The South African Experience with Developing and Implementing a Funding Formula for the Tertiary Education System

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Abstract

The funding framework developed in South Africa for institutions of higher education during the apartheid era raises serious concerns related to equity (access, particularly of the disadvantaged black majority) and efficiency (of outputs and outcomes, particularly, but not only, at historically black institutions). The new funding framework proposed in the government's 1997 White Paper reconceptualises the relationship between institutional costs and government expenditures. This framework is seen as a distributive mechanism to allocate government funds to individual institutions in accordance both with the budget made available by government and with government's policy priorities. Institutions now receive (a) block funds (research funds, teaching funds determined by student numbers and outputs, and institutional funds for redress purposes), and (b) earmarked funds for specific purposes (e.g., student financial aid and research development). This framework has important implications for equity and efficiency including predictability; the recognition of a hard budget constraint; promoting institutional autonomy and equity; rewards for research outputs; rewards for graduate outputs that supply the country's human development needs; and enhanced equity through capacity building, research development, and foundation programmes.

Résumé

Le cadre de financement mis en place par l'Afrique du Sud à l'intention des institutions de l'enseignement supérieur durant l'apartheid soulève des questions fondamentales liées à l'égalité (particulièrement l'accès de la majorité noire défavorisée) et à l'efficacité (entre autres, le rendement des institutions

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traditionnellement « noires »). Le nouveau cadre de financement proposé dans le Livre blanc du gouvernement de 1997 permet de reconsidérer la relation entre les coûts institutionnels et les dépenses du gouvernement. Ce cadre est considéré comme un mécanisme de répartition permettant d'allouer les fonds gouvernementaux aux institutions individuelles, en conformité avec le budget prévu par le gouvernement et suivant les priorités de politiques publiques qu'il a définies. Les institutions reçoivent désormais (a) un financement global (financement pour la recherche, financement pour l'enseignement, déterminé par le nombre d'étudiants et les résultats obtenus, ainsi qu'un financement institutionnel pour des besoins d'ajustement) et (b) des fonds spéciaux pour des besoins spécifiques (aide financière aux étudiants et développement de la recherche). Ce cadre comporte d'importantes implications en matière d'égalité, d'efficacité et de prévision, entre autres ; il favorise la promotion d'une certaine autonomie et d'une certaine égalité institutionnelle ; il récompense la «productivité » en matière de recherche ; récompense le rendement des diplômés, qui comblent les besoins en développement humain du pays ; et accroît l'égalité à travers le renforcement des capacités, le développement de la recherche et les programmes de base.

Introduction

Before the advent of democracy in 1994, the South African government's tertiary education funding policies mirrored apartheid's divisions and the different governance models which it imposed on the higher education system (Bunting 2002). The original funding framework was introduced in 1982–83 when the main focus of government was to address the needs of the historically white institutions, specifically the historically white universities.

Between 1994 and 1997, there were no substantive changes to the funding framework. In 1997 the government announced its intention to introduce a new funding framework which was intended as a mechanism for steering the higher education system towards the goals and targets established in the national plan for the transformation of the higher education system (South Africa Department 1997a).

The original funding model which was developed during the apartheid era had two key features. First, it treated students as agents who were able to respond rationally to the demands of the labour market: It assumed that their choices of institutions, qualifications and major fields of study followed labour market signals and their reading of these signals. As a consequence, the only role which the model gave to government in the national higher education system was that of funding student demand and of correcting any market failures which might occur.

The main concerns with the original funding framework related to equity (access, particularly of the disadvantaged black majority of the population)

and efficiency (of outputs and outcomes, particularly, but not only, at the historically black higher education institutions).

The 1997 Education White Paper rejected this student-as-rational-agent model. It stated that the model had not worked in South Africa and added that this rationale had to be dropped if higher education were to emerge from its apartheid past. The White Paper replaced the student-as-rational-agent model with a planning-steering model of higher education funding that aimed to bring equity and efficiency into the system. In this new model, government takes account of labour market signals but does not adopt either a narrow 'manpower' planning stance or the 'hands-off' stance which is embedded in the student-as-rational-agent model (South Africa Department 1997a).

