

Support to VET Financing

Policy guidance note:

Formula Funding

Policy Maker Summary

VET Financing and ETF Support

Like any public policy area, vocational education and training (VET) systems and their performance are shaped to a significant degree by financing. With the growing importance of VET for employment, productivity, and international competitiveness, there is a renewed impetus round VET reform; but more questions are being asked about how VET is funded and financed. This is particularly the case because it is an expensive field for public policy, requiring small pedagogical group sizes for effective practical learning and appropriate levels of professional equipment and material. Along with other social policies, VET is still commonly considered a cost rather than an investment and therefore an easy target for budget cuts.

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The ETF has been studying financing for some time, as part of its wider remit in VET governance. Having published a Position Paper on VET financing in 2018, the ETF is also developing a series of Policy Guidance Notes to support partner countries in making changes to the way they address VET financing. The emphasis is on moving away from a technical view focused on monetary and resourcing aspects, to a holistic policy-oriented vision. The ETF has created a methodology specifically for this purpose, called the ETF Financing Prism. The Prism is a geometric model which captures the interrelated aspects of VET financing policy, allowing issues to be examined through the three key aspects of Resource Mobilisation, Resource Allocation, and Management of the Financing Chain. The Prism rotates on an axis with 'data' at one end, and 'costing' at the other, to ground reform efforts in the realities of their inevitable costs, and the need for data throughout the policy cycle to inform decision-making. For more information on the ETF Financing Prism, see the brief introduction below, or download the separate guidebook, [Understanding the ETF Financing Prism](#).

Defining Funding Formulae and their Objectives

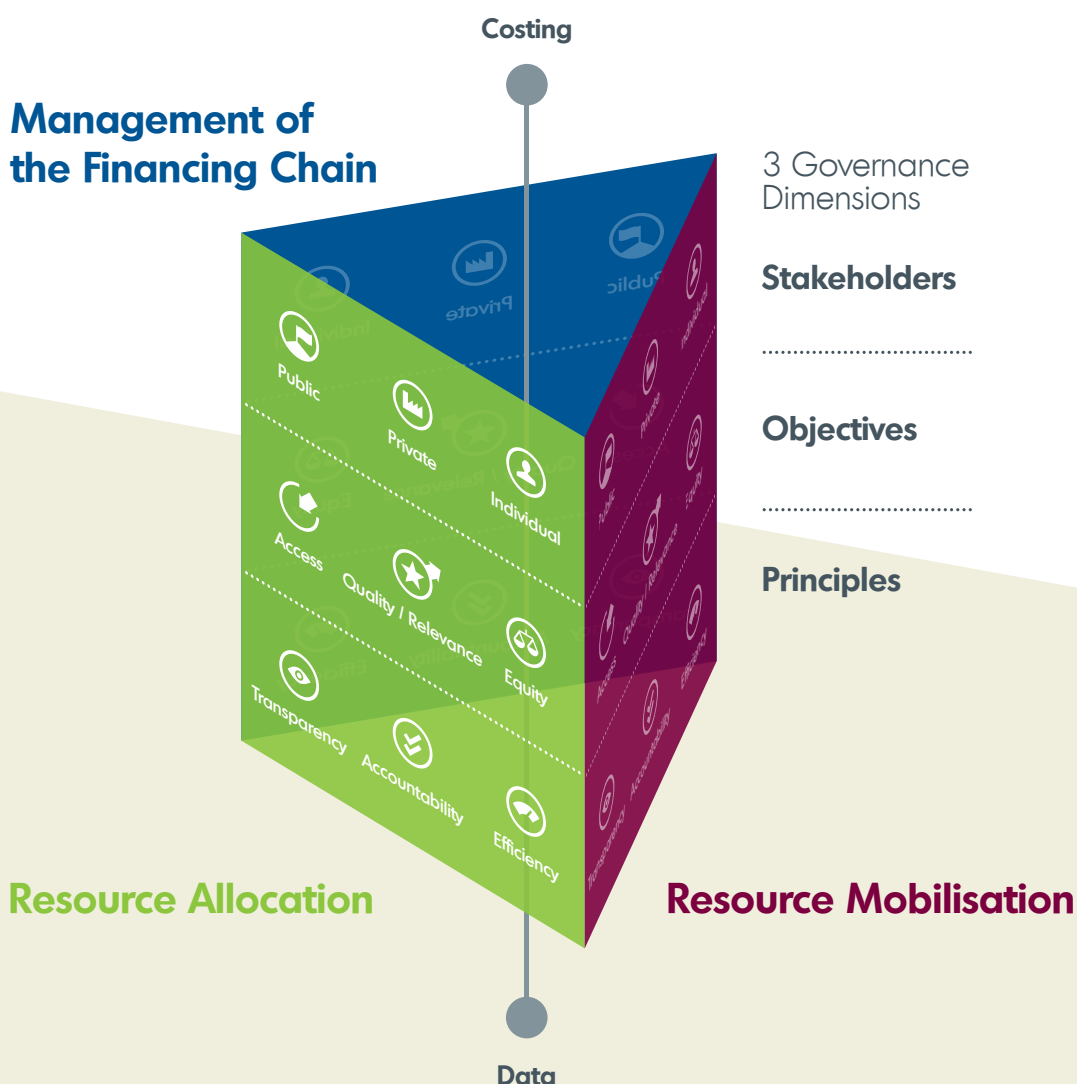
This Policy Guidance Note provides a discussion on the use of formula funding as the mechanism for calculating and distributing VET budgets to individual providers, supported by case studies from England and Denmark. Formula funding uses standardised data collection and calculation methods to distribute funding on an equalised basis to providers, and is a transparent process with written rules on data requirements and budget calculation. Formulae can differ in their design and operation, depending on which characteristics of VET provision are deemed central to budget distribution. Formula funding can create funding standardisation across providers and focus the VET system on learners. The case study from England covers the allocation of public budgets for education and training, both for young people and for adults, which are calculated using different formulae. The example from Denmark illustrates the budget distribution mechanism for providers using the 'taxi meter' system. As far as possible, evaluations of those formulae have been included, as have discussions concerning how risks have been addressed. It is possible that many other systems use a de facto funding formula to distribute budgets, although it is difficult to identify clear cases.

A funding formula is defined by UNESCO as "an agreed set of criteria for allocating resources... which are impartially applied". It is also referred to as 'unit funding' and 'per capita funding', because a formula is calculated by units which are often, though not always, defined as per capita. The key point about formula funding in the VET context is that it should lead to an objectively and equally applied funding mechanism which translates the priorities of policy makers, as well as the needs of providers and learners, into a mathematically defined funding system.

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Funding formulae are primarily Resource Allocation mechanisms. A budget is calculated on the basis of data required to run a formula. In that sense, a funding formula operates directly on the cost-data axis at the centre of the ETF Financing Prism. A funding formula can also be used as a governance mechanism, to steer providers towards priority provision and/or groups. Formulae can be designed to allocate co-funding and mobilise additional resources. Defining and implementing a formula requires policy judgements codified in written regulations and applied equally to funding recipients. Objectives can include using a formula to improve objectivity, transparency, equity and simplicity. Formulae can be used to allocate full- or part-funding, regardless of provider type.

