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TASMANIAN

SCHOOL RESOURCE ALLOCATION FORMULAS

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abstract

The paper summarises the development of the formulas used to distribute staffing and financial resources to Tasmanian schools and colleges in 1992. The concept of a needs weighted per capita allocation was introduced to provide an equitable basis for the distribution of resources to schools. This concept is similar to the fiscal equalisation approach which is used by the Commonwealth Grants Commission. The implementation of this approach requires the identification of needs factors and an assessment of their impact on the resource requirements of schools. A broadly based consultative process was used in the development of the formulas and the needs indices.

CONTEXT

The Tasmanian education system has had a long experience of allocating financial resources to schools. When Commonwealth assistance was introduced in 1973 a large proportion of these funds was allocated direct to individual schools. Since then the level of funds allocated to schools has been increased progressively. As a result of an independent review of the Department of Education and the Arts by CRESAP Management Services in 1990 a comprehensive review of the school allocation formulas was undertaken. In their Report, CRESAP recommended:

{SYMBOL 183 \f "Symbol" \s 10 \h} 'The funding and management of schools should be restructured. Schools should be funded on a per-pupil basis, and a self-managed school concept should be adopted'

The report also included a number of guiding principles that included:

{SYMBOL 183 \f "Symbol" \s 10 \h} 'The system should apply consistent funding formulae on a per-pupil basis with due allowance for special factors, particularly social justice'.

The Task Force charged with the responsibility of implementing a per-pupil basis for the allocation of funds to schools was constrained by the requirement that it be 'phased in fully by 1992'. This precluded lengthy investigation or pilot schemes. Of the number of factors that aided the Task Force in their work, the most important were:

{SYMBOL 183 \f "Symbol" \s 10 \h} the considerable experience in managing school finances possessed by the school based representatives on the Task Force;

{SYMBOL 183 \f "Symbol" \s 10 \h} the administrative expertise that had been built up over a number of years: in fact, the basic procedures of the 'School Resource Package' that had been developed for allocating funds to schools remained intact;

{SYMBOL 183 \f "Symbol" \s 10 \h} a knowledge of other systems that had introduced per-pupil funding formula: in particular, one member of the Task Force had recently completed an overseas study tour and another had been employed to assist in the introduction of school based management schemes;

{SYMBOL 183 \f "Symbol" \s 10 \h} access to educational research findings that related educational performance and socio-economic background; and

{SYMBOL 183 \f "Symbol" \s 10 \h} the work done by the Commonwealth Grants Commission and the States in relating educational expenditure to demographic factors such as social composition and rurality.

The Task Force included four union representatives and representatives of four principal associations and an important part of the process was the communication of these members with their constituencies. This created the necessity to explicitly state the assumptions and judgements that were made, which in itself aided the whole process.

THE SCHOOL RESOURCE PACKAGE

The School Resource Package is the major vehicle for allocating funds to schools in Tasmania. It includes funds for the general operation of the school, maintenance and utility costs. Special purpose Commonwealth program funds, such as the Disadvantaged Schools and Country Areas programs, are also distributed via the School Resource Package.

As various elements of expenditure responsibility were devolved to schools

over a number of years, procedures were adopted to allocate the necessary funds. These procedures evolved into a mix of the maintenance of allocations based on historical expenditures, special allocations for particular schools and the creation of a number of different formulas. The cumulative effect on the school funding system was:

{SYMBOL 183 \f "Symbol" \s 10 \h} to make it difficult to disentangle or isolate various components of funding;

{SYMBOL 183 \f "Symbol" \s 10 \h} to divorce the allocation from the actual costs of operating a school; and

{SYMBOL 183 \f "Symbol" \s 10 \h} to increase the likelihood of inequalities.

In reviewing the funding of schools the Task Force took the view that as far as possible a single allocation, the General Support Grant, should include all payments to schools. This not only accorded with the CRESAP recommendations on school funding it was a necessary outcome of other recommendations that removed the capacity of central office to manage the existing system. While this goal was not fully achieved, the funding allocation system was considerably simplified. The School Resource Package allocations are now based on three major formulas and there are only five special case allocations. (These are in regard to Commonwealth special purpose programs; resources for special students; telephone rental costs for senior secondary colleges; support for Bass Strait Island excursions; and charges, in some municipalities, for excess water.)

BUILDING A FUNDING FORMULA

The basic philosophy adopted for the development of a funding formula was to supply a school with the capacity to provide a standard of educational service comparable with all other schools. This approach is similar to the fiscal equalisation concept used by the Commonwealth Grants Commission in the distribution of General Revenue funds to the States. For this reason their methodology was considered in the construction of the formula. In the Grants Commission calculations the disability factors are combined multiplicatively and the relativities between the States are obtained by comparing one State with another. Such an approach has a number of disadvantages when developing a school funding formula.

