

TEF subject pilot metrics: specification and rebuild document

A version of this document was originally created within the Year Three Teaching Excellence and Student Outcomes Framework (TEF) subject pilot and was released to pilot participants in November 2017.

This version, released on 30 January 2018, is being made more widely available ahead of the Department for Education's consultation on subject-level TEF assessment to support provider responses. This version has been edited only to remove procedural and technical details that are only applicable to pilot participants.

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1. In order to inform their responses to the Department for Education (DfE)'s consultation on the subject-level teaching excellence and student outcomes framework currently being piloted, HEFCE has released illustrative subject-level TEF metrics to each provider in the sector. This document accompanies that release and provides additional information regarding the technical specification of the metrics being considered within the TEF subject pilots. It includes instructions for providers to rebuild these metrics (where possible).
2. Readers should note that the specifications described in this document apply only to the definition and production of metrics for the purposes of the TEF Year Three subject pilots. The metrics are being shared with providers in confidence, should only be considered as illustrative and are not intended for operational purposes beyond participation in the pilots: all definitions remain subject to change in future years of piloting, following the DfE consultation activities that this metrics release seeks to inform. They do not represent final TEF processes or policy decisions.
3. Unless stated otherwise in this document, the TEF subject pilot metrics have been defined and produced to exactly the same specification as the provider-level TEF Year Three metrics¹. The metric definitions, individualised files, technical algorithms and benchmarking sector averages all remain unchanged from those produced and shared with providers in the October 2017 TEF Year Three metrics release².
4. While teaching intensity and grade inflation metrics are within the scope of the TEF Year Three subject pilots, they are not covered within the subject-level metrics released or by this document. We expect to provide further definitional detail of these metrics in spring 2018.

¹ See www.gov.uk/government/publications/teaching-excellence-and-student-outcomes-framework-specification.

² See www.hefce.ac.uk/lt/tef/participants/tech/.

Applying the TEF lessons learned changes to the TEF subject pilots

5. The Department for Education's lessons learned exercise informed a number of changes to the TEF specification, which were introduced for the Year Three provider-level TEF³. These refinements are, where appropriate, being carried forward into the pilot at both provider and subject level. We have applied these changes to the **construction of the TEF subject pilot metrics** as follows:

- a. Subject-level metrics are calculated using all three years of National Student Survey data for all providers, regardless of any boycott activity that a provider may have experienced during 2017. If a provider submitted evidence of boycott activity (via the provider-level TEF Year Three data amendments process that has recently completed), the illustrative subject-level metrics being issued at this time already incorporate the necessary adjustments.
- b. The supplementary metrics derived from the Longitudinal Education Outcomes (LEO) dataset will be included in the TEF subject pilots. When calculating the LEO above median earnings threshold metric for each subject, the median salary threshold will remain at £21,000 (rather than being a subject-specific median salary).
- c. The grade inflation metric will be implemented in the pilot. However, the pilot will look at data for academic year 2010-11 at the earliest, and HEFCE will generate the metric from Higher Education Statistics Agency (HESA) and Individualised Learner Record (ILR) student data returns for participating pilot providers only.
- d. All core metrics as well as supplementary LEO subject-level metrics are benchmarked in the same way as provider-level metrics. In the subject-level metrics we benchmark within subject, and the revised benchmarking factors and groupings shown in Table 6 of the TEF specification are applied⁴. The 'sector' is made up of all providers in scope for TEF that reported students in the given subject area, regardless of their participation in the subject pilots or their eligibility for provider-level TEF in Year Three. This leads to sector averages that are unchanged from those produced and shared with providers in the October 2017 TEF Year Three metrics release.
- e. Very high and very low absolute values are highlighted in subject-level metrics in the same way as in provider level metrics, as a star (*) or an exclamation mark (!) respectively. These are highlighted in the core TEF metrics and the supplementary LEO metrics only: they are not highlighted for any split metric.

The thresholds above or below which an absolute value is considered as very high or very low have not been recalculated for subject-level metrics. Instead, those thresholds identified in the production of the provider-level TEF Year Three metrics have been applied across all the subject-level metrics to determine whether or not an absolute value is assigned a * or !.

