

# Enterprise and Learning Committee

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## 'Alternative Resource Allocation Models for Local Services in Wales' Written comments by Professor Glen Bramley

### **Question 1: What is your basis for believing that had the aims of the project been clearly defined in the first instance they "would not have commanded a full consensus"?**

Several of the key informants interviewed expressed this view to me, in one form or another. Part of the problem is that not all of the parties may understand the system in detail, and part is that the nuances of certain terms may be interpreted differently (e.g. 'objective need', 'current and future cost'). More fundamentally, the term 'objective need' is itself misleading in one important sense. Any statement or proposition about 'need' involves a value judgement, about what society should do about particular problems or conditions. Sometimes we all agree about this - somebody is bleeding to death, we try to provide appropriate first aid and medical attention. More often, there are different views about how far different problems should be responded to, given that resources are limited. Different children have varying kinds of special educational need - what kind of extra support should they get, and how much of it?

A further perennial problem with studies of this kind, which deal with grant distribution between different localities, is that this is seen as a 'zero-sum' competition. If one set of arguments is accepted, this benefits one set of local authorities and therefore another set loses out. Conflict and lack of consensus is almost built into this situation.

One of the things people often say about the LG finance system, or particular parts of it, such as schools funding, is that it should be 'simpler' or 'more transparent' (easier to understand). This view is understandable but rather in conflict with other objectives in this and similar exercises, i.e. to get the best possible measure of expenditure need (given agreed principles and criteria) based on sound research applied to the best available data. Clearly not all lay political decision makers are experts in social, economic or educational research, although some may be. Some things are going to have to be taken on trust, or left to specialists to check in detail. The researchers can and should try to explain in a plain way the principles being applied and what the research shows in general terms. However, in my experience, some demands for simplicity and transparency end up being used to justify needs formulae which are simply too crude, or which make no attempt to reflect the kinds of socio-economic needs examined in this study.

Finally, I would observe that some of the reactions to this report seem to illustrate the points I am making here.

### **Question 2: Of the three criteria used in the Alternative Distribution Formulae, discussed in Chapter 6, the Report authors favour A, then C and then B - deeming there to be "merit in looking closely at criterion A". Could you sum up the reasons why you consider Criterion A as preferable to the other criteria?**

This is obviously a value judgement, although it does reflect some considerations which are thrown up when doing the research in more detail. I would observe that Governments often choose to prioritise areas with the greatest problems when allocating resources to achieve improvements. Insofar as targets are set for educational achievement, these are likely to focus on improvements at the bottom of the current achievement range. Discussions with Education Department officials indicated that this was a priority. Criterion A focuses on trying to achieve such targeted improvements. It is also perhaps easier to understand.

### **Question 3: Criterion C (Ci) includes an additional model using additional compensation for the indirect social effects of SEN (Cii). Could you explain the rationale behind this, how it was applied and how and why the impact diverged from Ci?**

The attainment models show clearly that pupils with SEN achieve lower attainment. SEN status depends on many things, including congenital conditions and disabilities, and also the policies and practices of different local authorities. However, we also showed that SEN incidence did vary to some extent with social deprivation, essentially the same factors which themselves are quite strong predictors of attainment. The argument for Cii is that you are missing some of the adverse effects of deprivation if you do not allow for this secondary effect via SEN. However, you do not want to simply reward local authorities for having more generous policies and practices towards SEN. The effect of Cii compared with Ci is a very slight additional redistribution towards the most deprived areas.

### **Question 4: The Report indicates that Welsh Ministers may face difficult choices in the event of re-allocating resources as recommended in your exemplified formulae and that they should "counter misinformation" about any proposals.**

**Are you aware of any examples, in the UK or abroad, where radical resource allocation has occurred in a service area?**

**If so, what are your views on how the process of change was managed and what lessons might be learned by Welsh Ministers?**

It is accepted that the formulae exemplified in the report would entail substantial changes in local allocations. I do not think it is appropriate to use the word 'volatile' here, because there is no suggestion that the allocations would change sharply in a single year, or that the approach would yield figures which varied wildly from year to year. A change of 15% is not, arguably, that dramatic anyway.