Management of the Financing Chain



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Main policy questions for social dialogue

1. What is the rationale for change?

Funding mechanisms are an inherent part of budgetary traditions and institutional structures. Related values and political interests will influence funding decisions, and changing the funding mechanism has intended and unintended consequences. Formula funding operates by codifying what each provider can receive, linked to explicit criteria applied to all, and is often introduced as part of wider public sector management reforms which align resources to demand for services, rather than supply. This was the case in England in the late 1980s. Removing education and training providers from local government control and funding them according to standardised criteria became a policy objective, with the goal of learner choice driving competition and innovation. Providers were given budgetary and management authority, and national quality systems introduced. Learners gained the right, in principle, to choose where they studied, and student numbers became the main driver of budget allocations, not teaching staff. The changes were enacted through primary legislation to allow schools to become self-governing and further and higher education institutions to become public corporations. New funding agencies were established, as well as standardised curriculum, qualifications, and quality systems. Similarly, in 1992 Danish providers were delegated budget authority to plan provision according to local demand. Rather than funding on the basis of supplying places, providers were allocated lump-sum budgets based on a formula, and allocated funding according to local demand. In both cases, the decision to change the funding mechanism rested with central government.



2. What are the key decisions when designing and operating a formula?

1. Establish the available budget and identify the resources to be allocated

An agreed budget is necessary for all distribution mechanisms, and a formula approach requires a high level of transparency. There are inherent political risks, as amounts allocated to the formula's agreed criteria are visible. If the formula contains factors to mitigate disadvantaged groups, then a provider can judge whether this funding is adequate. Thus, the use of formula funding attracts debates on whether the budget drives the formula, or vice versa.

2. Decide what the formula will fund

A single funding formula can be used to distribute the whole of a VET budget, or sub-formulae can be set up for different budget lines to meet costs such as premises, staff, and courses. A formula can be designed to meet all or part of provider costs. In Denmark, providers receive block grants for different budget lines. In England, providers can receive allocations from different public education budgets to provide both academic and vocational education and training for young people and adults.

3. Define base units

A base unit is established with weighting coefficients attached. For example, a base unit of 1.00 could be 'a full-time student enrolment for a basic level VET qualification'. In a

Formula funding uses standardised data collection and calculation methods to distribute funding on an equalised basis to providers, and is a transparent process with written rules on data requirements and budget calculation.

more complex base unit such as the ratio of students to teachers, a provider receives a 1.00 allocation for each group of a certain number of students enrolled. Other examples include a base unit linked to a specific learning aim.

4. Determine the criteria used to allocate funding

A formula with a single flat-rate unit, however defined, will not account for the diverse characteristics of providers, courses, and students, and will need equalisation factors to account for variations. The simplicity or complexity of the formula is a reflection of policy priorities and negotiations undertaken to decide the formula's design. In the Danish case, flat-rate, fixed allocations are included to recognise the costs that all providers face. In England, there is a range of fixed and variable allocations based on learner and provider characteristics.

5. Using formula funding to steer broader policy aims

Fixed and variable factors driving a formula are codified by policy makers, usually after consultation with institutional stakeholders. Certain priorities can be built into a formula by linking a proportion of funding to them, allowing the formula to be used as a policy 'steer'. The English formula has altered its steering mechanisms over time, and both the English and Danish formulae distribute funding on the basis of learner attendance, with potential for clawback if a learner drops out other than for work.

6. Clarify the relationship between funding formulae and performance-related funding

Formula funding has been used to improve learning quality assessed by a performance measure. This can be an output, such as course completion; or an outcome, such as student employment. Assessment can also be by value-added measures, such as students exceeding expectations and/or providers improving certain outputs or outcomes by a set proportion. Including a performance aspect involves risks and rewards. The risks increase with the significance of the performance element, and whether or not the reward is high enough to cover its cost. The risks also depend on whether the performance measure leads to additional financial allocation.

3. Implementation considerations

1. A formula requires a data collection, monitoring, and verification system to ensure correct account of units, based on learner numbers from each funding recipient. This data can be provided either on the basis of forward planning or backward auditing, or a mix.
2. The formula's governing rules include contingencies for over- and under-estimates. The principle is that funding follows the unit wherever that unit incurs a training cost, requiring a tracking system which accounts for the choices and decisions that can be made by providers, their staff and students.
3. Introducing a formula risks increasing funding for some providers while decreasing it for others. Caution should be exercised in assuming the distribution of 'winners' and 'losers' reflects previous advantage or disadvantage. Social or educational factors may not be statistically significant in a formula, so historical budgets should not be discounted when in transition to a new formula.

Formula funding can standardise provider funding objectively and impartially through agreed criteria reflecting VET system dynamics and policy priorities

4. Introducing formula funding creates additional risks, which can be categorised as the creation of perverse incentives, and statistical and data limitations. Perverse incentives can lead to providers miscounting student numbers and/or compromising provision in order to meet formula criteria; while data estimates and averages can be based on socio-economic proxy indicators linked to correlation rather than cause. Incorrect assumptions, and having to rely on proxies, can 'skew' training provision rather than 'steer' it. Regular review and analysis will establish if a formula is steering the right behaviours and reflecting current policy priorities, and/or creating unintended changes.

Key Success Factors

Formula funding can standardise provider funding objectively and impartially through agreed criteria reflecting VET system dynamics and policy priorities, but there are important considerations and risks:

- Recognise that transparency in funding allocations can be both an opportunity and a threat. It allows the funder to shape and clarify what it expects the VET system to deliver, but the cost and value of providing VET to each learner, and of the learning process, becomes apparent.
- Conduct regular review. Continuous assessment of data from providers can signal where patterns of provision change, allowing regular review of the formula and its consequences.
- Balance equity with simplicity. There is a balance to be struck in running a standardised single formula which can meet the needs both of individual providers and learners.
- Ensure data validity and verification. A formula requires input and out-turn data, so the necessary technology and capability are required to manage, run, and validate that data.
- Set an agreed level of financial tolerance. A strategy is needed to prevent provider destabilisation in the context of the 'winners' and 'losers' created by shifting to a formula.
- Create clear and justifiable distribution criteria and definitions. A fair formula must promote service equalisation along with clear definitions of what this means and the necessary data to turn the definition into a monetary calculation. This can be a sensitive process.

Formula funding can standardise provider funding objectively and impartially through agreed criteria

Case study 1: England

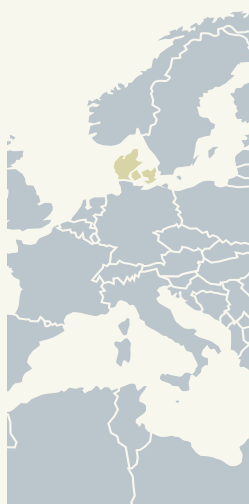


This case study is of one of the most transparent and longest-running examples of formula funding for VET. The main policy goals are to distribute funding to providers according to national formulae which can be locally managed, and to maximize the quantity and quality of provision through local autonomy, learner choice, and high-quality provision. Separate formulae are applied for young people (specified as 16 to 19-year-olds, with some minor exceptions) and for adults. A government executive body, the Education and Skills Funding Agency, funds all providers of regulated qualifications on the same formula basis according to agreed annual regulations. Providers can be schools, further education colleges, and accredited private training providers. The formula's objectives include making the learner the focus of the funding structure, and ensuring the formula is fair, objective, simple, transparent, equitable, stable, and predictable. It also aims to ensure that different forms of disadvantage, for both learners and providers, are financially recognised.

The formulae are agreed annually through stakeholder consultation. Total programme funding for young people is calculated on the basis of student numbers, multiplied by national funding rate per student, multiplied by retention factor, multiplied by programme cost weighting. Any relevant disadvantage and/or large programme uplift is added, and the total multiplied by area cost uplift. The formula for adults is calculated by base funding rate multiplied by a disadvantage uplift multiplied by area uplift. Each of these factors is worked out separately based on a range of variables such as learning aims, hours, type of disadvantage, and so on.

Individual learning records form the basis for the learner funding unit and are systematically monitored. Some types of learning have an output-based funding element assessed against an achievement metric. Periodic evaluation has led to factors entering and exiting the formula and altering the calculation basis. This flexibility to mitigate changing circumstances is one reason for the policy's longevity. Moreover, formula funding is embedded in the VET system and constantly monitored; for example, to assess if provision is being skewed to certain courses or needs.

