

STATISTICAL EXPERTISE AND EDUCATIONAL RESEARCH

(This is a summary Of Jeff Evans' part of the talk on Radical Statistics, given to the East Midlands Group of the Royal Statistical Society, in Leicester in April. John Bibby discusses some of the issues he raised in his part elsewhere in this Newsletter.)

My talk focussed on the recent work of the Education Subgroup, in particular the typology of statistical criticism we have developed: hit-and-run (or "irresponsible") criticism; statistically responsible criticism (and its limitations); and demystification. (For a fuller discussion of these types, see the articles in RS 18, May 1980.)

The main theme was the limitation involved in focussing on largely technical aspects of criticism at the expense of theoretical, practical, and political aspects - and the consequent restriction of critical discussion to "professional" audiences (statisticians, educational researchers) to the exclusion of teachers, and parents, and pupils.

This leads to several practical suggestions.

(1) for the professional identity and style of work of applied statisticians: They need to acquire methodological and "substantive" knowledge relevant to their chosen field of application, and/or (what is perhaps a stronger condition) need to work in multi-disciplinary teams. (These points were discussed by Harvey Goldstein and Henry Wynn respectively, at the Conference on "Statistics in Society" at Canterbury in April.) However, when we look at statisticians in higher education, most of them, I estimate, work in Maths Departments; official statisticians, at least early in their careers, are moved every 3 or 4 years to different Departments. Both of these practices must make it difficult to develop the necessary substantive knowledge.

(2) For teaching: Apprentice applied statisticians need not only training in mathematics, but also knowledge of substantive disciplines, including the relevant official statistics (see C.R.Rao, Int.J.Math.Educ.Sci.Technol., 1971, 295-312). Non-statisticians need largely subject-specific Methods of Social Investigation and Statistics courses (see my paper to the Workshop on Teaching Statistics, R.S.S. Conference, Apr. 1979).

(3) For professional-client relations in statistical consulting: Two questions seem basic:

(A) WHO SHALL HAVE THE POWER TO UNDERSTAND?

(B) WHO SHALL HAVE THE POWER TO DECIDE? e.g. on whether a research conclusion, or policy recommendation, is reliable (cf. the power to decide what treatment should be given; see Ian Kennedy's Reith Lectures, ⁽¹⁹⁸⁰⁾ now published as Unmasking Medicine.)

I argued that teachers (and many parents) should be able to understand what, say, Multiple Regression aims to do, and the basic pitfalls in its use. One of the major tasks of applied statisticians should be to promote this democratisation of basic statistical knowledge.

In the ensuing discussion, some thought this last hope too optimistic: one position was that democratic involvement should come at the stages of choice of research problem, conceptualisation and specification of indicators, but that it was impractical to attempt to spread expertise in understanding e.g. regression models beyond statisticians with a mathematical background. Another suggestion was that a national council (presumably largely made up of professionals) should approve research reports before publication. (I hope that one or more of these positions may be discussed in the next Newsletter.)

In putting together a history of Radstats Subgroups (which I did not have time to present), I was struck by two points. First, the Group's productivity is holding up over time, even increasing (see Chart next page).

Second, there is a gap in our work, resulting from the early amalgamation of the Teaching and Methodology Subgroups. The latter was intended to examine the extent to which currently-

