# Assessment of S-Night Street Enumeration in the 1990 Census

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## Abstract

On March 20-21, 1990, the Census Bureau conducted "Shelter and Street-Night" to count components of the homeless population in emergency shelters and street locations. Observers were placed in a sample of street sites in 5 cities to report on the census enumeration process. Comparison of observer reports with census returns indicates that street enumeration was not carried out in a comparable, standardized way in the 5 cities. The main operational problems were enumerator failure to enumerate sites and selectivity in approaching people within sites. Variability in how the operation was carried out reduces the comparability of street counts from place to place.


## Introduction

On the night of March 20-21, 1990, the Bureau of the Census conducted a "Shelter and Street-Night" (S-Night) operation to count selected components of the homeless population in preidentified emergency shelters and open locations in the streets and other places not intended for habitation (see Taeuber and Siegel, 1991, for a description of S-Night). The procedures involved enumerating all people at preidentified emergency shelters for homeless persons, subsidized hotels and motels and temporary shelters, from 6 p.m. to midnight, March 20. (For preliminary results of an assessment of the shelter list completeness, see Schwede and Salo, 1991.) Street enumeration was implemented from 2 to 4 a.m., March 21. For the street phase, enumerators were to interview all people visible and awake, who were not in uniform or engaged in money-making activities, in preidentified nighttime street sites and all-night places of commerce. Sleeping persons were not to be wakened for an interview, but they were to be counted and their age, race, and sex estimated by observation. The sites--city parks, areas under bridges, bus and

train stations, hospital emergency rooms, and other locations where homeless people were thought to stay at night--had been identified prior to the census by local governmental units, police, groups working with homeless persons, and Census Bureau district office personnel. From 4 to 8 a.m., enumerators were to count people emerging from pre-identified abandoned buildings where homeless persons were thought to stay.

The goals of the assessment were to assess how well enumeration procedures were implemented and followed by enumerators at street sites, and to identify external factors that influenced the street enumeration.[1]

For the assessment, researchers in 5 cities placed teams of 60 in-place-observers (120 in New York) at a sample of street sites which had been designated for S-Night enumeration. The cities (Chicago, Los Angeles, New Orleans, New York and Phoenix) were chosen purposively to represent different regions and weather conditions, and to include the 2 cities believed to have the largest homeless populations (New York and Los Angeles). Based on guidelines provided by the Census Bureau, observers were trained in census enumeration procedures and how to conduct themselves on site. The observers were instructed to stay in the open to enable census enumerators to see and enumerate them. They were to observe whether enumerators came to the sites, and if so, when they arrived, how long they stayed, and how they conducted the enumeration. Observers also were to report whether they were interviewed or believed they were counted by observation, and to describe environmental conditions affecting the census count. Observers recorded their observations on questionnaires which were filled out immediately after the street phase was finished. Completed questionnaires were collected by Census Bureau staff the next morning for transmittal to Washington, D.C., for coding and keying. Each observer also filled out an Individual Census Report form "as you believe the enumerator filled it out for you." District office personnel matched these dummy forms against the census forms to remove census forms for observers who

were enumerated.

The purpose of this paper is to assess how well the street enumeration was carried out, and consider the implications of the findings for the quality of the data. S-Night street enumeration was implemented by the Census Bureau for the first time in the 1990 Census. Likewise, the method of the assessment, which relies upon reports of unobtrusive observers, is a new one which has never been tried before by the Census Bureau. Therefore, both sources of data must be carefully and critically examined in order to assess the S-Night street enumeration, and the quality of counts resulting from it.

## Site Selection and Matching

District offices in the 5 cities were purposively chosen in advance to represent areas within each city where large numbers of homeless people were expected to be found. In all cities but New York, the study area covered one district office; the New York study area covered four. In all cities but New Orleans, the sample area represents only part of a city.[2] The results cannot be generalized beyond the specific district office areas covered.

Researchers were given standard instructions for selecting a systematic random sample of all pre-identified commerce and street sites in their study area, using S-Night Enumeration Records prepared by the local Census Bureau district office to make enumerator assignments to the sites. There were a few differences among study areas in how the sites were identified by the Census Bureau and sampled by the researchers. In New York, the City had conducted two extensive canvassing efforts to identify street sites for the S-Night operation. The availability of information from the canvass permitted the researcher to stratify sites and sample only those where 6 or more occupants were expected. The New Orleans District Office identified large, four-by-four block areas as sites, and the researchers sampled locations within these areas to determine where to station observers. In Los Angeles, the researchers

randomly sampled sites from the list provided by the Census Bureau, then added 9 sites which were not on the list, based on their information indicating that the sites included homeless occupants. The 9 extra sites were not part of the sample and are excluded from the results reported below.