The structure of public policy financing determines how resources are collected, allocated, and managed, and is therefore central to good governance.



Case Study 2: Denmark

In this case study, a taximeter system was introduced to shift funding from a supply-side to a demand-side system. The reform aimed to give providers more autonomy in adjusting provision to local markets (demand-management); and to promote greater efficiency and a more customer-focused funding regime (productivity-management). Both VET and higher education providers work on a taximeter system funded from central government. Objectives include ensuring that learner and institutional performance form the basis for the funding formula and that different forms of disadvantage, of both learner and provider, are financially recognised.

The taximeter system is operated through block grants calculated by formulae based on activities focused on enrolment expectations and programmes, adjusted to full-time equivalents. The block grants are comprised of a teaching grant, a buildings and maintenance grant, and collective expenses. A proportion is held back until the end of the year on the basis of achievement of specified activities. The main block grants are supplemented by a basic grant and an area-based grant, to protect smaller and/or remotely-located providers. Stability and predictability are provided via the four-year planning process and agreements on student enrolment and programme participation. In addition, providers can raise their own income and operate in private and other public training markets.

Periodic evaluations have shown improved management capacity among providers, including greater responsiveness to student feedback. There has also been an increased focus on providing value for money and discontinuing or expanding courses on the basis of demand. Qualitative and quantitative research has shown a general welcoming of the clarity of expectations for both learners and providers, although some stakeholders expressed concern that courses with wider public value are being discontinued, and that there wasn't enough competition between providers. Further concerns included funding stability, in light of lagged enrolment rates in the formula calculation, and a general concern that the block grants are calculated on a low basic cost which doesn't match actual cost.

Support to VET Financing Policy guidance note:

Formula Funding

All public policy depends on financing to meet the fundamental requirements of affordability and sustainability. The structure of public policy financing determines how resources are collected, allocated, and managed, and is therefore central to good governance. Within the field of human capital development, financing is one of the factors that shapes vocational education and training (VET) systems and their performance, as well as being an enabler of ambition in VET policy. In many countries around the world, VET is seen as an increasingly important factor in employment, productivity, and international competitiveness. As that importance grows, so will questions about VET financing, especially in light of the complex stakeholder environment and overlapping government accountabilities which can lead to VET being viewed as a relatively expensive part of the education system.

The ETF has been studying the funding and financing of VET systems for several years, and is committed to supporting its partner countries in this area. In 2018 we published a position paper, *The Financing of VET and Skills Development: A Policy Area for ETF Support* to articulate how we see best practice in funding and financing, drawing on EU, partner country, and wider international experience¹. Our aim is to support partner countries to change the way they address financing in VET, moving from a technical view focused on monetary and resourcing aspects to a holistic, policy-oriented vision. To this end, we are developing a series of tools to contribute to country-based policy analysis, advice, and institutional capacity building. The main users of these tools are policy makers and VET experts in ETF partner countries. They will also be of interest to international VET experts and the wider education reform and development assistance communities. We have developed a methodology called the ETF Financing Prism both to guide analytical efforts, and structure social dialogue. This methodology offers a comprehensive, holistic approach to financing, anchored in VET policy objectives, and taking the governance setting into account.

The ETF Financing Prism is a geometrical model which captures the inter-related aspects of policy in VET financing, presenting them in an analytical framework designed to promote shared understanding and to foster and structure dialogue. Each of the three faces of the Prism represents one of the three key facets of VET financing:

- Resource Allocation
- Resource Mobilisation; and
- Management of the Financing Chain.

¹ Available at www.etf.europa.eu/web.nsf/pages/Financing_VET_and_skills_development



Each facet is supported by three rows of governance settings; stakeholders, policy objectives, and working principles. Finally, each of these three settings is divided into three core characteristics (see Figure 1). The whole Prism ‘rotates’ on an axis with data at one end, and costing at the other. This axis is vital to the validity of the framework, because it grounds any reform efforts in the realities of considering the costing of the envisaged measures and using data throughout the policy cycle, particularly at the design stage and in the monitoring and evaluation processes associated with each policy action. As such, the Prism guides policy discussion at the macro level.

We have also prepared a series of Policy Guidance Notes to help partner countries develop specific instruments to ensure sound and effective financing for their VET systems. Following the logic of the Prism, each Policy Guidance Note explains the policy issues at stake behind a particular financing instrument, the possible modes of implementation, and critical points for consideration and success. They also include case studies from EU Member States.

Conceptual clarification

This Policy Guidance Note provides a discussion on the use of formula funding as the mechanism for calculating and distributing VET budgets to individual providers, supported by case studies from England and Denmark. The case study from England covers the allocation of public budgets for education and training, both for young people and for adults, which are calculated using different formulae. The example from Denmark illustrates the budget distribution mechanism for providers using the ‘taxi meter’ system. The concept of formula funding is simply the use of standardised data collection and calculation methods to distribute funding on an equalised basis to providers. Yet, formulae can differ enormously in their design and operation, depending on which characteristics of VET provision are deemed central to budget distribution. It is possible that many systems use a de facto funding formula to distribute budgets, but identifying clear cases of this has been challenging. Funding by formula is a transparent process with written rules on data requirements and budget calculation. Formula funding can create funding standardisation across providers and focus the VET system on learners. The case studies give practical examples of formulae which are used to fund VET providers. As far as possible, evaluations of those formulae have been included, as have discussions concerning how risks have been addressed.

Definition

A funding formula is defined as “an agreed set of criteria for allocating resources... which are impartially applied.” (UNESCO, 1999). It is also referred to as ‘unit funding’ and ‘per capita funding’, because a formula is calculated by units which are often, though not always, defined as per capita. The key point about formula funding in the VET context is that it should lead to an objectively and equally applied funding mechanism which translates the priorities of policy makers, as well as the needs of providers and learners, into a mathematically defined funding system.

Formula funding mechanisms provide a mathematical basis for public financial allocations to another tier of government or to a public or private service provider.

Main connection to the ETF Financing Prism

Funding formulae are primarily Resource Allocation mechanisms. A budget is identified, or calculated, on the basis of data required to run a formula. In that sense, a funding formula operates directly on the cost-data axis at the centre of the ETF Financing Prism. A funding formula can also be used as a governance mechanism, to steer providers towards priority provision and/or target groups. Formulae can be designed to allocate co-funding and to mobilise additional resources. The formulae included in the case studies describe different designs and operational approaches.

Main policy questions for social dialogue

Formula funding mechanisms provide a mathematical basis for public financial allocations to another tier of government or to a public or private service provider. Introducing, defining, and implementing a formula requires policy judgements which are codified in written regulations and applied equally to funding recipients.

The purpose behind formula funding can simply be to change the allocation mechanism for public financing of VET providers. Objectives can include using a formula to improve:

- **Objectivity.** A formula, not negotiation, drives a financial allocation
- **Transparency.** Allocations are based on publicly available data
- **Equity.** All providers receive an amount calculated on the same basis
- **Simplicity.** One calculation basis is applicable to all.

Formulae can be used to allocate any 'pot' of funding, whether full-funding, as in the case of initial education and training, or partial co-funding. It can be used regardless of provider type.

Broadly speaking, the funding mechanism operates by codifying what each provider can receive linked to explicit criteria applied to all.

1. What is the rationale for change?

Public funding can be allocated to service providers by various methods. For example, providers can be financed on the basis of staff costs. Budget allocations can be negotiated based on historical allocations and annual uplifts. Individual providers may submit a budget proposal which is approved and funded, perhaps without money ever being transferred. There may be layers of government responsible for funding different sets of providers, and each may have its own financing system.

