see slight falls in one year on earnings for those graduating in 2007/08, coinciding with the time of the great recession.

There has been little change in the median annualised earnings for each cohort three and five years post graduation. The median earnings three years after graduation for those graduating in 2003/04 was £22,000

⁶ Note that the set of graduates from each cohort included in the earnings calculations is not necessarily the same at each time point. An individual could be in sustained employment in the first full financial year after graduating, but be in further study by the time of the third financial year and therefore not included in that year’s figures. If they then returned to sustained employment for the fifth financial year, they would be included again.

⁷ In line with rounding methodology used in the Destination of Leavers from Higher Education (DLHE) we have rounded earnings figures to the nearest £500

compared to £22,500 for those graduating in 2010/11. The median earnings five years post graduation for those graduating in 2003/04 was £26,000 compared to £25,500 for those who graduated in 2008/09.

Figure 3: Median annualised earnings for each cohort one, three and five years after graduation

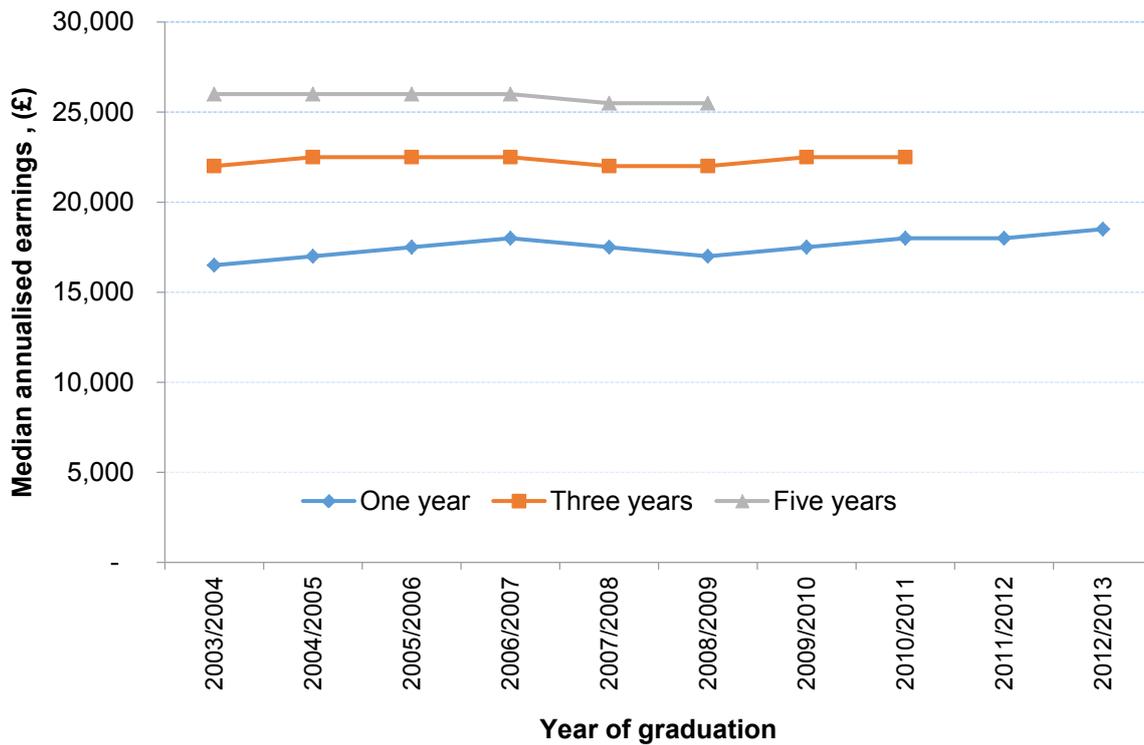


Figure 4 and table 5 show the interquartile range of earnings for the 2003/04 graduation cohort for each year after graduation. The interquartile range increases as the time since graduating increases. The blue box represents the earnings of the middle 50 per cent of earners. In the first full financial year after graduation the gap between the upper and lower quartile was £10,000; in the tenth full financial year after graduation the gap was £22,000. The lower quartile did not increase as quickly as the upper quartile between five and ten years after graduation. This could be because the number of graduates working part-time increases during this period.

Figure 4: Annualised earnings (£) for the 2003/04 graduation cohort one, three, five and ten years after graduation

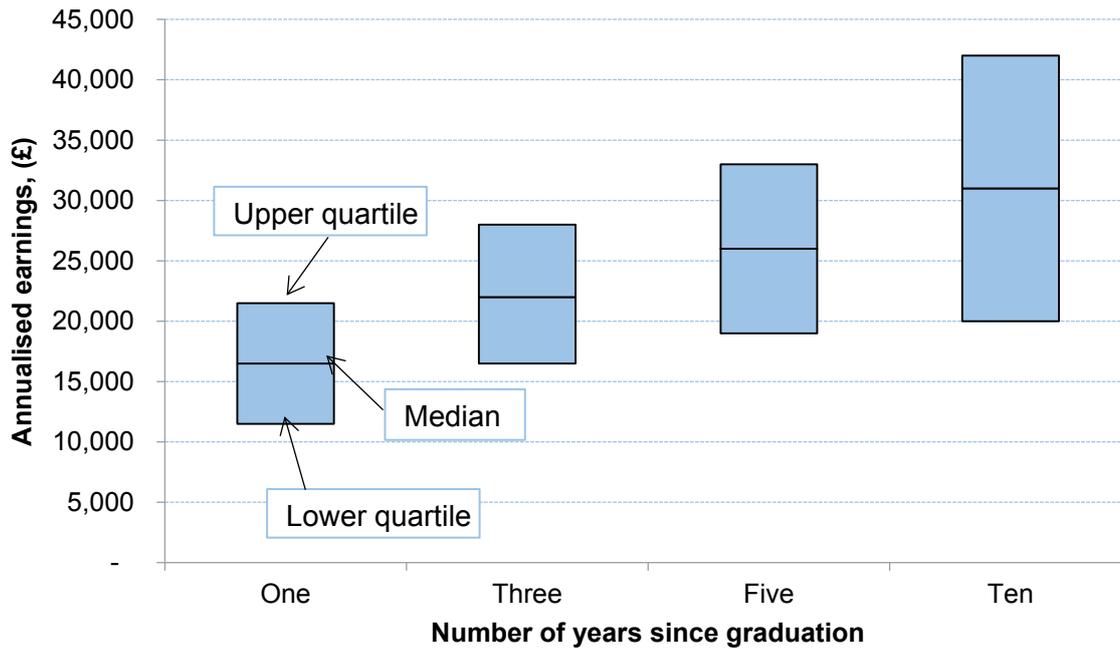


Table 5: Annualised earnings (£) for the 2003/04 graduation cohort one, three, five and ten years after graduation

Years after graduation	Lower Quartile	Median	Upper quartile
One	11,500	16,500	21,500
Three	16,500	22,000	28,000
Five	19,000	26,000	33,000
Ten	20,000	31,000	42,000

Table 6 below shows the split of earnings by whether the graduate studied for their first degree full time or part time. Initially median earnings are higher for part time graduates (£22,000 compared to £16,000). However, the gap closes over time and ten years after graduation the median earnings for those who studied for their first degree part time was £1,000 lower than the median earnings for those who had studied full time.

