

Office for Students: Teaching Funding Allocations

Calculates OfS funding allocations for higher education providers in England.

Tier 1 - Information

1 - Name

OfS Teaching Funding Allocations

2 - Description

Higher education providers require funding to provide teaching to students who study at a higher education level, and one source of this funding is from the OfS. To ensure that the appropriate amount of funding is allocated to each higher education provider - based on student numbers and their characteristics - OfS use an algorithmic tool.

3 - Website URL

<https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/> <https://www.officeforstudents.org.uk/data-and-analysis/post-collection-outputs/ilr-post-collection-outputs/> <https://www.officeforstudents.org.uk/publications/capital-funding-for-2022-23-to-2024-25-formula-allocations-and-invitation-to-bid/>

4 - Contact email

dfafundingandmonitoring@officeforstudents.org.uk

Tier 2 - Owner and Responsibility

1.1 - Organisation or department

Office for Students (OfS)

1.2 - Team

The model sits under Funding and Monitoring, Data Foresight and Insight Directorate. The policy sits under the Funding Team, Regulation Directorate.

1.3 - Senior responsible owner

Director for Fair Access and Participation (delegated from the board)

1.4 - External supplier involvement

No

Tier 2 - Description and Rationale

2.1 - Detailed description

The tool calculates funding for higher education providers (any legal entities that are involved in providing higher education e.g. universities, colleges) in England on the OfS register in the Approved (fee cap) category for higher education provision. This OfS registration category is explained in detail here:

<https://www.officeforstudents.org.uk/for-providers/registering-with-the-ofs/registration-with-the-ofs-a-guide/>. The calculation is based on the

student numbers that higher education providers supply to us through a number of data collections including the HESES (Higher Education

Students Early Statistics) collection, which collects early sight and forecast of aggregated figures for student numbers for a given academic year, and the HESA (Higher Education Statistics Agency) Student data collection and ILR (Individualised Learner Record) collection, these collect actual student data and characteristics for the previous academic year from providers in the ILR collection and from other higher education providers in the HESA Student data collection. This is to support the provision of teaching higher education in English higher education providers.

Higher education courses funded through student loans, have a maximum fee limit applied in England. For some courses, this is lower than the cost of delivering the course. In addition, higher education providers are funded by the OfS to support the delivery of particularly high-cost courses such as medicine. This funding is announced each year by the OfS after having regard for government's priorities.

<https://www.officeforstudents.org.uk/for-providers/regulatory-resources/guidance-from-government/>. We calculate individual provider allocations, splitting up available funding based largely on full-time equivalent (FTE) student numbers.

Student numbers are returned by individual training providers to the OfS, through the HESSES data return, via our data collections portal. HESA Student data is collected by HESA, the designated data body for OfS who process data on our behalf and share the data we need from the collection with us. ILR data is collected by the ESFA, who share the data we need from the collection with us.

We publish a set of business rules online here:

<https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/technical-guidance-and-funding-data/>.

These are applied to the student numbers from the data collections mentioned above including the application of a rate per FTE.

Parts of the algorithm also look at student level data recorded through HESA student returns and the Individualised Learner Record (ILR). These derive characteristics about learners at a provider like the proportion of disabled students and certain risk factors around non-completion in order to provide additional support funding through certain allocation lines.

2.2 - Scope

The tool calculates funding for higher education providers in England, who are eligible to receive funding from the OfS. It calculates funding for each academic year and determines the amount of funding a provider is entitled to receive for that year. It is rerun as necessary to deal with changes of circumstances, such as provider mergers or new providers being added to the OfS register, to ensure that funding is accurate and up to date throughout and beyond the year. The overall funding across the sector is fixed so some changes to data don't necessarily impact individual providers.

2.3 - Benefit

The tool allows us to apply an even and fair approach to allocating funding efficiently and effectively, despite the complexities. It ensures all eligible higher education providers gain access to some funding, this tops up what they receive via their fee income. This funding is a predictable income amount which is schedule.

2.4 - Previous process

The current method is one that has largely been inherited from the OfS's predecessor organisation (HEFCE) and has been in place since the early 90s. The process has been subject to development and amendment through this period, as HEFCE and the OfS have

responded to changing priorities and funding levels, with amendments to the funding method introduced following consultation with the sector.

2.5 - Alternatives considered

N/A - Given how long ago this was created, there is no record of what alternatives were considered. Other options, such as competitive procurement, have been considered for more recently introduced allocations, for instance the Degree Apprenticeships funding that the OfS provides.