Funding mechanisms are an inherent part of budgetary traditions and institutional structures and therefore do not operate in a vacuum. There are institutional values and political interests involved in deciding how much funding should be given to VET providers, and how (and if) they should receive it. Changing the funding mechanism has consequences and implications, both intended and unintended. Broadly speaking, the funding mechanism operates by codifying what each provider can receive linked to explicit criteria applied to all. Formula funding is often introduced as part of other reforms to public sector management aligning resources to the demand for services, rather than their supply².

The introduction of formula funding in England and Denmark

In England in the late 1980s and early 1990s, there was a clear policy (and political) objective to remove education and training providers from local government control and fund them according to standardised criteria. At the same time, providers were given budgetary and management authority, and national quality systems were introduced. In other words, the introduction of formula funding was accompanied by other policy measures.

Other key decisions included allowing post-16 providers³ to expand to academic as well as vocational qualifications. Learners were given the right, in principle, to choose where they studied. And, for funding, student numbers rather than teaching staff would be the main driver of budget allocations. The changes were enacted through primary legislation to allow schools to become self-governing and for further and higher education institutions (i.e. VET schools and colleges, universities, and some sixth-form colleges) to become public corporations. New funding agencies were established, as well as standardised curriculum, qualifications, and quality systems.

The new environment was expected to create more dynamic, better quality, more efficient education and training. If learners were to be the main funding driver and could choose their provider, then there would be a competitive and innovative education sector. The formula could be used to steer the system. Similarly, in Denmark in 1992, providers were delegated budget authority to plan provision according to local demand. Rather than funding on the basis of supplying course places, providers were allocated lump-sum budgets based on a formula, and were allowed to allocate that funding according to

² Formula funding can address 'principal-agent' issues in which the public service is both service provider and service funder. Introducing formula funding can separate these roles into 'purchaser-provider' whereby a government body 'purchases' a service from a public provider on behalf of the service users – in this case, VET students. For a general discussion see www.investopedia.com/terms/p/principal-agent-problem.asp

³ A term frequently used in England to describe the range of education providers and institutions for students from the age of 16 upwards.

There is a constant tension between addressing the need for a single formula to calculate budgets, whilst ensuring that those calculations reflect the complex situations of individual providers and their learners.

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local demand for courses. In both cases, the systems were centralised and the decision to change the funding mechanism rested with central government, and was enacted through primary legislation.

2. What are the key decisions when designing and operating a formula?

There are overlapping policy and technical issues involved in designing a formula. There is a constant tension between addressing the need for a single formula to calculate budgets, whilst also ensuring that those calculations reflect the complex situations of individual providers and their learners.

1. Establish the available budget and identify the resources to be allocated

To distribute funds using a formula requires an agreed budget. This is necessary for all distribution mechanisms, and using a formula approach requires a high level of transparency. There are inherent political risks, as the amounts of money allocated to the 'agreed criteria' underpinning the formula are visible. For example, if the base unit for the formula is per capita, then each provider can see exactly what amount of funding they receive for each learner. If the formula contains factors to mitigate disadvantaged groups, then a provider can judge whether this funding covers their additional costs. Given this transparency, the use of formula funding is accompanied by debates on whether the budget drives the formula, or the formula drives the budget. Thus, a formula can be run in different ways; it can be based on a pre-determined base unit cost, or the costs can be derived from the formula.

In a budget-driven formula, the unit cost is reached by dividing the budget by the number of units, which risks a mismatch between the unit cost and actual learning costs. In a cost-driven formula, the provider's budget is decided by multiplying the units at each provider according to a pre-decided cost-base, which risks exceeding the available budget. In a cost-driven system, estimates are made to calculate base unit costs by, for example, surveying providers and/or calculating average costs based on previous allocations, and/or benchmarking. In practice, both costs and budgets will play a role in ensuring the stability of provider finances. In both case studies, there are commitments to the stability of provider budgets expressed as a means of maintaining unit cost calculations (e.g. in England, even if there is an increase in the number of students) and to support providers experiencing transition (e.g. in Denmark, to support mergers and providers experiencing financial difficulty).

2. Decide what the formula will fund

There can be a single funding formula through which the entirety of a VET budget can be distributed, or different sub-formulae, for example, to distribute different budget lines. Sub-formulae can be designed to meet the varying types of the cost of VET provision: For example, a premises formula; a staff formula; a course formula; and so on. A formula can be designed to meet all provider costs or only partial costs, as when staff costs are excluded from the formula. In Denmark, providers receive block grants for different budget lines. In England, providers can receive allocations from different public education budgets to provide both academic and vocational education and training for young people and adults.

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The simplicity or complexity of the funding formula is a reflection of the policy priorities and negotiations to decide the formula

3. Define base units

The formula (or formulae) has a base unit (or units) with weighting coefficients attached. An example definition of a base unit of 1.00 could be 'a student enrolment in a full-time course for a basic level VET qualification'. Another example could be 'number of teachers employed by a provider'. Each attracts a unit of 1.00. A more complex example would be a 'teacher:student ratio' whereby a provider receives a 1.00 allocation for each group of, say, 20 students enrolled. Other examples include a definition of a base unit linked to a learning aim, for instance by numbers of teaching hours, module delivery, learning credit, and so on. There are variations in defining a 'learning unit' based on learner data, including per capita, learning aim, or learning time period. In the English case study, the unit cost has been calculated on the basis of learning units, as well as individual learners adjusted and weighted by course and qualification type. In the Danish case study, the formula is based on student numbers converted into full-time equivalents.

4. Determine the criteria used to allocate funding

A formula with a single flat-rate unit, however defined, will not account for differing characteristics of courses, providers, and students. VET courses differ in length, equipment required, and teachers and trainers needed. Providers might be situated in geographically challenging locations, whether in remote areas and/or in cities where staff recruitment and retention is more expensive. Some students will require additional support. A formula will contain a number of equalisation factors to account for course, student and/or provider variations. This can be done through increasing a unit weighting given to a variable, or by a fixed-rate allocation for a certain factor.

For example, if the base unit is based on a single student it could be weighted higher by course type. Thus, if 1.00 equals a full-time basic course requiring the least training time and equipment, a more complex course could attract a higher weighting, for example 1.20. An added fixed-rate allocation could reflect a remotely located provider with a boarding facility or high transport costs, set at a given amount per student enrolment.

The simplicity or complexity of the formula is a reflection of the policy priorities and negotiations to decide the formula: How important are they relative to other priorities? Does the allocation outcome pattern change significantly using a complex rather than a simple formula? In the Danish case, flat-rate, fixed allocations are included in the formula to recognise the costs that all providers face. In the English case, there is a range of fixed and variable allocations based on both learner and provider characteristics.

5. Using formula funding to steer broader policy aims

The fixed and variable factors driving the formula are codified by policy makers, usually after extensive consultation with providers and other institutional stakeholders. Certain priorities can be built into a formula by linking a proportion of funding to them. This gives the formula its ability to be used as a policy 'steer'. Examples are numerous. They can be attached to a student characteristic, or to the provider, or to the course chosen. They can be designed to mitigate specific challenges, or prioritise certain qualifications. For example, students with low prior qualifications can attract an uplift either in the weighting

Assessing the impact on providers of funding changes is important for the stability of the provider structure. Budgets must be guaranteed to be transferred in an accurate, predictable, and timely manner.

or an additional fixed amount, both to reflect additional learning costs as well as to encourage providers to enrol them. There may be uplifts for numerous costs, and all are designed to steer providers to enrolling disadvantaged target groups and/or to provide courses viewed as a priority.

The English formula has altered its steering mechanisms over time. They also differ between the formula for young people and for adults. For example, the formula rewards providers who prepare young people for furthering their education and training by setting more challenging learning aims. The funding formula for adults requires a measure of achievement to trigger the final payment distribution to providers. Both the English and Danish formulae are distributed on the basis of learner attendance, with the potential for funding clawback if a learner drops out, unless they do so because they have entered the labour market.