In a dual economy such as South Africa's, the student-as-rational model was only partially successful. It worked for a relatively small proportion of students (largely from the minority population groups who were mainly city-based), for whom adequate labour market information and career guidance was available. For the majority of the black population, such labour market information was extremely limited. Poor labour information coupled with an almost total absence of vocational counselling at black schools has resulted in a failure of the student-as-a-rational-agent model for many. Furthermore, the new government felt that the higher education system needed some 'guided intervention' as the 'market' does not always ensure optimal outcomes in terms of developing countries' human resource needs.

The new model represented a major change in focus. It emphasised that the primary purpose of higher education is to teach, conduct research and play a pivotal role in the improvement of the social and economic conditions of the country. Hence, government would fund institutions for training students, conducting research and assisting with the development needs of society and the economy. The 'production process' would be left in the hands of the institutions.

The process of consulting with the tertiary education institutions in the development of the funding formula has been extensive. A formal consultative structure comprising nominees of the South African Universities Vice-Chancellors Association (SAUVCA) and the Committee of Technikon Principals (CTP) has been established. This group comprising finance specialists from the various institutions liases with the Ministry of Education on the development of the formula. In addition, amendments to the formula are sent to all institutions for formal comment.

The second feature of the apartheid model was that it contained an implicit assumption that government is the funder of last resort of the higher education system. As the funder of last resort, the government provides subsidies for

universities and technikons (institutions of technical higher education) that
are supposed to be based on (a) determinations of the actual costs of reason-
ably efficient institutions, and (b) decisions on which of these costs should be
covered by government subsidies. The costs not covered by government sub-
sidies would have to be met by institutions from their sources of private in-
come, primarily their student tuition fees.

The new model's view on prices is radically different from that of the old
model. In a sense, government first decides how much it can afford to spend on
higher education and then allocates the funds according to its needs and priorities.
It would be possible to determine the underlying unit costs for the activities;
but within this new framework, the government's starting point for the allocation
routine is not computed unit costs. For the operation of the model, the old
prices and costs are not the 'frontline matters for discussion'. The institutions
have the freedom to design their activities in line with available funds.

The capacity of the institutions to understand and work with the formula
varies substantially, particularly between the historically white and black
institutions. With the old formula, the government provided bulky and incoherent
supporting documents, a substantial disincentive to enhancing the understand-
ing of the workings of the system. With the new formula, the Ministry of Edu-
cation is planning the production of succinct explanatory documents to foster
a greater understanding of the formula. In addition, the merger process cur-
rently underway in the higher education system, which will link many (but not
all) historically black institutions with historically white institutions, will un-
doubtedly ensure further progress in this area.

The 'Apartheid Era' Formula

The subsidy formulae developed during the apartheid era (hereafter referred to
as the 'original formula') for universities and technikons began by dividing
subsidisable courses into two broad categories: (a) natural sciences (which
includes the health sciences, engineering, the life and physical sciences, agri-
culture and the mathematical and computer sciences), and (b) the humanities
(which is a catch-all category for all other disciplines). Various co-efficients
per subsidy student in the humanities and per subsidy student in the natural
sciences were then derived. The relationship between these co-efficients and
subsidy students was based on studies of actual institutional costs, as well as
on certain normative assumptions about what efficient student-to-staff ratios
and costs should be in higher education institutions, given certain numbers
and categories of students.