Tier 2 - Decision making Process

3.1 - Process integration

Decisions are made on how to allocate funds based on student numbers (in the form of technical funding rules) and the rates of funding per FTE (full-time equivalent) student. These are decided by the OfS prior to the start of the academic year.

The allocations algorithm then uses inputs these rates and rules alongside the number of individual provider's FTEs. This allows the tool to calculate funding for each provider.

Testing in the form of sense and quality checks are performed against all allocations, and particularly against allocations following individual provider circumstance changes e.g. mergers, newly registered providers, deregistered providers. Final decisions are then taken by the Director for Fair Access and Participation on the allocations set by the algorithm once the allocations have been produced and quality assured.

3.2 - Provided information

After running the model, the user can see an MS Excel output of the model. In this file, they are shown the model's input figures in the form of funding FTE students. The user can also see the funding outputs calculations such as the cash amount to be paid to the provider over the course of the academic year. These calculations are presented alongside the budget allocations and the rate per student allocation that informs the final provider level allocations.

3.3 - Frequency and scale of usage

This model is run at least once per year for approximately 350 higher education providers covering approximately 1.25 million student full time equivalents.

3.4 - Human decisions and review

A human user chooses the point in time to freeze the student data input feed into the model and checks the inputs are correct. The human then validates that the results are as expected and approves the outputs.

3.5 - Required training

Users/Designers: Before an OfS staff member uses the model they are provided training as to how the funding algorithm works and the expected outputs prior to using the tool.

3.6 - Appeals and review

The current method is one that has largely been inherited from the OfS's predecessor organisation (HEFCE) and has been in place since the early 90s. The process has been subject to development and

amendment through this period, as HEFCE and the OfS have responded to changing priorities and funding levels, with amendments to the funding method introduced following consultation with the sector.

Providers can make representations to the funding allocations we announce as described in the technical guidance:

<https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/technical-guidance-and-funding-data/>.

Further consultations run semi regularly with higher education providers on various adjustments to the funding methodology. Further details on recent consultations are available here:

<https://www.officeforstudents.org.uk/publications/consultations/>.

Tier 2 - Tool Specification

4.1.1 - System architecture

<https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/technical-guidance-and-funding-data/>

The algorithm is currently written in SAS.

Data is fed in from a mixture of SAS and SQL datasets populated by providers through their data returns, such as HESES containing student numbers and their individualised student data from HESA / ILR. The calculation runs and creates output SAS datasets and Excel outputs for each provider showing their allocated funding, which are then sent to the higher education provider.

4.1.2 - Phase

Production

4.1.3 - Maintenance

Large scale reviews of the algorithm rules (policy) occur infrequently (5 years+).

Maintenance of the algorithm (code) takes place several times a year to ensure the algorithm is responding as expected to changing data.

4.1.4 - Models

A rules based funding model

Tier 2 - Model Specification

4.2.1 - Model name

OfS Teaching Funding Allocations

4.2.2 - Model version

2024-25

4.2.3 - Model task

The models task is to apply a set of funding rules to data provided by individual higher education providers via their HESES data returns.

The rules applied are calculations based on the number of FTE students the provider has. Parts of the algorithm also look at student level data recorded through HESA student returns and the Individualised Learner Record (ILR). These derive characteristics about learners at a provider like the proportion of disabled students and certain risk factors around non-completion in order to provide additional support funding.

4.2.4 - Model input

Student numbers that been supplied by individual higher education providers through the HESES dataset are entered into the model. Then a set of business rules that are published online are applied to these numbers including the application of funding rate per FTE student.

Parts of the algorithm takes into account student level data recorded through HESA student returns and the Individualised Learner Record (ILR) as described above in 2.4.2.3. It looks for characteristics, like the proportion of disabled students, this determines the Disabled Students Premium allocation weighting applied to FTE students at the provider. There are further such allocations which use other student characteristics to calculate FTE allocations, these are described in detail here: <https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/technical-guidance-and-funding-data/>.

4.2.5 - Model output

The tool calculates and outputs the funding for higher education providers in England and their eligibility to receive funding from the OfS. The outputs cover the funding for the next academic year and determine the funding amount higher education providers are entitled to receive. The model is rerun as necessary to deal with changes of circumstances, such as provider mergers or new providers being added to the OfS register, to ensure that funding is accurate and up to date throughout and beyond the year.

4.2.6 - Model architecture

Rules based tool - <https://www.officeforstudents.org.uk/for-providers/finance-and-funding/recurrent-funding/technical-guidance-and-funding-data/>

In practice, the process applies a number of rules according to the data collected. These rules depend on the funding type and are usually relatively simple in themselves, but combine with the characteristics of the provider and their students.