³ See www.gov.uk/government/publications/teaching-excellence-framework-lessons-learned.

⁴ See www.gov.uk/government/publications/teaching-excellence-and-student-outcomes-framework-specification.

6. For the avoidance of doubt, the **pilot assessments** will also be applying the changes from lessons learned as follows:

- a. The weighting of NSS metrics will be halved.
- b. LEO metrics will be used as supplementary metrics, considered alongside the submission in step 2 of both the provider and subject-level assessments.
- c. Having been explicitly marked in the metrics workbooks, very high and very low absolute values will be taken into account by panellists. They have also been accounted for in calculating the metrics-based starting point for the initial hypothesis that is used to identify exception subjects.
- d. Where at least 35 per cent of students are part-time, the provider will have the opportunity to submit an additional page of quantitative information in its provider submission. This additional page will not apply to subject submissions. Where there is a similar number of students in both delivery modes, panellists and assessors will formulate an initial hypothesis separately for each mode, following each of the steps and guidance for steps 1a and 1b. At the end of step 1b, panellists and assessors will combine the two initial hypotheses to produce a single initial hypothesis for the subject.
- e. The processes involving the Director for Fair Access and power of referral will not be included in the pilot.

Further clarification on applying the TEF specification and the subject pilot specification to the subject pilot metrics

7. For the avoidance of doubt, the following points seek to clarify the approach that has been taken to the construction of the TEF subject pilot metrics in a number of areas.

Contextual data

8. All of the provider-level contextual data breakdowns have been replicated and regenerated at subject level, removing only the breakdowns by subject. The contextual data at subject level shows the average numbers of students in each category, where the average is taken across the three most recently available academic years. Where fewer than three years of data exist in this period for this subject, the contextual data will be shown as an average across the available years of data instead. Because the number of available years of data for a subject may be lower than that for the provider as a whole, the subject headcounts shown in the provider-level metrics workbooks may be lower than the equivalents shown in the subject-level metrics workbook, including when split by mode.

9. Contextual data based on the LEO dataset has also been regenerated at subject level, as have the contextual data maps showing student domiciles, employment locations and highly skilled

employment locations. In addition, we are testing use of the Office for National Statistics' mappings of location quotients for the spatial distribution of industries in Great Britain (2015)⁵.

Majority mode of delivery

10. The majority mode of delivery is calculated separately for each subject, and is shown in each subject-level metrics workbook. If a provider has at least 35 per cent of students in a given subject studying part-time, this will also be indicated in that subject's workbook. The subject workbook will not show a 'number of suitable years of metrics', as this information is not required by the subject pilot exercise.

Presentation of metrics

11. The subject-level metrics workbook continues to present a full range of metrics information (including flags, indicator, benchmark, difference, standard deviation, z-scores, numerator and denominator). Split metrics are included for the core and supplementary LEO metrics. All split metrics are consistent with those defined and presented for provider-level TEF, except that ethnicity will only be reported at the higher of the two levels shown in the provider-level workbooks (for white students and for black or minority ethnic students).

Significance flagging

12. Significance flagging for subject-level metrics remains consistent with provider-level TEF Year Three metrics, as defined at paragraphs 5.58 to 5.64 of the TEF specification.

Supplementary LEO metrics

13. To ensure that no provider is able to identify any individual student's contribution (or lack thereof) to the supplementary LEO-based metrics, we have been required to apply additional suppression to these metrics at subject level.

14. As in provider-level metrics, the indicator values of LEO-based metrics are suppressed and shown as 'DP' if they have a numerator that differs from the denominator by fewer than three students: to do otherwise risks disclosing information on outcomes for individual students within the cohort. Other parts of the metric information (benchmark, difference, standard deviation, z-scores, numerator and denominator) are also suppressed along with the metric percentage.