{SYMBOL 183 \f "Symbol" \s 10 \h} Comparing each entity with every other entity to establish relativities is too complex when dealing with a large number of schools. Indices have been used to reflect the relative disadvantage between schools, this leads to much easier calculations and is readily understood by teachers who are familiar with student scores.

{SYMBOL 183 \f "Symbol" \s 10 \h} The multiplicative combination of factors is complex and difficult for schools and their communities to understand. Combining the factors additively is simpler and yields a simple relationship between the \$ allocation and the school indices.

{SYMBOL 183 \f "Symbol" \s 10 \h} The Grants Commission methodology makes it difficult to associate a specified proportion of the budget with a particular disability. In making judgements about the importance that should be attached to the needs factors it is helpful to be able to compare options in terms such as 'a 10 % allocation for need' against 'a 20 % allocation for need'.

{SYMBOL 183 \f "Symbol" \s 10 \h} The Grants Commission methodology does not guarantee that the total pool will be distributed exactly. In a situation where the budget allocation is pre-determined, this is untenable.

The process adopted for building a formula uses indices to measure the relative disadvantage between schools and combines the disability factors additively. The steps involved were:

1. Decide on the sector, or grade, weightings.
2. Establish the needs components to be included in the formula and their indices.
3. Decide on the proportion of funds to be allocated on the basis of each needs component.
4. Model the formula using the parameters determined:
 - i calculate the student equivalents for each school;
 - i calculate the needs measures for each school;
 - i allocate the total funds across the formula components; and
 - i calculate the \$ amount that each index attracts by dividing the sum of the measures into the funds available.
5. Calculate school allocations by multiplying the \$ amounts by the school measures and adding the separate components.

THE EXISTING SITUATION

The existing formula used to distribute the General Support Grant to schools had four components. These components together with the percentage

of funds they attracted were:

Base grant
10.7 %

Weighted per capita
64.4 %

Needs index
21.9 %

Rurality index
3.0 %

and the weightings used were:

Primary students
1.00

Secondary year 7 - 10 students
1.33

Senior secondary students
1.91.

STEP 1: SECTOR WEIGHTINGS

This was the most contentious aspect involved in developing the formula and in the absence of sound research on which to base a decision it was not possible to reach consensus. Some members of the Task Force argued that the present differentials were a historic accident and uniform per capita funding should be used unless there was an educational justification to support a differential. While increasing specialisation and its associated costs was quoted in support of favourable differentials for secondary students, no evidence could be produced to show that this was justified. Others argued the validity of current practice and that existing differentials should be used unless evidence to support a change could be produced. Here the higher cost associated with early childhood education was quoted in support of a reduction in differentials. Again there was a lack of definitive evidence. It should be noted that some secondary representatives argued for this position, especially those who had experience in mixed primary and secondary schools. An alternative view, based on the funding formula used in the United Kingdom, was that age related weightings would be more discriminating than sector weightings.

The Australian evidence in support of sector differentials derives from two sources. The Commonwealth Grants Commission in its assessments used the

following weights in its 1988 Review:

Year 7
1.00

Year 8
1.10

Year 9
1.10

Year 10
1.10

Year 11
1.50

Year 12
1.50

When these figures are combined and year 7 is treated as a primary year the Commonwealth Grants Commission year level differentials can be stated as sector differentials of:

Primary
1.00

Secondary 7 - 10
1.20

Secondary 11 - 12
1.65

The second source of information was provided by the work carried out by Dr. Gerald Burke for the Review of Post Compulsory Education and Training. This suggests that the sector differentials are:

Primary
1.00

Secondary 7 - 10
1.20

Secondary 11 - 12
1.45

In deciding what, if any, sector differential to apply in the allocation of funds the following considerations were influential:

{SYMBOL 183 \f "Symbol" \s 10 \h} in the existing formula, the base grant impacted on primary allocations to a greater extent than the secondary sectors. The removal of the base grant would require a balancing reduction of the per capita differentials;

{SYMBOL 183 \f "Symbol" \s 10 \h} in Tasmania, the college system allows an accurate extraction of expenditures to be made for years 11 and 12. This data has shown that the Grants Commission overstates grade cost structure in Tasmania; and

{SYMBOL 183 \f "Symbol" \s 10 \h} if a change in the sector differentials were to be made, it should be based on evidence that has some external objectivity.

The funding model that was recommended used the sector differentials suggested by Burke.

