TASO Transforming Access and Student Outcomes in Higher Education

Framework for economic evaluation: guidance

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RSM

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Dr Priya Khambhaita, RSM UK
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Glossary of terms

BCR: Benefit-cost ratio.

Benefit: A positive financial or non-financial outcome resulting from an intervention.

Behavioural benefit: A positive identifiable change in behaviour.

Capital cost: A cost that involves buying or creating an asset that can be used in the future.

CIPD: Chartered Institute of Personnel and Development.

CPI: Consumer prices index. The price of a weighted average market basket of consumer goods and services purchased by households.

Cost: A negative financial or non-financial input associated with an intervention.

Cost-benefit analysis: An economic evaluation tool used to compare the costs and benefits of interventions in a common unit (usually monetary).

Cost-consequence analysis: An economic evaluation tool used to compare the costs and outcomes of interventions, not necessarily in the same units.

Cost-effectiveness analysis: An economic evaluation tool used to compare the costs of different interventions that produce the same outcome.

Cost-utility analysis: An economic evaluation tool used to find the most efficient ways of producing a single unit of output by comparing interventions.

DfE: Department for Education.

Direct costs: Costs incurred specifically and only for the delivery of the intervention.

Disbenefit: A negative financial or non-financial outcome resulting from an intervention.

Economic evaluation: The comparison of the value of outcomes produced by an intervention with the costs of implementing the intervention (HM Treasury, 2022).

Financial costs: Where money is used to purchase resources.

GVA: Gross value added.

HEAT: Higher Education Access Tracker.

HEP: Higher education provider.

HESA: Higher Education Statistics Agency.

Impact evaluation: This type of evaluation asks: ‘did the intervention work?’ Impact is the portion of an outcome change that can be attributed to the intervention or programme rather than other factors or influences. It is used to help decide whether an intervention or programme should be adopted, continued or modified for improvement.

Implementation and process evaluation: The generation and analysis of data to examine how an intervention is put into practice, how it operates to achieve its intended outcomes and the factors that influence these processes.

In-kind costs: Where resources are used but money is not allocated to be spent on them through the intervention.

Indirect costs: Costs that cannot be assigned to a particular intervention.

MEF: Monitoring and evaluation framework.

Monetisation: The process of valuing a benefit in monetary terms.

Non-behavioural benefits: A change in knowledge, interpersonal skills and attitudes.

Non-monetisable benefits: Benefits that are not possible (or feasible given the resources available) to monetise.

NPV: Net present value.

NSS: National Student Survey.

OBR: Office for Budget Responsibility.

OfS: Office for Students.

ONS: Office for National Statistics.

Opportunity cost: The value that could have been produced in the absence of the intervention, such as earnings foregone to attend higher education.

Quasi-experimental design: A research method used to quantify the causal relationship between certain variables, without full control of the independent variables.

RCT: Randomised controlled trial. Participants are randomly assigned to treatment (intervention) and control (business as usual) groups. Random assignment ensures a high degree of confidence that there are no systematic differences between treatment and control groups except that the treatment group participated in the intervention.

Rapid evidence review: A resource-efficient method of systematically surveying the literature that is available on a certain topic.

Resource costs: The cost of inputs, goods or services that can only be used once.

Social return on investment: An economic evaluation method that considers all individual, social and environmental costs and benefits of alternative interventions.

Stakeholder: A party that has an interest in the intervention.

Theory of change: Describes the underlying assumptions and mechanisms for how planned activities will lead to intended outcomes.

UCAS: Universities and Colleges Admissions Service**.**

VfM: Value for money.

Introduction

Higher education providers (HEPs) face critical decisions regarding how best to allocate scarce resources, improve the effectiveness of programmes/interventions and achieve strategic objectives. Economic evaluation can play a pivotal role in informing these choices.

This document provides guidance on how to implement the framework for economic evaluation in higher education (the 'framework').

This guidance has been designed to provide those working in evaluation or other related roles in HEPs – including staff with little existing knowledge of economic evaluation – with the tools to implement the framework to conduct robust economic evaluations.

The guidance will help the sector to implement economic evaluations by providing:

- a clear step-by-step approach to conducting an economic evaluation
- examples based on hypothetical scenarios that demonstrate how each step can be practically followed
- a protocol template that can be used prior to the evaluation to detail the approach that will be taken, and a reporting template that can be used to report the findings.

The content of the guidance has been informed by consultation with practitioners in the sector, through a survey and interviews, as well as a rapid evidence review on existing economic evaluation. The review covered evidence from higher education in the UK, the US and European countries, as well as other relevant sectors in the UK.

Economic evaluation is often most beneficial when conducted alongside other methods to inform decision making. This guidance should be read alongside other TASO evaluation guidance, including:

- The Monitoring and Evaluation Framework (MEF): this guidance outlines a step-by-step guide for effective impact evaluation.
- Theory of change guidance: this guidance provides the reader with an understanding of theory of change, an important step before commencing an economic evaluation.
- Implementation and process evaluation: this guidance focuses on gathering information about how best to revise and improve activities.

Before you start

What is economic evaluation?

Economic evaluation is the comparison of the value of outcomes produced by a programme/intervention with the costs of implementing it (HM Treasury, 2022). It is

used to compare the value for money (VfM) provided by different programmes/interventions and to inform decision making as institutions plan future delivery and provision.

Economic evaluation is primarily used to answer three questions:

- Is (or was) a programme/intervention worth doing?
- Is (or was) the programme/intervention the best thing that could be (have been) done?
- How can VfM be improved in future?

Economic evaluation can answer the third question by identifying which of a set of programmes/interventions has the greatest VfM, or by identifying areas with the greatest VfM within a programme/intervention to inform changes in future design.

When can you conduct an economic evaluation?

Economic evaluation can be applied to a wide range of programmes/interventions in higher education, including those focusing on different stages of the student journey: access, success and progression.

Economic evaluation can be used to choose between several options of possible programmes/interventions to carry forward – known as ex-ante economic appraisal – or to evaluate whether a programme/intervention has delivered VfM – ex-post economic evaluation (HM Treasury, 2022).

For a HEP, economic evaluation can be used to:

- inform a decision when choosing between several potential programmes/interventions designed to achieve a strategic objective
- feed into budgeting decisions, by identifying programmes/interventions delivering the greatest VfM
- inform whether a programme/intervention should be delivered again.

You should aim to plan your economic evaluation alongside or following Step 1 of the TASO MEF. Step 1 of the MEF involves ‘diagnosis’ by developing a theory of change, which is your theory for predicting how the programme/intervention will bring about the desired change. Planning the economic evaluation at this stage means that data collection to inform the economic evaluation can be planned early. Similarly, as with other evaluation frameworks, developing a theory of change is also a key first step.

Economic evaluation is often best conducted alongside or following an impact evaluation, since the impact evaluation can be used to identify the benefits of the programme/intervention (see Step 5.1).

What you need to use this guidance

This guidance has been designed to be used by those working in evaluation or other related roles in HEPs. This means that you can use this guidance even if you have little existing knowledge of economic evaluation. It is useful if you have knowledge of other evaluation approaches, including developing a theory of change and impact evaluation, since conducting an economic evaluation also requires drawing on these approaches. TASO guidance (see links in the Introduction) can also provide necessary knowledge on these approaches.

It is also helpful if you have basic knowledge of conducting spreadsheet analysis in Microsoft Excel or Google Sheets. It is not necessary to know how to conduct more advanced calculations, such as adjusting for inflation or applying discount rates (see Step 6.1), since a pre-populated spreadsheet is provided that can be used to conduct these calculations.

To conduct an economic evaluation, you are likely to need to draw on the expertise of more than one person. Before starting an economic evaluation, it is helpful to identify a set of people within the HEP that you will need to engage with to conduct the evaluation, who will bring different knowledge and perspectives. This set of people is likely to include staff involved in the design and delivery of the programme/intervention, students or prospective students, and staff from the HEP's finance department. It is helpful to clarify the role you would like each of these people to play in the economic evaluation before you begin.

An overview of the scenarios used

Throughout the guidance, scenarios are used to illustrate how each step can be applied in practice. While the data used in the scenarios is hypothetical, the examples have been selected to demonstrate that the framework can be applied to a range of interventions linked to improving access and student outcomes in higher education.

The four main project examples that are drawn on throughout are:

- Provision of a peer mentoring scheme for students from Black minority groups aimed at reducing the awarding gaps between Black and white students.
- A funded bursary programme targeted at disabled students aiming to improve their retention rate, with students continuing from first to second year study.
- A tailored careers fair that invites employers from highly productive regions of England aimed at increasing the percentage of students from areas with low higher education participation progressing to high-skilled employment.
- Training sessions with foster carers, children's home support workers and personal advisers in order to help care-experienced young people make informed choices about their educational progression. This is with the aim of

improving the proportion of care-experienced young people entering higher education.