Table 1: Gross and Net Government Subsidies (R'million)

	Universities		Technikons		Total	
	2001–02	2002–03	2001–02	2002–03	2001–02	2002–03
1. 'Ideal income' totals	9,633	10,312	3,542	3,747	13,195	14,059
2. Govt. share before a-factor	7,649	8,187	2,923	3,097	10,572	11,284
3. Earmarked funds	518	515	286	286	814	846
4. Institutional subsidy expectation	8,167	8,702	3,209	3,383	11,376	11,866
5. Net subsidy after a-factor	4,881	5,193	1,837	1,930	6,718	7,123
6. Total government actual funding (row 3 + row 5)	5,399	5,708	2,123	2,216	7,532	7,969

Note: The net subsidy for 2002–03 reflected in row 5 includes government payments for the teacher training colleges which were incorporated into universities and technikons at the beginning of 2001.

Furthermore, the assignment of monetary (South African Rand) values to the various cost units needed to change each year, to take account of inflation and of changing cost patterns. Once the Rand values of the cost units were determined for a given year, the application of the approved co-efficients, together with the number of students submitted by higher education institutions, generated a figure of what the income from all sources should be for a higher education system.

Table 1 offers an example of how such a subsidy system was supposed to work. It shows that the 'ideal income total' for an efficiently operating higher education system was supposed to be R13 195 million in 2001–02 and R14 059 million in 2002–03 (row 1). The formulae required the first step to be that of deducting institutional or private income shares from these totals (the amounts required to cover non-subsidisable costs), leaving the balance as the 'government's share' of the ideal total (row 2). Various earmarked sums must

then be credited to institutions (row 3), making the totals reflected in row 4 the final subsidy amounts which institutions could expect from government. This is often read as a 'subsidy entitlement', that is, as an indication of what government ought to make available to higher education. For example, many institutions had in the past read the totals in row 4 as the subsidy formula amounts which government ought to have paid to universities and to technikons in the 2001–02 and 2002–03 financial years, even though these totals were unreasonably large ones in the context of government's overall financial commitments.

The reference above to the institutional subsidy expectations as 'unreasonably high' undermines the assumption that government will be the funder of last resort as far as universities and technikons are concerned. The previous government found, soon after the formula for universities was introduced in the early 1980s, that it could not meet the amounts generated by the formula. From an early date, it therefore introduced cuts to the subsidy totals through the application of 'a-factors' ('a' for 'adjustment') which were, in effect, the reductions necessary to bring the 'ideal income' total less institutional share in line with government's budgetary provision for universities and technikons. The final amounts paid by government to institutions thus became from an early date: government share times a-factor plus earmarked allocation—that is, the amounts reflected in row 6. In 2002–03 these amounts in row 6 were for universities 53 per cent and for technikons 55 per cent of the sum of the 'ideal income' total reflected in row 1 plus the earmarked total reflected in row 4. This shows, contrary to the model underpinning the original formulae, that government funding of higher education has increasingly been based on expectations that substantial proportions of institutional costs had to be met from private income sources.

The New Funding Framework

The new funding framework proposed in the 1997 White Paper reconceptualised the relationship between institutional costs and government expenditure on higher education. The new funding framework is seen as a distributive mechanism—that is, as a way of allocating government funds to individual institutions in accordance both with the budget made available by government and with government's policy priorities. The new framework is not dependent on either calculations of institutional costs or on calculations of 'ideal income' totals for efficient universities and technikons. The new framework, in effect, recognises that institutional costs tend to be functions of income: of what is available to be spent. Government funds for institutions of higher education are not therefore designed to meet specific kinds or levels of

institutional cost but are intended, rather, to pay institutions for delivering the teaching-related and research-related services specified by government-approved plans.

The various mechanisms in the framework come into operation only after government has determined (a) the total of public funds that should be spent in a given year on higher education and (b) what services should be delivered by the higher education system. For example, the new mechanism would have come into operation in financial years 2001–02 and 2002–03 only after the planned inputs and outputs of the system had been determined by government and after decisions had been reached about the total funds available for distribution to universities and technikons. Institutions of higher education play no role in the determination of the overall amount of funds for higher education. This is primarily an outcome of the government's budgeting process. However, institutions are required to submit to the Ministry of Education, three-year rolling plans indicating their planned inputs and outputs (South Africa Department, 1997b).