In order to ensure that census and observer results refer to the same sites, Census Bureau staff matched geographic information from the official census lists of street and commerce sites in the 5 study areas against geographic descriptions of sites from researchers' lists and observer questionnaires. Since a key assessment variable is whether or not census enumerators were observed at the site, it was essential to determine that observers were stationed at the sites the Census Bureau intended to enumerate.

The census listings included census geocode information, site descriptors and names, and addresses. The researchers' site lists and observer questionnaires included addresses and site descriptions. In many cases, it was difficult to determine the match status of sites, and additional sources were consulted, including the Census Bureau's computerized master address list or Address Control File, S-Night Enumeration Records used to assign enumerators to sites, census and city maps, and phone calls to city officials, police, and the researchers. Census sources include information about sites which were deleted at some stage in the census process as well as those which were included in the final census count. Ultimately, 16 out of 156 observer sites could not be matched to the census. Three of these were sites where observers went to wrong addresses (2 sites in Phoenix and one in Los Angeles). Thirteen observer sites, all in Chicago, could not be matched because they could not be identified in any census source. For that study area, site descriptions in the census sources were often vague, and frequently identified only the block within which a site was located, without specific addresses or site descriptions needed for matching. However, one of the 13 sites had specific address information, and observers saw census enumerators

there, yet the site could not be located in census sources.

Other difficulties with matching occurred in New York, where the Census Bureau subdivided several very large sites into multiple sites, with separate geocodes and population counts reported for each. The researcher also stationed observers at different locations within each of these areas. Matching in these sites is somewhat arbitrary, because not enough geographic detail is given to pinpoint exact locations for either the census or the observers. In New Orleans and in Chicago, the researchers subdivided some large sites into multiple sites, which the Census Bureau treated as single sites. The observer reports can be readily matched to the census, but the definition of what the "site" covers (and the total number of sites) is at variance for the census versus the observers.

The results reported below are based on the 140 observer sites which constitute the original sample exclusive of the 16 nonmatched sites. They correspond to 140 sites as defined by the Census Bureau.[3] Analysis is based on results for census-defined sites, to which enumerators were assigned and for which official census counts were tabulated.

## Official Census Results for Matched Sites

Official census counts were returned for 130 of 140 sites, and 1,803 people were counted at the 130 sites, as shown in Table 1. Ten sites, all in Los Angeles or Phoenix, were eliminated at some stage in the census process and final counts were not processed through the official census count. Five of these sites had nonzero population counts recorded on the master address list, which implies they were enumerated and the results were processed before being deleted. The total population count for the deleted sites was 49. Although sites with positive counts should not have been deleted, they appear to have been eliminated during local review, or other closeout or cleanup activities occurring at the time (Jackson, 1991). The effect was to reduce by

22 percent the total census population count for the Los Angeles sample sites; the effect in Phoenix was negligible. The 10 deleted sites are excluded from the rest of the analysis.

Table 2 presents census outcomes for the 130 matched, processed sites according to whether census enumerators were seen by any observers stationed at the sites. The results show that census outcomes and observer reports are largely consistent. Sites where enumerators were observed were more likely to return positive census counts than sites where enumerators were not observed (66 versus 36 percent). Conversely, enumerators were seen in 77 percent (55 of 71) sites with positive counts, compared to 49 percent (28 of 57) sites with zero counts. However, two aspects of these results require examination. First, observers reported seeing no census enumerators at 35 percent of sites. If observer reports are accurate, this would imply a failure to enumerate a substantial number of street sites. Second, at 36 percent of street sites where no census enumerators were observed, positive census counts nevertheless were returned. This is a high rate of discrepancy between observer reports and census results.

Ten of the 16 anomalies occurred in one district office in the New York study area. When results for that office (in south Manhattan) are excluded[4], census and observer results are more consistent. Enumerators were observed in almost 90 percent of sites which had positive census counts. Census counts of 0 were returned in 82 percent of sites where no enumerators were observed.

The reasons for inconsistencies between observer reports and census results, and for their concentration in one district office, require examination. There may have been a high rate of failure to observe enumerators, fabrication of results by census enumerators or by observers, difficulty finding or identifying sites, or some other error or failure to follow procedures on the part of observers or the Census Bureau.