The point about 'misinformation' refers specifically to the labelling of this approach as 'penalising success'. The proposed formulae do not allocate money contingent on the behaviour or success/failure of schools and LEAs in terms of attainment, and therefore they do not provide an incentive to perform in a particular way. That is another way of saying that they do not penalise 'success'. The formulae attempt to discount the effects on attainment of variations in the particular skills, flair, organisation and ethos of schools; they simply assume an equal level of 'school effectiveness'. What they do take account of is variations in objective measures of social circumstances which are known to affect attainment, particular deprivation factors which tend to reduce attainment. Authorities receiving a low per pupil allocation are not being 'penalised for success', they are simply receiving less resources because they have few pupils with backgrounds which makes them likely to be very costly to educate to an adequate standard.

I think the main examples that come to mind of more 'radical' resource (re-)allocations to reflect evidence of need and/or outcomes would be in the areas of health and social care. Formulae used for social services for children in England have used quite sophisticated methods and more complex formulae to represent spending need, formulae which give very much higher allocations to some (particularly deprived) LA's than to others. Resources for the health service in England and Scotland have been allocated on a sophisticated needs basis since the 1970s, at first under the RAWP system and more recently under a 'weighted capitation' system which takes account of both ill-health and wider social deprivation; similar systems have been applied in Scotland ('Arbuthnott'). Reforms and revisions to these formulae have been based on quite sophisticated research. Crucially, the implementation of revised formulae has always been undertaken incrementally, with small steps each year from present spending levels to target levels.

I think therefore the main lessons for WAG in this regard are (a) to build support for the principle of a needs/outcome based approach, and (b) implement any changes very gradually.

### **Question 5: Could you explain further how the "base position" is arrived at?**

#### **Can you explain further the assumptions that were made about the levels of school provision?**

#### **Can you explain the value and robustness of predicted levels of attainment and expenditure?**

This is discussed on pp63-4 of the report and summarised in Table 6.1. The 'base position' is the 'standardized cost' for each LEA's schools, given its geographical and other characteristics, and the level of attainment it would be expected to achieve with this amount of spending if its schools had an average level of effectiveness. Costs are based on a notional structure/size mix of schools, based on settlement pattern data, and discount any effects of denominational status and of policy-determined variation in SEN (the statistical analysis of SEN variation distinguishes part due to different LEA policies, part due to social deprivation factors, and 'other').

Having got the base position, the method tries to estimate how much redistribution of expenditure is needed to meet the various different attainment criteria. These criteria differ somewhat in what they do or do not take account of. For example, under C allowance would only be made for the influence of pupil and neighbourhood social need factors, whereas under A there would be additional allowance for prior attainment (in secondary) and for the 'other' element of SEN variation. B would allow for most other systematic influences on attainment as well, except for the policy component of SEN and of school size/structure (and of course school effectiveness).

The number and size of schools used in this calculation is not the actual number but the number predicted on the basis of the relationship, across Wales as a whole, between settlement size/characteristics and school size. So an LEA will be assigned the same average school size as an LEA with similar settlement pattern (e.g Ceredigion will be treated as similar to Powys). School size in this exercise is measured by actual enrolled pupils, not design capacity. The link between school size and settlement geographic and demographic characteristics was established by regression across Wales at settlement level, reported on pp.52-53 and in Table 5.5. This is seen as a reasonable and practical approach which builds on a previous method already used in Wales. A more sophisticated simulation approach was tested on an experimental basis but this would need to be developed further if it were to be used (see also Q6).

The attainment models are argued to be robust and comparable with other research in this field. The pattern of influence of particular variables is much as found in other studies carried out in other countries. They explain half or more of the variation in attainment between individual pupils. A point which should perhaps have been emphasized more in the Report is that these models explain a large majority of the variance in attainment between larger units such as schools or LEAs - the residual 'unexplained' variation is mainly at the individual pupil level. The cost models explain between two-thirds and three-quarters of the variation between schools in unit costs. The aspects of these models where some uncertainties exist concern (a) exactly which variables should be included in the cost model, and (b) how robust the relationship is between expenditure and attainment in the case of primary education.

### **Question 6: In Chapter 5 of the Report under "Simulating Reorganisation", a number of variables appear to overlap - such as density of population, number of flats and size of population, but they are all included in the analysis. Why have you chosen to include these, when you state that a number of other variables where there is an overlap have been excluded?**

The comment here appears to confuse two distinct exercises, the settlement level regression used to derived standardised school size, and the experimental GIS-based 'simulation' of a reorganisation. The comment about whether variables overlap or not is relevant to the first exercise, the regression formula in Table 5.5. 'Overlap' implies some similarity between variables and some correlation. However it

does not necessarily mean a very high or 100% correlation - only in this case is it essential to discard or combine variables from a statistical point of view. Where variables have a moderate degree of correlation it is a matter of judgement depending on the context. In this case we are only trying to generate a prediction for each settlement based on all the potentially relevant information; we are not trying to get a highly robust estimate of a particular coefficient in the equation, such as pupil density. Therefore it is valid and appropriate to err on the side of including more variables rather than having a parsimonious model. This is particularly so in this case where we know that some of the relationships are non-linear, yet at the same time we do not know exactly which of these variables is most important.