15. If the overall metric has attracted this suppression, then the metric's flag and any very high or very low absolute value marker associated with it will be the only information that is shown. In a small number of cases it has also been necessary to implement a secondary suppression to prevent disclosure: if a provider only has one subject with the metric suppressed as 'DP', and has no subjects with the same metric as non-reportable, the smallest reportable subject that the provider delivers is also restricted to show only the metric's flag and any very high or very low absolute value marker.

⁵ See

www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/the-spatial-distribution-of-industries-in-great-britain/2015.

16. If a split LEO-based metric has attracted a 'DP' suppression, that split metric is suppressed in its entirety for the subject in which the suppression has arisen, including the metric's flag. Note that 'DP' suppression of one attribute of a split automatically leads to the suppression of the other attributes in the same split. In the subject-level metrics it has also been necessary to implement a secondary suppression: to suppress the affected split in all other subject areas that the provider delivers.

'Exception' subjects

17. For the Model A subject pilot we have generated the required 'exception' subjects by applying the rule that a subject will be treated as an exception if its metrics-based starting point for the initial hypothesis differs from the equivalent starting point derived from provider-level metrics.

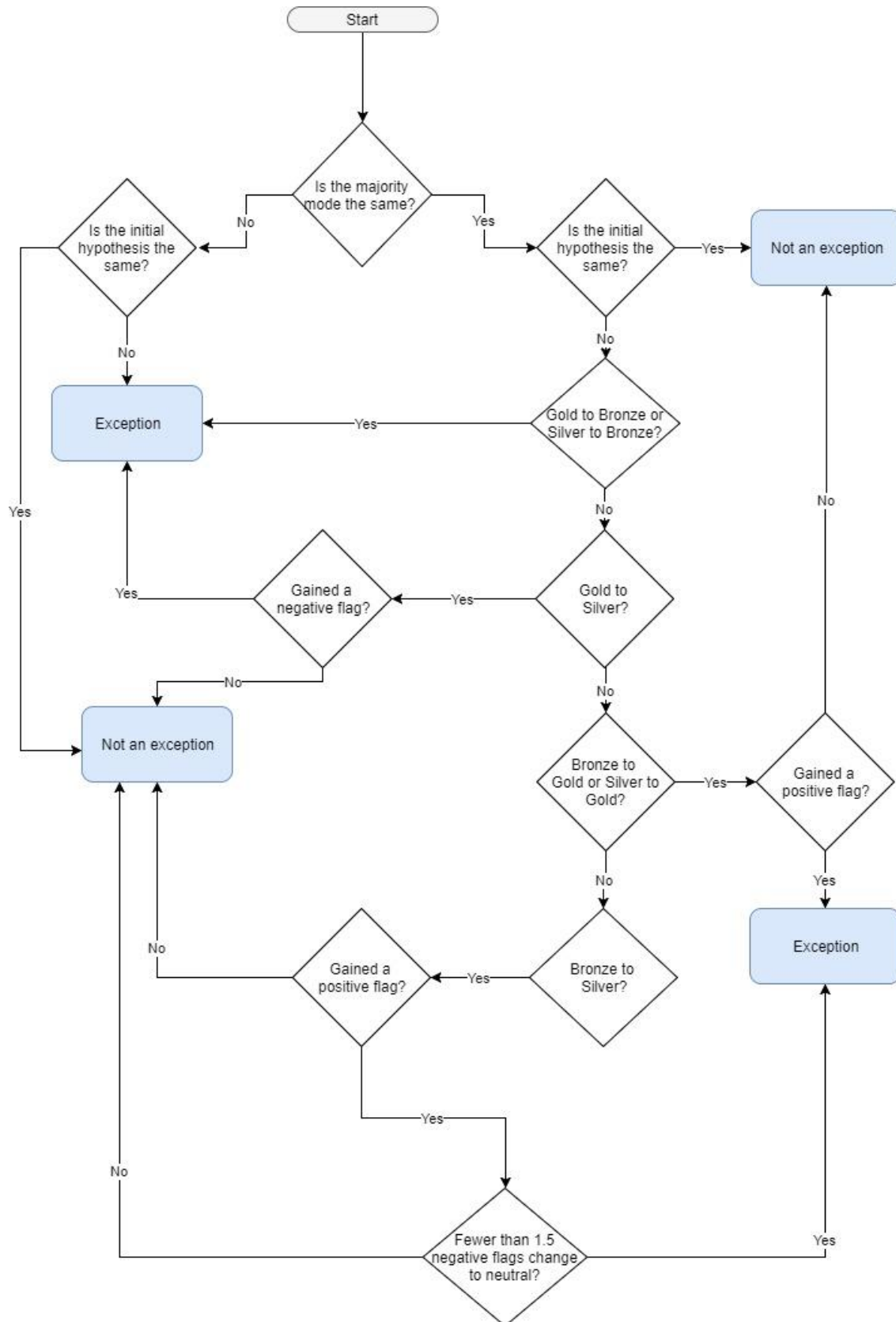
18. In all cases, we look at both provider and subject-level metrics in their respective majority mode of delivery, and identify differences in the metrics-based initial hypotheses resulting from these. If the provider-level majority mode is full-time and a given subject has a majority mode of part-time, the metrics-based initial hypothesis derived from the full-time provider level metrics is compared against that derived from the part-time subject-level metrics. Note also that flags for year splits of the metrics have been used to substitute for a non-reportable core metric flag where possible. In addition, any metric that is non-reportable at subject level (on account of response rates or small population sizes) is treated as a neutral flag.