Choosing an approach to economic evaluation

There are several different approaches to economic evaluation. Each approach involves comparing the outcomes produced by a programme/intervention with the costs of implementing the programme/intervention. Different approaches have been designed for various types of intervention and a range of sectors.

The main approaches

Table 1 describes the features of the main approaches to economic evaluation.

Table 1: The main approaches to economic evaluation

Approach	Features of the approach
Cost-benefit analysis (CBA)	• Considers all individual, social and environmental costs and benefits (to the extent possible) of alternative interventions. • Assigns a common metric, usually monetary values, to costs and benefits to allow them to be compared directly. • Hierarchy of approaches to valuing impacts, as laid out in the Green Book (HM Treasury, 2022).
Cost-utility analysis (CUA)/Cost-effectiveness analysis (CEA)	• Used to find the most efficient way to produce a single unit of output by comparing the cost per unit of output produced. • Appropriate where there is a single target outcome measured consistently across interventions. • VfM of interventions aiming to achieve the same main outcome is primarily compared using unit costs of interventions.
Cost-consequence analysis (CCA)	• Compares the costs and outcomes of alternatives without aggregating or weighting them. • Presents the costs and outcomes in a disaggregated form, allowing the readers to judge their relevance and importance for their own decision-making context.
Social return on investment (SROI)	• Considers all individual, social and environmental costs and benefits (to the extent possible) of alternative interventions, as does CBA. • Places substantial emphasis on engaging stakeholders in the process.

	• Takes a more flexible approach than CBA to measuring and valuing impacts, including drawing on qualitative methods.

Sources: (HM Treasury, 2022; Cupitt, 2012; Drummond et al., 2005)

Pros and cons of the main approaches

Each of the main approaches have different pros and cons when applied to programmes/interventions in higher education – as shown in Table 2 – reflecting that they have been developed for use in different contexts.

Table 2: Pros and cons of the main approaches being applied in higher education

Approach	Pros	Cons
Cost-benefit analysis (CBA)	• Can be used to compare the VfM of different interventions with different outcomes. • Provides clear metrics to assess whether an intervention is worth doing, and which is the best intervention among alternatives.	• Valuing benefits in monetary terms can be difficult, particularly using the quantitative methods recommended by the Green Book (HM Treasury, 2022).
Cost-utility analysis (CUA)/Cost-effectiveness analysis (CEA)	• Provides a clear metric to assess which is the best intervention among alternatives.	• Cannot be used to compare interventions with different outcomes.
Cost-consequence analysis (CCA)	• Intends to capture all costs and consequences and present them in a disaggregated form to provide full information to the reader.	• No clear metric to assess whether an intervention is worth doing, and which is the best intervention among alternatives.

Social return on investment (SROI)	• Can be used to compare the VfM of different interventions with different outcomes. • Provides clear metrics to assess whether an intervention is worth doing, and which is the best intervention among alternatives. • Draws on the expertise of various stakeholders in the evaluation process.	• A less clear hierarchy of methods for valuing outcomes means that the approach can sometimes be less rigorous than a CBA approach.

The recommended primary approach: cost-benefit analysis

For the majority of economic evaluations you wish to conduct, cost-benefit analysis (CBA) will be the best approach to take. You should choose to conduct a CBA for any economic evaluation where you would like to compare the VfM of a programme/intervention with other programmes/interventions aiming to achieve different intended outcomes. For example, if you would like to compare the VfM of an intervention aiming to increase the access of a particular group, with one that seeks to improve that group's retention or degree attainment, then you should conduct a CBA.

The following section of this guidance provides a step-by-step guide that you can follow to conduct a CBA. The step-by-step guidance also allows you to draw on the social return on investment (SROI) approach in two ways:

- The guidance recommends engaging stakeholders with relevant knowledge of the programme/intervention and its outcomes, as is traditionally done in SROI approaches (see Step 2).
- The approach to valuing outcomes in monetary terms (see Step 5.2) draws on methods from SROI, alongside those used in traditional CBA approaches to provide greater flexibility of methods when it is not possible to use CBA approaches.

While the guidance draws on an SROI approach in these two ways, in this guidance we refer to the overall approach taken as CBA.

A secondary approach: cost-effectiveness analysis

There is one situation where you should choose to take a cost-effectiveness analysis (CEA) approach, instead of conducting a CBA.

In situations where you are focused on a single outcome and would like to consider how to maximise VfM in achieving this outcome, CEA is sufficient to achieve the aims of the evaluation.

Note that a CBA would also be able to achieve the aims of the evaluation. However, the main limitation of CBA is that it can be challenging to value outcomes in monetary terms. In such situations, CEA can meet the needs of the evaluation without requiring the main outcome to be monetised.

However, if you are also interested in comparing the VfM of a programme/intervention with another that has a different objective, or if you are interested in assessing whether the benefits of the programme/intervention justify the costs of it, CEA would not be sufficient and you would instead need to conduct a CBA.

Scenario 1: Choosing between CEA and CBA

Imagine you are evaluating a peer mentoring scheme for students from Black minority groups aimed at reducing the degree awarding gaps between Black and white students.

Also imagine that the question you would like to answer through the economic evaluation is: is this scheme the best use of resources to reduce the degree awarding gap between Black and white students? And that you are interested in comparing this intervention with other options that you could pursue.

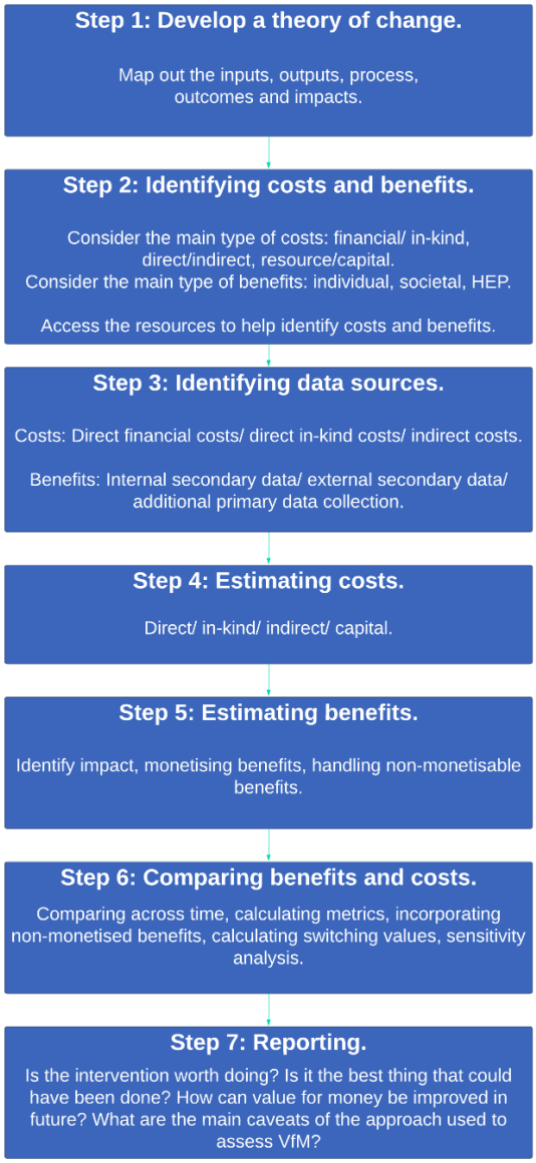
In this case, you would choose to conduct a CEA, since you have already determined the outcome you are aiming to influence, and want to know you are targeting that outcome in the most efficient way.

Now imagine that your budget increases and you would like to know whether additional money should be spent on expanding the peer mentoring scheme or on financial aid aimed at improving the retention of Black students once in higher education. Now, because you are wanting to compare the VfM of interventions with different outcomes, you will need to switch to conducting a CBA.

How to apply cost-benefit analysis

This section provides detailed guidance and examples of how to apply the seven steps of the economic evaluation framework.

Figure 1: The CBA framework



Step 1: Developing a theory of change

A theory of change describes how change is assumed to come about through a programme/intervention. It maps out an intervention's inputs, activities, outputs, outcomes and impacts, including the hypothesised causal and change mechanisms between them.

Developing a theory of change is a necessary first step in conducting a CBA because identifying costs and benefits (in Step 2) requires having a clear definition of the inputs, outcomes and impacts of the programme/intervention. See the National Audit Office (2023) for more information on how a theory of change is linked to assessing VfM.