**Question 7: Your reorganisation analysis also suggests a large decrease in cost and, although you admit that the transport cost estimates should be treated with caution, you still suggest that there are cost savings.**

**Although the transport costs for the current structure of schools was calculated using Geographical Information Systems (GIS), the transport costs for alternative school allocation are "based on crows flight distance". Why was this?**

**How much difference do you think this would have made to the results, given the journey problems in a number of parts of Wales?**

The analysis in Chapter 5 suggests that there could be worthwhile cost savings from a reorganisation, 6.6% overall but rather more in some authorities (up to about 11%). The reason for the cost savings is that post-reorganisation there would be fewer, larger schools and larger schools are more efficient from a cost point of view (you avoid the fixed costs of separate school organisations and the diseconomies of small scale). The Report also presents evidence that small schools are not typically better in terms of quality of education (according to ESTYN) or attainment (according to the data and modelling). The related analysis of the trade off with transport costs could be made more refined but was robust enough to show that the savings in school costs would be much larger (about four times) the extra transport costs. Furthermore, the attainment modelling produced no real evidence that distance travelled to school has any adverse effect on attainment.

**Question 8: In the same section the Report concludes that "... the schools closed would be those with relatively low attainment." On what basis do you make this assertion?**

This statement is factual, because in this simulation we are applying an algorithm which we have determined, which says that schools are only closed if their attainment is low both in absolute terms and relative to what we would expect (i.e. predicted by model). We also think that this algorithm is not unrealistic in terms of how such decisions are likely to be made locally.

**Question 9: The report states that data on surplus capacity in schools were not accessible, although they are, in fact, available from local authorities' Single Education Plans. How important do you consider this omission from the analysis?**

I don't think the fact that we did not have access to data (which may exist) on spare capacity was particularly critical. Our measures of size were based on enrolled pupils, so in a sense we pick up the effect of 'half-empty schools in this way. What we would ideally have would be data on both spare capacity (or overcrowding) and data on the condition of school buildings. That will take longer to compile, I believe.

**Question 10: Could you explain why Free School Meals are a better indicator of child poverty than the alternatives?**

**What are the alternatives?**

Free meals is the only individual level indicator of poverty or general deprivation available within the PLASC data, although there are a couple of indicators which capture very specific cases (Looked After Children) or factors which may be indirectly related to disadvantage (turnover). A wide range of indicators are available for small areas of residence, including indicators from the Census at Census Output Area level and indicators from the WIMD and other sources at Lower Super Output Area level. Because it is the only marker of general poverty at individual pupil level, it is essential that free meals is included in the analysis of attainment, to help ensure the best estimation of different influences on attainment (avoiding the problem of so-called 'ecological correlations'). However, that does not commit you to using free meals as an indicator in the final formula for distribution. Free meals are in theory closely related to eligibility for means-tested state benefits; therefore a measure such as the WIMD low income score, or the very similar employment score, should give a similar reading at neighbourhood or school level. Reservations have been expressed about free meals, on various grounds, as reviewed briefly on p.84 (stigma/deterrence; confusion of eligibility and takeup; cultural influences on takeup). The alternative, suggested in Chapter 6 (pp.74-80) in the context of 'simplification', is to use a combination of a small number of indicators including the WIMD employment score, in effect bypassing the free meals issue.

**Question 11: Given the three year funding regime, how significant will annual fluctuations in data such as Income Support entitlement and SEN be?**

It is not thought that the variables proposed for use in these formulae are that prone to short term year-to-year fluctuations, at LEA level, although this was not specifically investigated in the study. Whether actual variations in SEN are reflected depends on the formula

chosen - in some versions we use modelled SEN anyway. It would be possible to choose to use a three-year rolling average if that were seen as a problem. Clearly, three-year funding makes the whole thing more stable anyway, and I argued previously that any change should be introduced in a gradual phased fashion.