Table 6: Median annualised earnings (£) for the 2003/04 graduation cohort by whether the graduate studied for their first degree full or part time

Years after graduation	Full time	Part time
One	16,000	22,000
Three	22,000	25,000
Five	25,500	28,000
Ten	31,000	30,000

3. Next Steps

As outlined in the [higher education white paper: 'Success as a knowledge economy'](#)⁸ published on 16th May 2016 we will be publishing further experimental statistical releases using the LEO data. The schedule of upcoming publications is shown below.

Autumn 2016	This publication will be followed by the release of more detailed breakdowns by subject and institution. We will explore options for making fuller data (including breakdowns by subject within institutions) available on a pilot basis for the forthcoming UCAS application cycle for a selection of courses, subject to the outcomes of initial data matching and consultation with the sector.
Spring 2017	We will publish breakdowns by subject within institution.
Beyond Summer 2017	We expect to have established a regular cycle of publications and to use this to help improve the information given to students when deciding on higher education institutions and subjects, for example by expanding on the Unistats website

4. Accompanying tables

The following tables are available in Excel format on the department's statistics website (hyperlink to gov.uk collection): <https://www.gov.uk/government/statistics?departments%5B%5D=department-for-education>

Table 1a Activity of all first degree graduates in the United Kingdom

Table 1b Activity of full-time first degree graduates in the United Kingdom

Table 1c Activity of part-time first degree graduates in the United Kingdom

Table 2a Annualised earnings of all first degree graduates in sustained employment in the United Kingdom

Table 2b Annualised earnings of full-time first degree graduates in sustained employment in the United Kingdom

Table 2c Annualised earnings of part-time first degree graduates in sustained employment in the United Kingdom

5. Feedback

Throughout this publication we will be flagging questions that we would like users to comment on. If you have any comments or feedback on the questions raised in this release, please respond using the following link:

<https://consult.education.gov.uk/he-education-strategy-and-policy/higher-education-statistics>

Alternatively, you can contact us using the details provided in section 12.

⁸ The white paper can be accessed at the following link: <https://www.gov.uk/government/publications/higher-education-success-as-a-knowledge-economy-white-paper>

Technical Annex

6. Glossary

Academic year: Runs from 1st August to 31st July. For example, the 2010/11 academic year runs from 1st August 2010 to 31st July 2011.

The **Customer Information System (CIS):** A computer system used by the Department for Work and Pensions that contains a record for all individuals that have been issued with a National Insurance number. It contains basic identifying information such as name, address, date of birth and National Insurance Number.

Financial year: Runs from 6th April to 5th April the following year. For example, the reference period covered by the 2010/11 financial year runs from 6th April 2010 to 5th April 2011.

First degree qualification: This covers qualifications commonly known as bachelor's degrees and also includes postgraduate bachelor's degrees at H level. Not all undergraduate courses are included: for example, the Professional Graduate Certificate in Education (PGCE), foundation degrees and Higher National Diplomas (HND) are excluded. For further information on this classification, please refer to the Higher Education Statistics Agency at the link referenced below.⁹ Note that it does not necessarily mean that the degree is the first higher education qualification undertaken by the student.

HEI: Higher Education Institution.

Nominal earnings: Nominal earnings represent the cash amount an individual was paid. They are not adjusted for inflation (the general increase in the price of goods and services).

Sustained Employment: A learner is counted in Sustained Employment if they were recorded as being employed in 5 out of the 6 months between October and March in the financial year, e.g. 5 out of 6 months between October 2010 and March 2011 for the 2010/11 financial year.

Sustained Annualised Earnings: The calculated average daily wage across the financial year grossed up to the equivalent annual figure. This is only calculated where the learner was in Sustained Employment.

7. Data Quality

Employment and earnings data

The **employment data** covers those with P45 and P14 records submitted through the Pay as you Earn (PAYE) system. These figures have been derived from administrative IT systems which, as with any large scale recording system, are subject to possible errors with data entry and processing. While some data cleaning was necessary the resulting data looks to provide a good reflection of an individual's employment and earnings for the year.

Issues encountered with the employment data included duplicate records and invalid records (for example where an employment start date occurred after the end date).

Additionally, for the purposes of collecting taxes accurate start dates are not required, just the financial year and earnings. Therefore a number of returns are found to have missing start dates due to the

⁹ Under 'Field Explanations': <https://www.hesa.ac.uk/component/content/article?id=2813#c1>

employer not forwarding a timely P45. The default dates recorded in the dataset are either 6 April (the first day of the financial year), or where only an end date is known as the day before that end date. Similarly for records where the employment is known to have come to an end within a financial year but the end date is not known the record is given a default 5 April end date, the last day of the financial year.

Individuals also have overlapping spells of employment. Before carrying out analysis, the P45 and P14 records for each individual were cleaned and then merged into a single record to give a longitudinal picture of their employment and a total sum of their earnings in each financial year.

Before cleaning the dataset contained just under 73 million P45 records. Of these, just over 6.5 million invalid records were removed (the majority were duplicate records). Of the remaining records around 20 per cent had an uncertain start date and around 20 per cent an uncertain end date. For each uncertain date we used dates from other employment/benefits records for that individual to create a merged employment spell with a known start and end date.

Example 1: Two employment spells

Spell A |-----|
Spell B |-----|-----|
 |-----|
Merged result |-----|

In example 1, the start date of spell B is uncertain with its possible range shown in blue. In this instance we can merge the two records resulting in an employment spell with the start date of spell A and an end date from spell B.

Any remaining uncertain dates were imputed through random sampling of gap lengths from a frequency distribution that was constructed from gaps with a known length.

Coverage

The dataset does not currently include self-assessment tax returns hence employment and earnings figures do not fully reflect those who are self-employed. We will explore the suitability of including self-assessment data in future publications.

The employment data largely covers those who pay tax through PAYE. The core purpose of this process is to collect tax from those who are eligible to pay it through this mechanism, as such there is not complete coverage due to the taxation system. Employers are not required to supply information to HMRC for individuals who earn below the tax threshold, although for large employers these individuals are thought to be included due to the methods of data transfer.

In June 2009 HMRC introduced a new computer system, the new National Insurance and PAYE System (NPS). This is able to bring information about each taxpayer together into a single record reducing the need for the manual intervention often needed under the previous COP system (Computerisation of PAYE). NPS replaced COP between 2007-08 and 2008-09, so from this point onwards we have better coverage of earnings data.

Beginning in April 2013, the P45 reporting system was phased out in favour of the Real Time Information (RTI) system, which requires employers to submit information to HMRC each time an employee is paid. This system has now reached full deployment. RTI offers substantial improvements to the P45 system in terms of data coverage, since employers must now provide information on all their employees if even one employee of the company is paid above the Lower Earnings Limit. The move to RTI will mean that data coverage is higher for the most recent financial years.

Timeliness

All data used in this process is drawn from administrative sources, which take time to process and collate. There are therefore lags between the reference period and availability of the dataset for analysis. Employment data is matched to DWP data on a regular basis. There are cleaning rules applied to this data, which identify old records when updated with new information. As new information can come through about a job after it has ended this is a source of constant change, analysis suggests that the data are about 90 per cent complete 6 months after the end of the financial year.