A theory of change may already have been developed for the intervention, particularly if the economic evaluation has been commissioned alongside a process and implementation evaluation or an impact evaluation. If a theory of change has not already been developed, you should refer to TASO's Theory of change resources, which provide guidance on how to develop a theory of change.

Step 2: Identifying costs and benefits

The second step involves identifying the costs, benefits and disbenefits that need to be considered in the evaluation. Refer to Table 3 for definitions of each of these.

Table 3: Definition and examples of costs, benefits and disbenefits

	Definition	Examples
Cost	The use of an input to carry out a programme/intervention, which may be a financial cost or the drawdown of another resource.	Staff costs, rent of buildings, utilities, administration costs, equipment, investment in branding.
Benefit	A positive outcome or impact resulting from a programme/intervention.	Applications to higher education, enrolment in higher education, increased student wellbeing, increased retention in higher education, increased attainment in higher education, increased post-graduate employment and/or wages.
Disbenefit	A negative outcome or impact resulting from a programme/intervention.	Reduced student wellbeing, reduced student attainment.

Scenario 2a: Identifying costs, benefits and disbenefits

Imagine you are evaluating a programme that provides training sessions with foster carers, children's home support workers and personal advisers in order to help care-experienced young people make informed choices about their educational progression. You may draw up the following list of potential costs, benefits and disbenefits:

Cost/benefit/disbenefit	Example
Costs	Staff costs, use of IT equipment, use of room to run training, payment of transport costs for attendees, utility usage
Benefits	Higher education attainment among care-experienced young people, higher number of care-experienced young people enrol at HEPs
Disbenefits	Reduced wellbeing among care-experienced young people due to increased focus on educational attainment

For example, an intervention may improve student wellbeing, but also lower student attainment. Improving student wellbeing is a benefit, but reduced student attainment is a disbenefit.

What are the main types of costs to consider?

You should aim to capture all resources required by the HEP to carry out the programme/intervention. While individuals outside of the HEP may also incur costs to take part in the programme/intervention, CBA typically compares the social value created by the programme/intervention with the spending constraint of the organisation funding the programme/intervention (HM Treasury, 2022).

You should refer to the types of costs and examples shown in Table 4 to ensure that you have considered all potential costs. Identifying costs should draw on the inputs of your theory of change developed in Step 1.

Table 4 presents three distinctions in types of costs. Costs are: (i) financial or in-kind; (ii) direct or indirect; and (iii) resource or capital. For each cost you have identified to include in the CBA, you should make a record of which category the cost falls into, as the type of cost will determine how it is measured in Step 3 and Step 4.

Table 4: Types of costs

Type of cost		Definition	Example
Financial/ in-kind	Financial costs	Where money is used to purchase the resource.	Direct staff costs (paid by the intervention) or purchase of materials.
	In-kind costs	Where resources are used but money is not allocated to be spent on them through the intervention.	Staff time from another department that contributes to the intervention but no financial transaction to purchase this staff time is recorded for the intervention.
Direct/ indirect	Direct costs	Those incurred specifically and only for the delivery of the intervention.	Printed materials to promote a careers event.
	Indirect costs	Those that cannot be assigned to a single intervention.	IT support time spent on maintaining the printers used.
Resource/ capital	Resource costs	Those spent on inputs or goods and services that can be used only once.	Staff costs, rent of buildings, utilities or administration costs.
	Capital costs	Buying or creating an asset that can be used in the future.	Equipment, or creation of trademarks or branding.

Source: (HM Treasury, 2022)

What are the main types of benefits to consider?

In general, when conducting a CBA, you should seek to capture all benefits no matter who gains from them. This means capturing benefits to individuals (usually students), the HEP and the wider society (usually the community that is local to the HEP but possibly beyond).

However, on some occasions you may be purely interested in the benefits to a particular group that is the target of the programme/intervention – for example, if you are focused on improving access to higher education among prospective Black students and want to focus on estimating benefits to this group. At this stage, you should specify whose benefits you are taking into account, i.e., whether you are including benefits to the whole of UK society (as is usually the case in CBA), or whether you are focusing on benefits only to a particular group that the programme/intervention is targeted at.

For individuals, you should consider benefits across different stages of the student journey, including access, success and progression (although it will not always be the case that all three are in scope for a particular programme/intervention).

Refer to Table 5 when drawing up a list of benefits at the individual, HEP and wider society level for consideration. Table 5 includes a definition of each of these levels of benefits, and provides examples of each. For each level and type of benefit outlined, it is important that you also consider potential disbenefits.

There is a wide range of potential benefits that could be included (as shown by the resources recommended for identifying benefits below). The examples included in Table 5 were identified as the most important benefits for inclusion in economic evaluation through a survey with evaluation professionals in HEPs conducted as background research for developing this framework.

When considering benefits, you should also consider the 'opportunity cost' of the programme/intervention. The opportunity cost is the value of a benefit that could have been produced without the programme/intervention. For example, one opportunity cost of undertaking a qualification is foregone earnings while studying. If one of the benefits being considered is higher labour market earnings following higher education, you should only capture the additional lifetime earnings, i.e., the increase in labour market earnings following higher education, subtracting earnings foregone to undertake higher education.

Table 5: Level and stage of higher education benefits

Benefit level	Definition	Example benefits
Individual	Benefits accruing to individuals who participate in the intervention. It is also useful to distinguish the stage (Austen et al., 2021) of higher education:	Access: ● Intermediate outcomes associated with application to be a higher education student, e.g., increased knowledge of academic

	• Access – benefits accrued during the period which determines which groups can gain entrance to different types of HEP (e.g., pre-higher education attainment, enrolment levels). • Success – benefits accrued during students' participation in higher education, including retention (participants' likelihood of continuing or withdrawing from study) and attainment (the extent to which students are enabled to fulfil their academic potential). • Progression **–** benefits accrued during the transition within the programme of study and afterwards to employment or further study.	self-efficacy, pre-higher education attainment. • Successful applications to higher education. • Enrolment onto higher education courses. Success**:** • Increased student wellbeing. • Increased retention in higher education. • Increased attainment in higher education. Progression**:** • Increased post-graduate employment and/or wages. • Increased life satisfaction.
HEP	Benefits accruing to a department or the HEP as a whole.	• Increased completion rate. • Increased application rate for post-graduate learning. • Higher fees from higher overall student numbers. • Increased outreach work in the local community.
Societal	Benefits accruing to the local society, economy or the environment, normally in close proximity to the HEP.	• Increased diversity in the workplace. • Increased business creation in the local community. • Increased contribution to local gross value added (GVA).

It is also helpful to consider the types of benefits below to ensure that all potential benefits have been identified. For each benefit you identify to include in the CBA, you should record which type of benefit it is, since this will be important for determining the approach to valuing them in Step 5.

- **Behavioural and non-behavioural benefits.** Behavioural benefits refer to a visible change in behaviour (e.g., improved higher education attendance, increased student engagement with academic staff). Non-behavioural benefits refer to changes in knowledge, interpersonal skills and attitudes (e.g., potential applicants have increased knowledge of HEPs, increased confidence to succeed in higher education, and increased positive attitude towards higher education).
- **Direct and indirect benefits.** Direct benefits can be attributed to the activity itself (e.g., applying to participate in higher education following attendance at an outreach programme). Indirect benefits accrue via direct benefits (e.g., improved confidence or sense of belonging as a result of accessing higher education). In your theory of change (as developed in Step 1), direct benefits are those that have a single causal link from the programme/intervention activities and outputs. Indirect benefits are those that have multiple causal links from the programme/intervention.

Scenario 2b: Identifying types of costs, benefits and disbenefits

Consider the costs, benefits and disbenefits identified in scenario 2a. Drawing on the approaches above, you can identify the level and type of cost or benefit for each.

Cost/benefit/disbenefit	Type
Staff costs, payment of transport costs for attendees	Financial, direct, resource
IT equipment	Financial, direct, capital
Use of room to run training	In-kind, direct, resource
Utility usage	In-kind, indirect, resource
Higher education attainment among care-experienced young people,	Individual (access), direct, behavioural
Higher number of care-experienced young people enrol at HEPs	Individual (access), indirect, behavioural
Reduced wellbeing among care-experienced young people due to increased pressure on education attainment	Individual (access), direct, non-behavioural

Resources to draw on to identify costs and benefits

Identifying costs and benefits requires knowledge of many aspects of the programme/intervention and its outcomes. You can draw on the following resources to build and collate that knowledge.

TASO's Mapping Outcomes and Activities Tool

TASO's Mapping Outcomes and Activities Tool (MOAT) resources provide a consistent approach to defining evaluation outcomes and impacts, and can be used to identify and categorise benefits. There are distinct tools for 'pre-entry' and 'attainment-raising' outcomes.