Main Elements

In terms of the new higher education funding framework, higher education institutions receive the following:

1. Block funds, which are undesignated amounts made available to each institution and which consist of: (a) research funds generated by approved outputs; (b) teaching funds generated by planned full-time equivalent (FTE) student enrolments and by approved teaching outputs; and (3) institutional factor funds (South Africa Ministry 2002).

   Institutions will know in advance the total amount of block funds they have been allocated. However, because of National Treasury regulations these funds are disbursed over the first eight months of the fiscal year as follows: a three-month allocation paid in April, the first month of the fiscal year; in May another three-month allocation; in June-October, a one-month allocation per month; in November, the remainder of the allocation. The process is further complicated by the fact that the fiscal (April–March) and academic (January–December) years do not coincide. Some institutions are obliged to obtain bridging finance from commercial banks (and, hence, at some cost) for the first three months of the academic year.

2. Earmarked funds, which are designated for specific purposes.

The details of these various elements in the new funding framework are outlined below.

The Separation of Teaching and Research Funds

The new block funding formula includes requirements that (a) teaching and research funds be separated and (b) teaching funds be standard across institutions.

The two central features of the new funding framework are therefore:

1. Teaching funds, which are based on teaching inputs and teaching outputs. In allocating teaching funds to institutions, the model treats all institutions— namely, technikons and universities—equally.

2. Research funds, which are based on research outputs and on earmarked funds for specific developmental purposes. The new framework makes no separate provision for a 'blind' research element or so-called 'research input funds'—that is, a subsidy amount which institutions will receive regardless of whether or not they engage in research activities. Research training is regarded as a sub-component of teaching, and provision for research training has therefore been made within teaching funds (South Africa Ministry 2002).

Block Grant Funding

Block grant funding has four components: research output funds, teaching funds based on outputs, teaching funds based on inputs, and institutional factor funds (South Africa Ministry 2002).

1. Research Output Funds. With the new funding arrangements, the total funding available for research is divided into earmarked and block-grant funds. The earmarked component is to be used for such activities as capacity development, collaborative research projects and research student scholarships. Between 10 per cent and 15 per cent of the research total will be allocated each year to the earmarked component. The block-grant component is based on the research outputs of institutions. The total to be allocated in the form of block grants for research outputs will be based on publication units, on research masters' graduates, and on doctoral graduates. In future years, as new national research policies are developed and implemented, these outputs will be subjected to quality evaluations; and additions will be made to the set of outputs on which research funds will be based. Because of delays in obtaining data from institutions, research output funds for year n will be based on the publication units and research masters' and doctoral graduates of year $n–2$.

The weightings employed are: publication units 1, research masters' graduates 1 and doctoral graduates 3. These weightings are intended to

emphasise the need for the doctoral graduate total to increase and to give added incentives to institutions to achieve these goals. Initially it was intended that the allocation of research output funds would be based on a proposal that the price per output unit should be determined by dividing funds available for allocation by the output unit total. This proposal was reconsidered because it generated no incentives to the higher education system to increase the number of research output units. On the other hand, if the total amount available for research outputs is set in advance, then a decrease in the total of research output units will increase the Rand price per research output unit, and an increase in the output total will result in a decrease in the Rand price per research output unit.

It was therefore decided that the unit prices of research outputs will be determined (a) by setting benchmark research output totals for the permanently appointed academic/research staff of universities and technikons, (b) by generating a normative total of research outputs for a given year *n* by relating these benchmarks to the academic staff complements of universities and technikons in year *n,* and (c) by dividing the amount available for research outputs by the normative total of outputs.

The benchmarks for research outputs are set as ratios of weighted research output units to full-time permanent academic/research staff members. The initial benchmarks are (a) 1.25 weighted research units per full-time permanent academic/research staff member per annum for universities, and (b) 0.5 for technikons. It is expected that these benchmarks will need to be revised upwards from time to time.

