

James Everett Katz, Rutgers University

This paper examines some of the problem areas in the interaction of statisticians with public policymakers and recommends steps which will give the statistician greater visibility and effectiveness in the policy process. In discussions of the participation of statisticians in policymaking, there is a concentration on the ethical, legal and practical problems of the data gathering process which includes both storage and access [ (2), (3), (6) ]. These are important issues and their exploration sheds light on timely questions. Discussions generally deal with topics such as confidentiality, ethics, etc., but it is important for the statistician to carefully consider the role he or she plays in relationship to the governmental policymaker (8). An area which has been largely bypassed in these papers is the definition of the optimal role for the statistician to play in the policy formulation and decisionmaking process.

In viewing this relationship, the first question one must ask is how aggressive are the federal agencies willing to be in searching out statistical advisors. Clearly, there are many statisticians employed by the federal government; however, as Matthew Radom (7) has pointed out the level of input of statisticians usually tends not to be at the policymaking level. There are also several permanent advisory committees who conduct their work for government agencies under the auspices of the ASA. These three committees are highly effective according to a recent report (1); however, there are many committees which have attempted to have an influence on policy and have failed. The Federal Trade Commission brought in academic statisticians for one year, yet no follow-through was provided and this committee left little impact on the FTC. The Bureau of Mines also convened a committee of statisticians to help in the policy process, but due to resistance within the Bureau of Mines this committee quickly degenerated to nothing.

Despite the occasional use of committees, it is decidedly rare that any federal agency will call upon statisticians as permanent adjuncts to guide policy formulation. When they do convene committees of statisticians, very generally there is no follow-through of the committees' recommendations.

On the level of local government, the situation is somewhat improved. Here statisticians are accepted as part of the local community, and thus become better received by local government officials. There is a feeling of "belonging." Impact at this level has traditionally been in the areas of municipal policy, school board decisionmaking, and the forecasting of demographic change.

There are some internal psychological variables which can account for the resistance to the utilization of statisticians in the

policymaking process and also contribute to the relatively low sensitivity of government officials to statistical advice. (1) Individuals from a political background know that there are very real risks in being bound to definite empirical findings and conclusions which can be drawn from these findings. (2) The corollary of this is that it is difficult to be vague or obscure with definite figures which, once examined, can indicate that a certain path or direction should be taken. (3) External standards which are typical of the scientific process are often perceived as a threat to the governmental officials prestige and standing. (4) There are very real limitations in the political climate at any given time. The findings of statisticians may force the policymaker to transcend the boundary within which he wishes to act and thus contravene the recommendations of his own advisory committee. This in turn presents a very real dilemma to the committee members who are professional statisticians, i.e. should they "go public" and violate the confidence of the politician.

There are also areas in the communication process which inhibit the utilization of statisticians. The politician may experience fears (and at times realities) of esoteric language as well as suspicion of something which seems mysterious. There is also the problem that statistical experiments seem to require what the politician considers excessive rigor. Often times the political situation makes it nearly impossible to gather the sort of data needed to determine the answers to the policy questions. Recent recommendations for greater statistical training of governmental inquiries has been made by B. J. Mandel (5) and it can be expected that with greater training these problems can be reduced or eliminated.

The reverse question can be asked, "Why aren't statisticians more aggressively offering their services as inputs to the policymaking process to the government?" Of course, an important factor here is the natural inertia in human activity which makes it difficult to initiate and sustain an interest in a new area especially if it is not directly relevant to ongoing activities. Beyond this is the fact that the extra time and effort required to participate at this level is difficult to produce when one feels already busy. Many statisticians are already busy with their other interests. The final factor which minimizes an individual's participation is the fear that they won't be accepted as part of the team or have their recommendations accepted by the policymakers.