4.2.7 - Model performance

Double coding, unit testing, targeted change-based testing are all done to ensure that the funding is calculated as expected. These take place every time the model is run.

4.2.8 - Datasets

Higher Education Students Early Statistics (HESES) Medical and Dental Students survey data (MDS) Higher Education Statistics Agency data (HESA student) Individualised Learner Record (ILR) Other FTE adjustments dataset (comprising FTE adjustments due to transfers of learners between providers or planned expansion of medical intakes)

4.2.9 - Dataset purposes

N/A - There is no training of this model - it is not a machine learning algorithm. The algorithm is effectively a set of joins, pivots, aggregations and multiplications based on a set of rules to reach a funding figure.

Tier 2 - Data Specification

4.3.1 - Source data name

Higher Education Students Early Statistics Medical and Dental Students survey data Higher Education Statistics Agency data

Individualised Learner Records Other FTE adjustments dataset
(comprising FTE adjustments due to transfers of learners between providers or planned expansion of medical intakes)

4.3.2 - Data modality

Tabular

4.3.3 - Data description

Aggregated student numbers, and individualised student data.

4.3.4 - Data quantities

This model is run at least once per year for approximately 350 higher education providers covering approximately 1.25 million FTE of students. The model is then run up to 4 times a year to keep the funding accurate for higher education providers. The model is updated each year to reflect changes to the underlying funding policy that may take place, and occasionally to factor for unexpected provider behaviour, e.g. unusual merger types. The model is rerun whenever there is sufficient underlying data changing, e.g. changes to HESSES submissions from providers or mergers that affect funding.

4.3.5 - Sensitive attributes

Some personal data about students, particularly around disability and age, with some potential interpretable information around maternity. Identifiable data, such as geography and specific learner circumstances.

4.3.6 - Data completeness and representativeness

Very good for completeness - audit regime exists. Some risk of inaccurate / lagged data or fraud. Responsibility on providers to record and submit their own data.

4.3.7 - Source data URL

Higher Education Students Early Statistics:

<https://www.officeforstudents.org.uk/data-and-analysis/data-collection/heses/>

Medical and Dental Students survey data:

<https://www.officeforstudents.org.uk/publications/medical-and-dental-students-survey-2023/>

Higher Education Statistics Agency data:

<https://www.hesa.ac.uk/collection> Individualised Learner Record:
<https://guidance.submit-learner-data.service.gov.uk/>

Data from these latter two collections are not published at the level which is used by this tool.

4.3.8 - Data collection

Data collected by the OfS is given on a mandatory basis by regulated higher education providers in the approved (fee cap) category.

HESES data is collected solely for funding, MDS data is collected and used for funding and shared with other UK funding bodies for use in their funding calculations. MDS data is also shared with NHS bodies to inform placement availability. The OfS uses this data to help make decisions for funding.

4.3.9 - Data cleaning

Validation rules are applied to data entering into the model to remove any impossible cases. Data verification is applied to spot outlying information in the data. Specialised tools are provided to higher education providers to allow additional interrogation of their own data and to improve data quality with inbuilt data validation and verification tools. Higher education providers are sense checking and verifying their data prior to submitting it. There is an audit regime in place to acknowledge the receipt of the higher education providers' data submissions.

4.3.10 - Data sharing agreements

There is no data sharing agreement specific to HESES or MDS, but HESES and MDS are data returns that are classified as meeting condition F3 under the conditions of registration with the OfS for Approved (fee cap) providers on the OfS register.

<https://www.officeforstudents.org.uk/for-providers/registering-with-the-ofs/registration-with-the-ofs-a-guide/conditions-of-registration/>

4.3.11 - Data access and storage

Data collected by the OfS is given on a mandatory basis by regulated higher education providers. HESES data is used primarily for funding, MDS data is used for funding and shared with other UK funding bodies for use in their funding calculations, and shared with NHS bodies.

The tool policy description is stored in documents and the code is stored in Azure Dev Ops. Data is held on an OfS secure server, in encrypted SAS datasets with limited access permissions.

Individualised student data accessed for use in the tool is stripped of unnecessary personal data before access.

Tier 2 - Risks, Mitigations and Impact Assessments

5.1 - Impact assessment

None specific to funding.

5.2 - Risks and mitigations

Risk of calculating and distributing an incorrect allocation

The OfS has mechanisms in place that allows it to revisit funding after it is announced (e.g. when data error is identified, among other reasons) and to recalculate or reclaim it. Our terms and conditions of funding document describes these in broad terms:

<https://www.officeforstudents.org.uk/publications/terms-and-conditions-of-funding-for-2024-25/>