2. Teaching Funds Based on Outputs. The National Plan for Higher Education (South African Ministry 1997a) emphasised that student graduation rates must improve from their current low levels. Incentives designed to encourage institutions to increase their graduation rates have thus been included in the new funding framework. These incentives take the form of a teaching output subsidy built into the new funding framework.

Teaching output funds for year *n* are based on the total of non-research graduates produced in year *n-2*. Research masters' and doctoral graduates are not included in the teaching output subsidy because they are major components of the research output subsidies discussed earlier. Teaching outputs are weighted according to the ratios shown in Table 2.

Table 2: Weighting Factors for Teaching Outputs

Universities and Technikons	
First certificates and diplomas of two years or less	0.5
First diplomas and bachelor's degrees: 3 years	1.0
Professional first bachelor's degree: 4 years and more	1.5
Postgraduate and post-diploma diplomas	0.5
Postgraduate bachelor's degrees	1.0
Honours degrees/higher diplomas	0.5
Nonresearch masters' degrees	0.5

The allocation of teaching output funds is based on a proposal similar to that dealing with the allocation of research output funds. The proposal, in effect, is that the price per teaching output unit should be determined (a) by setting aside for output funds a specific proportion of the total available for teaching, and (b) by dividing this Rand total by the teaching output unit total. However, this proposal generates no incentives to the higher education system to increase the number of teaching output units.

The argument used in the case of research outputs applies again: if the total Rand amount available is set in advance, then a decrease in the total of teaching output units will increase the unit price; and an increase in the unit total will result in a decrease in the unit price of a teaching output. For this reason, it was decided that the unit prices of teaching outputs must, like the price for research output units, be determined at least in part in a normative way. The process to be followed is the following:

A set of benchmark graduation rates, based on those contained in the National Plan for Higher Education, will be used to generate a normative total of graduates/diplomates for the head count enrolment total for a given academic year. Initial benchmarks for this purpose are set at 90 per cent of the national plan's benchmarks. The normative total of graduates/diplomates derived in this way will be divided into a teaching output unit total and a research output unit total. The total of government funds available for teaching will each year be divided into 70 per cent for input funds and 30 per cent for output funds. The price of a teaching output unit will then be determined as: Rand total available for teaching outputs divided by normative teaching output total.

Table 3: Funding Grid for Teaching Inputs

Funding Group	Disciplines
1	Education, law, librarianship, psychology, social services public administration
2	Business/commerce, communication, computer science, languages, philosophy/religion, social sciences
3	Architecture/planning, engineering, home economics, industrial arts, mathematical sciences, physical education
4	Agriculture, fine and performing arts, health sciences, life and physical sciences

The total of government funds available for teaching inputs and outputs in 2002–03 would be determined as the balance remaining, once research funds plus amounts for foundation programmes and institutional factors (see below) have been taken into account. It has been decided that the proportion of this remaining balance to be assigned to teaching outputs will be in the range of 20 per cent to 30 per cent. Calculations based on data applicable to the 2002–03 financial year show that the price per teaching output unit would have been (a) R14,000 per unit if the proportion were set at 30 per cent and (b) R9,000 per unit if the proportion were set at 20 per cent.

3. Teaching Funds Based on Inputs. Inputs for teaching funds for year *n* are based on two main elements: (a) a funding grid based on aggregations of educational subject matter categories and course levels, and (b) Full-time equivalent (FTE) student places and/or planned FTE student enrolments.

The funding grid for teaching inputs is displayed in Table 3.

On the basis of cost studies, a fixed set of ratios should hold between the average costs per FTE students in the various funding groups. The ratios between funding groups in the funding grid are respectively: 1.0 (Funding Group 1), 1.5 (Funding Group 2), 2.5 (Funding Group 3), and 3.5 (Funding Group 4).These are shown in Table 4.

