

## SPENDING AND STANDARDS

Do children who go to well-funded schools, generously provided with teachers, books and other resources, make more progress than those unlucky enough to go to schools which are less well-provided? Fascinating though this question may be, and topical as it undoubtedly is, it is not an easy one to answer. Any attempt to answer it properly would require a definition of educational progress which takes account of the differing aims of individual schools, data on individual schools across a range of local education authorities (LEAs) and data on individual children as they go through the schools. These data simply do not exist. What we do have are some aggregate data for the 96 LEAs in England - the amount they spend on each pupil and the public examination results obtained by pupils in the later stages of their secondary schooling - together with information on the social characteristics of the LEAs. Three recently published research reports have used these aggregate data to see whether there is any relationship between standards and spending. Each of them has concluded that variations in spending by LEAs serving broadly similar populations has no effect on exam results. The implications of this finding hardly need spelling out; at best, it can be used as a justification for not spending more on education and at worst it seems to provide a justification for spending cuts. Here, I look critically at the techniques used to analyse these data and go on to consider whether any analysis of LEA data can help to answer the more profound question posed above.

The three reports are (i) the National Council for Educational Standards study by Marks, Cox and Pomian-Szrednicki ('Standards in English Schools') which was published last year, (ii) work from statisticians at the DES ('School Standards and Spending: Statistical Analysis, Statistical Bulletin 16/83) which came out last December although the main results had been leaked a year before, and (iii) a monograph by Rodney Lord, sponsored by the Chartered Institute of Public Finance and Accountancy (CIPFA) ('Value for Money in Education') which was published in July. Marks and his two colleagues look only tangentially at spending and standards and, on the whole, they are cautious about giving much credence to their finding that expenditure and exam results are not related in the 51 (out of 96) LEAs they studied. But when discussing the implications of their

results for policy they do state that "more teachers and more money spent per pupil do not necessarily lead to better examination results and are often associated with results which are poor by any standards", which is perhaps more emphatic but still allows that the same children would get worse results if fewer resources were provided. The DES work makes no attempt to draw policy conclusions from its findings but Lord, a special adviser to a Treasury minister, is less inhibited and concludes that "high spending is no guarantee of a superior education, nor that modest expenditure will necessarily lead to an inferior one."

Both the DES and Lord used the same statistical technique - multiple regression analysis - on essentially the same data, so the similarity of their conclusions is hardly surprising. Looking just at the proportion of leavers with 5 O-Levels then the DES analysis shows that 75% of the variability between LEAs can be explained by social factors. Lord explains only 50% of this variability, but he took account only of measures of disadvantage and excluded a measure of advantage - the proportion of household heads in non-manual occupations - which the DES used. Indeed, Jesson, Gray and Jones (TES, 3/8/84) assert that over 80% of this variability can be explained when an allowance is made for children at independent schools. Clearly, with social factors so important, there is little variation left for spending, or any other variables, to explain. Moreover, Lord's published data show that the correlation between secondary school spending and his measure of disadvantage is high (0.6). This is not unexpected, given that variations in central government allocation to education have been based on just these measures of disadvantage. And so we see that an LEA's exam results can be accurately predicted by its social conditions and that variations in LEA spending are explained by these social conditions. This combination makes it almost impossible technically for the regression method to discover whether expenditure has an effect on exam performance after allowing for the effect of social factors.

It is sensible to take account of the influence of social factors on exam results before considering whether other variables might be important, but this approach does have one unfortunate side effect. The 1981 report from Her Majesty's Inspectors (HMI) on the effects of local authority expenditure policies on the education service states

that "in rather more than half of the LEAs, district inspectors reported that parents and other individuals are contributing funds to a moderate or considerable extent for the purchase of such basic items as books and materials" and "Although many parents in the more affluent areas appear able and willing to respond to requests from schools, over 40 HMI observations refer to schools in areas of unemployment and other deprivation where headteachers feel unable to seek financial help or where fundraising events produce much smaller sums." Parental contributions as a proportion of total LEA expenditure are of course small, but as a proportion of school spending on books and materials they may be substantial. But because they are likely to be correlated with the social factors, much of the effect that this particular expenditure variable might have on results is lost in the regression analysis.

And so we see that even in their own terms, neither the DES nor the Lord reports are at all convincing. Moreover the multiple regression models that Lord has fitted to his data are, to say the least, dubious from a statistical point of view. To give just one example: he seems to include both overall spending and secondary spending in his models, even though the correlation between them is 0.91 and this makes his results very unstable. 'Value for Money in Education' and Statistical Bulletin 16/83 are poor examples of educational research and statistical practice. Moreover, by looking only at variation in spending between LEAs and ignoring variation between schools within LEAs, they cannot be expected to throw much light on the question posed at the beginning of the article. In other words, the analyses are conducted at the wrong level, at the LEA level and not at the school and classroom levels, a point also made by Harvey Goldstein in the Guardian (7/2/84). Unfortunately this has not prevented Lord from using his findings to draw conclusions about pupil-teacher ratios: "small classes are no guarantee of achievement". But class size can only have any educational meaning at the classroom level and Lord's work is silent on this.

It is not only the quality of this research that worries me. The results can, indeed are, being used to perpetuate one myth - that children do not learn more in small classes - and to create another - that spending cuts in education will not affect educational standards.

We must not forget that the authors of the reports are hardly impartial bystanders in disputes about public expenditure and state educa-

tion. It is not clear exactly who funds the National Council for Educational Standards but there is no doubt that the same people used to write under the aegis of the Centre for Policy Studies which was set up by Conservative politicians (see RS29). Rodney Lord used to be a Daily Telegraph journalist and is now a special adviser to the Chief Secretary to the Treasury, Mr Peter Rees. And while not wishing to impugn the professional integrity of the DES statisticians, the issues they address are of course ultimately determined by Sir Keith Joseph. These connections are not in themselves sufficient to devalue these pieces of research but they are not exactly coincidental and need to be borne in mind when evaluating them.

Those tempted to see in the DES and Lord work, a justification for spending cuts should not only consider my criticisms but also heed the following quote, again taken from the 1981 HMI report. "To put it in a nutshell, many LEAs and schools are surviving financially by doing less; but they are often obliged to take the less in the form that comes easily to hand rather than shaping it to match educational priorities. This means, in some cases, a general retrenchment in which most services, schools and pupils are affected to some degree." Of course, there are important questions to be asked about resource allocation: for example, would it be sensible to devote a lot more resources to reduce class size or would a more modest decrease in class size together with more generous provision of books, computers and laboratory equipment lead to more educational progress (and not just to better exam results)? However, research that could provide convincing answers to such questions is likely to be expensive and complicated (sufficiently complicated to deter the Education Group from trying to do something along these lines!) The research so far has taken too aggregated a view of spending and too coarse a view of educational outcomes, has not acknowledged that variations within LEAs may be as important as variation between them and, most importantly, has ignored the processes which determine LEA spending.

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