

Mr P. J. Burville advocates cost/benefit analysis and similar methods for optimising where there is more than one variable, and cites the Roskill Third London Airport Study. I would recommend anyone who wants to know how to spend several million pounds without much outcome to read that report. In it Roskill decided that Cublington was the "cheapest" airport, because when he added up capital cost, and the national costs of time to get to the airport, of noise and of agricultural loss he got the lowest figure. A simplified form of his cost/benefit table was as shown (amounts in £m.):

	Cublington	Maplin
Actual Costs	474	479
Time	4841	5112
Noise	60	60
Agriculture	8	11
TOTAL	5383	5632

Of course the national costs for time, noise and agriculture are arbitrary, and simply reflect the fact that Mr Justice Roskill thought that the fact that getting to Maplin would take five minutes longer than to Cublington was far more important than that the effects of noise at Maplin would be half those at Cublington. Adding together actual and notional costs is misleading because the answer got depends entirely on one's preconceptions.

The Ministry of Transport is likewise fond of producing cost/benefit analyses for schemes like the notorious Archway Road widening, which "prove" that spending tens of millions to devastate a district like Highgate somehow saves money.

Their method is to cost the time of car drivers at a very high figure and to cost noise, traffic accidents, deaths, fumes, mobility of non-car drivers at little or nothing.

The fact is that there is and can be no method which can add up things which are totally unlike. Even were this possible, how could one show that the beneficiaries from the scheme are often not those who suffer from its side-effects? The contribution statisticians can make is to state in a clear form the benefits and disbenefits of a scheme, perhaps summarizing items which are similar (noise, fumes, and possibly visual intrusion could perhaps be covered by one index). Those could be stated in a multivariate cost/benefit analysis table. For example, such a table for the Archway Road widening, comparing it with not doing the widening, and improving public transport would look somewhat as in the table below.

The decision-makers must apply their own weightings to such a table, and if statisticians have done their work well, it will be manifest to everyone just who is being planned for and who is being planned against. Current univariate cost/benefit analysis is a piece of obfuscation, whereby politicians conceal from the public the true meaning of their decisions: let us cease to be a party to it.

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With your head in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
in the oven then on the fire
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by C. Rajendra (Malaysia)
pp. 42-43 in Cecil Rajendra,
ed. (1972) Other Voices
Other Places: An Anthology
of Third World Poetry.
London, Christian Aid, 53 pp.
(Obtainable from: P.O. Box 1,
2 Sloane Gardens,
London,
SW1W 9BW.)

	Widening	No widening	No widening + Public Transport
Actual Cost	£20m	0	0
Number of houses destroyed	100	0	0
Houses affected	10,000	0	-2000
Road deaths/century	300	100	25
Travelling for 20% (1-10)	6	4	5
Travelling for 80% (1-10)	2	4	8
Walking, cycling, shopping (1-10)	2	4	7
Environment, fumes, noise (1-10)	2	4	7

Statistics

Statistically
it was a rich island
income per capita
one million
per annum

Naturally
it was a shock to hear
half the population
had been carried off
by starvation
Statistically
it was a rich island

A U.N. delegation
(hurriedly despatched)
discovered however
a smallish island
with a total population
of - 2
Both inhabitants
regrettably
not each a millionaire
as we'd presumed
But one the island owner
Income per annum:
Two million

The other
his cook/chauffeur
shoeshine boy/butler
gardener/retainer
handyman/labourer
field nigger etc. etc.
The very same
recently remaindered
by malnutrition

Statistically
it was a rich island
Income per capita
one million.

RSS News and Notes, May, 1975 Convergent Views

It seems to me that your correspondents on 'Radical Statistics' and 'Multivariate Optimization' are converging to the same asymptote!