Table 4: Weightings within the Funding Grid

Funding Group	Undergraduate & Equivalent	Honours (4th year) & Equivalent	Masters' & Equivalent	Doctorate & Equivalent
1	1.0	2.0	3.0	4.0
2	1.5	3.0	4.5	6.0
3	2.5	5.0	7.5	10.0
4	3.5	7.0	10.5	14.0

FTE enrolments in the funding grid are weighted according to course level as well. They are: undergraduates (1), honors and equivalent (2), master's and equivalent (3), and doctorates and equivalent (4). These weightings take account of (a) the high priority the national plan gave to the need to increase postgraduate student enrolments, especially at masters' and doctoral levels, and (b) the argument that, given how FTE enrolments are calculated, weighted totals of FTE enrolled postgraduate students constitute better strategic incentives to institutions than the unweighted ones.

Table 4 sets out the full funding grid which is used to generate teaching input subsidies for universities and technikons.

The funding formula had to make provision for both FTE student places and for planned FTE student enrolments as the primary input values for the new block formula. It refers in particular to planned FTE student places because of the necessary link between funding and planning in the new funding framework. This link implies that teaching funds cannot be paid to institutions solely on the basis of historical student enrolments. These inputs have to be moderated by approved institutional three-year rolling plans.

A key issue for the new block formula is that of finding a proxy for FTE student places. Given that most institutions still lack the capacity to provide acceptable forward projections of their student enrolments, it was decided that enrolled data for year *n-2* would have to be used as proxies for student places in determining the input teaching subsidies of institutions. Provisions are made for later adjustments to these figures on the basis of actual enrolments and other necessary modifications.

The prices per cell in the teaching input funding grid are determined through calculations and procedures based on the following:

- For the purposes of funding in a given year *n,* preliminary system-wide totals for each cell in the grid will be determined, based on institutional submissions for year *n-2.*
- These submissions will be modified/adjusted before the end of year *n-1* in accordance with the parameters set by the national planning framework and also in accordance with institutional plans approved by the Minister of Education.
- The prices for each cell in the grid are then determined, taking account of early indications of what the government budget for higher education is likely to be in year *n* and what amounts need to be set aside for various earmarked funds and for teaching and research output funds (South Africa Ministry 2002).

The new framework does not include regular inflation-based adjustments of the Rand values of cost units, as was the case in the original formula. Since the proposed model contains no cost units, inflation is dealt with in terms of government's annual budgetary allocation for higher education, the assignment of planned FTE enrolled students to institutions and the calculation of prices per cell in the funding grid.

4. Institutional Factor Funds. The original formulae for universities and technikons made provision for institutional set-up subsidies. These are amounts which universities and technikons received to compensate them for basic running costs, irrespective of the size of their student body. These set-up subsidies had an important effect on the block funds of higher education institutions. They increased the unit subsidies of smaller institutions (their subsidy payments per enrolled student) and dampened those of larger institutions. In so doing, they took account of economies of scale.

In the new funding framework, the set-up subsidies are replaced by institutional adjustment factors, which take account of three sets of institutional circumstances: (a) the proportion of contact (or on-campus) full-time equivalent (FTE) student enrolments from previously disadvantaged groups, (b) the approved size of each institution in terms of FTE student enrolments, and (c) the approved shape of the institution in terms of FTE student enrolments in the teaching input funding grid. In each case, the FTE student enrolment total is unweighted—that is, one which does not take account of the weightings by level built into the new funding grid. A further important point is that these institutional adjustment factors are applied only to the teaching input funds of

each institution. They are not applied to teaching output and research output funds.

Students from disadvantaged or poor backgrounds are, for this purpose, deemed to be African and coloured students who are South African citizens and who are enrolled in contact education programmes. It is recognised that these population group categories are too broad to serve as long-term indicators of disadvantage; in the longer term, some new factor will need to be developed as a proxy for 'disadvantaged'.

