A PROBABILITY SAMPLE OF THE HOMELESS POPULATION OF CHICAGO

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Introduction

In recent years, the problem of homelessness has received widespread attention from both policy makers and the mass media. This attention has occurred at all levels--local, state, and national.

One basic problem that confronts policy makers who must decide how to allocate a limited number of dollars among competing social problems is the lack of basic credible statistics that document the size of the homeless population and its demographic composition (age, sex, race).

Currently, most estimates of the size of the homeless population are provided by advocacy groups. As a result they are viewed as subjective and probably subject to self-rewarding inflation.

A recent article by Jay Mathews in the September 9, 1985 issue of the Washington Post carried the headline:

The Homeless
Help them? We can't even count them

In early 1985, researchers at the Social and Demographic Research Institute (SADRI) at the University of Massachusetts and NORC at the University of Chicago undertook the development of a research design that would allow for the selection of a probability sample of homeless individuals in the city of Chicago. One of the key features associated with the use of a probability sample was the fact that it would be possible to produce unbiased estimates, with known reliability, of the number of homeless persons in the city of Chicago.

The first wave of field work took place in September 1985. This was followed by a second wave in February and March of 1986.

Study Design

The sample design used in this study recognized the potential mobility of the population to be studied. More specifically, it recognized the fact that on any given evening homeless persons would spend the hours from 1 a.m. to 6 p.m. in one of two places: in a shelter or "elsewhere". In general, shelters in the city of Chicago are well-defined physical locations, similar in many ways to group quarters or institutions. In contrast, "elsewhere" might include a city park, an abandoned building, a shed, an automobile, or a railroad car. "Elsewhere" might also include just walking around on one or more blocks, or in a railroad station, an airport, or a bus depot.

Individuals who were staying in a shelter were automatically classified as homeless. Individuals who were encountered in other settings were classified as homeless on the basis of a series of questions related to usual living arrangements.

Since a homeless person might be in a shelter on one night and elsewhere on the next night, the population of homeless persons was defined on a "nightly" basis. Rather than selecting a single large sample for a single night, the sample design called for the selection of smaller samples on each of 14 successive nights. These smaller samples were then aggregated in order to produce the overall estimates.

For each of the 14 nights that formed the population, the population was partitioned into two strata: shelters and elsewhere.

The Shelters

The sample selection of individuals in shelters was quite straightforward. Depending upon the time of the year, there are between 25 and 50 shelters for the homeless in operation within the city limits of Chicago. A list of operating shelters was compiled approximately one month prior to the anticipated date of field work. In the first wave of the study, there were 19 shelters with bed capacity of 20 and over. These shelters were selected with certainty. There were 9 shelters with bed capacity below 20. These smaller shelters were sampled on a one-in-three basis. Within the larger (certainty) shelter strata, one third of persons using the shelter on the designated sample night were selected for full interview. In the non-certainty shelters, all residents on the designated sample night were selected for full interview.

Elsewhere

Individuals who did not fall into the shelter defined population were sampled through an area sampling process. In the 1980 U.S. Census approximately 19,000 blocks were identified within the city of Chicago. These blocks were classified into 3 strata on the basis of expert evaluations. The stratum with the highest expected density (H) of homeless individuals consisted of 295 blocks. The medium expected density stratum (M) consisted of 806 blocks and the low expected density stratum (L) consisted of 18,308 blocks. For the initial wave of field work, 49 blocks were selected from the highest expected density stratum. Sampling was accomplished by simple random (without replacement) block level selection. Forty-nine (49) blocks were selected from the medium expected density stratum using the same sampling method. A total of 70 blocks were selected from the low expected density stratum. For this stratum, blocks were linked in groups of 5, and a simple random sample of 14 of these linked groups were selected.

Blocks selected from each of the strata were randomized among 14 successive nights. Control on this randomization was imposed to equalize the allocation among strata over nights.