6. Clarify the relationship between funding formulae and performance-related funding
Formula funding has been used to improve learning quality assessed by a performance measure. This measure can be based on outputs, such as the number of students who complete a course or the number who gain a qualification; or on outcomes, such as the number of students who enter employment upon course completion⁴. They can also be assessed by measures of value-added, which can include whether students have exceeded their expectations (using baselines with statistical predictions or periodic testing) and/or whether providers have improved the relevant outputs or outcomes by a pre-specified proportion.

In practice, there are both risks and rewards to including a performance aspect within a formula, and some broad rules which should be adhered to. The risks increase according to the significance of the performance proportion within the allocation, and whether the reward is high enough to cover the cost of achieving it⁵. The risks are also dependent on whether the performance measure leads to an additional financial allocation; that is, a reward which a provider can choose to aim for and expend the necessary resources to achieve. As mentioned, in England's adult learning formula part of the budget distribution is linked to achievement. This is not an additional payment, but is part of the budget. In both the English and Danish cases, budget distribution is linked to continued learner attendance, which also forms the basis for the following year's budgetary estimates. Output-based funding has been used in the English formulae for young people, but was removed due to evidence of providers adjusting their provision by enrolling learners on less challenging courses.

3. Implementation considerations?

As with all policy change, pre-conditions are necessary for implementing formula funding, including data monitoring, contingency, transition, and review. Assessing the impact on providers of funding changes is important for the stability of the provider structure. Budgets must be guaranteed to be transferred in an accurate, predictable, and timely manner.

⁴ The Mayor of London has recently introduced a Skills Strategy which shifts funding based on outputs to 'progression' outcomes, such as employment or higher education. It replaces the national funding formula in London as the local authority takes over responsibility for the adult education budget in 2019. See www.london.gov.uk/what-we-do/business-and-economy/skills-and-training/skills-londoners-strategy-2018#

⁵ A 'performance measure' can be an input, such as student enrolment where there is provider competition.

There are risks to introducing a funding formula, notably that it will redistribute resources in a way which increases funding for some providers while decreasing it for others.

1. Data required, monitoring, audit and verification

To run a formula requires a correct account of units, based on numbers of learners, from each funding recipient. This can be provided on the basis of forward planning (e.g. enrolment expectations) or backward auditing (e.g. verification of past student attendance as the basis for next year's budget), or a mixture of both. Timing and accuracy are important. A VET provider must be able to plan provision in advance, and rely on a predictable budget which arrives at the correct points in time to pay staff (if staff costs are part of the funding covered by the formula) and meet other financial commitments.

Equally, the formula should distribute funding accurately to be fair. Significant over-estimates of students from some providers will lower the unit allocation in a budget-driven formula across all providers. Both over- and under-estimates could affect budgetary stability. The way in which units are monitored and verified may require the introduction of new reporting systems. Both case studies include funding clawbacks for over-estimates. The English regulations outline the payment schedule and frequency, and have a dedicated data collection and data verification system.

2. Contingency planning

The rules governing the formula include contingencies for over- and under-estimates. This might include budget hold-back, and/or floors and ceilings on how much unit variation can take place each year. The rules might also include provisions for in-year adjustments to take account of 'drop-out', transfers, missed characteristics (e.g. needs requiring additional funding), new enrolments, and course changes. The principle is that the funding follows the unit wherever that unit incurs a training cost. That requires a tracking system which accounts for all the various choices and decisions that can be made by providers, their staff and students.

3. Transition arrangements

There are risks to introducing a funding formula, notably that it will redistribute resources in a way which increases funding for some providers while decreasing it for others. Those that 'win' will welcome the new mechanism and those that 'lose' will not. Caution should be exercised in assuming that the distribution of winners and losers reflects those that have been unfairly advantaged or disadvantaged in the past. Designing a system-appropriate formula takes time; what may be socially or educationally significant may not be statistically significant in a formula. For these reasons, historical budgets should not be discounted.

In adjusting to formula funding (and to future formula changes), transitional arrangements provide limits on how much a provider can 'lose', which can be reduced over a specified period of years. It can be difficult to refuse to allocate full budgets to those that gain and therefore, in the short term, formula funding can be more expensive. The English funding regulations contain transitional arrangements for significant changes made to the formula in the past five years which limit the losses to providers in a gradual way, thereby allowing them to adjust provision accordingly.

4. *Formula risks and the need for regular review*

The introduction of formula funding creates risks beyond the potential advantages and disadvantages outlined above. These risks can be categorised as the creation of perverse incentives, and statistical and data limitations.

Perverse incentives

The way in which financing is allocated affects behaviours – that is the purpose of reform. A formula driven primarily by student numbers will incentivise providers to maximise those numbers. This may be a stated aim of introducing a formula, as a provider should be able to attract students. But without accurate records and robust course and quality standards, the incentive could be to miscount student numbers and/or compromise provision, for example, by reducing the provision of more expensive courses.

Statistical and data limitations

Not everything can be measured accurately. A formula is built on proxy indicators, data estimates, and averages. For example, a formula can reflect some locational differences and can build this into the factor weightings or costings. But nuance can be lost. Factors and their weightings can also be based on socio-economic proxy indicators linked to correlation rather than cause. Incorrect assumptions, and having to rely on proxy indicators, can ‘skew’ training provision rather than ‘steer’ it.

A formula must be reviewed to ensure it is steering the right kind of behaviour and reflecting current policy priorities. For these reasons, the formula requires frequent review and data analysis to establish whether it is creating unintended change. Table 1 provides a brief stakeholder analysis of the advantages and disadvantages of formula funding.

Key success factors

Formula funding can be used to standardise provider funding in an objective and impartial way, according to agreed criteria which reflect the dynamics of the VET system and policy priorities. But there are important considerations and risks:

- **Recognising that transparency in funding allocations can be both opportunity and threat.** It’s an opportunity in that it allows the funder to shape and clarify what it expects the VET system to deliver. It can change the focus of funding from supply to demand, and make the learner (or their learning) the primary driver of funding. At the same time, the cost and value of providing VET to each learner, and the learning process, becomes apparent. This can be a risky process in which there is a mismatch between the financial allocation and actual costs. A funding formula cannot create additional funds, it merely distributes them differently. For these reasons, historical funding levels and intense consultation with stakeholders are necessary for both funding stability and legitimacy.

Transparency in funding allocations can be both an opportunity and a threat.

Stakeholder	Advantages	Disadvantages
Financing agencies	<ul style="list-style-type: none"> • Objective (negotiation not required) • Fund by learner demand, performance • Less budget management if delegated • Fixed each year (no in-year change) • Range of learner data collected • Ability to link to wider policy aims. 	<ul style="list-style-type: none"> • Dependent on method: less budget control • Learner demand can cost more • Less control over expenditure • Less ability for in-year adjustments • Capacity to define, collect and analyse data • Wider policy targets might fail.
Providers	<ul style="list-style-type: none"> • Ability to adjust their provision, staffing decisions, enrolment, etc. • Manage their own budget • Annual planning and budget certainty • Can plan (short/long-term) provision. 	<ul style="list-style-type: none"> • Autonomy limited by other regulatory constraints • Inability/lack of management capacity • Budget uncertainty if in-year changes occur • Unstable formula can hinder planning.
Teachers	<ul style="list-style-type: none"> • More flexible delivery options • Can move between providers • Can negotiate better pay/conditions. 	<ul style="list-style-type: none"> • Delivery constraints may exist • Impact on tenure and job security • Lack of equality across salary structure.
Learners	<ul style="list-style-type: none"> • Can choose/change their provider • Can identify what services they are funded to receive. 	<ul style="list-style-type: none"> • Only if open enrolment (depends if choice) • Services may reduce without a clear funding line.

