INTRODUCTION

The last decade has experienced substantial changes in business and industrial management. The competitive environment, domestically and throughout the world, has prompted an ever increasing drive for greater efficiency and profitability in the private sector of the world's economies. The United States plays a leading role and, together with Japan and West Germany, has been on the leading edge in the new development of these new frontiers.

This desire and need for greater business and industrial effectiveness has necessitated the introduction of scientific judgments into business management at an historically unparalleled rate. In practical terms, this meant the hiring of professionals, the retention of consulting firms, and the utilization of a variety of services that are geared to improve the decision making process of top and middle management.

Concurrently, in recognition of this phenomenon, there has been an information explosion, also historically unparalleled. More data are available. Statisticians feel more secure in the utilization of disaggregated data. Advanced computerized systems has made mass data handling economically feasible.

It is therefore highly appropriate that any substantial developmental work in the small area data field come to the attention of the American Statistical Association and that through it, it becomes accessible to everyone. We are fortunate to have presented to us today three learned papers dealing with small area data estimating.

SYNTHETIC ESTIMATION BASED ON INCOMPLETE INFORMATION

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The synthetic estimation method for providing small-area estimates requires full knowledge of the small-area totals for each of the subgroups of the chosen partition of the population. When this partition is defined by all possible combinations of levels of several symptomatic factors it is common that totals are not available for all combinations. However, the values of certain marginal totals may be known. For this case two estimators are proposed having efficiencies which compare favorably with that of the classical synthetic estimator. The estimators are improved upon by the introduction of some ecologic variables.

The application for which this approach was developed is described. It consists of an information system which allows the user to specify a combination of attributes and a subarea of the population. The system responds with an estimate of the prevalence in the chosen subarea of households with the given combination of attributes.

REFERENCES