19. Assessors and panellists will not consider very high and very low absolute value markers at step 1a of the metrics-based initial hypothesis: in both provider-level TEF and in the subject pilot these will be principally considered at step 1b of the assessment. However, the criteria described in paragraphs 7.17 and 7.18 of the TEF specification⁶ have been applied formulaically to both the provider and subject-level metrics, to derive metrics-based initial hypotheses purely for the purposes of identifying the Model A exception subjects.

20. When comparing the metrics-based starting points for the provider and subject-level metrics, a difference in initial hypothesis that results only from positive or negative provider-level flags changing to neutral at subject level will not cause the subject to be generated as an exception. For this provision to take effect, the subject's majority mode of delivery must be the same as the provider's overall majority mode. In addition, if the provider-level starting point is Bronze, and the subject-level starting point is Silver as a result of negative provider-level flags that have a total value of at least 1.5 changing to neutral at subject-level, the subject is not generated as an exception regardless of any other changes.

⁶ See www.gov.uk/government/publications/teaching-excellence-and-student-outcomes-framework-specification.

Figure 1: Identification of exception subjects



Rebuilding the TEF subject pilot metrics

21. The TEF subject pilot metrics workbooks contain a number of worksheets. This document details how some of the data in the workbooks can be rebuilt from the five individualised files we provided in the October 2017 TEF Year Three metrics release (TEF1718_YY_XXXXXXXXX_IND.csv, where XXXXXXXX denotes the combined UKPRN and name of the provider and YY denotes the year of the individualised data – for example, YY = 14 for data primarily sourced from a 2014-15 HESA or ILR data return). It also gives explanations of the data contained in each of the worksheets, described in order of the workbook structure below. Much of the content provided here repeats that included in the TEF Year Three metrics rebuild document⁷.

Important notes

22. The individualised files provided this year are at **subject level**, meaning one student will have one row of data for every different subject they are studying. This means that simply summing all the rows in a file for a particular field will give an inflated result: values must be weighted by TEFFPE in order to derive a true figure. For example, to derive the headcount of full-time first degree students in mathematical sciences in a particular year, select the TEFUKPRN for your provider, TEFSBJ_CAH2 = CAH09-01, TEFCONTEXTPOP = 1, TEFMODE = FT and TEFLEVEL=DEG. Sum the TEFFPE for the resulting records and divide by 100.

23. Additionally, two worksheets in the TEF subject pilot metrics workbooks contain supplementary metrics derived from the LEO dataset. The LEO dataset links 2010-11 HESA and ILR student records with graduates' 2014-15 financial year tax and benefits data held by HM Revenue and Customs and the Department for Work and Pensions. To ensure that no provider is able to identify any individual student's contribution (or lack thereof) to the LEO-based metrics, HEFCE cannot supply any student-level data on these metrics. Consequently, an individualised file for 2010-11 data returns is not available and it is not therefore possible to rebuild figures shown in the 'Supplementary metrics and splits' and 'Supplementary metrics detail' worksheets using the individualised files.