Changing funding allocation mechanisms creates winners and losers.

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- **Conducting regular review.** In creating a funding formula which steers provision, there is a risk that providers will seek to maximise their funding rather than to meet the spirit of the 'steer'. For example, including funding criteria linked to outputs defined as qualifications achievements can 'steer' a provider to enrol learners who have greatest chance of achieving that output, rather than give additional support to learners who have least chance. A continuous assessment of data from providers can signal where patterns of provision change, allowing regular review of the formula and its consequences. In the English case study, formulae are reviewed each year and data analysed to see if the formula leads to unintended changes in patterns of provision.
 - **Balancing equity with simplicity.** As mentioned above, there is a balance to be struck in running a standardised single formula which can meet the needs both of individual providers and their learners. Regular review of the formula allows decisions to be made on whether numerous individualised factors can be aggregated or approximated. The case studies provide examples of formulae used to fund more than one set of providers, at different rates and using different budgets. In the English case, the standardisation goes beyond VET and also includes academic education. In the Danish case, the 'taxi meter' system is used for both VET and HE.
 - **Ensuring data validity and verification.** There are two datasets required to run a formula – the input data (submitted by providers to run the formula) and the out-turn data (what each provider received and why). Input data may be lagged, for example, if a formula is run on previous year enrolments, but out-turn data should reflect allocations after any data corrections. This requires large datasets aggregated for providers, but also verifiable at individual provider level. The necessary technology is required to input, manage, and run data, as well as the ability to validate it.
 - **Setting an agreed level of financial tolerance.** Changing funding allocation mechanisms creates winners and losers. Unless budgets are increased, some providers may lose a proportion of the budget. And creating equitable and impartially-based criteria for funding distribution is a central aim of using a formula system. Policy-makers need to have a strategy for addressing this change to prevent provider destabilisation.
 - **Creating clear and justifiable distribution criteria and definitions.** The formula should reflect both policy priorities and principles, for example, the principle that public funding should make service provision more equal. In the case of VET, this can mean additional funds being provided for hard-to-reach learners, and for providers in areas disadvantaged either due to geographical or socio-economic factors. A fair formula must include criteria to promote service equalisation along with clear definitions of what this means, and the data required to turn the definition into a monetary calculation. This can be a sensitive process.
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Case study 1: England

Background

This case study has been chosen as one of the most transparent and longest-running examples of formula funding for VET. Formulae drive the allocation of all public financing for young people (defined as 16-19 years old) and adults in England regardless of where they choose to learn.

The case provides information on two formulae for:

- Education and training for young people aged 16-19 who are fully funded
- Publicly funded adult education which may be fully or co-funded (with additional funding from individual participants and/or their employers).

Providers include schools (for 16-19 years olds), Further Education Colleges (for both young people and adults), Higher Education Institutions and Providers for Traineeships (for unemployed young people and adults). All providers⁶ receive their funding according to their formula allocation. The funding for apprenticeships changed in 2017 and this is excluded from these cases.

Many providers (except schools) are free to decide their own profile of provision in both academic and vocational qualifications for young people and adults. They operate as public corporations and are governed by a board. Whilst they have significant management autonomy, they must meet quality standards attested through both inspections and external accreditation of the qualifications they deliver. All providers must deliver recognized qualifications and courses to secure public funds. Students and trainees can choose whether they attend a school, college or other publicly funded provider and in some parts of the country schools are oversubscribed and there is intense competition between providers. Each year, qualification performance tables are published.

The newly-merged Education and Skills Funding Agency⁷ (ESFA) distributes the budgets for young people and adults according to two separate formulae. Characteristics of the funding system include:

- Budgets underpinning formula distribution are decided through centralised public procedures
- The formulae are decided each year and published in statutory regulations
- The funding agency is an intermediary body which also is the point of communication between providers and the Department for Education
- Formulae can change each year and there are protections for individual provider budgets

⁶ With the exception of schools which are under local authority control – the formula allocation is distributed to the relevant local authority who has discretion over how its schools are funded.

⁷ “The ESFA brings together the former responsibilities of the Education Funding Agency (EFA) and Skills Funding Agency (SFA) to create a single agency accountable for funding education and skills for children, young people and adults.” www.gov.uk/government/organisations/education-and-skills-funding-agency

- The formula is used as a steering mechanism to promote quality and equity, and to target specific groups of people and/or qualifications provision
- As a steering mechanism, the formula is an important means to achieve VET policy.

Rationale and objectives for formula funding education and training

Centralised funding formulae for education and training have been widely used in England for the past 30 years. There are various rationales, which have included:

- Simplicity. There is one formula either per budget line or per stream of providers which has universal applicability
- Transparency. All providers know why their budget is what it is
- Fairness and objectivity. No provider can negotiate an advantage over another (or conversely be disadvantaged).

In terms of the formula itself, the rationale for its design has a number of factors, including:

- The primary budgetary allocation is based on numbers of learners
- There is a reflection of disadvantage, both of learners and providers
- It rewards high performance
- It can be adjusted to promote government priorities.

Operation of formula funding for young people aged 16-19

The 16-19 funding budget covers all provision for any student aged 16-19⁸ (excluding those pursuing an apprenticeship) attending a school, further education college, higher education institution, independent specialist providers, commercial or charitable provider.

The formula

Total programme funding = (student numbers x national funding rate per student x retention factor x programme cost weighting + disadvantage funding + large programme uplift) x area cost uplift.

There are seven key aspects to the funding formula:

- i. **Number of students.** The starting point for the formula, based on lagged data from the previous year, specified for each provider type. The principle of the formula is that it is driven by student numbers and that funding follows the student. If a student transfers to another provider, the money follows them, based on detailed tracking data.
- ii. **National funding rate per student.** All full-time students are funded at the same basic rate per year based on the planned hours in a study programme, derived as a proportion of a full-time rate⁹. Each enrolled student should have a core learning aim which defines whether the programmes is academic or vocational.

⁸ There are some additional marginal exceptions including 19 to 25-year-olds with certain types of special needs as well as 14 to 16-year-olds attending further education colleges.

⁹ All funding rates for part time students are derived from the full-time rate. For 2017-18, this amounted to 540-600 planned hours at a base rate of GBP 4,000. There are five time bands which attract a proportionate base unit rate (courses cannot be shorter than two weeks).

- iii. **Programme cost weighting.** These are applied to reflect that some programmes are more expensive to deliver than others. There are 4 programme weighting factors (base = 1.0, medium = 1.2, high = 1.3, and specialist = 1.75).
- iv. **Retention factor.** Providers receive only a proportion of funding if the student leaves the course before completion.
- v. **Disadvantage funding.** There are two blocks of funding for disadvantage, Block 1 is based on general economic deprivation and is calculated by the residence of the learner¹⁰. Block 2 funding provides uplifts for students with low levels of previous attainment recognising their additional learning costs. There is more than one definition each of which triggers an additional per learner payment.
- vi. **Large programme uplift.** For certain larger programmes which stretch students, additional funding is available (10-20%), for example, for studying qualifications to progress to university.
- vii. **Area cost allowance.** A budget uplift is available to recognise the additional costs of provision in certain areas of the country, ranging from 1% to 20% depending on location.

Operation of formula funding for adult education

The Adult Education budget is available for all providers delivering regulated qualifications (forming part of the Qualifications Framework) for adults aged over 19 years old, including for unemployed people¹¹. There are other budgets related to adult education, including loans and stipends for individual learners. What is described here is the provider budget.