To take the radical statisticians first, they are of course right in suggesting that we incorporate more value judgements than we care to admit into apparently objective figures. In any assessment of a situation we measure what we think is important and assign weights according to our own beliefs, ignoring some things altogether. It may well be that growing up in a capitalist society of itself leads to prejudice, so the intention of studying "statistics in the socialist world" is wholly admirable. Perhaps there are prejudices there too and a comparison could help both sides. I learnt about unconscious value judgements a long time ago in a

field as unpolitical as horticulture when my old chief, T. N. Hoblyn, took exception to a report of mine which declared one treatment to be "better" than another. "What you have shown", he said, "is that it produces more and larger fruit, but how do you know that it does not do much more, like leading to an outbreak of a disease that is usually controlled? You have not even considered the possibility, so how can you say that the treatment is an improvement?"

When we are talking about the advantages of widening Archway Road the scope for the suppression of relevant factors or the undue weighting of our own fads is much greater, which brings us to the multivariate optimizers.

Mr Stern is quite right. If I think that deaths from road accidents are very important but demolished houses can always be replaced elsewhere, I shall reach a different conclusion from someone who is distressed at the breaking up of established communities. Also, it is quite possible that we have both forgotten some important consideration that would carry a lot of weight with non-technical people. It is much better first to estimate the effect of the scheme on anything that might be thought relevant and to keep the value judgements separate. But is it? Where the conclusion is expressed explicitly in monetary terms, there may be something in cost/benefit analysis. How, it may be asked, can anyone assess the effect of aircraft noise? Well, we might ask how much less it costs to buy a house under the flight path compared with one elsewhere. What is the value of a high speed train? The answer could be the supplement that people were ready to pay to travel on it. I dislike the approach intensely, partly because so many "intangibles" could be overlooked and partly from a distaste for commercializing everything, but it is no good saying that values cannot be quantified. How, people ask, can one compare the profundity of Beethoven with the concise gaiety of Haydn? I do not know, but I perform the task whenever I spend a record token. Anyone who papers a room finds himself choosing between the pink ferns at x pence a roll and the mauve roses at y, where $x \neq y$. We do these things somehow.

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A number of statisticians working in various fields have recently been discussing how statistics can be criticised and developed from a radical standpoint. A preliminary meeting has revealed the following possible issues:

- the detachment of statistics and statisticians from other disciplines;
- the developing mystique surrounding quantification and the statistical "expert", and its relationship to power structures inside and outside the statistical community;
- the value judgements implicit in the selection, collection and interpretation of statistical information in certain substantive areas, e.g. wealth/law/education/prices; and the possible provision of counter-information in these areas;
- statistics in the socialist world;
- implications of these ideas for teaching.

We would be very pleased to hear from anyone interested in developing or adding to these ideas. If they write to Liz Atkins we will keep them informed of further developments, including an inaugural meeting of a group which should take place towards the end of January.

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RSS News and Notes, April 1975 Radical Statistics

Following on from a letter in the January issue of *News & Notes*, an inaugural meeting of 'Radical Statistics' was held in London at the end of January. Over 50 people attended, mainly from the universities, polytechnics and research units, but including statisticians in business and public administration. A general discussion centred around the lack of critical discussion of the uses of statistics, and of the relationship between the statistician and those who "consume" his output. This was attributed in part to an elitist system of education, in which the bulk of the population have no contact with statistical ideas. It was felt that further development of these ideas could have important implications for the teaching of statistics, the training of statisticians, their work situation and responsibilities, and the way in which their work is published and assessed.

While one of statistics' aims is to simplify and clarify complex data, it seems very often that statistical results are presented in a way that only experts find comprehensible. This is particularly worrying when policy decisions depend upon the outcome of research, since in this case the mystification of statistical methodology effectively limits public debate to technical wrangling among the so-called experts. Thus statistics can effectively disenfranchise the layman. A similar antidemocratic effect arises when policy decisions are deferred and made contingent upon the results of a programme of research. The research might, for instance, consist of examining the views of individuals who may be affected by the decision under

I am deeply disturbed at the appearance in the January 1975 edition of *RSS News and Notes* of the letter entitled 'Radical Statistics'. The statistician, if he is to do his job honestly, must be objective in all he does. Introducing one's private political beliefs into one's statistical work is the first step towards the slippery slope that is biased doctrinaire propaganda. (I am particularly unhappy about the mention of teaching statistics in the said letter).