Contextual data

24. This worksheet contains tables of contextual data for the subject. Figures in these tables can be rebuilt from the 2013-14, 2014-15 and 2015-16 individualised files by selecting TEFUKPRN = your provider, TEFSBJ_CAH2 = the subject of interest, TEFCONTEXTPOP = 1, TEFMODE = FT or PT, and the relevant filter from the table below. Figures are presented as an average across the context period considered, and can be rebuilt by averaging the three years of data for each category⁸.

Category	Filter to apply in individualised file
Overall	Headcount = TEFFPE / 100

⁷ See www.hefce.ac.uk/lt/tef/participants/tech/.

⁸ This can be rebuilt from the individualised files by summing the three years of data and dividing by the number of years for which there are students. For the avoidance of doubt, the number of years divided by is the larger of the number of years with full-time (FT) or part-time (PT) data.

	FTE = (TEFSTULOAD / 100) * (TEFFPE / 100)
Level of study	TEFLEVEL = PUGD, PUGO for postgraduate / undergraduate boundary DEG for First degree OUG for Other undergraduate
Age	TEFCONTEXTAGE = U21 for Under 21 21_30 for 21 to 30 30+ for Over 30
Ethnicity	TEFETHNIC = W for White B for Black A for Asian O for Other U for Unknown
Sex	TEFSEX = 1 for Male 2 for Female 9 for Other
Disability	TEFDISABLE = Y for Yes N for No
Entry qualifications	TEFTARGRP = HE for Higher education level H for High tariff M for Medium tariff L for Low tariff NONE for Non-tariff NONUK for Non-UK students
Domicile	TEFDOM =

	E, S, W, N for UK OEU for Other EU OTHER for Non-EU
Local students	TEFLOCAL = Y for Yes N for No
POLAR	TEFCONTEXTAGE = U21 and TEFPOLAR = 1, 2, 3, 4, 5
English Index of Multiple Deprivation (IMD) / Scottish IMD / Welsh IMD / Northern Ireland IMD	TEFIMD = 1, 2, 3, 4, 5
Welsh Communities First	(Welsh providers only) TEFCF = Y for Yes N for No
Welsh medium	(Welsh providers only) TEFWM = N for 0 to 5 5PLUS for 5 to 40 40PLUS for Over 40

25. The totals across each category may not always match because of the differing population, the differing treatment of unknowns in each category or the average values being rounded to the nearest five.

Core metrics

26. This worksheet contains the core metrics and other key information taken from the 'Core metrics and splits' worksheet.

Core metrics and splits

27. This worksheet records:

- all core metrics, separately for full-time and part-time students
- a headcount of full-time and part-time students, used in setting the majority mode⁹

⁹ This can be rebuilt from the 2013-14, 2014-15 and 2015-16 individualised files by selecting TEFCONTEXTPOP = 1 and TEFMODE = FT or PT, then summing the three years of data and dividing by

- the splits for each metric
- whether any of the flags on the split metrics are different from the flag on the core metric
- whether part-time provision accounts for 35 per cent or more of provision by headcount.

Splits

28. To calculate the numerators and denominators for the split metrics, filter to the following values in addition to those for the core metrics:

Split	Individualised files to use or filter to apply in individualised file
Years	<p>For student satisfaction and employment and destinations metrics, use the individualised file for:</p> <p>2013-14 for Year 1</p> <p>2014-15 for Year 2</p> <p>2015-16 for Year 3</p> <p>For full-time continuation metrics, use the individualised file for:</p> <p>2012-13 for Year 1</p> <p>2013-15 for Year 2</p> <p>2014-15 for Year 3</p> <p>For part-time continuation metrics, use the individualised file for:</p> <p>2011-12 for Year 1</p> <p>2012-13 for Year 2</p> <p>2013-14 for Year 3</p>
Level of study	<p>For student satisfaction and continuation metrics: TEFLEVEL =</p> <p>PUGD, PUGO for postgraduate / undergraduate boundary</p> <p>DEG for First degree</p> <p>OUG for Other undergraduate</p> <p>For employment/destinations metrics: TEFEMPLEVEL =</p> <p>PUGD, PUGO for postgraduate / undergraduate boundary</p> <p>DEG for First degree</p> <p>OUG for Other undergraduate</p>
Age	<p>For full-time metrics: TEFCONTEXTAGE =</p> <p>U21 for Young</p>

the number of years for which there are students. For the avoidance of doubt the number of years divided by is the larger of the number of years with FT or PT data.

	<p>21_30, 30+ for Mature</p> <p>For part-time metrics: TEFCONTEXTAGE =</p> <p>U21, 21_30 for Young</p> <p>30+ for Mature</p>
POLAR	<p>For providers in England and Wales: TEFCONTEXTAGE = U21 and TEFPOLAR =</p> <p>1, 2 for Yes</p> <p>3, 4, 5 for No</p>
National IMD	<p>For providers in England, Scotland and Northern Ireland: TEFIMD =</p> <p>1, 2 for Yes</p> <p>3, 4, 5 for No</p> <p>For providers in Wales:</p> <p>TEFIMD =</p> <p>1 or TEFCF = Y for Yes</p> <p>TEFIMD = 2, 3, 4, 5 and TEFCF = N for No</p>
Ethnicity	<p>TEFETHNIC =</p> <p>W for White</p> <p>A, B, O for black and minority ethnic</p>
Disabled	<p>TEFDISABLE =</p> <p>Y for Yes</p> <p>N for No</p>
Sex	<p>TEFSEX =</p> <p>1 for Male</p> <p>2 for Female</p>
Welsh medium	<p>For Welsh providers only:</p> <p>TEFWM =</p> <p>N for 0 to 5</p> <p>5PLUS for 5 to 40</p> <p>40PLUS for Over 40</p>
Domicile	<p>TEFDOM =</p>

	E, S, W, N for UK OEU for OtherEU OTHER for NonEU
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Metrics detail worksheets

29. These worksheets contain all the figures that are used in the calculation of the core metrics and splits in the key worksheets.

Metrics detail_Populations

30. This worksheet contains the numerators and denominators that inform the calculation of the indicators used in the significance flags in the 'Core metrics and splits' worksheet. Most figures can be rebuilt from the individualised files by selecting the values specified below.

Student satisfaction

31. Because of the commitments given to students when completing the NSS, only the derived fields that indicate inclusion in the NSS response rate population (TEFNSSEXCL1, TEFNSSEXCL2, TEFNSSEXCL4, TEFNSSEXCL8 and TEFNSSEXCL) are shown in the individualised files. Nevertheless full instructions have been included here on the calculation of these metrics.

32. Using the 2013-14, 2014-15 and 2015-16 data (which corresponds to NSS15, NSS16 and NSS17 respectively), the values specified below are selected for the relevant mode (TEFMODE = FT or PT) and level (TEFLEVEL in DEG, OUG, PUGD, PUGO) and where TEFUKPRN equals your provider and TEFSEBJ_CAH2 equals the subject of interest.

The teaching on my course

Denominator of the core metric: TEFNSSEXCL= 0 and TEFNSSCOUNTTEACH = 1

Numerator of the core metric: filter to TEFNSSEXCL= 0 and TEFNSSCOUNTTEACH = 1 and sum (total agreements to questions in that scale / total number of responses to questions in that scale).

Assessment and feedback

Denominator of the core metric: TEFNSSEXCL= 0 and TEFNSSCOUNTASSES = 1

Numerator of the core metric: filter to TEFNSSEXCL= 0 and TEFNSSCOUNTASSES = 1 and sum (total agreements to questions in that scale / total number of responses to questions in that scale).