Benefits data

Benefit data are taken from the underlying payments systems and are supplemented by the information entered by Jobcentre advisers. The data therefore captures basic information accurately, but non-compulsory fields in either the labour market system or the payment system may be incomplete. Due to the size and technical complexity, these systems are not accessed directly, but at regular intervals scans are taken that build up a longitudinal picture from repeated snapshots of the data.

Start dates are entered on to the system and are accurate dates of benefit payment, thus provide certain timing and duration of benefit claim. However, while Job Seekers Allowance (JSA) dates have very few discrepancies due to the way the data is scanned, the end dates recorded for other benefits may diverge to some extent from the events they are recording. The potential discrepancy varies from up to two weeks for Employment Support Allowance (ESA) to up to six weeks for Incapacity Benefit (IB).

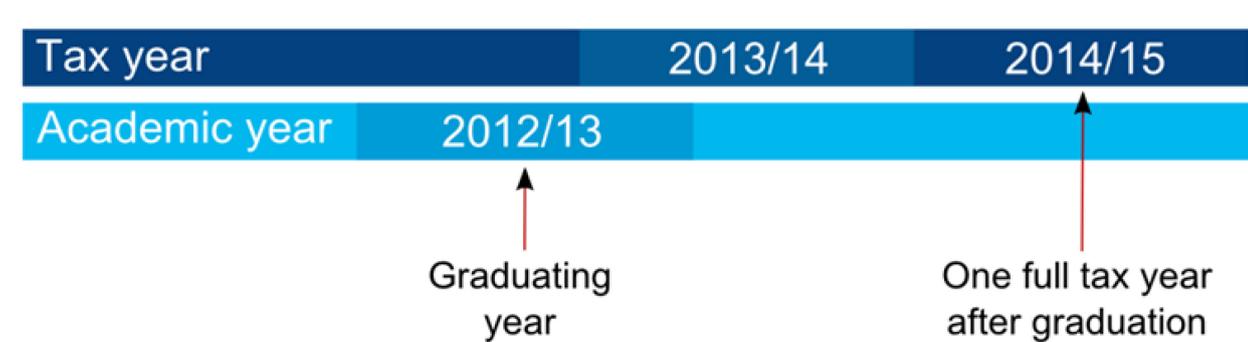
The National Benefits Database (NBD) does not currently include any information relating to claims to Universal Credit. Further work is being undertaken to assess whether Universal Credit claims can be brought into the matching database.

Graduates are considered to be in receipt of an out-of-work benefit if they have a record at any point in the tax year for: Job Seekers Allowance (JSA), Incapacity Benefit (IB), Income Support (IS), Permanent Injury Benefit (PIB), Severe Disablement Allowance (SDA), Pension Credit (PC), Employment and Support Allowance (ESA).

8. Methodology

Time period

The earliest time period for which employment/earnings data are reported is 'one year after graduation'. This refers to the first full financial year after graduation. So, for the 2012/13 graduation cohort the figures one year after graduation refer to employment/earnings outcomes in the 2014/15 financial year. This time period was picked as using the financial year which overlaps with the graduation date would mean that graduates are unlikely to have been engaged in economic activity for the whole financial year.



Sustained employment

The 'sustained employment' measure aims to count the proportion of graduates in sustained employment following the completion of their course. The definition of sustained employment is consistent with the definition used for 16-19 accountability and the outcome based success measures published for adult further education¹⁰. This definition looks at employment activity in the six month October to March period starting from the first financial year after graduation. A graduate needs to be in paid employment for 5 out of 6 months between October and March to be classified as being in 'sustained employment'.

For example, those who graduated in the 2012/13 academic year would be counted as being in sustained employment one year after graduation if they were in paid employment for at least one day a month in the five out of six months between October 2014 and March 2015. If they are employed in all five months from October to February, but do not have an employment record for March, then they must have an additional employment record in April to be considered as being in sustained employment.

Do you think the definition of sustained employment is appropriate?

Further Study

A graduate is defined as being in further study if they have a valid higher education study record at any UK HEI on the HESA database in the relevant financial year. The further study does not have to be at postgraduate level to be counted. The purpose of this category is to identify how students spent their time in the relevant financial year and as such cannot be used to calculate the proportion of graduates that go onto postgraduate study.

¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385111/bis-14-1250-further-education-learners-average-earnings-post-study-2010-to-2013.pdf

As a financial year overlaps with two academic years then some students would be coming to the end of their further study in the financial year in question and some would be starting their further study. For example, those who graduated in the 2012/13 academic year and went straight onto a one-year masters course would be counted as being in further study in the 2014/15 financial year (i.e. one year after graduation) as their course would finish in September 2014. If a graduate from 2012/13 waited a year before starting their one-year masters course then they would be counted as being in further study in the 2014/15 financial year (i.e. one year after graduation) as their course would start in September 2014.

We have not used a sustained definition when defining further study. The majority of higher education courses last longer than 6 months and dropout rates tend to be low, especially at postgraduate level.

Do you think periods of further study should only be counted if they represent a 'sustained' spell? A sustained spell would be defined as being in study for all 6 months between October and March.

No Sustained destination

This category consists of graduates who have an employment or 'out of work' benefits record in the financial year in question but were not classified as being in 'sustained employment' (and do not have a further study record as defined above).

Activity not captured

These graduates are successfully matched to DWP's Customer Information System (CIS) but do not have any employment/'out of work' benefits records. Reasons for appearing in this category include: moving out of the UK after graduation, being self-employed in the relevant financial year or earning below the personal tax threshold.

Unmatched

These graduates were not found on DWP's Customer information System (CIS), either because they had never been issued with a National Insurance number or because the personal details provided from the HESA data did not fulfil the matching criteria. **These graduates are excluded from any calculations.** More information on match rates is given in section 9. If a graduate is unmatched on the CIS but has a further study record for the financial year in question then they will be moved out of the 'unmatched' category and into the 'Further Study' category.

Table 7: Classification of graduate outcomes

Further study	Sustained employment	Any employment	Out-of-work Benefits	LEO category
☒	Unmatched to CIS	Unmatched to CIS	Unmatched to CIS	Unmatched
☒	☒	☒	☒	Activity not captured in financial year
☒	☒	✓	☒	No sustained destination
☒	☒	☒	✓	
☒	☒	✓	✓	
☒	✓	✓	☒	Sustained employment
☒	✓	✓	✓	
✓	Unmatched to CIS	Unmatched to CIS	Unmatched to CIS	Further study
✓	☒	☒	☒	
✓	☒	✓	☒	
✓	☒	☒	✓	
✓	☒	✓	✓	
✓	✓	✓	☒	Further study and sustained employment
✓	✓	✓	✓	

Annualised earnings

Earnings figures are only reported for those classified as being in ‘sustained employment’ and where we have a valid earnings record from the P14. Those in further study are excluded as their earnings would be more likely to relate to part-time jobs.

For each graduate, the earnings reported for them on the HMRC P14 data for a given financial year are divided by the number of days recorded in employment across that same financial year. This provides an average daily wage which is then multiplied by the number of days in the financial year to calculate their Annualised Earnings.

This calculation has been used to maintain consistency with figures reported for further education learners post study. It provides students with an indication of the earnings they might receive once in stable and sustained employment.