The institutional factor for disadvantaged is determined as follows: Only African and coloured FTE students who are South African citizens are included in the calculation. The proportion which these students represent of the total (unweighted) FTE contact student enrolment will be determined. The institutional disadvantage factor weighting will be 1.0 up to a proportion of 40 per cent and will thereafter increase linearly to a maximum weighting of 1.1 at a proportion of 80 per cent. The weighting will remain 1.1 for proportions of between 80 per cent and 100 per cent.

The institutional factor for the approved size of institutions will be based on contact as well as distance FTE students. It is designed to take account of the need for additional support to be given to small institutions as well as to institutions with limited opportunities to increase the size of their student enrolments. These institutions will tend to be located in rural areas.

The institutional-size factor is also designed to take account of the economies of scale which are generated by student enrolment increases. A study undertaken when the current subsidy formulae were being reviewed in the early 1990s suggested that economies of scale for an institution set in at an enrolment size of about 11,000 FTE students and could continue up to an enrolment size of about 16,000 FTE students.

The institutional factor for size is determined as follows:

The institutional size factor weighting is 1.15 up to a total of 4,000 (unweighted) contact students plus distance FTE students, after which it will decrease linearly to a weighting of 1.0 at a total of 20,000 (unweighted) contact students plus distance FTE students. The weighting remains at 1.0 for institutional sizes larger than 20,000 FTE enrolled students.

Finally, the institutional factor for the approved shape of institutions will be based only on contact FTE enrolled students. It is designed to take account of the need for additional support to be given to institutions which have larger than average proportions of contact FTE students in the first two groups in the funding grid. These will be institutions which, in terms of their approved shape, have to place more emphasis on business/management and other humanities programmes than on science/technology programmes.

The institutional factor for shape is determined as follows: The proportion which students in funding groups 1 and 2 represent of the total (unweighted) FTE contact student enrolment will be determined. The institutional shape factor weighting will be 1.0 up to a proportion of 67 per cent (which is the average of all institutions) and will increase linearly to a maximum weighting of 1.15 at a proportion of 100 per cent.

Earmarked Funding

The government has decided that earmarked funds will be used primarily for the following broad purposes: the national student financial aid scheme; research development; foundation programmes and teaching development; interest and redemption payments on approved loans; approved capital projects, as and when funds for these purposes are made available as part of the national higher education budget; and any other purpose either identified in the current national higher education plan or determined by the Minister of Education from time to time.

The funding framework ensures that funds for foundation programmes are included in the funding grid by the addition of a further row ('level 0') to each institution's table of approved FTE places. This proposal implies that approved totals of FTE foundation programme students will be allocated to cells in level 0 across the four price groups, at subsidy prices equivalent to those for standard undergraduate cells. The proposal further implies that foundation students will always be additional FTE student places awarded to an institution and that they will generate more for it in block funds than the institution would otherwise receive.

It has been decided that foundation programmes will be funded in this way for at least the first five years of the operation of the new funding framework: A total equivalent to about 15 per cent of the expected FTE enrolment of first-time entering undergraduate students in contact education programmes will be assigned each year to foundation programmes. This proportion will be increased in the future if assessments of institutional foundation programmes suggest that appropriate provision can be made for larger totals of first-time entering undergraduate students. These FTE foundation students will be funded at the price applicable to funding group 1 in the teaching input grid. The foundation funds generated will be earmarked, in the sense that they will have to be used for foundation purposes only. These funds will be allocated to institutions by the Ministry when assessments are being made of their three-year rolling plans.

Conclusion

The new funding framework developed for tertiary education in South Africa has a number of important implications for equity and efficiency.

1. Predictability. Implementing a formula-driven approach ensures a level of predictability, particularly with regard to 'certainty of revenue'. Institutions are aware of the factors driving the formula and will know, within certain parameters, the magnitude of resources that will flow to them over a certain period. Such certainty undoubtedly enhances institutional planning.

