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STATISTICAL ETHICS

*Prof Harvey Goldstein
National Children's Bureau*, London, UK*

and

*Mr Gopal Kanji
Sheffield City Polytechnic, Sheffield, UK*

The articles in BIAS by Pridmore (1975, 1976) and the replies by Greenman-Gutless (1975, 1976) have given a welcome airing to an important issue.

In his first article, after discussing the pros and cons of different weights and measures legislation, Pridmore exhorts professional statisticians to become involved in the political issue of whether or not to adopt the current EEC proposals. "For once the professional statistician may be seen to be at the centre of a matter which is important to all"...."You may well come to the conclusion that the continental proposals have some merit in them, and that all is not in favour of the UK status quo. *If so, would you please say what you know. Please say it clearly, and please say it often.*" (Our Italics)

In his attack on Pridmore's views of the EEC proposals, Greenman writes, "How can we not suspect that he writes not as a statistician expressing balanced judgements based on all available evidence, but as a representative of his employer's interest? *He may be under some pressure to lobby for his employers, and be prevented from expressing his real views by commercial confidentiality.*" (Our Italics)

* Present Address: Institute of Education, University of London

We do not propose to get involved in the finer points of dispute over weights and measures legislation, except to point out in fairness to Pridmore that Greenman subsequently admitted that he was ignorant of the subject, and in fairness to Greenman that in spite of his ignorance and the somewhat unfortunate way he expressed it, he had an important general point to make.

It seems to us reasonable to suppose, a priori, that nearly all applied statisticians at one time or another have acted consciously or unconsciously as advocates of their employers' or clients' interests - whether in recommending how to fill bags of sugar, or in how to present statistics concerning children. It also seems to be true that statisticians are being increasingly called upon to take part in public debates and to participate in deciding the policy of their employers - whether private or public. In this situation the personal and subjective attitudes of the statistician become more important than before and also more visible to the world and hence more open to criticism. If a statistician sits as a member of a government committee for example, applying cost-benefit analysis to the problems of siting an airport, then he presumably assumes the same degree of responsibility as any other member for the joint decisions reached by the committee, and also becomes just as open to criticism for his views. What then is his precise role? Should he, in fact, attempt to remain 'neutral' supplying only 'technical' advice? It seems to us that such a defence of his position cannot survive attack. Whatever judgements and assumptions underpin and direct a statistical inquiry they need to be mutually acceptable to both the statistician and his colleagues. Thus one of the characteristics of a good applied statistician

ought to be not only that he gets involved with and understands the substantive problem, but that he also accepts his share of responsibility for the assumptions, judgements and interpretations which are made.

It is important to make the point that there is nothing inconsistent between holding partisan views and presenting a balanced account of an issue. We would not, for example, go along with Anderson (1976) in calling for "a completely uncoloured precis of what the data have to say", because this seems not only to be generally unattainable but might become rather dangerous if we came to believe that we had really done it! We would also reject the other extreme view that the statistician should act openly as an advocate for an interested party. This view, based on a courtroom model, seems to us to degrade the true role of the applied statistician as one who is attempting to reflect reality. What seems to us to be really crucial is that an account of any issue is presented in such a way that others, with different values and assumptions, can find whatever material they need to come to possibly different conclusions. It follows that all the assumptions made in any report should be spelled out clearly so that the points of possible contention can be located readily and disagreement voiced. The crucial details moreover, should not be buried in an obscure appendix but explained clearly at the appropriate place in the argument.

It would be pleasant if one could claim that most statistical inquiries fulfilled these criteria. Unfortunately, there are all too many cases where they are not fulfilled. Reference has been made in recent issues of BTAS to the Plowden Report

(Goldstein, 1976) and the manipulation of economic data (Kapadia, 1976) as examples of important discussions where the data cannot be properly checked or have been statistically manipulated for political ends. Another recent example has been reported by Hanlon (1975). This arose from an instruction given by the Department of the Environment to its inspectors carrying out public inquiries into road building, suggesting that they should not allow questions about the accuracy of the department's road traffic forecasts. It has been pointed out, however, (Adams, 1974) that with reasonable modifications to the assumptions behind these same forecasts, quite different results would be obtained - something that will come as no surprise to statisticians. Nor, presumably, has it escaped the notice of policy makers. The problem arises because the essential process of querying and testing the assumptions of the statistical model is being denied a public platform. In such a situation it is clear that the statistician responsible for providing the analysis plays a crucial role in policy making.

If, as statisticians, we fail too often to be as candid as is possible, then we can surely expect the public's distrust. If statisticians feel unable to speak their minds because of 'pressures', then the statistical profession should be very concerned about how to help them overcome these restraints. As Anderson (1976) points out, an individual statistician may be in a difficult position, subject to various pressures of a subtle or unsubtle kind and may risk unemployment or even prosecution if he or she speaks up for what they believe to be true. As a group however, statisticians are more powerful. The profession ought to be able to lay down guidelines of good

practice and develop a code of ethics which could be invoked by any individual who feels his integrity threatened, just as, say, doctors make use of their professional ethics. In the area of survey research Frankel (1976) discusses abuses which have occurred, and suggests ways in which ethical codes of conduct can be drawn up. It is now common practice for accounts of research submitted to medical journals to be scrutinised for conformity with good ethical practice. Should we not begin to apply similar procedures to some of the applied statistical work submitted to our own journals?

These issues have had an airing in the United States in the last few years (Gibbons, 1973), stimulated in part by the political interference in the statistical work of Federal agencies by the Nixon administration (Duncan et al, 1973). In the United Kingdom, however, there seems to have been little published discussion of ethical issues. It is true that we have had nothing approaching the political interference which occurred in the U.S., but there is surely enough disquiet about various areas of statistical practice which should make us take this issue seriously.

What seems to be needed at present is a wide discussion of the issue to see just what the problems really are, and an exploration of the possibilities for more formal statements about the duties, responsibilities and rights of applied statisticians.

Readers of BIAS are invited to contribute their views to this debate.

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