The annualised earnings calculated are slightly higher than the raw earnings reported in the financial year. This is because the earnings of those who did not work for the entire financial year will be higher when annualised. The difference between the annualised and raw figures decreases as time elapses post graduation. Median annualised earnings one year after graduation are around £1,000 higher than the median raw earnings reported in the P14 data. Five years after graduation, the median annualised earnings are less than £500 higher than the median raw earnings.

All earnings presented are nominal. They represent the cash amount an individual was paid and are not adjusted for inflation (the general increase in the price of goods and services).

Do you think using annualised earnings is appropriate?

What measure of earnings outcomes is most suited to you (or your organisations) needs?

- Median earnings for those in sustained employment
- Proportion of total graduates earnings over £x
- Other

9. Data Matching and Match Rates

The HESA student records are matched to DWP's Customer Information System (CIS)¹¹ using an established matching algorithm based on the following personal characteristics: National Insurance Number (NINO), forename, surname, date of birth, postcode and gender. Some of these characteristics are simplified to make the matching process less time-intensive and allow more matches. Only the first initial of the forename is used, the surname is encoded using an English sound-based algorithm called SOUNDEX¹², and for most matches only the sector of the postcode is used.

All records accessed for analysis are anonymous so that individuals cannot be identified. The personal identifying records used in the actual matching process are accessed under strict security controls.

There are five match processes carried out, ranging from the highest quality and most likely to be accurate (Green) to the lowest quality and most likely to be a false match (Red-Amber). Table 8 shows the criteria for each match type.

Table 8: Criteria for each type of match

Match quality	NINO (National Insurance number)	Forename (initial)	Surname (soundex)	Date of birth	Gender	Postcode (sector)
1. Green	✓	4 or 5 ✓✓✓✓✓				
2. Amber	✓	3 ✓✓✓				
3. Green-Amber	x	✓	✓	✓	✓	✓
4. Amber-Red	x	✓	✓	✓	1 ✓	
5. Red-Amber	x	x	x	✓	✓	✓ (full postcode)

¹¹ The CIS is a computer system used by the Department for Work and Pensions to store basic identifying information about customers and provides information on all individuals who have ever had a national insurance number.

¹² SAS function which turns a surname into a code representing what it sounds like, which allows some flexibility for different spellings. For example Wilson=Willson

Once the HESA records have been matched to the CIS the corresponding tax and benefits records for that individual can then be linked to their HESA record.

All match rate analysis in this chapter is restricted to the HESA population covered in this publication i.e. UK domiciled, first degree graduates from English Higher Education Institutions

Overall match rates

Table 9 shows the overall CIS match rates for graduates that studied full-time (in the 'Any match' column). The matched graduates that could not then be linked to any tax or benefits data within the scope of this project are separated out (in column 'Other match'). Potential reasons for not being able to find a P45 record include: earning being below the personal tax threshold, self-employment, moving abroad and death.

Table 9: Match rates for full-time graduates

Year of graduation	Number of graduates	CIS match		
		With tax/ benefit records	Other match	Any match
1996-97	167,800	70%	3%	73%
1997-98	167,542	71%	3%	74%
1998-99	170,798	72%	2%	74%
1999-00	172,581	73%	2%	75%
2000-01	171,145	84%	2%	85%
2001-02	175,739	90%	1%	91%
2002-03	180,658	93%	1%	94%
2003-04	187,008	94%	1%	95%
2004-05	192,138	94%	1%	95%
2005-06	196,000	95%	1%	96%
2006-07	197,762	96%	1%	97%
2007-08	209,995	97%	1%	97%
2008-09	207,124	97%	1%	97%
2009-10	217,363	97%	1%	98%
2010-11	228,412	93%	1%	93%
2011-12	241,929	92%	1%	93%
2012-13	250,983	98%	1%	99%
2013-14	265,385	97%	2%	99%

Table 9 shows that the match rate was very high for the most recent cohorts. 99 per cent of full-time graduates in 2013/14 were matched using the CIS, and almost all of these had at least one tax or 'out-of-work' benefit record. There was a dip in the match rate for the 2010/11 and 2011/12 cohorts. We have identified some improvements to the way in which HESA data is linked to CIS that we believe will improve the match rates in future publications and for these two years in particular. Additional matches will be included in the data used for the next publication (Autumn 2016).

The match rate was higher for more recent cohorts of graduates than for earlier cohorts. This is at least partly because the CIS holds the most recent names and addresses for individuals, and so if the details change after someone graduates there is less chance that they will be matched. The CIS match

rate increased from 73 per cent of graduates in 1996-97 to 99 per cent in 2013-14. Due to the lower match rates seen in earlier years, we have restricted analysis in this publication to those who graduated in 2003/04 onwards.

In the future it will be possible to supplement the data for earlier years with data from the Work and Pensions Longitudinal Study (WPLS)¹³. If the WPLS matches were to be included for full-time students, the combined match rate for 2013/14 would increase from 99 per cent to almost 100 per cent. In 2004-05 it would increase from 95 per cent to 98 per cent, and in 1996/97 it would increase from 73 per cent to 81 per cent. The effect of using the WPLS matches increases for earlier years.

Table 10 shows the same but for part-time graduates.

Table 10: Match rates for part-time graduates

Year of graduation	Number of graduates	CIS match		
		With tax/ benefit records	Other match	Any match
1996-97	23,733	81%	3%	84%
1997-98	24,358	80%	2%	82%
1998-99	25,264	80%	2%	83%
1999-00	24,134	82%	2%	84%
2000-01	27,701	79%	2%	81%
2001-02	24,666	84%	2%	86%
2002-03	24,964	88%	2%	90%
2003-04	24,776	89%	2%	91%
2004-05	27,645	90%	2%	91%
2005-06	30,197	90%	2%	92%
2006-07	29,400	91%	2%	92%
2007-08	30,451	92%	2%	93%
2008-09	29,758	92%	2%	93%
2009-10	31,154	91%	2%	93%
2010-11	30,840	91%	2%	92%
2011-12	32,156	88%	2%	90%
2012-13	32,272	95%	2%	96%
2013-14	31,264	96%	2%	97%

The match rates were higher for part-time students than for full-time students in the earliest years, but in more recent years the rate was higher for full-time students. As for full-time students the match rate increased with more recent cohorts.

¹³ More details on the WPLS can be found here: <https://www.gov.uk/government/statistics/work-and-pensions-longitudinal-study>

Quality of matches

Table 11: Quality of CIS matches

Year of graduation	Number of graduates	CIS match quality					No match
		Green	Amber	Green-Amber	Amber-Red	Red-Amber	
1996-97	191,533	3%	1%	20%	50%	1%	26%
1997-98	191,900	3%	1%	20%	49%	1%	25%
1998-99	196,062	4%	1%	21%	48%	1%	25%
1999-00	196,715	4%	1%	22%	47%	1%	24%
2000-01	198,846	29%	8%	16%	31%	1%	16%
2001-02	200,405	48%	12%	12%	19%	1%	10%
2002-03	205,622	55%	12%	11%	15%	1%	7%
2003-04	211,784	58%	11%	10%	14%	1%	6%
2004-05	219,783	60%	10%	11%	14%	1%	5%
2005-06	226,197	61%	8%	12%	14%	1%	5%
2006-07	227,162	64%	7%	11%	13%	1%	4%
2007-08	240,446	68%	5%	11%	12%	1%	3%
2008-09	236,882	69%	4%	12%	12%	0%	3%
2009-10	248,517	70%	3%	11%	12%	0%	3%
2010-11	259,252	60%	14%	8%	11%	0%	7%
2011-12	274,085	58%	19%	7%	10%	0%	7%
2012-13	283,255	79%	1%	12%	7%	0%	1%
2013-14	296,649	79%	1%	12%	6%	0%	1%

The proportion of green matches is highest for the most recent years. This is to be expected. As mentioned earlier, the details of those who graduated recently will have been less likely to change and would be more likely to match the CIS information.