The MOAT resources can be consulted to select benefits that may accrue from the intervention. Benefits in the MOAT are defined as behavioural/non-behavioural, short-term/intermediate/long-term, and pre-entry and attainment-raising. These categories can be used to identify the type of benefits discussed above.

Additional secondary resources

A considerable body of evidence already exists on the outcomes and impacts of interventions in higher education that can be used to identify potential benefits. A rapid evidence review could be used to identify existing evidence on the outcomes and impacts of similar interventions in the UK and abroad. The following resources may be particularly useful:

- TASO's evidence toolkit, as well as rapid reviews on intermediate outcomes for higher education access and success, widening participation, student experience, employment and employability, student mental health, mental health inequalities, and equality gaps for disabled students.
- Office for Students (OfS) Equality of Opportunity Risk Register (EORR) resources, including the TASO-commissioned rapid evidence review.
- Other sources of evidence, such as additional OfS resources and evidence, and Advance HE's detailed literature review on student success (Austen et al., 2021), which focuses on access, retention, attainment and progression, as well as employability. It provides an overview of existing academic literature on higher education outcomes and different typologies that can be used to categorise them.
- Teaching Excellence Framework (Office for Students, 2023) data can be helpful to draw out information on student outcomes, such as academic experience, student engagement and practical skills.

Working with stakeholders

Different stakeholders involved in a programme/intervention know different aspects of it. Drawing on their expertise can be very helpful in identifying all costs and benefits (as well as data sources, as outlined in Step 3).

You should seek to involve all stakeholders who experience material change as a result of the programme/intervention. Involving stakeholders in the economic evaluation is a key part of the SROI approach, which this guidance draws on here.

In HEPs, the list of stakeholders to involve is likely to include:

- students
- student union representatives
- staff from schools or colleges involved in outreach programmes
- employers (if engaged through the intervention)
- staff involved in the delivery of the intervention
- staff from other departments that may see outcomes and impacts of the intervention.

Involving the HEP's finance department can provide important information on costs, particularly in-kind and indirect costs.

Engaging stakeholders can be done either through one-on-one conversations or by convening semi-structured workshops to identify costs and benefits collectively.

Step 3: Identifying data sources

Once the potential costs and benefits of the programme/intervention have been identified, the next step is to identify data sources available to measure them. For this step, you should continue to engage the stakeholders you engaged in Step 2, since each will bring different knowledge of data sources relating to costs and benefits.

Data sources for costs

Table 6 outlines potential data sources to consider for the different types of costs identified in Step 1. For direct costs, intervention-level accounts are likely to be available detailing expenditures. For in-kind resources, it will be necessary to estimate the cost of resources used, which means drawing on a wider set of information about the cost of inputs (such as salaries and facilities). The HEP's finance department is likely to be the most useful source of information on indirect costs, such as utilities or broader administrative costs.

Table 6: Potential data sources for costs

Types of costs	Examples	Potential data sources
Direct financial costs	• Student services • Marketing and outreach • Materials • Staff training • Compliance and accreditation • Equipment	• Intervention-level accounts (if available) • Finance department accounts
Direct in-kind costs	• Staff time • Employee benefits • Use of facilities or space	• Staff salaries (HR department) • Number hours spent on the intervention • Finance department accounts
Indirect costs	• Office administration • Rent of education facilities • Utilities	• Finance department accounts

Data sources for benefits

Measuring benefits is typically more challenging than costs because they usually require additional data collection and may only be seen after the programme/intervention has finished. It is also more difficult to attribute changes in benefits to the programme/intervention itself and to measure them in monetary terms.

You should begin by identifying data sources that you are already collecting some data from as part of broader monitoring and evaluation activities ('measure' is the third step in TASO's MEF). If you are conducting an implementation and process evaluation and/or an impact evaluation alongside the economic evaluation, this is likely to involve collecting data on a subset, at least, of the benefits you intend to include in the CBA (and will inform the identification of impact on those benefits in Step 5).

For benefits for which you have not already planned data collection, you should consider the following sources:

- Internal secondary data, including monitoring or survey data already being collected (e.g., on attendance, course attainment, wellbeing or attitudes).
- External secondary data such as HEP-level data collected and published externally (e.g., by the Higher Education Statistics Agency (HESA) or Higher Education Funding Council for England).
- Additional primary data collection, such as surveys with students.

Priority should be given to measuring behavioural outcomes where possible. Where non-behavioural outcomes are measured, validated scales (scales that have been tested to measure the intended construct reliably and accurately) should be used. Useful resources for designing data collection on benefits include:

- TASO's Access and Success Questionnaire
- TASO's survey design and validation resources

Table 7 provides a set of potential data sources, including primary and secondary sources, for a set of example benefits. This may provide a useful starting point for identifying data sources for your list of benefits to include in the CBA.

Table 7: Potential data sources for benefits

Example benefit	Potential data sources
Intermediate outcomes associated with application to higher education, e.g., increased knowledge of academic life	Local survey data, engagement metrics
Enrolment in higher education courses	Institutional data, Universities and Colleges Admissions Service (UCAS), HESA, Higher Education Access Tracker (HEAT), Department for Education (DfE)
Pre-entry attainment	National Pupil Database, HEAT
Increased student wellbeing	HESA, local survey data (e.g., Insight Briefings [Student Minds, 2023]), National Student Survey (NSS)
Increased retention in higher education	Institutional data, HESA, OfS

Increased attainment in higher education	Institutional attainment data
Increased post-graduate employment and/or wages	HESA, OfS, graduate outcomes surveys, Longitudinal Education Outcomes
Increased life satisfaction	Survey of higher education leavers, NSS
Increased application rate for post-graduate learning	HESA, local survey data (e.g., in-house university surveys)
Increased diversity in the workspace	Chartered Institute of Personnel and Development (CIPD), local survey data (e.g., internal workplace surveys)
Increased business creation in the local community	Office for National Statistics (ONS) local data
Increased contribution to local GVA	ONS local area GVA estimates

Scenario 2c: Identifying data sources for costs, benefits and disbenefits

You may be able to draw on the data sources outlined above to identify potential data sources for each cost, benefit and disbenefit identified in scenario 2a:

Cost/benefit/disbenefit	Potential data source
Staff costs	Staff salaries, HR department, finance department
Payment of transport costs for attendees	Intervention accounts
IT equipment	IT department, finance department
Use of room to run training	Finance department
Utility usage	Finance department
Higher education attainment among care-experienced young people	National Pupil Database (NPD)/HEAT
Higher number of care-experienced young people enrol at HEPs	Institutional data/UCAS/HESA/HEAT/DfE
Reduced wellbeing among care-experienced young people due to increased pressure on education attainment	Pre- and post-survey of wellbeing

Step 4: Estimating costs

Direct costs

Estimating direct financial costs is relatively straightforward since they are measured in monetary terms and are directly attributable to the programme/intervention. It is important to make sure that the total cost of resources is used. For example, for staffing costs, total labour costs including salary, pension contributions and employer national insurance payments should be used.

Scenario 3a: Estimating direct costs

Imagine you are evaluating a tailored careers fair that invites employers from highly productive regions of England and is aimed at increasing the percentage of students from areas with low higher education participation progressing to high-skilled employment.

You identify the following four costs that need to be estimated: production of a banner and flyers for the careers fair; staff time taken to set up and run the careers fair; use of HEP premises to run the event; and IT equipment bought to organise and run the event.

Producing a banner and flyers for the careers fair is a direct cost that is being paid for by the project's budget. In this case assume it cost £300. This value can be recorded as the cost.

In-kind costs

For in-kind costs, no financial transaction is recorded. Typically, in-kind costs involve using a share of some resource that is bought outside of the programme/intervention. For example, a programme/intervention may use a share of individual staff's time, where those staff's salaries are paid centrally by the HEP. In these cases, the in-kind cost can be defined as:

$$In\ kind\ cost = total\ resource\ cost * share\ of\ resource\ used\ for\ intervention$$

Scenario 3b: Estimating an in-kind cost

In the example described in 3a, assume that the staff time taken to set up and run the careers fair is an in-kind cost and is contributed by staff but not directly paid for by a project budget. In this case it is an in-kind cost.

If two staff members are involved, you need to know how much time they spend setting up and running the careers fair, and their total staff costs.

Assume you collect the following data:

	Share of annual staff time on running careers fair	Gross salary	Employer national insurance contributions	Employer pension contributions
Staff member 1	5%	£35,000	£3,093	12%
Staff member 2	10%	£25,000	£1,713	10%

In-kind costs can be calculated as:

$$Staff\ member\ 1\ cost = 5\% * (£35000 + £3093 + 12\% * £35000) = £2115$$

$$Staff\ member\ 2\ cost = 10\% * (£25000 + £1713 + 10\% * £25000) = £2921$$

Indirect costs

Indirect costs are similar to in-kind costs in that they tend to be paid for centrally by the HEP, and the programme/intervention draws on part of the resource. However, it is often more challenging to apportion a share of indirect costs to the programme/intervention than it is for in-kind costs. Where possible, it is helpful to work with a finance department to identify an appropriate assumption for the share of the resource used.