The funding formula contains three main factors: The funding rate; disadvantage uplift; and area uplift, as expressed below. Each factor can be weighted or unweighted and is calculated for each participant and, in aggregate, forms the budget allocation for each provider.

The formula

Funding rate x disadvantage uplift x area uplift

The funding rate is determined by the time (guided learning hours) it takes to complete a course and/or qualification, specified as learning aims within learning activities. These are grouped in funding bands by type of learning pursued. The funding rate is calculated according to the learning aim, which carries a prescribed number of learning hours as provided for in the Regulated Qualifications Framework. The rate can be adjusted proportionately. The rate is calculated according to two criteria: Funding band, based on the length of time the learning aim takes; and funding weighting, based on the type of course. For example, a learning aim which takes 45-68 hours had a base rate of GBP 300 in 2017-18. The base rate can be uprated up to GBP 516 according to the type of learning aim. An individual learner may have more than one learning aim recorded.

¹⁰ Based on the postcode of the learner and the Index of Multiple Deprivation used in a number of social policy funding calculations. The uplift is 8.4% to 33.6% depending in the level of deprivation assessed for that area.

¹¹ In 2017-18, the Skills Funding Agency was also responsible for distributing the apprenticeship and traineeships budget which is not described here since there is a new apprenticeship levy on enterprises and a new funding mechanism which will operate in future years.

The funding rates applied to each banding and weight may be pro-rated for certain learners (e.g. 50% where the individual or employer would provide the balance)¹². The funding rates are higher for specific qualifications for which the government wants to encourage participation, such as basic and advanced level maths and English qualifications for adults.

The disadvantage uplift provides extra funding to support disadvantaged learners. The uplift is based on social data¹³ on learners living in areas defined as 'deprived'. The uplift is applied by multiplying the funding rate by an amount of between approximately 8% and 30% depending on area weighting¹⁴.

The area cost uplift is applied to reflect the additional costs of delivering education and training in certain parts of the country; for example, the higher operational costs for providers in London. The uplift factor is up to 20%¹⁵ and is based on the postcode location of the provider, except in the case of distance and e-learning provision.

Calculation of the budgets using the formulae

Budgets are calculated on the basis of the information submitted by each provider which in some cases is lagged. Each provider submits Individual Learning Records (or, for schools, a census) to the EFSA, which processes the data and calculates the budget. The data used is visible to providers to allow them to validate the calculation. Any changes to those individual learning records must be reported, for example, if a student leaves the provider, changes course, or enters employment. There are detailed regulations and guidance for how the data should be presented and for the funding implications of changes, including the implications of not reporting them.

Distribution of the funding calculated by the formulae

Once the budgets of each provider have been calculated on the basis of the data submitted, there are rules concerning the timing of distribution and the proportion of the budget which is released. Allocations for young people as well as for adults distribute funding on the basis of:

- Funding start. A learner who attends the provider for certain number of days, depending on course length, attracts a proportion of funding. If the learner leaves before the end of the qualifying period, the provider receives nothing. A funding start can vary from one day for a course fewer than 14 days, to 42 days for a course lasting 168 days.
- Monthly instalments. Providers receive their earnings on a monthly basis, minus the funding start. The months are calculated on an 'n+1' basis to allow a double payment for the first month to recognise start-up costs.

¹² In practice, this means the government provides a higher proportion of funding for co-funded courses for learners living in disadvantaged areas and/or attending courses in areas where providers receive an area uplift.

¹³ Specifically, the Index of Multiple Deprivation. Both uplifts for disadvantage and area are based on indicators used in a range of government service delivery and are not specific for education and training.

¹⁴ The weighting is between 1.084 and 1.336 for 2017-18.

¹⁵ Between 1.01 and 1.20.

The distribution of funding for adult learning holds back 20% of the budget allocation on the basis of achievement of the course and/or qualification. Table 2 provides an example payment schedule for the adult budget allocation. The allocation for young people does not include an achievement payment.

GBP 1,000 per year	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Example payment (GBP)	160	80	80	80	80	80	80	80	80	200

Table 2. Example payment schedule for adult budget allocation.

Key features of the funding formula

Some points to note about the formula operation include:

- **Performance-related funding.** The adult education formula specifies a 20% payment upon learner results, and for providers that enable unemployed trainees to enter employment. The formula for young people no longer includes an output or outcome related payment. After many years of using an output related element within the formula it was removed due to concern that it was skewing provision towards easier to achieve courses. Instead the formula for young people is experimenting with incentives for better provision and delivery.
- **Formula factors.** The basis for each formula differs. For young people it is learner numbers, whereas for adults it is learning aims. Different approaches have been tried.
- **Funding standardisation versus learner differentiation.** Both formulae attempt to standardise the type of additional needs which a learner and a provider can experience. This is done through standardised formula additions, either uprated weightings or fixed allocations, on both the provider and learner side. There are numerous additional payments available through the formula to reflect disadvantage, both generic proxy measures and tailored to individual situation.
- **Change.** The formula can be re-designed, and has been on many occasions. Changes to the formula lead to transitional protection for providers which lose funds. The current formula includes such protection until 2020 due to changes made to the base calculation.
- **Accuracy and data.** The formula relies on data submitted by providers which is based on verifiable information. In turn, providers can see the basis for their budget calculation and can appeal or change this data, if found to be incorrect.
- **Base unit for the calculation.** This differs between the formulae. For the formula for

young people the base unit is student numbers, whereas for adults it is learning aim. In practice, they are similar.

- **Using the formula as a policy steering mechanism.** The current formulae have a number of steering elements within them, including additional funding for adult learners to incorporate basic and advanced qualifications in Maths and English. For young people, an extra allocation is available for programmes which prepare learners for higher education.

Evaluation

Data submitted by providers and patterns of provision are evaluated each year to look for unexpected changes in data. The reasons behind data discrepancies are explored to see if there are misunderstandings in data recording or if provision is changing due to the formula, whether intended or not. This evaluation feeds into the future formula design and the regulations. The use of a funding formula is, in itself, not questioned; rather, it is the design and operation of the model which is examined.

A review of the entire vocational education system known as the Wolf Report was published in 2011¹⁶. As part of the review, the financing mechanism was evaluated in terms of its impact on policy objectives. The report identified ways in which providers were 'gaming' the formula by providing short-term training courses for the same people thereby generating a larger number of 'learning aims' which formed the base unit of the formula. As a result, the formula for young people was changed back to using the learner as the base unit. Other means of evaluation include regular monitoring by ESFA of how providers spend their funds, and regular financial audits.

Key success factors

Formula-funding is embedded into the English VET funding system. The following points are among the characteristics that contribute to its success:

- **Providing choice.** A provider can operate in a range of markets, and a learner can choose between providers. There are limitations for some within the model, and in certain areas there is little choice, but the principle of autonomy exists.
- **Establishing data monitoring.** Systems have been built over a number of years to collect correct and verifiable data.
- **Conducting regular review of the formula.** Are the factors operating as expected? Are there unintended consequences? Can it respond to provider and learner particularities? Does it promote prevailing policy?
- **Maintaining a quality framework.** A robust system of qualifications, certifications, accreditation and inspection enables the formula to operate.

¹⁶ See www.gov.uk/government/publications/review-of-vocational-education-the-wolf-report

- **Allowing mitigation for change.** The choice of formula will impact budget allocations to many providers. Without budgetary increases, there will be winners and losers. There must be a clear strategy for those providers which lose.

Case study 2: Denmark

Background

A series of reforms in post-compulsory education funding took place in Denmark in the 1990s. The principle was to give VET and higher education providers more autonomy to adjust provision and be more responsive to student and learner needs. The funding approach was changed from a supply-side to a demand-side system. Budgets which had previously been calculated from staff-student ratios (Canton & van der Meer, 2001) and linked to programme areas (cf. Skjødt, 1996) were reformed.