Match rate by graduate characteristic

Table 12 shows the match rate split by gender. The match rate for females is noticeably lower in the earlier years. As the CIS holds the latest information about an individual anyone that has changed their name since graduation will have a different name on the CIS compared to their HESA record.

Table 12: CIS match rate split by gender¹⁴

Year of graduation	Gender		Overall
	Female	Male	
1996-97	58%	92%	74%
1997-98	60%	92%	75%
1998-99	61%	92%	75%
1999-00	63%	92%	76%
2000-01	77%	94%	84%
2001-02	86%	95%	90%
2002-03	90%	97%	93%
2003-04	92%	97%	94%
2004-05	92%	98%	95%
2005-06	93%	98%	95%
2006-07	95%	98%	96%
2007-08	96%	98%	97%
2008-09	96%	98%	97%
2009-10	96%	98%	97%
2010-11	92%	94%	93%
2011-12	92%	94%	93%
2012-13	99%	99%	99%
2013-14	99%	99%	99%
<i>Number of graduates in 2012-13</i>	<i>161,702</i>	<i>121,523</i>	<i>283,225</i>

The match rates were compared for different ethnic groups out of the UK-domiciled students. There was little consistent difference between the groups, and in 2012-13 and 2013-14 nearly all groups had rates of at least 98 per cent. The exception was graduates whose self-declared ethnicity was Chinese, where the match rate was 91 per cent in 2012-13. Further investigation showed that this was most likely due to the ethnically Chinese forenames and surnames being switched on one of the databases. This is more common for Chinese names, because the family name traditionally comes before the individual name. This hypothesis is further corroborated by the fact that ethnically Chinese students with common English names have match rates that are very similar to graduates from other ethnic groups.

The number of forenames or surnames an individual has can affect the match rate, because with multiple names it is more likely that they will not all be recorded, or there may be forenames recorded as surnames or vice versa. Analysis of the match rates showed that those with at least two surnames had a lower match rate than those with only one. In 2012-13, the match rate was 97 per cent for those

¹⁴ In 2012-13 and 2013-14 a few graduates had a sex other than Male or Female. These cases, and in rare cases where the sex is missing, are not reported separately due to small numbers but are included in the totals

with at least two surnames compared to 99 per cent for those with only one. Further work could investigate whether a match on only one of the recorded surnames increases the match rate without introducing false matches. However, the match rates are very high for those with two forenames and those with only one, so there is no evidence that this needs changing.

It is not possible to get a green or amber match if the NINO is missing. Only HESA students that had taken out a student loan had NINO's. It is therefore more difficult to obtain a match for students that didn't take out a loan as the personal information needs to be more accurate (to lower the probability of false matches).

10. Comparison to the Destinations of Leavers from Higher Education (DLHE) Survey

Background

The Destinations of Leavers from Higher Education (DLHE) Survey is conducted by the Higher Education Statistics Agency (HESA) and has been used to collect information on graduate outcomes since 1994/95 (until 2002/03 it was known as the First Destination Survey). In this section we explore comparisons between graduate outcomes on the DLHE and on the LEO dataset. Comparisons are made for graduates who obtained a qualification in 2012/13, to maintain consistency with other tables presented in this publication.

The DLHE Survey collects information on self-reported graduate outcomes approximately six months after successful completion of study, including employment, earnings and further study, as well as personal characteristics. A second survey, the Longitudinal DLHE, is conducted approximately three and a half years after the DLHE and follows the outcomes of a sample of graduates who responded to the first survey.

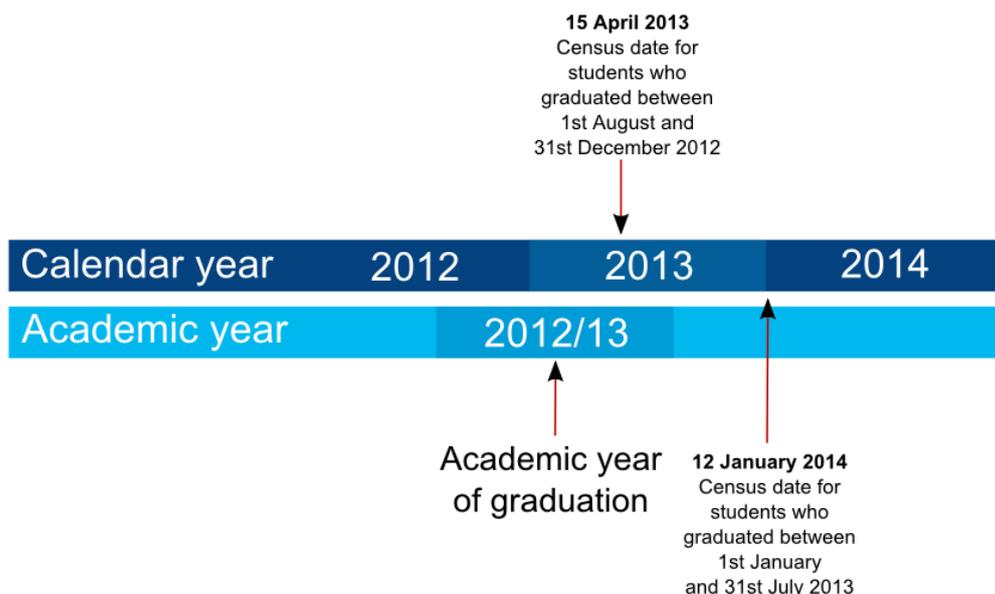
Administration of the DLHE

The DLHE is administered by higher education providers (HEPs) and returned to HESA as a condition of HEFCE funding. Graduates are asked to report on their main activity on one of two reference (census) dates, approximately six months after successful completion of study, depending on when they completed their course of study.

In the 2012/13 DLHE, those who obtained a qualification between 1 August 2012 and 31 December 2012 were asked to report on their activities on 15 April 2013 (these are mostly postgraduates). Those who obtained the qualification between 1 January 2013 and 31 July 2013 were asked to report on their activities on 12 January 2014 (these are mostly undergraduates). The DLHE statistical first release combines responses from these two reference dates into a single 'six months after graduation' metric. More information can be found on the HESA website:

https://www.hesa.ac.uk/index.php?option=com_content&view=article&id=1899&Itemid=634.

Figure 5: Timeline of DLHE census dates for the 2012/13 academic year



Response rates

The DLHE survey has a high response rate (79 per cent¹⁵ of eligible graduates in the 2010/11 cohort responded), The Longitudinal DLHE is a survey (not a census) and contains responses from 28 per cent¹⁶ of the eligible population. Thus, although the DLHE provides rich information on graduate outcomes at six months after graduation, the smaller number of respondents in the longitudinal DLHE means that data for individual universities aren't published. In contrast, all HE leavers on the LEO dataset have the potential to be matched to employment, earnings and 'out-of-work' benefits outcomes and be tracked for as many years as records are available.

