

A POLLSTER'S MINIMAL SAMPLE SIZE

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Attributes sampling, the basis for survey-type sampling, has been honed to a fine edge. Yet, the resultant sample size is frequently so large that its use is uneconomical.

The case in point is Atlanta's mayoralty election of 1977. The model, however, would seem to be applicable to poll-taking and the survey process generally.

The sample size was initially determined by means of a conventional formula, pursuant to randomization and setting specifications for the following indices: Confidence Level, Standard Normal Deviates (z's for alpha and power), Proportions (p and q), Precision (in percentage points), and Population Size. By substituting the arbitrarily specified values, a sample size of 460 was computed. Even though the sample size is relatively small for the subject purpose, the available resources did not permit the use of same.

It was clear that an innovative approach was required in order to serve sample-size economy. The following factors constituted the rationale for the task at hand:

- (1) Thorough knowledge of the nature of the population;
- (2) Special attention to the magnitudes of the stratified segments of the population;
- and (3) Applicatory emphasis on the homogeneity principle pursuant to the foregoing.

Pursuant to the available population information, tables were constructed focusing on race, sex, age, and occupation. Computations and analyses permitted the implementation of the first factor of the rationale. Comparative data from the tables permitted the implementation of the second factor of the rationale, on the basis of the resultant percentages with respect to the focal population strata and substrata. In order to implement the third factor of the rationale, the following principle was borne in mind: Regardless of the size of a given population (N), a sample size (n) of one (1) would, ordinarily, be adequate if the population were completely homogeneous.

After attending the three factors of the rationale, it was recognized that the desired poll information may be obtained either (a) directly from the prospective voters or (b) indirectly from non-voters. In the first instance, a compromise of prospective-voter intention is

indicated; in the second instance, communicated attitudes of the voters are indicated. In the study at hand, the basic objective was not to ascertain, directly, for whom prospective voters planned to vote. It was, rather, to ascertain, indirectly, attitudes concerning the slate of candidates. In view of the latter point, college students, in attendance at a large urban university, could furnish the dichotomous yes-no attitudinal information concerning the given candidates.

After studying the nature of the population on the basis of the constructed tables, a two-stage stratified-randomized sampling technique was employed, arbitrarily selecting 10% from each of the subjectively determined large strata, 7% from each of the subjectively determined medium-sized strata, and 3% from each of the subjectively determined small strata. This approach resulted in a sample size of 37, only approximately 8% of the conventionally determined sample size of 460.

On the basis of the poll results, the incumbent, Mayor Maynard Jackson, was predicted to garner 60% of the vote, favorably compared to the 64% which he actually garnered. Table 1 shows the predicted-actual percentages.

Table 1

Comparative 1977 Mayoralty Election Data

Candidates	Predicted %	Actual %
INCUMBENT	60	64
A	17	18
B	12	13
C	9	4
D	4	1
Totals	100	100