Scenario 3c: Estimating an indirect cost

Assume that running the careers fair includes the use of a hall in your HEP for three days. The hall is open for 252 days per year (as it isn't open on weekends or bank holidays). Your finance department is able to provide the following estimates of the running cost of the hall throughout the year:

$$Maintenance = £5000$$

$$Heating\ and\ electricity = £2500$$

You can estimate the indirect resource cost of using the hall as:

$$Indirect\ resource\ cost = \frac{3}{252} * (£5000 + £2500) = £89$$

Capital costs

Assets bought for a programme/intervention could, in principle at least, be sold at the end of the programme/intervention. Estimating capital costs should involve subtracting the value of the asset at the end of the appraisal period – known as the asset's 'residual value'. Doing so provides an estimate of the value of the asset drawn on to undertake the programme/intervention.

Scenario 3d: Estimating a capital cost

Assume that the IT equipment used to run the event was bought for £1,000, and after the careers fair, the equipment was worth £750. Therefore £250 is the capital cost that should be recorded for the intervention.

Step 5: Estimating benefits

Estimating benefits is the most challenging step in conducting CBA. This step of the guidance splits estimating benefits into several sub-steps.

To enable benefits to be compared with the costs of the programme/intervention, you first need to identify how much of the benefit is attributable to the programme/intervention itself. This sub-step is closely linked to impact evaluation (see Step 5.1).

The second sub-step is known as monetisation, and involves estimating a monetary value associated with the benefit (see Step 2). Monetisation should be done for all benefits where it is possible. Sometimes it is not possible to monetise benefits. Step 3 shows you how these non-monetisable benefits can be included in the analysis.

In an ideal scenario, we would know the impact of the programme/intervention on all relevant outcomes, and be able to value them in monetary terms. Most of the time, however, we are in a situation very far from this ideal, and estimating benefits requires making the best of the information that is available.

Step 5.1: Identifying impact

The first sub-step to estimating benefits is to identify the impact that the programme/intervention had on each benefit. You should aim to identify the change in the benefit that is attributable to the programme/intervention itself. This is known as 'additionality' since it captures the additional change in a benefit because of the programme/intervention, i.e., in addition to any change that would have happened without the programme/intervention. Identifying the additionality of the programme/intervention means that you are capturing the benefit of the programme/intervention over and above its opportunity cost (as discussed in Step 2).

This sub-step is closely linked to impact evaluation. If an impact evaluation has been conducted or commissioned alongside the economic evaluation, you should draw on the results of that.

Drawing on an impact evaluation

The following guidance may help with designing an impact evaluation:

- TASO monitoring and evaluation framework
- Randomised controlled trials (RCTs) – theory, methods and practice
- Introduction to quasi-experimental designs
- Pre and post-test design
- Impact evaluation with small cohorts

In an ideal scenario, an economic evaluation will draw on an impact evaluation that reliably estimates the impact of the programme/intervention on each benefit. The results of the impact evaluation can then be used directly in the economic evaluation.

When an impact evaluation has not been conducted

It is not necessary to restrict using economic evaluation to situations where an impact evaluation has been conducted. Also, even in situations where an impact evaluation has been conducted, it may identify the impact on some but not all benefits.

When the impact on a benefit cannot be identified through a rigorous impact evaluation, you should still seek to draw on the information available to estimate the change in the benefit that is attributable to the programme/intervention. This information could include a pre- and post-survey covering key outcome measures only among participants, or secondary data or evaluations estimating the impact of similar interventions. Table 8 shows other types of evidence you may be able to draw on.

While you should draw on all evidence available to make an assessment of the size of an impact, you should also take into account how rigorous the evidence you are relying on is. This can be done by identifying a confidence grade associated with the quality of the evidence, where a confidence grade of one signals the most rigorous evidence (an RCT) and a confidence grade of six refers to the least rigorous evidence (such as uncorroborated expert judgement). Confidence grades associated with different types of evidence are shown in Table 8.

When relying on less rigorous evidence to identify the impact of a programme/intervention on a benefit, it is recommended that you apply an 'optimism bias' adjustment to take into account that the estimate may be biased or unreliable. The optimism bias adjustment represents an amount your estimate of impact should be discounted by to account for the potential bias in the estimate. Suggested optimism bias adjustments associated with each confidence level are shown in Table 8.

Note that optimism bias adjustments are designed to mitigate potential upwards-biases in estimated benefits when relying on lower-quality evidence. For example, when using a pre- and post-comparison without a control group, some change in the benefit may have occurred without the programme/intervention. It is possible that in some situations there may be a 'pessimism bias', whereby benefits are underestimated. However, when relying on lower-quality evidence, you should apply the optimism bias corrections below. If you are conducting sensitivity analysis (see Step 6.5), you will be able to model what would happen to the assessed VfM of the programme/intervention with alternate optimism or pessimism bias corrections.

Table 8: Optimism bias correction applied to different standards of evidence

Evidence that has informed assessment of impact	Confidence grade	Optimism bias correction
Randomised controlled trial	1	0%
Quasi-experimental design	2	-5%
Pre- and post-comparison	3	-15%
Secondary evidence from similar interventions in similar contexts	4	-25%
Secondary evidence from similar interventions in different contexts	5	-30%
Uncorroborated expert judgement	6	-40%

Source: (Greater Manchester Combined Authority, 2014)

Scenario 4a: Estimating benefits and optimism bias

Suppose you are evaluating a funded bursary programme targeted at 100 disabled students aiming to improve their retention rate with students continuing from first to second year study.

You have identified the following three benefits to include in the CBA:

1. Greater share of participants continuing to their second year of study.
2. Improved wellbeing of participants due to eased financial pressures.
3. Higher lifetime earnings of participants due to higher course completion rates.

Now assume that a rigorous impact evaluation using a quasi-experimental design identified a causal impact of the programme as having increased the retention rate from first to second year from 60% to 70%. A quasi-experimental design is identified as confidence grade 2 in Table 8 and consequently a -5% optimism bias correction is recommended. Therefore, the number of additional students continuing to second year of study as a result of the programme to include in your CBA can be estimated as:

$$Additional\ students\ continuing\ to\ second\ year = 100 * 10\% * (100\% - 5\%) = 9.5$$

Assume that the wellbeing of participants has been measured using a pre- and post-survey using one of the ONS' four wellbeing questions (Office for National Statistics, 2018), and showed an average improvement in wellbeing of 2.0 points on the scale across participants (the question is measured from 0 to 10). A pre- and post-comparison is identified as a confidence grade 3 in Table 8 and consequently a -15% optimism bias is recommended. The total improvement in wellbeing across students can be estimated as:

$$Aggregate\ improvement\ in\ wellbeing = 100 * 2.0 * (100\% - 15\%) = 170$$

Linking direct and indirect benefits

You may be in a situation where you have a more reliable measure of the impact of a programme/intervention on direct benefits than on indirect benefits. For example, it may be easier to measure whether potential applicants that are targeted by an outreach programme have 'greater knowledge of academic life' than whether they are 'more likely to go on to enrol in higher education'. (Note that this won't always be the case, since a good impact evaluation may be designed to identify impacts on indirect benefits as well as direct benefits.)

In this situation, an evidence review may be used to determine whether there is credible evidence to link the direct and indirect benefits. Ideally, evidence drawn on

should provide evidence of a causal effect of the direct benefit on the indirect benefit. Evidence which shows a causal effect is known as 'Type 3' evidence (Office for Students, 2023). You should consult TASO's guidance on causal evidence for further information on how to identify whether evidence drawn on meets the criteria for Type 3 evidence.

If your evidence review identifies Type 3 evidence that the direct benefit you have measured has a causal impact on an indirect benefit you wish to include in the economic evaluation, you may assume that the change in the direct benefit would be followed by a change in the indirect benefit. Your evidence review should also establish a reasonable estimate of the causal effect to be used to link the two.

Scenario 4b: Direct and indirect benefits

For the funded bursary programme described in scenario 4a, the third benefit that you would like to measure is higher lifetime earnings of participants. This isn't possible to measure directly within the timeframe of the evaluation.