Comparison between LEO and DLHE

Differences exist between the coverage of DLHE and LEO; however, for the purpose of this chapter we have compared the DLHE to LEO on an individual basis and have selected a sample of LEO records which match coverage of the DLHE respondents as closely as possible. Comparisons in this section are for UK and EU-domiciled graduates who attended English HEIs. There is a very slight difference in the census reference dates used in the DLHE and LEO: the DLHE census dates vary slightly in April/January with each cohort¹⁷ whereas the census date on the LEO dataset is set to 15th April/January for each cohort.

We would expect those who were reported as working in the UK on the DLHE to have a valid employment record on the LEO dataset census day. As discussed in section 7, the LEO dataset contains PAYE employment data but does not yet contain self-assessment data for self-employed individuals; therefore, we have broken down the overall DLHE 'UK work' category into three sub-categories to more precisely identify those that we would expect to find a valid employment record for on LEO and those for which we would be less likely to (see table 13).

¹⁵ <https://www.hesa.ac.uk/intros/dlheintro1011>

¹⁶ https://www.hesa.ac.uk/dlhelong1011_intro

¹⁷ The data collection schedule can be found here: <https://www.hesa.ac.uk/streams/dlhe>

Table 13: Breakdown of the DLHE UK employment groupings

DLHE grouping	DLHE sub-grouping
Employed in UK – mainstream	On a permanent or open-ended contract
	On a fixed-term contract lasting 12 months or longer
	On a fixed-term contract lasting less than 12 months
	Temping (including supply teaching)
Employed in UK - self	Self-employed/freelance
	Starting up own business
	Developing a professional portfolio/creative practice
Employed in UK - other	Voluntary work
	On an internship/placement
	Other
	Unknown

Overall, 74 per cent of full-time graduates who responded to the DLHE had a valid LEO census-day employment record, which increases to 85 per cent at some point during the 2013/14 financial year (see table 14). Five per cent of full-time graduates had a valid out-of-work benefits record on census day on the LEO dataset compared to 16 per cent at any point in the financial year. A slightly higher proportion of part-time graduates were matched to employment records, and a lower proportion matched to out-of-work benefits records (see table 15).

Table 14: Proportion of 2012/13 DLHE full-time graduate sample who have valid employment or out-of-work benefits records on the LEO dataset

Full-time graduates			Tax-Benefits data (% of matched)			
DLHE Destinations	2012-13 graduates	Tax-benefits match	On census date (April 2013 or Jan 2014)		Any point during the 2013/14 financial year	
			Employed	Benefits	Employed	Benefits
UK work - mainstream	159,855	157,725	89%	2%	95%	14%
UK work - self-employed	11,395	11,185	53%	7%	71%	19%
UK work - other	14,930	14,715	71%	9%	86%	24%
Overseas work	10,440	6,905	35%	1%	58%	10%
Combination of work and further study	15,990	15,425	81%	2%	89%	9%
Further study	40,695	38,170	48%	2%	68%	8%
Unemployed	20,990	19,880	35%	29%	68%	46%
Other	11,650	11,120	48%	9%	72%	21%
Explicit refusal to answer	10,425	10,085	72%	6%	84%	19%
Total¹⁸	296,370	285,210	74%	5%	85%	16%

¹⁸ All graduate numbers are rounded to the nearest 5 in line with HESA rounding methodology. Therefore column totals will not sum.

Table 15: Proportion of 2012/13 DLHE part-time graduate sample who have valid employment or out-of-work benefits records on the LEO dataset

Part-time graduates			Tax-Benefits data (% of matched)			
DLHE Destinations	2012-13 graduates	Tax-benefits match	On census date (April 2013 or Jan 2014)		Any point during the 2013/14 financial year	
			Employed	Benefits	Employed	Benefits
UK work - mainstream	48,380	46,655	87%	1%	90%	3%
UK work - self-employed	4,255	4,095	49%	3%	59%	7%
UK work - other	1,945	1,875	69%	9%	76%	14%
Overseas work	1,865	1,135	33%	1%	44%	3%
Combination of work and further study	8,510	8,180	83%	1%	86%	4%
Further study	5,110	4,850	56%	9%	69%	14%
Unemployed	2,580	2,420	38%	31%	62%	42%
Other	4,020	3,825	49%	12%	57%	16%
Explicit refusal to answer	5,575	5,360	76%	4%	81%	7%
Total	82,235	78,390	77%	3%	82%	7%

The group with the highest proportion of valid employment records, both on the LEO census day and at any point during the 2013/14 financial year, were those who were classed as ‘employed in the UK – mainstream’ (see table 13 for full definition). 89 per cent of graduates from full-time courses who declared that they were employed on the DLHE had a valid employment record on the LEO census day. This climbs to 95 per cent when employment records at any point in the 2013/14 financial year are considered. This pattern is similar for graduates from part-time courses, although the proportion of valid records on the LEO dataset is slightly lower.

Similarly, a high proportion of graduates who were engaged in a combination of employment and further study have valid employment record on LEO, both on the DLHE and LEO census days and at any point in the tax year, although at a slightly lower rate than those in the mainstream UK employment group. It may be that these graduates are more likely to be engaged in part-time employment and less likely to be earning above the tax threshold, and therefore less likely to have a valid employment record on the LEO dataset.

The remaining DLHE UK employment categories – ‘employed in UK - self’ and ‘employed in UK - other’ – have lower rates of valid employment records, both on the DLHE and LEO census days and at any point in the financial year. Self-employed individuals submit self-assessment information rather than PAYE and so are not expected to have valid employment records on the LEO dataset; however, half of those who reported to be self-employed on the DLHE had valid employment records on the LEO dataset on census day. One reason for this may be that self-employed individuals are engaged in other paid work while they

are in the early stages of self-employment and therefore have valid records on census day on the LEO dataset. Conversely, the lower proportion of valid employment records for those classed as 'employed in UK - other' may in part be due to the fact that graduates who are engaged in voluntary work or on an internship or placement may receive little or no pay for their work and so will be less likely to have any valid employment records on the LEO dataset.

Of all groups on the DLHE, graduates who were recorded as 'not employed or studying' have the highest proportion of out-of-work benefits records and the lowest proportion of employment records: just over one third (35 per cent) had an employment record and just under a third (29 per cent) had an out-of-work benefits record on census day. These proportions are slightly higher for graduates from part-time courses, where 38 per cent had a valid employment record and 31 per cent had an out-of-work benefits record on census day.

Matched earnings on DLHE and LEO

Table 16 compares earnings on the DLHE to raw earnings on the LEO dataset as reported on the P14, broken down by sex and age group. Figures are presented for 2012/13 graduates for the 2013/14 financial year (the financial year that overlaps with the year of graduation) and for the 2014/15 financial year (our definition of 'one year after graduation').

The figures show that raw earnings from the 2014/15 financial year are very close to the DLHE earnings figures for both females and males across all age groups. This supports the decision to use the first non-overlapping financial year after graduation as our definition of 'one year after graduation' to measure earnings. Figures for the 2013/14 financial year are not comparable to self-reported earnings on the DLHE. This may be because the financial year overlaps the final year of study for the majority of students and are unlikely to have been engaged in economic activity for the whole year.

Table 16: Median earnings for full-time 2012/13 graduates on the DLHE compared to LEO dataset.