Academic support

Denominator of the core metric: TEFNSSEXCL= 0 and TEFNSSCOUNTACAD = 1

Numerator of the core metric: filter to TEFNSSEXCL= 0 and TEFNSSCOUNTACAD = 1 and sum (total agreements to questions in that scale / total number of responses to questions in that scale).

Continuation

33. Using the 2012-13, 2013-14 and 2014-15 individualised files (for full-time students) or 2011-12, 2012-13 and 2013-14 individualised files (for part-time students), select the values specified below for the relevant mode (TEFMODE = FT or PT) and where TEFUKPRN equals your provider and TEFSBJ_CAH2 equals the subject of interest.

Denominator of the core metric: TEFCONEXCL = 0

Numerator of the core metric: TEFCONEXCL = 0 and TEFCONINDFULL = CONTORQUAL, TRANSFER

Note: For data protection reasons, HEFCE is unable to include the full detail of a student's continuation outcome in the case of transfer to another provider. TEFCONINDFULL has not been included in individualised files for this reason. Providers can instead consider the TEFCONIND variable, but should note that this will not re-create the continuation metric precisely.

Employment/destinations

34. Using the 2013-14, 2014-15 and 2015-16 individualised files, select the values specified below for the relevant mode (TEFEMPMODE = FT or PT) and level (TEFEMPLEVEL in DEG, OUG, PUGD, PUGO) and where TEFUKPRN equals your provider and TEFSBJ_CAH2 equals the subject of interest.

Employment or further study

Denominator of the core metric: TEFEMPEXCL = 0 and TEFEMPINDPOP = 1

Numerator of the core metric: TEFEMPEXCL = 0 and TEFEMPINDPOP = 1 and TEFEMPIND = WORK_HIGHSKILL, WORK_OTHER, STUDY

Highly skilled employment

Denominator of the core metric: TEFEMPEXCL = 0 and TEFEMPINDPOP = 1

Numerator of the core metric: TEFEMPEXCL = 0 and TEFEMPINDPOP = 1 and TEFEMPIND = WORK_HIGHSKILL, STUDY

NSS and DLHE response rates

35. For the student satisfaction and employment/destination metrics to be reportable, a response rate threshold for the National Student Survey (NSS) and Destinations of Leavers from Higher Education survey (DLHE) must be met. For the NSS, this is 50 per cent. For the DLHE, this is 85 per cent of the target which is equivalent to 68 per cent for full time students and 59.5 per cent for part time students.

NSS response rate

Select the values specified below where TEFUKPRN equals your provider and TEFSBJ_CAH2 equals the subject of interest.

Denominator: TEFNSSEXCL = 0

Numerator: TEFNSSEXCL = 0 and TEFNSSRESPONSE = 1

DLHE response rate

This is calculated separately for full-time and part-time students (TEFEMPMODE = FT or PT). Select the values specified below where TEFUKPRN equals your provider and TEFSBJ_CAH2 equals the subject of interest.

Denominator: TEFEMPEXCL = 0

Numerator: TEFEMPEXCL = 0 and TEFEMPRESPONSE = 1

Metrics detail_Indicator (a)

36. This worksheet shows the indicators that inform the calculation of the significance flags in the 'Core metrics and splits' worksheet. These figures can be rebuilt from the 'Metrics detail_Populations' worksheet.

Metrics detail_Benchmark (b)

37. This worksheet shows the benchmarks that inform the calculation of the significance flags in the 'Core metrics and splits' worksheet. It also shows the provider's contribution to the benchmark.

Metrics detail_Difference (a - b)

38. This worksheet shows the differences between the indicators and benchmarks that inform the calculation of the significance flags in the 'Core metrics and splits' worksheet. These figures in this worksheet are formulaically calculated (and therefore can be rebuilt) from the 'Metrics detail_Indicators (a)' and 'Metrics detail_Benchmark (b)' worksheets.

Metrics detail_Z-score

39. This worksheet shows both the z-scores (that is, the number of standard deviations between the indicator and the benchmark) and the standard deviations that are used to inform the calculation of the significance flags in the 'Core metrics and splits' worksheet.