The reform took place in 1992, with the following rationale (Canton & van der Meer, 2001):

- Promote efficiency and become more results-oriented and customer focused
- Link the allocation of provider grants to student numbers and performance
- Implement a system that is simple, fair, transparent and objective
- Promote quality-based competition among providers.

Reform was to take place with a focus on protecting educational standards and quality. The 1992 reform comprised a new funding system with delegated management. The main changes were:

- Introduction of block grant funding calculated through the taximeter principle
- Introduction of a planning process with four-year agreements based on the total number of study places per institute, rather than a single year, whereby providers can choose how they allocate student places per study programme to meet local demand. A few expensive programmes continue to have nationally planned admission.

The taximeter system: Design and operation

The characteristics and aims of the funding regime were to encourage:

- Demand management. Money follows the learner and creates incentives for providers to meet their requirements and to increase educational activity levels. There is also an incentive to improve institutional efficiency, for example through providers linking to deliver smaller courses.
- Productivity management. Allowing providers to decide their own provision and adjust to demand, rather than being required to provide courses where enrolment is falling.

The self-governing education and training institutions have three sources of revenue:

- Activity-led block grants. 80% of the total budget is distributed through grants based on forward planning of expected student numbers (full-time equivalent calculations);

and programmes which are grouped in bands and given an annually decided taximeter weighting. There are three activity-led grants calculated through a taximeter rate: The teaching grant, to cover salaries, educational equipment and materials; a buildings and maintenance grant, for capital expenses, including building finance and maintenance; and a collective expenses grant, to cover non-educational expenses – primarily administrative costs. A proportion of the block grant funding is held back until the end of the year on the basis of achievement of the activities specified (or, outputs). Block grants provide 92% of institutional budgets.

- ii. Own income, including participant fees. In addition, providers can enter private training markets and use these funds to initiate new activities.
- iii. Basic (fixed) and supplementary grants and loans. The basic grant supplements the activity-based grants at a fixed rate and protects smaller providers and those located in remote areas. Other supplementary grants include, for example, research and development funding and other ad hoc funds to meet various policy priorities. Loans are available, under strict supervision, to support providers in financial difficulty and restructuring their provision.

The calculation of the block grants is a product of multiplying:

- Planned activities, based on projected student numbers and programme provision
- Politically determined taximeter rates per activity unit, decided annually in the Appropriations Acts.

The block grant appropriation is not earmarked, and providers can use them as they see fit within the financial rules of expenditure. Providers are responsible for their own financial management and for aligning their programmes to demand. The taximeter system and the size of the grants are linked to the provider's ability to attract students to participate in their programmes, measured in full-time equivalents. They have the flexibility to reduce programmes where participation is falling and to expand them where it is increasing and to protect their budgets through managing adjustments and maintaining enrolment levels. This is all calculated through 'activities' rather than through negotiation or administratively decided redistributions.

Budgetary certainty and stability is improved, for both the government and providers, by allocating funds on the basis of objectively defined activities and their taximeters, which gives a fixed unit cost. Providers can plan for maintaining stability. In the case of over-estimation of 'activities' funding can be clawed back by the government. The taximeter rates are provided in the annual Appropriations Acts and their determination is independent of an individual institution's expenses. There is limited opportunity for pressure from interested parties and there is transparency across the rates given for programme classifications.

Evaluation

The taximeter models have been evaluated a number of times since their introduction. The main study results are provided below, although it should be noted that the taximeter funding structure applies to both higher education and VET, albeit with some calculation differences. The evaluations looked at both types of provider. A first evaluation of the taximeter-system was undertaken by the Danish Evaluation Institute (EVA) in 1995. The Ministry asked EVA to evaluate whether the model had any negative effects on educational quality. EVA concluded:

- No negative trends could be found in the evaluations of study programmes. EVA found that the reform resulted in increased awareness of student needs, and a more open attitude towards students' suggestions, for instance by taking their feedback more seriously
- In general, teachers' "professional ethic", as well as the use of external examiners, prevented them from allowing more students to pass as a response to output-based funding (Canton & van der Meer, 2001).

A second, much broader evaluation of the taximeter-model was carried out three years later (Undervisningsministeriet, 1998). The overall conclusions of this evaluation were positive; the management of the education sector had improved considerably. There was an increased focus on "value for money" in buying new equipment and assessing the value of course provision. Unprofitable activities were more rapidly discontinued, and institutions improved their ability to adjust and take up new initiatives. Educational institutions were viewed as being more inclined to provide a good service to their students, and additional effort was made to reduce drop-outs. Competition had been fostered through improvements in educational quality. Another major survey of education and training institutions took place during 2005 and 2006. A combination of quantitative and qualitative data was used. The main results are summarised below (Schmidt et al, 2006).

Quantitative data – survey results. The majority of stakeholders were positive towards the taximeter principle, although approximately 25% disagreed strongly or partly with the statement "the taximeter system functions well". Likewise, approximately 30% of respondents agreed strongly or partly with the statement "the taximeter system should be replaced by another system". Finally, approximately 60% of respondents agreed strongly or partly with the statement "the system could be improved and should be supplemented with other mechanisms". Stakeholders were also asked about the impact of the taximeter on quality standards in terms of lowering exam standards. 44% of the respondents disagreed that standards were lowered, whilst 35% agreed (Schmidt et al, 2006).

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Qualitative data. The patterns in the quantitative data were largely supported by the qualitative data; i.e. the majority of stakeholders were positive towards the taximeter principle. Many respondents emphasised that the advantages included clarity on the expectations of institutions on the quantity of their activities. Although there were shortcomings, several stakeholders mention that a better system has yet to be presented. However, stakeholders also pointed out a number of problems:

- There are no direct incentives to pursue quality and relevance, and some stated the system has the opposite effect
- The element of competition is too limited, not least due to a lack of information for students, which weakens the incentive mechanisms
- The system tended to disadvantage less popular courses, which may be important from a societal perspective. A bad year in terms of students had financial consequences for institutions for years to come
- There was a limited degree of freedom and difficult conditions for change of direction
- There was dissatisfaction with the actual rates. The basic rates have been repeatedly cut during the last decade, and there was also perceived to be a lack of balance and clear rationale in the allocation of the rates between different educational fields.

A number of external stakeholders, including the Confederation of Danish Industries and the Danish Innovation Council, recommended that development funds should be allocated as a supplement to the taximeter system to encourage change and innovation (Schmidt et al, 2006).

References

- Canton, E. & van der Meer, P. H. (2001). Public funding in higher education: The Danish taximeter model. In Higher Education Reform: Getting the Incentives Right. CPB and CHEPS (pp. 85-101). Den Haag: Sdu Uitgevers.
- EFA (2017). Funding Guidance for Young People 2017 to 2018: Funding Rates and Formula. London: Education Funding Agency.
- Lang, D. (2005). Formulaic approaches to the funding of colleges and universities. In International Handbook of Educational Policy, Springer International Handbooks of Education, Volume 13. Berlin: Springer Verlag.
- Schmidt, E., Langberg, K. & Aagaard, K. (2006). Funding Systems and their Effects on Higher Education Systems. Country Study – Denmark. Aarhus: IMHE/OECD.
- SFA (2017). Adult Education Budget Funding Rates and Formula 2017 to 2018. London: Skills Funding Agency.
- Skjødt, K. (1996). Financing higher education in Denmark. In Higher Education Management, Vol. 8 No. 1 pp 41-49.
- Undervisningsministeriet (1998). Raport om Taxameterstyring. Copenhagen: Ministry of Education.
- UNESCO (1999). Needs-Based Resource Allocation in Education via Formula Funding of Schools. Paris: UNESCO.
- Wolf, A. (2011). Review of Vocational Education. London: HMSO.



