

Adjusting the equitable share formula to improve opportunities for equal education across rural & urban areas:

Executive summary

Introduction

Equal Education (EE) has publicly highlighted the problems in the equitable share (ES) formula that determines the proportion of the national budget allocation for unconditional transfers that each province receives each year. EE has highlighted, in particular, the failure of the ES formula to cater for the higher costs associated with delivery of education in rural compared to urban areas.

This document explores how the formula could be improved so as to address this weakness. It does so by investigating two options:

- Adjusting the provincial shares by a geographical factor that proxies rurality; and
- Adjusting the provincial share by a factor that takes into account the relative distribution of schools in each province across the five income quintiles.

The investigation explores these two options rather than the possible alternative of increasing the poverty share of the formula. It does so because adjusting the educational component for poverty and/or rurality will send a stronger message about the need for rural-urban equity in *education*.

For each of the two options, the investigation includes sensitivity testing, i.e. exploration of the impact of different weights or other adjustments for rurality and poverty.

The current education component in the equitable share formula

The provincial ES formula is described each year in Annexure W1 to the Explanatory Memorandum to the Division of Revenue Bill which is tabled in the national Parliament on budget day. The formula is made up of six components. The education component is the largest, and determines nearly half (48%) of the total unconditional allocation for each province.

Half (50%) of the education component is distributed across the provinces based on the population aged 5-17 as reported in Census 2011. The other half is distributed across the provinces on the basis of enrolment numbers recorded in the annual School Realities Survey produced by the Department of Basic Education.

Motivation for revising the education component

Equal Education¹ highlights historic underfunding, geographic, infrastructural and demographic characteristics as contributing to the higher costs that more rural provinces experience when compared to more urban ones.

- **Historic underfunding** can be attributed, at least in part, to the fact that the former homeland areas account for a large part of the country's rural areas, and there was outright and systematic discrimination against these areas in terms of access to resources throughout the apartheid era.
- **Geographic disadvantage** in terms of costs includes the additional costs involved when learners and staff live longer distances from schools, as well as the reduced potential for economies of scale when schools have relatively small learner numbers. In particular, smaller schools are likely to have smaller learner: educator ratios, thus increasing the educator cost per child for a teacher at any given level of qualification.
- **Infrastructural disadvantage** in terms of the disparities in access to basic services when comparing rural and urban areas, and thus the greater cost of ensuring that all schools have such services.

¹ Equal Education. 2017. Submission to the Standing Committee on Appropriations on the 2017/18 Division of Revenue Bill; Equal Education. 2017. Budget Speech 2017: Budgeting at the height of inequality. Media statement. 22 February 2017.

- **Demographically**, rural areas tend to have higher shares of their population made up of children and older people, while the working age population is more dominant in urban areas.
- **Poverty-wise**, Equal Education cites a Statistics South Africa (StatsSA) report which notes that the poverty rate stood at 68,8% in rural areas in 2011, as compared to 30,9% in urban areas.

Equal Education is not alone in thinking that a rural adjustment is needed. The National Treasury's 2017 Budget Review notes that the National Treasury is reviewing the provincial equitable share formula. In doing so, it will consider, among others, "the funding burden of poorer schools and the cost of service provision." Annexure W1 of the Explanatory Memorandum to the Division of Revenue Bill of 2017 states explicitly that government is "exploring the possibility of adding rural-focused indicators to the provincial equitable share formula to further strengthen the equity of intergovernmental transfers."²

Adjusting for rurality

We make the rurality adjustment to the population sub-component of the ES education component formula. The model allows for the extent of the rural weighting to be adjusted. If the rural weight is set at 1,5, this means that each rural person is equivalent to 1,5 urban persons. With this weight, the adjustment is most favourable for Limpopo, which sees a 1,0 percentage point increase, from 13,0% to 14,0%. Gauteng experiences the largest decrease – from 18,0% to 16,4%. Other provinces which experience an increase are Eastern Cape, KwaZulu-Natal, Mpumalanga and North West. These are all known to be among the poorer provinces, and the rural weighting thus also has a pro-poor impact.