Full-time graduates		2012-13 graduates in UK work	Tax benefit match	Median DLHE salary (£)	Median P14 earnings 2013/14 ¹⁹ (£)	Median P14 earnings 2014/15 (£)
Age at start of 2012-13	Sex					
Up to 21	F	56,230	55,780	18,000	9,615	16,691
Up to 21	M	40,360	40,065	18,000	9,430	17,296
22-25	F	31,065	30,525	21,000	13,405	21,295
22-25	M	23,240	22,950	22,000	13,501	21,506
26-35	F	14,350	13,855	22,000	15,775	22,277
26-35	M	9,170	8,945	24,000	17,389	24,367
Over 35	F	8,395	8,220	21,500	15,789	21,295
Over 35	M	3,355	3,275	23,000	16,813	23,171
Total		186,180	183,625	20,000	11,773	19,448

¹⁹ This financial year overlaps with the final year of study so graduates will not represent a full year of earning post study.

Table 17: Median earnings for part-time 2012/13 graduates on the DLHE compared to LEO dataset.

Part-time graduates						
Age at start of 2012-13	Sex	2012-13 graduates in UK work	Tax benefit match	Median DLHE salary (£)	Median P14 earnings 2013/14 (£)	Median P14 earnings 2014/15 (£)
Up to 21	F	920	910	18,000	12,639	16,424
Up to 21	M	1,055	1,040	20,000	14,580	19,592
22-25	F	4,360	4,205	21,000	18,644	21,295
22-25	M	3,485	3,425	24,000	21,404	24,641
26-35	F	11,075	10,455	27,000	24,789	25,522
26-35	M	6,940	6,720	31,550	30,207	32,392
Over 35	F	17,240	16,690	27,000	25,586	26,162
Over 35	M	9,500	9,185	38,000	35,995	36,425
Total		54,580	52,625	28,000	25,908	27,133

Not everyone who responds to DLHE provides an earnings figure (approximately two thirds of those in full-time employment complete this question). Whilst the figures for those who provide their earnings data is comparable to that recorded on the P14, those who do not supply their earnings were found to have lower earnings on the LEO dataset.

Summary

The comparisons presented here have demonstrated that employment and earnings records on the LEO dataset compare closely to responses on the DLHE for those who are reported to be in mainstream UK employment (whether on its own or in combination with further study). However, a higher proportion of valid records on the LEO dataset are found when the whole financial year is considered rather than when the comparison is restricted to records on the DLHE census date. Valid records have also been found for graduates who claim to be engaged in activity that should not produce an employment or out-of-work benefits record, such as self-employment or unemployment.

There are a number of possible reasons why these differences exist. Human factors may contribute to this discrepancy to an extent; the DLHE is filled in retrospectively, sometimes several months after the census date, so some error in recall can be expected. There may also be a discrepancy in the image that graduates wish to project to their former HEI and the reality of their employment situation. There are also certain types of individuals that are difficult to link to LEO (such as those with earnings below the tax threshold).

Administration error by employers may also create uncertainty around employment start and end dates; for example, it may be that employers are slow to record employees as leaving a job when they are engaged in casual work and would therefore appear as employed on the LEO census date but as unemployed on the DLHE. Similarly, employers who do not provide accurate start date information could be recorded as unemployed on census day despite having secured employment and having declared so on the DLHE. This uncertainty could contribute towards the number of individuals whose LEO records on census date do not corroborate their self-reported employment activity on the DLHE.

The DLHE is a rich dataset and provides contextual information that the LEO dataset cannot, such as: type of employment; working pattern (full- or part-time); hours worked; overseas work; data for graduates with low earnings; and information on employment outcomes for graduates who are engaged in economic activity but do not have a valid employment or benefits record (such as those undertaking unpaid or low paid internships). The DLHE also provides qualitative information that the LEO dataset cannot, such as graduates' impression of how beneficial their course was in helping them to secure employment.

The LEO dataset, on the other hand, offers insight into the longitudinal outcomes of higher education leavers that the DLHE cannot match. It is created through linking of administrative data, rather than through

self-report, so avoids the error associated with self-report methods such as misremembering, misrepresentation and participant attrition.

The LEO has the potential to link graduates to employment, earnings and out-of-work benefits outcomes for as long as the individual is in contact with UK financial or benefits collections. In comparison the Longitudinal DLHE, conducted three and a half years after the DLHE, has a response rate of less than a third of the graduates that responded to the DLHE (equating to one in five of the overall HESA population). Therefore, while the LEO dataset cannot match the contextual depth of the DLHE, it can provide longitudinal insight into graduate outcomes as they move from higher education into the workplace and beyond that far surpasses what is currently available.

Comparison of published outcomes on DLHE and LEO

Comparisons of 2012/13 graduate outcomes on DLHE and LEO can be found in table 18.

There are differences in the coverage of LEO and published DLHE data which mean that it is not possible to directly compare outcomes between the two. Whereas LEO covers UK-domiciled first degree graduates from English HEIs, DLHE outcomes are published for either UK-domiciled graduates of UK HEIs or all first degree graduates of English HEIs regardless of domicile. For comparison purposes the latter DLHE figures will be used because the outcome categories most closely resemble the LEO categories published here. The published DLHE figures can be found here: <https://www.hesa.ac.uk/sfr205>

Differences also exist in the ways in which graduate outcomes are categorised in DLHE and LEO. Whereas DLHE figures indicate the proportion of graduates in UK employment, LEO figures represent the proportion of graduates in sustained UK employment. There is also no direct comparison between the DLHE categories of 'overseas work' (because it is not possible to measure outcomes of graduates who go overseas on LEO), 'unemployed' and 'other'. These graduates would be captured by the 'no sustained destination' and 'activity not captured' LEO outcomes. Therefore, for the purposes of this comparison these categories have been combined.

Table 18: Comparison between graduate outcomes on DLHE and LEO for 2012/13 graduates

DLHE outcome	LEO outcome equivalent	DLHE		LEO	
		Full time	Part time	Full time	Part time
UK work	Sustained employment	66%	72%	61%	61%
Overseas work	-	3%	1%	-	-
Combination of work and further study	Sustained employment and further study	5%	8%	12%	13%
Further study	Further study	14%	6%	7%	6%
Unemployed	-	8%	5%	-	-
Other	-	4%	8%	-	-
Sum of 'overseas work', 'unemployed' and 'other'	Sum of 'no sustained destination' and 'activity not captured'	15%	14%	20%	20%

Table 18 shows that a lower proportion of graduates are considered to be in employment on LEO compared to DLHE. This is unsurprising, as the LEO figures represent the proportion of graduates in sustained UK employment and so will necessarily include fewer graduates than the DLHE.

Of interest is the difference in the proportion of graduates considered to be in further study. A much higher proportion of graduates are considered to be in further study in combination with work on LEO than on DLHE, whereas a much lower proportion are classed as being in further study only. This may be due to differences in the timing of DLHE and LEO. Whereas DLHE covers graduate activity six months after graduation, LEO covers all activity during the tax year. Given that the financial year spans two academic years, LEO figures will capture the further study and employment records of graduates who were in further study in one academic year and in employment for the other, increasing the proportion of graduates who

are considered to be engaged in both further study and employment and reducing the proportion that are considered to be in further study only. This may also contribute to the lower proportion of graduates who are considered to be in sustained employment only.