STEP 2: NEEDS COMPONENTS

Base Grant

The CRESAP recommendations had already established that the funding formula would be based on a per capita allocation with due allowance for special factors. The existing formula, which included a base grant, contravened the per capita nature of the recommendation. However, it was considered that the removal of the base grant from the formula would create difficulties for small schools and that the level of service available to students in small country centres would be unacceptable. This issue was resolved when the rural components of the funding formula were considered.

Need Due To Socio Economic Disadvantage

At present, there is no universally recognised index of the educational status of an individual student that measures the difference in resource provision required to achieve a given outcome. However, considerable research exists that shows that there is a correlation between the effort required to achieve equitable educational outcomes and the socio-economic background of students. On the basis of this evidence, and the experience of teachers in schools, it was agreed that a socio-economic needs component should continue to be included in the funding formula.

For a number of years Tasmania has used a school based index of socio-economic status to differentially allocate funds to schools. The present measure uses the Ross P index and is based on data obtained from mapping students onto the feeder Collector Districts of schools. The index was

established using 1986 Census data for Tasmania and was scaled so that it ranged from four to twenty. This index has a number of disadvantages: it can only be up-dated every five years, it does not measure the condition of the students actually in the school and it is rather obscure.

In Tasmania State assistance is called Loan Issue Supplies. This scheme gives a student based measure of socio-economic disadvantage that can be up-dated annually. The proportion of students in a school receiving Loan Issue Supplies is a readily understood concept in schools and was accepted as an index of special need by the Task Force. The use of the proportion of Loan Issue students as the only measure of the social disadvantage of a school raised concerns:

{SYMBOL 183 \f "Symbol" \s 10 \h} there was some evidence that some eligible families particularly in rural areas, may not apply for this assistance; and

{SYMBOL 183 \f "Symbol" \s 10 \h} the use of this measure alone could lead to the misconception that funds distributed in this way should only be used for the actual recipients of assistance and not as a general measure of the disadvantage of the school.

For these reasons a combination of the two measures was recommended. Different funding formulas were modelled, one of which gave equal weighting to the two measures and others which gave the proportion of Loan Issue students double the weighting of the Ross index. The latter had the advantage of being a simple addition of the two indices (since the State average for the Ross index happened to be half that of the percentage of Loan Issue recipients). It also had the effect of directing more funds to the highly disadvantaged schools, which was supported for educational reasons.

At the senior secondary level some students receive AUSTUDY and do not qualify for the State Loan Issue assistance scheme. However, these students still represent a measure of the disability that a socio economic needs index is attempting to measure. Consequently, the index for senior secondary students was adjusted by including the number of students receiving full AUSTUDY, discounted by 40 per cent to allow for differences in the means test.

Need Due To Rural Disadvantage

The additional costs associated with operating schools in country areas is a recognisable special needs factor, hence a rural disadvantage component

was recommended for inclusion in the funding formula. An index of rurality was developed for reporting to the Commonwealth for the Resource Agreement Program and had been used in the 1991 funding formula. However, this index was considered to be insufficiently precise for funding purposes.

Distance

It was proposed that distance from a major service centre be used as a measure of rural disadvantage. Distance has the advantage of being related to additional cost burdens in schools, such as freight and travelling expenses. The choice of the centre from which to measure distance to schools was not immediately obvious. Both central and district offices offered a logical choice, both being located in major service centres and both requiring communication from schools. Given the decentralised nature of the Tasmanian population distribution it was decided to measure distances from district offices.

Size Of Centre

The use of distance alone as the measure of rurality would have seriously neglected the needs of small country centres. In these centres schools have no opportunity of achieving economies of scale and require a significant addition to their funding to overcome this cost disability. To address this disability a size of centre index was introduced. This index classified schools into six categories on the basis of the size of the centre in which the school was located. An increasing amount, unrelated to enrolments, was allocated to schools on the basis of this index. A description of the index is given in the following table.

Index

Description

0

Urban centres, population > 10 000

1

Urban centres, population between 5000 - 10 000

2

Urban centres, population between 2500 - 5000

3

Urban centres, population between 2000 - 2500

4

Urban centres, population between 1000 - 2000

5

Bounded locality, population between 500 - 1000

6

Bounded locality, population between 200 - 500, and rural

Isolation Index

A number of locations in Tasmania are recognised in industrial awards as being isolated. These locations are not only relatively distant from major centres, their nature is such as to set them apart from neighbouring centres. Currently, three classifications of isolation are defined: island; category B taxation districts; and declared isolated centres. It was agreed that a small additional allowance was appropriate for schools in these locations.

In summary, rural disadvantage is measured by three indices: distance, size of centre and isolation.

STEP 3: PROPORTION OF FUNDS ALLOCATED TO THE COMPONENTS

On the basis of its discussions the Task Force requested the development of various funding models. Six models were developed with the existing funding arrangements as a seventh option and tables showing the results for a sample of schools and sector totals were produced (see attachment). These tables were produced by applying step 4 and 5 to the models listed.