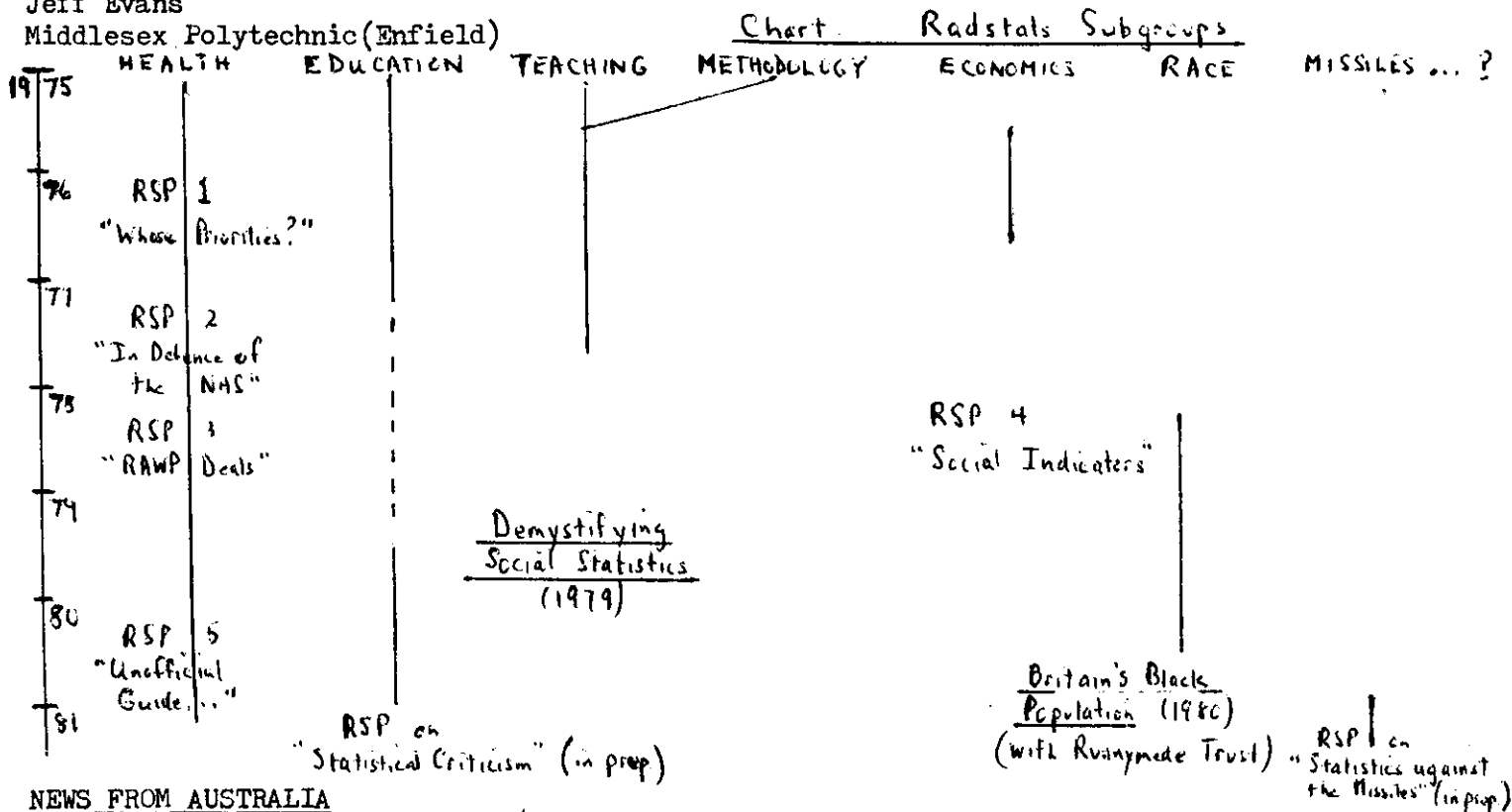
used statistical techniques might entail "commitments" which are restrictive or anti-progressive; for example, basic regression analysis requires the assumption of one-way dependence without feedback and hence is aligned with views of the social world which see people as caused in some mechanistic way, rather than as acting consciously themselves. But, as far as I am aware, we have not had much discussion of critiques of existing statistical techniques, nor of alternatives to them. Demystifying Social Statistics contains critiques of certain techniques, but there is little on alternatives, and some authors expressed doubts as to whether much work could be done towards a "socialist statistics" without basic social ^{change} occurring first.

Recently, however, there have been several developments. David Jones gave a paper to the R.S.S. Medical Section in February, which provided a critique of current techniques of risk assessment, and proposed alternatives, relating these to some of Jonathan Rosenhead's work (J.O.R.Soc., vol. 31, 1980). Also, a new "Labour movement epidemiology" group, made up of people from Radstats, Politics of Health Group, BSSRS Hazards Group, is working on providing critiques of accomplished and proposed studies of occupational hazards by "experts", and a DIY handbook on epidemiology for trade unionists. (Further details from Tony Fletcher, 15 Westminster Rd., Handsworth, B'ham B20.)

Is work going on within Radstats on critiques of, and alternatives to, statistical techniques (significance tests, regression, factor analysis, etc.), and, if not, is this an area we should and could be working on???

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NEWS FROM AUSTRALIA

Our correspondent (JC) has sent a number of copies from the last 2 or 3 years of STATAGO, the news sheet for ACOA(union) members in the Victoria Office of the Australian Bureau of Statistics. These discuss various issues that they face: staff ceilings since 1976, but output increasing; internal specialisation e.g. a new Information Services Section to deal with the public, rather than the producing section handling enquiries, etc. IF any reader would like to have a look at these news sheets, please contact the Archives, Radstats, 9 Poland St., London W.1.