Although the proportion of graduates engaged in combinations of employment and further study are different on LEO compared to DLHE, the proportion of graduates engaged in further study overall is the same. Because the financial year spans two academic years we would have expected the proportion of graduates in further study on LEO to be higher than on DLHE. However, it may be that graduates in further study are more likely to respond to the DLHE survey than other groups, meaning that they would account for a higher proportion of the DLHE sample compared to the graduating cohort as a whole.

Annualised earnings

Table 19 compares the annualised earnings published in the 2012/2013 DLHE survey and those derived from the LEO dataset in table xx for the 2012/2013 graduate cohort. Earnings are higher at the median, upper and lower quartiles in the DLHE. The difference is largest at the lower quartile and smallest at the upper quartile. This is likely to be because we are not able to determine whether an individual is in full-time or part-time employment from P14 and P45 data, whereas DLHE figures are calculated for individuals in full-time paid employment only.

Table 19: Median, lower and upper quartile earnings of 2012/13 graduates in the DLHE survey compared to in the LEO data

Mode of study	DLHE 2012/2013 survey for UK domiciled leavers at English HEIs who obtained first degree qualifications and were in full-time paid work			LEO data: 2012/2013 graduate cohort in 2014/2015 financial year		
	Lower quartile	Median	Upper quartile	Lower quartile	Median	Upper quartile
Full-time	16,000	20,000	24,000	13,000	18,500	24,000
Part-time	20,000	26,000	33,000	15,000	23,000	32,000
All	16,000	20,000	25,000	13,500	18,500	24,500

As mentioned earlier not all DLHE respondents supply their salary information. Comparing the earnings for those who did and those who did not give a salary in response to the DLHE (but who all indicated they were in full-time paid employment), suggests that the former had slightly higher average earnings (by just over £1,500).

11. Comparison of methodology across LEO statistics

The data in the Longitudinal Education Outcomes datasets has been brought together by different government departments and is being used to improve information we have available on a range of topics across different business areas. In some cases consistency with historical definitions and different policy drivers have meant different decisions have been taken in processing the data and presenting outcomes.

The methodology is still under development and we will continue to review our approach, making further refinements and increasing alignment across different products over time where appropriate.

	Improvements to data on destinations of key stage 5 students	Employment and Earnings Outcomes of Higher Education Graduates
Scope	Information on participation in employment or education over two terms, the year after finishing school or college.	Employment and Earnings Outcomes of Higher Education Graduates
People included	Young people aged 16, 17 or 18, who were entered for A levels or other level 3 qualifications during the 2012/13 academic year and reported in school and college performance tables.	Those who graduated with a first degree qualification from an English HEI from 2003/04 onwards and were UK domiciled at the time of their study
Timing of outcomes	Outcomes are reported for young people in the academic year following completion of key stage 5 study (2013/14). Young people are largely aged 19 during this year.	Outcomes are reported for the first, third, fifth and tenth financial years following students' graduation.
Outcomes reported		
Denominator	The entire cohort is used for the denominator. All students reported as completing key stage 5 study in performance tables the previous year are included, even where they have not been matched to DWP/HMRC data. All outcomes are given as a proportion of this group.	Employment, earnings and benefit outcomes are reported for those students who could be matched to DWP's Customer Information System (CIS) ²⁰ . Further study records are reported for those who have a HESA record for the financial year in question. The denominator only includes those who were matched to the CIS and/or had a further study record for that year.
Education	Sustained education: In education at least one day in each of six months between October and March at a school or further education provider (college) in England or higher education provider (university) in the UK. Young people participating in employment alongside study are only included in this category.	Further study: Any further study for a higher education qualification at a UK Higher Education Institution is included in this definition. The record need not be at postgraduate level to be counted. We have not used a sustained definition for further study.

²⁰ The CIS stores basic identifying information about customers and provides information on all individuals who have ever had a national Insurance number.

	Improvements to data on destinations of key stage 5 students	Employment and Earnings Outcomes of Higher Education Graduates
Sustained employment	<p>Employed at least one day in each of five months between October and March; if they were not employed in March they must have been employed for at least one day in April.</p> <p>Students are allocated to employment destinations only if they have not been identified as having a sustained education destination. Sustained employment destinations are obtained from HMRC data and NCCIS data in that order.</p>	<p>Employed at least one day in each of five months between October and March; if they were not employed in March they must have been employed for at least one day in April.</p> <p>Those who meet the sustained employment definition but are also identified as being in further study are placed in the further study and sustained employment category (see below).</p>
Further study and sustained employment	Students with both sustained education and employment in the period are reported under education destinations. If education was not sustained employment may be reported.	Students who have a further study spell within the relevant financial year and meet the sustained employment definition given in the category above are included in this category.
No sustained destination	Students in this category may have an education or employment record in the destination year but did not meet the sustained destination definition. They may alternatively have an out of work benefit (or NCCIS NEET) record at some point in the year	Graduates in this category may have an employment record in the financial year in question but did not meet the sustained employment definition. They may alternatively have an out of work benefit record in that financial year.
No activity captured	<p>Students recorded with 'no activity captured in data' fall into 2 sub categories</p> <ol style="list-style-type: none"> 1) Have no activity recorded in any destination source datasets but have been successfully matched to DWP's Customer Information System. 2) Have no activity recorded in any destination source datasets and have not been identified in the DWP CIS system 	This category contains those successfully matched to DWP's Customer Information System but who do not have any employment or out of work benefit record for the financial year in question.
Earnings	No information on earnings is reported.	<p>Annualised earnings are presented for those classed as in sustained employment only (not those in both sustained employment and further study) and where we have a valid earnings record from P14 data.</p> <p>The earnings reported for such graduates on the P14 data for a given financial year are divided by the number of days recorded in employment across that same financial year. This daily wage is then multiplied by the number of days in the financial year to provide annualised earnings.</p>

Assumptions in LEO data processing

Comparison of employment and benefits spells	We assume that benefits data is more accurate than p45 data. This means that when p45 data shows an individual as employed while benefits data shows they are on out-of-work benefit, then we correct the p45 data to show the individual as unemployed.	We do assume it is possible to both be employed and on out-of-work benefits. Thus we do not adjust the P45 data to remove overlaps with benefit data.
Handling of uncertain start and end dates for employment spells	<p>We assume the true start date/end date of an employment spell recorded as starting on the 6th of April or ending on the 5th of April could be anywhere in that tax year.</p> <p>When the exact date is unknown we assume that the individual was employed for the entire year (excluding any days on which they were claiming out-of-work benefits).</p> <p>If they have such an employment spell but no education or benefits records they are therefore included as having sustained employment.</p>	<p>We produce rules to identify records with uncertain start or end dates. These are mainly those with start dates on the 6th of April or end dates on either the 5th of April. For these, we assume that the true start/end is sometime within the same tax year as the recorded start/end.</p> <p>Start and end dates are then randomly imputed within these ranges after the ranges are narrowed using other spells with known start/end dates.</p>

12. Experimental Statistics

Experimental statistics are new official statistics that are undergoing evaluation. These statistics are being published as experimental statistics in order to involve users and stakeholders in their development and as a means to further improve the use of the data in the future.

The Department has a set of [statistical policies](#) in line with the Code of Practice for Official Statistics.

13. Get in touch

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Department for Education

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