However, you are able to draw on the following sources of information:

- Data provided by the HEP shows that, on average, 70% of students who begin the second year of study complete their course.
- An evidence review that identifies Type 3 evidence that completing an undergraduate degree increases lifetime earnings by, on average, £115,000 (Britton et al., 2020). This estimate of the increase in lifetime earnings is measured net of the opportunity cost of foregone earnings to undertake higher education, and so identifies the additionality of an undergraduate degree.

You now have evidence that can link a direct benefit of the programme (a higher share of participants continuing to the second year) with an indirect benefit of higher lifetime earnings.

The improvement in lifetime earnings across all students as a result of the programme can be estimated as:

$$Aggregate\ improvement\ in\ lifetime\ earnings$$
$$= additional\ students\ continuing\ to\ 2nd\ year * 70\% * £115000$$
$$= 9.5 * 70\% * £115000 = £764{,}750$$

Step 5.2: Monetising benefits

Once you have identified the impact of the programme/intervention on each of the benefits you wish to include in the economic evaluation, you now need to estimate a monetary value associated with these benefits. This sub-step is known as monetisation, and is necessary for CBA so that the value of benefits can be directly compared with costs.

Identifying a set of 'end benefits' for monetisation

It is not necessary to monetise all of the benefits you identified in Step 2. Some benefits are primarily valued as a means to achieving other benefits. Referring back to your theory of change developed in Step 1, we call a benefit that is primarily valuable for achieving another benefit further down a causal chain an 'instrumental benefit', and a benefit that is at the end of the causal chain an 'end benefit'.

Seeking to monetise both instrumental benefits and end benefits would lead to double-counting the benefits of the programme/intervention. You should therefore draw on your theory of change to identify the set of end benefits to focus on for monetisation.

Note that sometimes an end benefit can be a long-term one, such as increased graduate earnings, but isn't always. Wellbeing benefits, for example, could arise from a programme in the short term but are valuable in themselves and so are end benefits.

Scenario 5a: Selecting end benefits for monetisation

Suppose you are continuing with your evaluation of a funded bursary programme aiming to improve retention rates with students continuing from first to second year study (discussed in scenario 4). You initially identified the following three benefits to include in the CBA:

1. Greater share of participants continuing to their second year of study.
2. Improved wellbeing of participants due to eased financial pressures.
3. Higher lifetime earnings of participants due to higher course completion rates.

You consult your theory of change and determine that benefit 1 is an instrumental benefit, since its primary value comes from enabling benefit 3. Benefits 2 and 3 are both end benefits, so you choose these to take forward to consider appropriate monetisation approaches.

Additionality

Step 1 introduced the concept of additionality. When monetising benefits, it is essential that you focus on capturing benefits that are additional and do not include the value of what would have happened without the programme/intervention. Doing so also requires considering displacement of other benefits. For example, one person's access to higher education may lead to another person not accessing higher education, and so the second person's foregone benefits from not accessing higher education need to be taken into account. The examples used later in this section demonstrate how this can be done.

Approaches to monetisation

Once you have identified the set of end benefits that your CBA will seek to monetise, you next need to identify a suitable approach to monetisation for each end benefit.

This subsection provides you with background on the main monetisation approaches used in CBA in other sectors and their applicability to higher education. However, you may skip ahead to the subsection on cashable benefits to understand recommended approaches that can be used in higher education. Table 9 gives a brief overview of the main monetisation approaches used in CBA.

Table 9: Description of the approaches to monetising benefits

Monetisation approach	Description
Market prices	Sometimes a benefit describes something that is bought or sold in the market, and this market price can be used to represent the value of a benefit.
Revealed preference	Users' decisions made to infer the value someone places on a good or service. For example, the distance someone is willing to travel to access a service can be used to infer the value they place on the service.
Stated preference	Primary data collection designed to ascertain users' willingness to pay for a good or service.
Wellbeing approach (HM Treasury, 2021)	Method specifically designed to measure wellbeing benefits. Based on associations between income and self-reported wellbeing.
Qualitative approaches	Several qualitative approaches have been developed through the SROI framework. For example, the ValueGame approach (Scholten, 2019) is a qualitative stated preference approach.

You will find that not all of the benefits in Table 9 are applicable to estimating benefits in higher education. Table 10 gives a brief overview of considerations of whether each approach is applicable to benefits in higher education.

Table 10: Applicability of the approaches to monetising benefits

Monetisation approach	Applicability to higher education benefits
Market prices	Applicable only for benefits that are bought and sold in markets, which is rarely the case in higher education. One case where market prices are available is for graduate employment and earnings (which are 'bought' in the labour market). Most benefits in higher education do not have market prices, and so the approach cannot be used.
Revealed preference	Not often applicable to higher education. Applicable only in situations where someone incurs a financial cost choice to undertake an activity, and that cost can be used to demonstrate their willingness to pay for the activity. A revealed preference approach is generally difficult to apply in higher education. For example, in other sectors, earnings foregone to undertake an activity may be used to identify the value of that activity to someone. This approach could not be used in higher education since it is undertaken under the expectation of higher earnings in future net of the opportunity cost (e.g., foregone earnings) of participating in higher education. However, there may be specific situations where a revealed preference approach could be considered, for example, drawing on differential tuition fees for different courses for international students.
Stated preference	Can in theory be applied to a wide range of benefits. However, it requires substantial primary data collection through collecting specifically designed willingness-to-pay surveys, which may be too costly to be undertaken for higher education programmes/interventions.
Wellbeing approach (HM Treasury, 2021)	Can be applied to higher education wellbeing benefits, but only where primary data collection has been conducted drawing on the ONS' personal wellbeing questions, which have been used to develop the wellbeing approach. If data collection with participants has not been conducted, drawing on the ONS' personal wellbeing questions, as part of an impact evaluation, additional data primary collection is required.

Qualitative approaches	Can be applied to a wide range of benefits, and are lower in cost than stated preference approaches based on surveys. Since questions are hypothetical, users may overstate their willingness to pay. Qualitative approaches draw on small samples, which cannot be representative of the wider population of users, so any monetisation of benefits based on them is uncertain.

Drawing on the assessment of the applicability of monetisation approaches to higher education described in Table 10, you are most likely to be selecting one of the following approaches to monetisation:

- Market prices, either through cashable benefits to the HEP or improved graduate employment outcomes.
- Wellbeing approach.
- Qualitative approaches.

The following subsections provide further information on how you can apply these approaches in higher education.

Note that in situations where none of these approaches are possible, you may wish to consider a stated preference approach, since this provides a flexible approach that can be used for many different benefits. However, stated preference approaches require substantial data collection through specifically designed surveys and so can be resource intensive and may be beyond the resources available for the economic evaluation. For this reason, guidance on applying a stated preference approach has not been included below. If you are considering a stated preference approach, you should consult the HM Treasury guidance (HM Treasury, 2013).

Cashable benefits

In some situations, the HEP may receive financial benefits from a programme/intervention. This could include higher student fees due to higher course enrolment, or reduced service use in other areas, for example, if the introduction of a bursary scheme reduced the need for emergency hardship funds.

Cashable benefits are the most straightforward to include in a CBA since their monetary value can be included directly. Although note that it is vital to only capture additional benefits. For example, you should include only additional fees collected, since one additional enrolment may displace another student.

Monetising graduate employment end benefits

For many programmes/interventions in higher education, one key end benefit is an increase in lifetime earnings. For example, increased attainment in higher education

may be a direct benefit of a programme/intervention, which then leads to improved post-graduate wages (an indirect end benefit).

Lifetime earnings are measured at a market price, and so these market prices can be used to monetise the impact. However, you need to consider two important considerations in applying this approach.

The first consideration is that these benefits need to be shown to be a causal impact of the programme/intervention. Step 5.1 discussed how you can draw on an evidence review to link direct benefits with indirect benefits, and you may draw on the evidence collected in this subsection. For example, an evidence review may identify research such as Britton et al. (2020), which estimates an increase in earnings from graduating from higher education.

The second consideration is that only additional benefits – once displacement has been taken into account – should be considered. At this point it becomes important which group you defined as the group of interest for considering benefits in. If you are focusing the CBA on a specific group, the increase in graduate earnings identified for this group can be taken as the monetary benefit to this group. If you have defined the group of interest as the whole of UK society, taking displacement into account is more challenging, since an increase in one person's graduate earnings may reduce someone else's. Ideally, you should conduct or draw on an evidence review to identify displacement effects (reductions in other people's graduate earnings) and subtract these from the increase in graduate earnings identified for the group of interest.

Once displacement effects are subtracted, you have identified an increase in aggregate earnings as a result of the programme/intervention, which you could also refer to as a productivity effect since this represents improved productivity across society as a whole.

Wellbeing approach

The wellbeing approach (HM Treasury, 2021) has been developed specifically for valuing wellbeing benefits. Background research conducted to develop the approach identified an association between changes in wellbeing and changes in income, which can be used to identify a monetary value associated with changes in wellbeing.