2. Recognition of a hard budget constraint. The new funding framework is driven by the availability of public resources for higher education rather than by the costs of provision. The various mechanisms in the framework come into operation only after government has determined (a) the total of public funds that should be spent in a given year on higher education, and (b) what services should be delivered by the higher education system.

3. Promoting institutional autonomy and equity. By using a mixture of block and earmarked grants, the formula achieves both of these goals. Block grants confer a degree of freedom of use of funds by institutions while earmarked grants by definition are directed towards the attainment of specific goals such as equity—for example, in research development and through foundation programmes for the historically disadvantaged.

4. Efficiency incentives. The formula-driven framework encourages efficiency in three ways. First, the block grant component rewards efficiency of outcomes in research. Grants are based on the output of publications and of masters' and doctoral graduates. Research grants are, moreover, not based on a pre-determined monetary amount but against benchmarks based on academic capacity. Second, inadequate research performance by the system as a whole will result in surpluses of funds allocated for research. These funds provide a further incentive to stimulate output in that they are distributed on a pro-rata (output) determined basis.

    Third, the formula is designed to reward the output of certain categories of graduates more than it does others (for example, professional bachelors' degrees as against other bachelors' degrees). Such a funding mechanism enables the government to stimulate the development of skills that are in short supply. As with research, teaching output funds are not determined by pre-set amounts of funding but are developed against a set of benchmark graduation rates based on the National Plan for Higher Education. Thus, the formula promotes differential funding in line with the country's human development needs (for example, agriculture and health sciences

rather than librarianship and psychology). Fourth, through institutional funding, the framework promotes economies of scale and thus lower institutional unit costs.

5. The enhancement of equity. It furthers this goal in three ways: (a) through earmarked funding inter alia, for capacity building, research development and foundation programmes for the historically disadvantaged; (b) institutional factoring for students from historically advantaged (African and coloured) backgrounds; and (c) institutional factoring for small institutions, especially those in rural areas.

However, the difficulties in introducing or changing to a new formula should not be underestimated. In the South African context, the principal difficulties related to obtaining 'buy-in' from both historically white institutions, which feared the possible redistributive implications of a new formula, and historically black institutions, which were sceptical of the formula's potential to adequately address historical imbalances. Some of these fears have been addressed through the consultative process set up between the Ministry of Education, the South African Universities Vice-Chancellors Association, and the Committee of Technikon Principals. It is too early to say whether this institutional mechanism and process have been sufficient. As the consequences of implementing the formula are seen and understood, more difficulties may arise which may require new and probably more intensive processes of consultation between the government and the broader higher education community.

While South Africa has gone a long way towards developing and introducing a new funding formula to address the challenges of equity and efficiency, the system and the processes are far from perfect. First, it would have been immensely useful to have had some pilot studies on the implications of introducing the new formula rather than introducing it system-wide. Second, substantial capacity-building exercises appear necessary to help university personnel improve their understanding of the formula and its implications for equity and efficiency. Very little of this has been done or planned. Third, much more needs to be done to ensure that historically black institutions can indeed increase their teaching and research outputs given their increased funding. In this regard, increased institutional collaboration around post-graduate teaching, research and staff development must be seen as a necessary condition to ensure that real benefits accrue to the historically disadvantaged institutions from the funding formula.

Given the South African experience, key practical considerations that other developing countries adopting a funding formula should note are:

1. Simplicity. Design a formula that is simple and can be understood by the broadest possible section of the higher education community.

2. Promote understanding and acceptance of the formula by institutions through designing appropriate consultative mechanisms and by undertaking training programmes.

3. Develop effective data management systems at both the institutional and government levels to ensure that the formula (particularly with respect to the input and output elements) can be implemented effectively.

4. Develop linkages between higher education and the labour market. Design an effective system to monitor the outputs and outcomes of the higher education system in relation to the needs of the labour market and economy.

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