**Question 12: How would you explain, therefore, the exclusion of free school meals, or use of proxy free school meals variables, favouring Ceredigion in table 6.5?**

Ceredigion is an outlier on expenditure because of the factors mentioned - small schools, high level of SEN. The point is that these variables take exceptional values in Ceredigion, even allowing for its social and geographical characteristics. Thus, although there is a generalised correlation of SEN and free meals, Ceredigion is an outlier with respect to this relationship. Ceredigion has below average FSM; therefore, removing FSM from the need formula, or substituting proxies, gives money back to Ceredigion.

**Question 13: Could you explain the evidence that shows that small primary schools have poorer attainment?**

**In respect of the impact of additional school spending resources, could you clarify the extent of "a small positive effect"?**

**How would you account for the fact that this appears stronger in secondary schools than in primary schools?**

The evidence on size of school and attainment is discussed on pp.31-34 and is reflected in Table 4.2 and Figures 4.1-4.2. Table 4.2 shows that in the 2006 attainment model the reciprocal of school size (recipsize06m) has a negative coefficient. This reciprocal measure highlights small schools. It will be noted that in 2006 this coefficient is of marginal statistical significance ( $t=1.63$ ,  $p=0.102$ ). We continue to include it partly because it was more significant in earlier years, as illustrated by Figure 4.2 and discussed in the text. It is important to emphasize that this is the effect of school size controlling for other factors, i.e. whether small schools do better or worse than we would expect given their intake. Some practitioners or decision-makers reflecting on this issue may believe that small schools have better attainment because their raw test scores are higher (in their authorities). However, we would of course argue that it is essential to control for other factors before coming to any judgements about the relationship between size and effectiveness. Two further observations about these findings. Even if one were to treat the finding of lower attainment with caution (on statistical grounds), this evidence says that there is no support for the opposite proposition, that small schools have systematically higher attainment. Finally, as someone pointed out in the videoconference, I can confirm that this small school effect will pick up some element of 'failing urban schools', insofar as these have pupil rolls that have fallen into the 'very small' category.

This relationship is important to the overall methodology, and it is true that, in the primary sector particularly, the coefficient that links attainment to expenditure is not particularly large, and subject to some uncertainty as to its magnitude. This point is discussed on page 35. The recommended approach is to take the average of three years' estimates for this coefficient - plus 0.284 points per £1000 expenditure. While this looks a small figure, it is actually about 32% of the standard deviation of primary attainment points at school level. The standardised regression coefficients (which allow for the variability of the variables involved) suggest that the effects of expenditure are of a similar magnitude to those of some of the social need indicators included, such as owner occupation or children from low socio-economic groups.

The equivalent relationship for secondary sector is quantitatively stronger and more statistically significant. How would I account for this difference between primary and secondary? (a) more noise (year to year fluctuation) in primary school expenditure data; (b) secondary year cohort sizes are much larger, therefore again less noise/more robustness in the attainment data and its relationships with school-level variables, including expenditure; (c) availability of prior attainment variable in secondary attainment model makes for a better specified model; (d) GCSE's are independent external examinations and are therefore probably more robust than KS2 assessments which are now based on teacher assessments in Wales.

**Question 14: Could you clarify what group "special advisers" on education constitutes? For example, are these independent advisers or are you referring to special advisers to Welsh Ministers?**

**Why weren't Heads, teachers' representatives or parents' bodies considered as "key stakeholders"?**

The reference to 'special advisers' means advisers to Welsh ministers plus advisers to the WLGA. The people approached were those suggested by WAG. It should be emphasized that this research was not primarily set up as a consultative exercise and was not resourced to do this. It was intended to be primarily desk and statistical research, with the limited stakeholder discussions to provide context and an element of 'reality checking'.

**Question 15: The conclusion states - "The most important drivers of attainment are SEN and poverty". This is an emphatic statement. Please could you explain further?**

It might have helped if the quoted sentence (from Ch 8, p.87) had included the word 'systematic' in front of 'drivers'. However, the statement is a perfectly fair summary of the conclusion from the attainment modelling work in Chapter 4. The paragraph goes on to mention the other factors which were found to influence attainment, so it does not claim that SEN and poverty are the only factors. It is clear from the evidence presented in Chapter 4 that SEN and poverty (or, if you prefer, 'deprivation') are quantitatively the most important of the systematic factors. They have bigger coefficients, showing that they have a larger effect on outcomes, and these are more statistically significant. The direct effect of measures of poverty, such as free meals or WIMD low income score, are reinforced by the additional effects of other socio-demographic factors, such as lone or cohabiting parents, poor housing, or pupil turnover, which are

themselves partially related to poverty/deprivation.