To monetise wellbeing benefits in higher education, it is essential that data has been collected using questions consistent with the ONS approach to measuring wellbeing (HM Treasury, 2021).

If an implementation and process evaluation and/or an impact evaluation is being conducted of the programme/intervention, we recommend that you work with colleagues leading those evaluations to include the ONS' wellbeing questions within primary data collection plans. If primary data collection is not already being planned

for another evaluation, you could consider additional primary data collection, drawing on the ONS' wellbeing questions, for the economic evaluation.

Qualitative approaches

Qualitative approaches that have been developed through the SROI approach may be considered as a lower-cost approach than stated preference techniques to monetising benefits. By their nature, these approaches will never be able to provide unbiased estimates of the value associated with particular benefits, as the quantitative approaches recommended by the Green Book intend to do. However, they can provide an additional source of information to estimate the monetary values of benefits when no other options are available.

The ValueGame (Scholten, 2019) has been developed to be run through focus groups as a qualitative stated preference approach, aimed to encourage participants to value a particular benefit with reference to goods and services with market prices, which can then be used to identify the value they have placed on that benefit.

Non-monetisable benefits

Benefits for which none of these approaches are feasible are known as 'non-monetisable' benefits. Approaches to handling non-monetisable benefits are considered in the following subsection.

Scenario 5b: Selecting monetisation approaches

You are now considering monetisation approaches for the two end benefits identified in scenario 5a:

- Improved wellbeing of participants due to eased financial pressures.
- Higher lifetime earnings of participants due to higher course completion rates.

For the improved wellbeing benefit, you speak to a colleague who is planning to conduct a pre- and post-survey of student wellbeing for an impact evaluation, and agree to include the ONS' wellbeing questions in this survey to enable wellbeing benefits to be monetised.

For the higher lifetime earnings benefit, the impact of the intervention on lifetime earnings of participants was identified as £764,750 in scenario 4b. The monetisation approach you are drawing on here is the market value of lifetime earnings. You have identified the whole of UK society as the group of interest for measuring benefits, and so you now need to take into account displacement effects.

Suppose you conduct an evidence review and find the following: of the increase in lifetime earnings from someone attending higher education, on average 90% is a displacement effect where other people's earnings are reduced, and 10% is a productivity effect representing increased aggregate earnings. You therefore multiply the estimate of increased lifetime earnings of participants by 10% to represent the additional benefit, which you estimate at £76,475.

Step 5.3: Handling non-monetisable benefits

It is not always possible, or feasible, to monetise all benefits. It is important to include these non-monetised benefits within the CBA. A qualitative assessment of the scale of these benefits or disbenefits should be used instead. Table 11 shows a scale of 'impact size' that can be used to assess the scale of non-monetised benefits.

In this sub-step, you should identify an impact size associated with each non-monetisable benefit you wish to include in the CBA. The purpose of the scale is to guide an assessment of whether these non-monetisable impacts are likely to materially affect the results of the CBA. Identifying an impact size for each non-monetisable benefit allows them to be included when comparing costs and benefits in Step 6.

Table 11: Labels given to non-monetisable impacts

Impact size	Description
Large adverse	Large disbenefit likely to materially impact on VfM
Moderate adverse	Important disbenefit but will not on its own significantly impact on VfM
Slight adverse	Small disbenefit unlikely to have a material impact on VfM
Neutral	No impact
Slight beneficial	Small benefit unlikely to have a material impact on VfM
Moderate beneficial	Important benefit but will not on its own significantly impact on VfM
Large beneficial	Large benefit likely to materially impact on VfM

Source: (Department for Levelling Up, Housing and Communities, 2023)

Scenario 5c: Identifying impact sizes for non-monetisable benefits

Suppose in scenario 5b, you had not been able to include the ONS wellbeing questions in the pre- and post-survey being conducted as part of the impact evaluation. Instead, the pre- and post-survey will include questions on wellbeing that do not match the ONS questions.

In this scenario, the wellbeing approach cannot be used and so the wellbeing benefits are non-monetisable benefits. You should consider the results of the pre- and post-survey and identify an impact size.

Step 6: Comparing benefits and costs

Once benefits and costs have both been assessed and valued in monetary terms (as far as possible), they can be compared to provide an overall assessment of VfM. To do this, you first need to make some adjustments to take account of the time horizon (see Step 6.1) and then calculate key metrics to be able to compare them (see Step 6.2).

Step 6.1: Comparing across time

A CBA compares benefits and costs from the perspective of today, which means that two important adjustments are required to compare them.

It is important to identify when costs and benefits occur. For example, the costs of running a programme/intervention may all occur in the first year, and some of the benefits may also appear in the first year. However, there may also be benefits, such as improved exam performance or higher earnings, that are much longer term and appear in future years.

Accounting for inflation

The first adjustment that is required is to account for inflation over time. A CBA should compare costs and benefits in real base year prices, that is, adjusted to strip out the effects of inflation. The base year is usually either defined as the first year in which the programme/intervention is implemented or the year in which the evaluation is being conducted. The Office for Budget Responsibility's (OBR) inflation forecasts (found in their latest economic and fiscal outlook) can be used to adjust for inflation.

Table A1 (in the Annex) shows how to use inflation forecasts to create an inflation index, with the Annex then explaining how to convert nominal to real base year prices. A spreadsheet that you can use to perform inflation adjustments can be downloaded here. Please note the need to download the latest OBR inflation forecasts at the time of the analysis.

Scenario 6a: Adjusting for inflation

Suppose you have estimated the following costs and benefits of a programme, over the given years following the implementation of the project (where year one is the year that the project is delivered in):

£ Nominal	2023	2024	2025	2026	2027
Costs	10000	0	0	0	0
Benefits	3500	7000	4500	3500	1500

Using Table A1, you can identify the following consumer prices index (CPI) and corresponding inflation adjustment factor applying to each year.

	2023	2024	2025	2026	2027
CPI (2023 = 100)	100	103.0	104.6	106.2	108.1
Inflation adjustment factor	1.000	0.979	0.965	0.949	0.932

The value of costs and benefits in real 2023 base year prices can be found by multiplying costs and benefits by the inflation adjustment factor in that year.

£ Real (2023/24 prices)	2023	2024	2025	2026	2027
Costs	10000	0	0	0	0
Benefits	3500	6853	4340	3322	1397

Discounting for time preference

The second adjustment reflects time preference; that people generally prefer to receive goods or services sooner rather than later. The Green Book (HM Treasury, 2022) recommends a discount rate of 3.5% per year, meaning that benefits that occur in the second year are valued at 3.5% less than benefits that occur in the first year.

We call the value of a benefit once it has been discounted the ‘present value’, where:

$$Present\ value\ =\ value * discount\ factor$$

Table A2 (in the Annex) provides discount factors that can be applied to costs and benefits in each year. A spreadsheet that can be used to calculate present values can be downloaded here.

Discounting should be applied to all costs and benefits to provide estimates of their present values. You can then add up all present values for both costs and benefits to provide estimates of the total present value of all benefits and the total present value of all costs, which you will need to calculate key VfM metrics below.

Scenario 6b: Applying discount rates

The next adjustment that is required is to apply a discount rate. Table A2 shows the following discount factors can be used:

	2023	2024	2025	2026	2027
Discount factor	1	0.966	0.934	0.902	0.871

The real present value of costs and benefits in each year can then be estimated by multiplying the real value of costs and benefits calculated in scenario 6a by the discount factor in each year:

Real present value (£ 2023/24 prices)	2023	2024	2025	2026	2027
Costs	10000	0	0	0	0
Benefits	3500	6621	4052	2996	1218

Step 6.2: Calculating metrics

There are two key metrics used to assess VfM through CBA, the benefit-cost ratio (BCR) and net present value (NPV), defined as:

Key metrics

$$Benefit\ cost\ ratio = \frac{Total\ present\ value\ of\ all\ benefits}{Total\ present\ value\ of\ all\ costs}$$

$$Net\ present\ value = Total\ present\ value\ of\ all\ benefits - Total\ present\ value\ of\ all\ costs$$

A programme/intervention can be said to be worth doing if the benefits outweigh the costs: where the BCR is greater than 1, and the NPV is greater than 0.