What is likely to be the outcome of moves, such as that proposed? It is the initiation of similar, possibly more covert, action by the political right. The overall result will be that moderates will be left desperately trying to hold the statistical profession together, while extremists pull it limb from limb. The general public have many suspicions about statistics at the moment. Allaying statistics to any political cause will only convince them that their suspicions are correct.

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RSS News & Notes, March 1975

Radical Statistics

In his letter in the February issue of *News and Notes*, Mr Shelton suggests that an honest statistician "must be objective in all he does". The basic contention of 'Radical Statistics' members is that objectivity, in the sense of value-free research, is impossible in applied statistical work. Apparent objectivity is merely the obscuring of these values in research reporting. One of the aims of radical statisticians is to expose the implicit value-judgements in research, and we regard this as "doing our job honestly".

It is our view that much applied statistical work is explicitly political in nature, being concerned with policy decisions. All such questions involve a conflict of interests, and it is often the effect, if not the intention, of statistical research that the public is persuaded that purely technical solutions to these problems can be found. We suggest that the result of "bringing one's political beliefs into one's work" in this context will possibly result in a greater awareness among ordinary people of the decisions being taken from them by the so-called experts.

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discussion. In this case the carrying out of the research can have the effect of closing alternative channels of action which might otherwise be open to these people.

One possible function of 'Radical Statistics' would be to provide statistical information and "expertise" for action-groups, claimants unions and the like. This would attempt to redress the imbalance in a situation in which the administration has many technical resources at its disposal, but the man in the street has none.

Concern was also expressed about the statistician's technocratic involvement. In this role he is hidden from public view, his methods are assumed to be valuefree, and he has little or no control over the product of his work once the statistical analysis is finished. Members of the groups were particularly disturbed by the restrictions placed on statisticians working in central and local government. These workers are often required to produce "figures" for purely political purposes, and are constrained by their employers and by the Official Secrets Act from making public their objections to these figures, or the methods by which they were devised. In academic work these constraints are less formalised, but nevertheless the requirements for promotion tend to encourage technocratic research divorced from real issues. It was suggested that a code of practice for statisticians might be a useful way of highlighting the ethical and political problems involved in all kinds of statistical work.

Do statisticians distort decision making?

"Statistical work is explicitly political in nature, being concerned with policy decisions. All such questions involve a conflict of interests, and it is often the effect, if not the intention, of statistical research that the public is persuaded that purely technical solutions to these problems can be found," declared Liz Atkins, secretary of a new radical statistics group.

The group was launched with a letter in the January *Royal Statistical Society (RSS) News and Notes* and 50 people came to the first meeting in London 30 January—many more than the organisers themselves expected.

The radical statisticians hope to link up with radical groups in the professions that use statistics, and to influence decision making by clarifying the role of statistics and encouraging that it be "balanced with other kinds of assessment." They have already published a newsletter (10p from Atkins at 105 Noel Road, London N1).

This is the second attempt to form a radical group in this area. Radical operations researchers formed *FOR?* two years ago, and succeeded in preventing the OR Society from reorganising itself into a rigid professional body. But then *FOR?* withered away. With a larger group to start with, the radical statisticians may do better.

One target will be statisticians themselves. Atkins explains that "the training of statisticians convinces them that problems can be translated by some one totally ignorant of the subject into purely mechanical procedures. But this requires bludgeoning the problem into a form that has an answer. And it takes the decision making away from the people who should have a role."



The great cash puzzle

● I AM puzzled by the reports of average weekly wage packets of £50, and average increases of 30 per cent in 12 months.

As a skilled engineer, my wages are nothing like that figure, and my increases in the past year have been only about 10 per cent.

I think that averages arrived at by taking the very well-off and the ordinary wage earners can be terribly misleading—L.D., Leicester.

Obfuscation from the report of the chairman of Waterford Glass Ltd. "In my statement last year I mentioned that a more flexible approach to prices had been adopted and as a result our profit margins improved."

The group decided to set-up study groups to discuss ideas in several areas, these would meet fairly frequently and informally. Among areas suggested were Methodology, The Working Statistician, Teaching Statistics, and groups to look at the application of statistics in Health, Education and Economics.

LIZ ATKINS