Adjusting for income quintiles

Two alternative provincial quintile distributions are used in modelling a poverty adjustment. The first alternative is the distribution specified in the government gazette that records the norms for quintile-based subsidies. The second alternative is the population-based quintile distributions for the 5-17 year age group as derived from the General Household Survey of 2015. These distributions are applied to the enrolment sub-component of the education component of the ES formula.

In addition, two different approaches to weighting of quintiles are modelled. In the first approach, the user can specify separately the weight to be applied to the learners in each quintile. In the second approach, the weights are proportional to the differences in the norms for per learner subsidy that DBE prescribes.

The model provides the possibility of further adjusting both approaches to quintile weighting to account for the proportion of learners in each province who are at independent schools. This adjustment is offered because the provincial departments have fewer obligations in respect of the independent schools than for public schools.

All alternatives and approaches result in increased shares for Eastern Cape and Limpopo and decreased shares for Gauteng and Western Cape. Gauteng is the only province for which the adjustment in respect of independent schools makes a noticeable difference, as it is the only province with a substantial proportion of learners in independent schools.

Adjusting for poverty and rurality simultaneously

Because rural provinces tend to be poorer, there are many similarities between the impact of rural and poverty weightings. However, poverty is not simply about rurality in that there are many poor learners and households in urban areas. Conversely, rural disadvantage is not simply about poverty as there are specific characteristics of rural areas that make delivery of education services more expensive.

The modelling does not provide strong reasons for favouring the rural adjustment over the poverty one or vice versa. However, the rural and poverty adjustments are not necessarily alternatives. Both could be applied simultaneously.

² National Treasury. 2017. Annexure W1 to the Division of Revenue Bill: 8.

When this is done using a 1,5 weighting for the rural school-age population together with the 5-4-3-2-1 quintile weighting, Gauteng's share falls from 18,0% to 14,9% while Limpopo's share increases from 13,0% to 15,0%.

Conclusion

The modelling suggests that the first quintile approach (based on five quintiles) is preferable to the second (based on quintile-based subsidies) as the first approach provides more nuanced weighting. Logic suggests that a quintile adjustment that excludes independent schools is preferable, as provinces incur much lower expenditure in respect of independent than public schools.

With the provincial ES totalling R441 331 million in 2017/18, a 0,1 percentage point shift in a province's share of the education component equates to a change of R212 million in rand terms, and a one percentage point shift equates to R2,12 billion. The combined rurality-poverty adjustment using the 1,5 weighting for rural, and 5-4-3-2-1 for quintiles results in Limpopo gaining an extra R4,2 billion and Eastern Cape an extra R2,7 billion, while Gauteng loses R6,5 billion and Western Cape R3,7 billion. Such changes are certainly not negligible.

If the decision is made to make rurality and poverty adjustments to the education share, those who decide on the relevant weights must bear in mind that the impact of these adjustments are likely to be partially reversed when a source other than Census 2011 is used for the population aged 5-17 years. The decision should thus err on the side of larger rather than smaller weights.

Appendix A: Using the model

There are two key sheets to the model.

- *Sourcedata* contains the different variables that are used in the model. Users should not change this sheet in any way as it could affect the results of the model.
- *Modelling* contains the results of the model, and also allows the user to adjust the weighting variables. Users should change only the cells with red font.

Vertically, the model presents results of four different scenarios:

- Adjustment for rurality
- Adjustment 1a for quintiles (separate specification for each quintile)
- Adjustment 1b for quintiles (weighting based on subsidies)
- Combined adjustment for rurality and adjustment 1a for quintiles

The middle two scenarios include further options in terms of inclusion or exclusion of independent schools, and use of DBE or General Household Survey-based quintiles.

The results of the modelling are shown in bold italic. “ES old” refers to the current (2017/18) distribution for the education component while “ES new” refers to the adjusted results from the relevant scenario.