Scenario 6c: Calculating key metrics

Now you have calculated the value of costs and benefits as real, present values, you can now calculate key metrics for the programme:

$$Benefit\ cost\ ratio = \frac{3500 + 6621 + 4052 + 2996 + 1218}{10000} = 1.84$$

$$Net\ present\ value = (3500 + 6621 + 4052 + 2996 + 1218) - 10000 = £8387$$

To compare the VfM of different programmes/interventions, both the BCR and the NPV need to be considered. If your resources are relatively constrained, when comparing projects, you may place more weight on the BCR, with the rationale that you would like to prioritise interventions that deliver more in relation to the amount of resources they require. If your resources are less constrained, you may place more weight on the NPV, with the rationale that you should aim to generate the largest value (net of costs) possible.

Scenario 6d: Comparison of programmes/interventions

Suppose that you would now like to compare the VfM provided by the programme you've been evaluating (shown as 'intervention A' in the table below) against two other programmes with different outcomes (interventions B and C in the table below) for which BCRs and NPVs have also been estimated.

If both the BCR and the NPV is higher between one intervention than another, the comparison is fairly straightforward. For example, in the table below, intervention A provides better VfM than intervention C.

In the table below, the comparison is less clear cut between intervention A and intervention B. Intervention A has a higher BCR, whereas intervention B has a higher NPV. In this situation, the decision between interventions A and B may depend on the local context.

	Benefit-cost ratio	Net present value
Intervention A	1.8	£8.4k
Intervention B	1.6	£12.1k
Intervention C	1.3	£6.3k

Step 6.3: Incorporating non-monetised benefits

If it has not been possible to monetise all benefits of a programme/intervention, then the BCR and NPV that you have estimated are not fully reflective of the VfM of that programme/intervention.

VfM categories can be used to draw on qualitative assessments of non-monetised benefits alongside the quantitative metrics calculated in the previous sub-step. Some example VfM categories that have been used by the Department for Levelling Up, Housing and Communities to evaluate programmes are shown in Table 12. You should consider these only as example categories, as the range of BCR associated with each category can vary across sectors. As economic evaluation becomes more embedded within higher education, a set of higher education-specific VfM categories may become established.

VfM categories are identified by combining the estimated BCR based on monetisable benefits with the assessment of the impact size of non-monetisable benefits that you estimated in Step 5.3. For example, if it has been assessed that there are large, beneficial, non-monetisable benefits, this is likely to mean the overall VfM category is higher than the one implied by the BCR alone.

Table 12: Example VfM categories

VfM category	Implied by
Very high	BCR greater than or equal to 4
High	BCR greater than or equal to 2 and less than 4
Medium	BCR greater than or equal to 1.5 and less than 2
Acceptable	BCR greater than or equal to 1 and less than 1.5
Poor	BCR greater than or equal to 0 and less than 1
Very poor	BCR below 0

Source: (Department for Levelling Up, Housing and Communities, 2023)

Scenario 6e: Using VfM categories to include non-monetisable impacts

Now assume that interventions A and B also have non-monetisable benefits that haven't been included in the BCR. You have considered these alongside the BCR to form an assessment of the VfM category based on non-monetisable benefits. Considering non-monetisable benefits in this way has strengthened the case for selecting intervention A over B and C.

	Benefit-cost ratio	VfM category based on BCR	Impact size of non-monetisable benefits	VfM category based on BCR and non-monetisable impacts
Intervention A	1.8	Medium	Large beneficial	High
Intervention B	1.6	Medium	Slight beneficial	Medium
Intervention C	1.3	Acceptable	No non-monetisable impacts	Acceptable

Step 6(o): Optional additional steps

Following sub-steps 6.1 to 6.3 is sufficient to provide an assessment of the VfM of a programme/intervention. It will allow you to compare costs and benefits and draw on your assessment of both monetised and non-monetisable benefits.

This section describes two optional additional sub-steps you can follow to improve the quality of your CBA.

Step 6.4: Calculating switching values

When assessing the VfM category in Step 6.3, you are likely to feel uncertain about whether a non-monetisable benefit is large enough to move the assessment of VfM to a higher VfM category.

Calculating 'switching values' can be used to inform this decision. A switching value estimates how large a non-monetisable benefit would need to be to change the VfM category of an intervention, and is defined as:

$$Switching\ value = (Required\ BCR\ to\ meet\ next\ VfM\ category - BCR\ based\ on\ monetised\ benefits) * Total\ costs$$

Scenario 6f: Calculating a switching value

Including non-monetisable impacts in scenario 6e made a difference to the comparison of VfM between interventions A and B. But you would like to understand further whether you were justified in identifying the overall VfM category for intervention A as 'high'.

You decide to calculate a switching value, which shows how large the non-monetisable impacts would need to be to change the VfM category from medium to high. To do this, you need to calculate how big the non-monetisable impact would need to be to increase the BCR to 2, since this is at the lower end of the 'high' VfM category:

$$Switching\ value = 2 - 1.8 * £10000 = £2000$$

Step 6.5: Sensitivity analysis

The key metrics you calculated in Step 6.2 and the VfM category identified in Step 6.3 provide your main assessment of the VfM of the programme/intervention.

However, getting to this point involved making many decisions about which costs and benefits to include, and what the evidence implies is a reasonable estimate of the size of benefits and their monetary value. This means that there is considerable uncertainty about the metrics and VfM category you have identified.

Sensitivity analysis involves revisiting the estimates of costs and benefits you have made, and estimating 'low' and 'high' scenarios for each benefit. The BCR and NPV should then be estimated for both the low and high benefit scenarios to provide a range within which you can expect that the true BCR and NPV of the programme/intervention will lie.

Scenario 6g: Conducting a sensitivity analysis

Imagine you have revisited the evidence and assumptions drawn on to estimate the benefits in scenario 6a, and have re-estimated the benefits under a low and high scenario to produce the following table:

£ Nominal	2023	2024	2025	2026	2027
Costs	10000	0	0	0	0
Benefits:					
Low scenario	2625	5250	3375	2625	1125
Central scenario	3500	7000	4500	3500	1500
High scenario	4375	8750	5625	4375	1875

You can now recalculate the BCR and NPV for the low and high scenario, as shown in the table below. Based on the sensitivity analysis you can say that it is likely that the BCR of the intervention is between 1.37 and 2.28.

	BCR	NPV
Low scenario	1.38	£3790
Central scenario	1.84	£8387
High scenario	2.30	£12984

Step 7: Reporting

The final step in conducting your economic evaluation is reporting your analysis and findings. A reporting template that you can use to provide a structure and guidance of points to cover can be downloaded here.

It is vital that you explain the approach you have taken, data sources drawn on, analytical methods used and assumptions made clearly and transparently in your reporting. Doing so will make it easier for someone to replicate your analysis, or apply your approach to a similar programme/intervention, and to learn from your analysis. It will also make it easier to compare the VfM of different programmes/interventions.

When reporting your analysis, you should also return to your initial research questions and consider how your findings have answered these questions. Your research questions may have included variations on the three questions asked at the beginning of this guidance. Table 13 shows how your findings can be drawn on to answer these three questions.

Table 13: Using findings to answer research questions

Research question	Finding to draw on
Is (or was) an intervention worth doing?	BCR and VfM category. A BCR of greater than 1, or a VfM category of acceptable or higher, shows that the benefits outweigh the costs.
Is (or was) the intervention the best thing that could be (have been) done?	BCR, NPV and VfM category in comparison to other programmes/interventions.
How can the VfM provided be improved in future?	Comparison of the BCR, NPV and VfM categories across programmes/interventions may inform resource allocation between programmes/interventions. Metrics may also be broken down within a programme/ intervention to identify areas with the greatest VfM within a programme/intervention to inform changes in future design.

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Annex: Inflation and discounting adjustments

Inflation adjustment factors

Table A1 shows the calculation of an inflation index based on the latest OBR CPI inflation forecast at the time of writing (February 2024). The CPI can be calculated by setting its value to 100 in the 'base year', and then in each year it increases by the CPI inflation rate in that year. The inflation adjustment factor is defined as:

$$Inflation\ adjustment\ factor = 1/(\frac{CPI}{100})$$

Table A1: Inflation indices

Year	OBR CPI inflation forecast	Implied CPI (2023-24 = 100)	Inflation adjustment factor
2023	7.3	100.0	1.000
2024	2.1	102.1	0.979
2025	1.5	103.7	0.965
2026	1.6	105.4	0.949
2027	1.9	107.4	0.932
2028	2.0	109.5	0.913
2029	2.0	111.7	0.895
2030	2.0	113.9	0.878
2031	2.0	116.2	0.861

Source: (Office for Budget Responsibility, 2023)

Discount factors

Table A2 shows discount factors in each year implied by a 3.5% discount rate.

Table A2: Discount factor by year based on a 3.5% discount rate

Year	Discount factor
2023	1.000
2024	0.966
2025	0.934
2026	0.902
2027	0.871
2028	0.842
2029	0.814
2030	0.786
2031	0.759
2032	0.734