These results were used to gauge the impact of different allocations on the components on the formula. Obviously, there is some interaction between the indices used and their effect, so the judgements made were quite complex. Details of the models are given in the following table.

Model

Sector Weights

Per capita Allocation

SES Needs Index

SES Needs Allocation
Rural Needs Allocation

1

Uniform

70 %

Ross P + loan issue

22 %

8 %

2

Grants Commission

70 %

Ross P + loan issue

22 %

8 %

3

Burke

70 %

Ross P + loan issue

22 %

8 %

4

Grants Commission

70 %

Ross P + half loan issue

22 %

8 %

5

Burke

64 %

Ross P + loan issue

28 %

8 %

6

Burke

67 %

Ross P + loan issue

25 %

8 %

The Task Force recommended that model 6 be used as the funding formula for the 1992 General Support Grant. The advantages seen for this model included a greater emphasis on special needs, support for small country schools and a reduction in sector differentials, which resulted in increased allocations to primary schools. A major effect of the model was to reduce the allocations to small urban schools.

STAFFING FORMULA

A separate Task Force was set up to examine the staffing allocations to schools. The development of a staffing formula used the approach outlined above for the development of the General Support Grant formula. However, the judgements made were based on feedback from two questionnaires to schools and district offices. The first questionnaire established the needs components to be included in the staffing formula. The second gave the results of various allocation models and asked for comment on the proportion of the staffing quota that should be applied to each needs component.

After the process of negotiation used to develop the funding formula it was not surprising that similar needs components were accepted for the staffing formula. It was also agreed that the same indices would be used for both formulas.

The bulk of the comments on the models related to the proportion of the staffing quota allocated on the basis of socio-economic need. The results of models giving 5, 10 and 20 per cent to this factor were presented. The large majority of opinion supported the 10 per cent model, with the others gaining about equal support.

The 1992 staffing allocation formula used sector weightings of:

Primary
1.00

Secondary years 7 - 10
1.40

Senior secondary
1.45

The allocations to the components of the formula were:

Weighted per capita	
87 %	
Socio economic need	
9.5 %	
Rural need (distance and size of centre)	
3.5%	

The sector weightings and the proportion of the quota allocated to the needs components for distributing staff to schools differs from those for funding. This is partly due to reasonable argument: for example, distance does not add to the need for additional staff in the same way as the continuing expense of freight and travel. It is also due to established practice that inevitably formed the basis of the judgements that were made, this was particularly so in relation to the sector weightings. The only real departure from established practice was the increase in the allowance for socio-economic need from 5 per cent to 10 per cent. While this decision was congruent with school based experience, there is no doubt that the weight of research evidence was instrumental in gaining majority support for this option.

REACTION TO THE RESOURCE ALLOCATION FORMULAS

The negotiations and intensive consultation undertaken in the development of the allocation formulas resulted in their general acceptance. The process adopted to construct the formula exposed the underlying assumptions and judgements to examination and comment and this was also instrumental in gaining the agreement of teachers and school communities to the new arrangements.

The development of resource allocation formulas in Tasmania drew heavily on existing research evidence to justify the decisions made, especially when recommending the differential allocation of resources. The paucity of research supporting the present sector funding differentials has already been mentioned and this will need to be addressed. The debate on the funding formulas has already focused on the relationship between socio-economic status and differential allocations. At the moment, the research supporting this decision has been accepted, but the need for accountability measures to demonstrate the validity of this decision is clearly evident.

The move to school based management creates the need to develop an equitable process for distributing the available resources. The experience in Tasmania in restructuring school funding arrangements has demonstrated

that in order to respond to this, research into the economics of education must assume a much higher level of importance than it does at present.

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Attachment

FUNDING MODELS RESULTS FOR SELECTED SCHOOLS

SCHOOL

Current \$

Model 1

\$

Model 2

\$

Model 3

\$

Model 4

\$

Model 5

\$

Model 6

\$

Advantaged Urban Primary

82400

90700

79600

80600

80900

77000

78600

Disadvantaged Urban Secondary

118100

119900

126900

133100

128600

140200

136400

Advantaged Urban Secondary

184700

158000

166500

174900
176400
169100
172000

Large Country Primary

95200
111900
99100
99700
99500
101200
99800

Small Urban

13700
9500
8400
8500
8300
8800
8600

Disadvantaged Urban Primary

94600
132200
116700
117500
112400
126000
121400

Country Secondary

117100
99800
115500
115600
116000
114500
121000

Small Country Primary

16900
19700
17900
18000
18200
17800
17700

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