There are also professional considerations. For example, with the exception of the three committees mentioned above, there is no institutionalized channel through which statisticians can participate as statisticians in advising government policymakers. There are also problems

and difficulties in dealing with the situation and context faced by policymakers. How would a statistician respond to the political necessity of producing quick findings? How does one cope with unavailable or inaccessible data needed for making proper decisions? Finally, much of the data which is needed to underpin policy tends to be very fragmentary, thus agonizing statisticians who know the problems inherent to such data.

There are only four advisory committees, per se in total, in the entire ASA. Between 80 and 160 individuals serve on them, yet there are about 5,000 members of the Business and Economic Statistics Section and 3,500 in the Social Statistics Section. This accurately reflects the rate of participation of statisticians in the policy context.

There are structural modifications which, if undertaken, will result in improved policy linkages. First, there should be an increase in the variety of policy-research funding sources available to statisticians. This will widen the perspectives available on policy questions which will in turn permit a greater spectrum of advice on more diverse levels of decisionmaking. University departments, professional organizations, and private industry should encourage statisticians to participate in policy advising on a part-time basis. The part-time arrangement, as opposed to full-time, total commitment, is important first of all because it will permit the statistician to retain his autonomy. This is vital as the statistician gets increasingly drawn into the fray of political combat. Secondly, the part-time arrangement offers maximum efficiency by supplying the needed inputs at a minimum of cost. Efforts should be undertaken to eliminate, wherever possible, middlemen who often mediate the findings or recommendations of policy related research. By linking the statistician with the policymaker, the flow of communication will be improved.

The government has moved to upgrade its middle-management in terms of familiarity with statistical techniques (5). By offering courses and seminars, as well as stressing the importance of statistical training in recruiting, a more satisfactory environment will be created for the inputs of the statisticians. Beyond this, the government can make the inputs of statisticians more significant by designing useful mechanisms into policy machinery. For example, by establishing a series of follow-up measures such as continuing reports, feedback and meetings for the participants, the interest and implementation can be more successfully maintained.

One problem with increased participation in public policy is that the statistician is in danger of falling into the "mandarin role." The mandarin role generally occurs when policies are decided in advance and the political course set, then there is a frantic search for justification in the empirical world, especially by means of "feasibility studies" and "demonstration effects." Then the outside expert is called in, not to establish or even verify a policy course—

instead only to legitimize a policy (4). In order to counterbalance this pitfall, and to heighten generally both the prestige and the reputation of the statistical profession, a sound course would be the development of a public service advocacy ethos within the profession. Recently a step in this direction was taken by the New York ASA Chapter which is working to reduce blatant abuses of elementary statistics, especially in the media and government (Amstat News, March 1975). In the legal profession, the pro bono publico standard is manifested by public interest law firms and storefront law offices. By adopting a similar stance, although in a different format, statisticians could shape policy to aid the politically disenfranchised and unrepresented.

Knowledge yielded by applied statistical research, if it is employed for policy purposes, is not neutral or value-free. By definition policy is made to reach certain goals. The achievement of a goal means that some group will benefit while other groups suffer or at least not benefit to the same degree.

Even knowledge itself produced by policy-related research is value-laden. Varying types of groups are able to differentially avail themselves of policy information despite the fact that it is freely available to all. Hence the policy information adds to the power of a central administrator over the administrators of component agencies, a higher level manager over the lower level manager, the executive over legislative branches, and the government (using public monies) over the popular will.

An obvious putative outcome of greater participation of statisticians in serving government policy bodies will be more effective programs. But rarely is the question ever raised about what the society's social goals are or how a particular policy fits into those goals. By avoiding an examination of these issues in policy research, the values which are implicit in science and explicit in democracy are by-passed.

The next step for the ASA should be the development of the "professing" aspect of the term profession. The statistical profession should, at the higher levels, expect and insist that its members be active participants in policy planning and evaluation while simultaneously remaining aware of the implications of such advising and sensitive to policy outcomes. The statistician should strive for greater public responsibility while seeking a potent policy advising role.

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