On the assigned night, each sampled block was visited by one or more teams. Each team consisted of one or two NORC interviewers and two off-duty Chicago police officers. The number of teams assigned to a particular block was determined on the basis of a daytime visit to the block within a day or two of the date that the block was scheduled for inclusion. The interviewing teams completely and systematically swept or canvassed each block for individuals who

were on the blocks (walking, sitting, lying, bicycling) and individuals who were in abandoned buildings, sheds, alleys, boxcars, and automobiles located within or directly next to (in the case of automobiles) the selected blocks. An attempt was made to ask a series of screening questions of all individuals located in this sweep. All persons were offered a one dollar payment for answering the screening questions. Individuals who were classified as homeless in this screening process were offered an additional four dollar incentive for participating in a short interview.

Estimates of Population Size--Wave I

A total of 919 persons were found to be living in the 19 certainty shelters on the days that these shelters were designated for interviewing. In the 3 shelters that had been sampled with probability 1/3, a total of 14 individuals were found.

A total of 318 individuals were encountered in the 168 sampled blocks. These encounters resulted in 232 fully completed screeners. Twenty-three (23) individuals were found who met the screening qualifications and were, therefore, classified as homeless.

Table I shows the number of blocks in the population and sample as well as the results of screening on a stratum-specific basis.

Table I
Number of Blocks and Homeless Persons
by Stratum--Wave I

Stratum	No. Blocks Population	Samp.	Encountered	Screened	Homeless
H	295	49	144	103	5
M	806	49	142	104	15
L	18,308	70	32	25	3

Estimates of the average nightly population of homeless persons were obtained by multiplying the number of individuals found by the inverse of their probability of selection. The shelter component of this estimate is 919 + (3/1) *14 = 961 persons. The standard error of this estimate, which results from the shelters that were selected with probability 1/3, is 13 persons. The non-shelter component, which was further adjusted by the inverse of the screener completion rate, is 1,383. Applying the standard formulas for stratified sampling that recognized the clustered nature of the block selection in stratum L yields an estimated standard error of 735.

An alternative set of estimates of the homeless population on streets and in public places was made using interviewer assessments of the truthfulness of the respondent's answers to the screening interview. (In a few cases, the interviewer felt on the basis of the respondent's appearance and/or answers that the respondent was really homeless.)

In summary, the first wave of field work conducted in late September and early October 1985 produced an estimated average nightly homeless population of 2,344 with a standard error of 735. If interviewer assessment were used to adjust the block sample results (in contrast to the completion rate) the overall estimate would be 2,441.

Estimates of Population Size--Wave II

The second wave of this study was carried out in February and March of 1986. The sample design was essentially the same as that used in Wave I with the following exceptions. First, there were somewhat more shelters in operation during the time period that this wave was fielded. In total, 45 shelters were listed on the frame. The largest 17 were sampled with certainty. The next 12 were sampled with probability 1/2 and the smallest 16 were sampled with probability 1/4.

For the non-shelter component, the same stratification of blocks was used. Sample allocation was the same as in Wave I for the high and medium expected density strata. A total of 147 blocks were selected from the low expected density stratum. This selection used groupings of 3 blocks and involved the simple random selection of 49 of these linked groups.

The results of the second wave of interviewing were consistent with those of Wave I and with the season. Interviewing was carried out during the winter months of February and March. During this time more persons were expected to be found in shelters and only a few were expected to be found in other places. The projected number of homeless persons in shelters was 1,492 with a standard error of 48. A total of 30 persons were found in the 245 sampled blocks for Wave II. Twenty-eight (28) persons were found in H stratum blocks and two were found in L stratum blocks.

Table II shows the number of blocks and the interview results in Wave II.

Table II
Number of Blocks and Homeless Persons
by Stratum--Wave II

Stratum	No. Blocks Population	Samp.	Encountered	Screened	Homeless
H	295	49	208	174	28
M	806	49	22	19	0
L	18,308	14	59	45	2

After adjustment for non-completion of screening, the average nightly non-shelter population is estimated as 528 persons with a standard error of 269. If interviewer assessment were used in place of simple non-response adjustment, this number would be increased to 934, with a standard error of 364.

Conclusions

The estimates produced by this study of the average nightly homeless population for the city of Chicago were somewhat lower than those expected by service providers and advocates. Replication of this type of design in other cities and by other organizations is needed so that the validity of the methods may be fully assessed.