



Editorial: Statistical Information and the Measurement of Educational Outcomes

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Editorial: Statistical Information and the Measurement of Educational Outcomes

The 1992 Education Act (Her Majesty's Government, 1992) empowers the Secretary of State for Education to publish information about schools to 'assist parents in choosing schools for their children' and to 'increase public awareness of the quality of the education provided by the schools concerned and of the educational standards achieved in those schools'. The detailed intentions of the government are spelled out more fully in the *Parent's Charter* (Department of Education and Science, 1991) which explains that the information will include 'tables of exam and National Curriculum test results'.

Government spokespersons have made it clear that these tables will consist of mean test or examination scores for each school, produced in the form of 'league tables' so that within an area schools will be ranked and local education authorities will also be ranked in terms of the mean scores of their pupils. The government has rejected attempts to put such aggregate measures into context: one education Minister has been quoted (Guardian, 1992) as dismissing attempts to take account of 'factors other than raw test results'. The same Minister is also quoted as saying that the government's proposals 'will give parents a secure means of measuring the progress, not only of their own children, but also individual schools, local authorities and the education service generally'. 'Tests are the key to the Parents' Charter goal of opening up schools to scrutiny and raising standards'.

The implementation of such policies, in my view, raises serious issues about the proper reporting of statistical information.

School Effectiveness

The work of Aitkin and Longford (1986) and that of many others has demonstrated that attempts to compare institutions on the basis of examination results should take account of the achievement levels with which those same students enter these institutions. The correlations between school input and output measures are relatively high (Aitkin and Longford quote a value of 0.74), and secondary schools differ markedly in their input distributions. Thus a failure to allow for input differences when comparing schools implies that the between-school variation, in no small measure, will reflect those differences. When adjustment is made for intake achievement it becomes possible to provide fairer 'value-added' comparisons.

Nevertheless, even where such value-added analyses have been carried out, the estimates of the unknown school 'effects' tend to have relatively large standard error estimates, so that very many schools cannot be separated reliably. Thus even with 'adjusted' league tables, the results need to be interpreted carefully, and are most useful for identifying extreme schools or departments which may be performing much better or worse than predicted.

Such conclusions will occasion little surprise among statisticians and will sound familiar to those involved, for example, in measuring industrial process efficiency.

Nor will they come as a surprise to those professionally involved in education, including civil servants. As for government Ministers, since they are of course aware of these issues, we must assume that they have chosen to ignore them intentionally.

Information and Choice

If statistical information is to be used for decisions, those who are to use it should be aware of its limitations. Tables of 'raw' test and examination scores certainly carry information about intake achievements but very little about the average progress made by students within any one school. Furthermore, by the time that such information is available to parents and others, it refers to a cohort of students who, in the case of 16-year-old public examination results, generally entered their schools five or six years earlier. Given that schools change over time, such historical information will be of limited use for the purposes of choice.

There are aspects of the social effects of such a policy which are worth drawing attention to. The first is that, if information is available which is correlated with intake achievements and this is used by some parents to choose schools, then the consequences for all schools are unknown. Yet, because schools with low achieving intakes tend to be in socially deprived areas, this will also be reflected in the raw league tables, and it is likely that schools will tend to become more socially differentiated. Needless to say, there is nothing in this which implies that the achievement of students as a whole will be improved.

A further aspect is that we must assume that parents and students are themselves genuinely interested in raising achievements. The only secure way of doing this is to increase our knowledge about what does promote high achievement. This can be done by research which seriously studies the progress made by students and the factors associated with that progress, be they personal, institutional or social. In this respect the production of league tables is a misleading diversion from more constructive activities.

To Inform

The power of information to inform lies in its relevance and reliability. I have argued that the current proposals fail on both counts. Yet there is a view which maintains that any information is better than none, and that in any case it is undemocratic to withhold information from the public. This view is sometimes justified on the general grounds of 'freedom of information' and at first sight would seem to possess some validity. The principle that any information is better than no information, however, presupposes that the information is designed to inform rather than to mislead.

Conclusions

There is a strong case for attempting to inform people about the effects exerted by different institutions, by using the best available data and techniques, and making all the necessary caveats. This is a difficult and sensitive task and one which needs to be undertaken in many areas, not just education. I have been critical of present government policy, because I believe that it will misinform and may have dangerous social consequences, and also because in the long term it may make the task of providing good information that much more difficult.

References

- Aitkin, M. and Longford, N. (1986) Statistical modelling issues in school effectiveness studies (with discussion). *J. R. Statist. Soc. A*, **149**, 1-43.
- Department of Education and Science (1991) *The Parent's Charter*. London: Her Majesty's Stationery Office.
- Guardian (1992) 'Flawed' tests for seven-year-olds to be published. *The Guardian*, May 22nd.
- Her Majesty's Government (1992) *Education (Schools) Act 1992*, section 16. London: Her Majesty's Stationery Office.

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