Letters

Computer Costs: Two Alternatives

In his letter (12 Jan.) Bastable offered a suggestion to help deal with the problems associated with the costing of computers at academic institutions. He proposed that the cost be recovered in part by setting a rate which apportions a fraction of total operating cost by use, and that the remaining fraction of cost be recovered through a pool of indirect costs. Such a system is one among many which have been under study by federal agencies. A broader discussion of the subject of computer costs may be of general interest.

Among the purposes which systems of rate charges may serve are: (i) to effect a procedure to fully recover the costs of operating equipment; (ii) to effect a priority system for the use of equipment; and (iii) to provide a decision mechanism for choosing the most economical vendor of equivalent services. The procedure followed at universities and colleges, insofar as charges are made to federally sponsored activities, follows the Bureau of the Budget Circular A-21 and is intended to serve the first of these purposes. Under this procedure, total costs for the operation of computers are distributed to all users at a rate proportional to their use of the equipment, but investment decisions about equipment needs are left to each institution.

Some view the operation of this policy in terms of a two-person game between "the institution" and "the sponsored users." It is instructive to consider two common situations from this viewpoint.

Case A: The objective of institution A is to maximize the utilization of equipment by its students and faculty. By prior agreement the sponsored users' strategy is fixed; they share in the total cost of operation until their funds are exhausted. Institution A adopts the strategy of permitting its students and faculty to fully utilize the equipment without regard to their sponsorship, a strategy which requires that the institution bear any resulting difference between the total fixed operating cost and the income recovered from sponsored users. As a consequence, no time remains unutilized for the purposes which the institution had in mind in acquiring the equipment, and the rate charged is as low as is consistent with the institution's total needs.

Case B: Institution B seeks to maximize the utilization of equipment by its students and faculty with the added constraint that its share of total operating costs not be greater than a fixed, predetermined fraction. The users' strategy being fixed as in Case A, institution B follows a strategy which results in limiting its utilization of equipment to a fixed fraction of that of its sponsored users. Thus, both players must accept the fact that, under this strategy, each may pay a fixed price for an arbitrarily small utilization of equipment and that substantial time can remain unavailable for use by either. This strategy is feasible, moreover, only if the income from users will cover the fraction of costs assigned to them at the outset.

The decisions which lead different institutions to adopt either of these policies are complex. Academic investment decisions stem from each institution's evaluation of its future academic requirements and the availability of funds to meet these requirements. Thus, some institutions invest in large, comprehensive libraries, whereas others content themselves with smaller, more select holdings and invest the differential funds elsewhere. Today, all institutions face difficult decisions in attempting to accommodate the rapidly increased requirements for costly computers within severely limited budgets. Some of these, however, have already decided to emphasize their computer investments at the expense of other requirements, hoping to develop their leadership in newer areas which are, or may become, heavily computer-dependent. Such institutions tend to reflect the situation described in Case A. Other institutions, having already committed themselves to major investments in other areas, now face a decision either to reduce expenditures in these investments in order to accommodate computer costs or to await new sources of funds to help accommodate this need. A small number of these institutions reflect the situation in Case B.

At a time when the rate of increase in sponsored income to all institutions is insufficient to cover the rate of increased costs of computer investments, institutions following either strategy must expect to bear greater costs to maintain this rate of investment. Clearly, no simple adjustment in the rate procedure described in Circular A-21 can provide a global solution to this problem.

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Census: A Probe into Privacy?

The proposed legislative curbs on the scope of the decennial census should be of serious concern to anyone committed to the social responsibility of science ("Privacy: Curb sought on census," 5 April, p. 51). The type of information that would be excluded would make it impossible to conduct secondary analyses of census data by economists, sociologists, urban planners, and demographers. Just at a time when, hopefully, the political climate may finally become receptive to the need for social planning to solve basic socioeconomic and urban problems, the factual foundation for such planning will disappear.

There can be no question as to the need to preserve the anonymity of individuals, but this should not be achieved by denying social scientists and social planners the richness of data they have had access to through census. Reasonable safeguards can be, *and have been*, maintained by census. Further protection may be needed, but not along the lines proposed by Representative Betts.

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Some users of decennial census data express alarm over my efforts to remove the penalty ($100 fine or 60 days in jail) from most proposed questions and otherwise shorten the questionnaire. I suggest that statistical users should worry instead about the efficacy and effectiveness of 1970 census plans. Here is why:

1) Reputable market and opinion research leaders have indicated that the present 120 questions on the census long form exhaust the tolerance of the respondent and will likely result in a