**Factors Affecting Consistency of Census and Observer Results**

Timing. To ensure that census enumerators would be observed if they came to the site, observers were instructed to arrive on site at 1:45 a.m. and remain there until 4:15 a.m. Late arrival or early departure could reduce an observer's chances of observing census enumerators, especially since enumerators typically stayed at each site only 15 minutes on average, according to observer reports. However, timing of observer arrival appears to have had little if any overall effect on the likelihood of seeing census enumerators. Census enumerators were seen at 67 percent of the sites where observers arrived before 2 a.m. (N=105 sites), compared to 53 percent of sites where observers arrived at 2 (N=15) and 50 percent of sites where they arrived after 2 (N=10). These differences are not significant ($X^2$=1.9, df=2).

The timing issue is complicated by the fact that a number of census enumerations occurred outside the 2-4 a.m. time frame. Early census enumeration was reported by observers at 10 sites (5 of these were in New York), and late enumeration was observed at one site. We have little information on enumeration outside the scheduled 2-4 a.m. (observers could observe it only if they themselves were present early or late). However, early (or late) census arrivals could account for a few discrepancies between observer reports and census results. To the extent that census enumerators or observers did not adhere to the scheduled time of street enumeration, the likely effect is underreporting of enumerators' presence at street sites.

Curbstoning. Fabrication of results by enumerators or by observers also was examined as a possible explanation for anomalous results in south Manhattan. Enumerator assignment records were checked to see if a suspicious number of anomalous sites were enumerated by the same team, or had no enumerator names recorded on the form. The anomalous sites were scattered among census enumerator teams. Likewise, examination of the extensive write-in answers and detailed descriptions which appear on most observer questionnaires did not

suggest curbstoning by observers. Although curbstoning by either group cannot be ruled out, there is no evidence to suggest it happened.

Possible difficulty of identifying census enumerators. Some census enumerators were supplied with and wore very visible vests labelled "census taker," or carried large Census Bureau shoulder bags. Those who did were more readily identifiable as enumerators. At a few sites, observers report seeing people they took to be enumerators drive by in cars, sometimes stopping at the site and sometimes not. (Enumeration by car was not standard procedure.) Enumerators who enumerated from their cars may have been unnoticed by observers, or observers may have incorrectly identified people driving by as enumerators. Confusion about people in cars could lead to either overreports or underreports of enumerators' presence at the sites.

Problems identifying sites and other impediments to observation. As discussed above, in many instances geographic information about sites was vague or poor. Sites where geographic information does not match have been eliminated. Nevertheless, observers as well as Census Bureau personnel reported that some site descriptions were ambiguous or inconsistent as to the area covered, and its boundaries. Over 90 percent of the census enumerators in the study areas reported having problems finding the S-Night places to which they were assigned (Barrett, 1991), with little variation among areas.

Subtle failures of observation could occur in sites which were large, dark, or contained visual barriers or passageways which made it difficult to detect the presence of census enumerators. Pertinent to this point are 7 sites where observers disagreed among themselves on whether enumerators came to the site. These were large and complex sites, such as subway stations, parks, and a bus station, where an observer's vantage point might have determined whether he or she noticed enumerators at the site.

The size and complexity of the sites, ambiguous site information, and some problems with timing appear to account for most of the south Manhattan

sites for which census results were reported yet no enumerators were observed. Census Bureau staff members visited and photographed all 10 anomalous site locations (see Schwede, 1991). They found that site information on the assignment records often was vague or defined a large area, and sometimes was internally inconsistent (e.g., a building name and address did not correspond). Thus, enumerators might have gone one place and observers another, even though both went to the "site" as defined by the site description. (These sites were described in sufficient detail, and consistently enough in observer and census sources, that the sites were deemed matches in the matching operation.) At several sites the evidence indicates that census enumerators arrived early, and/or observers arrived late, left early, or left the site unobserved for a period of time. It appears probable that census enumerators enumerated these 10 sites (or perhaps areas close by), but that observers and enumerators were present at slightly different places or times, resulting in inconsistent observer reports and census results.

We did not investigate the other 6 anomalous sites, but it is possible to contrast the effects of alternative assumptions about whether they were enumerated or not. In column (1) of Table 3, we assume the anomalous sites were not enumerated, and in column (2) we assume they were. In column (2), we in effect take either an observer report or a positive census count as evidence that census enumerators visited the site. In New York, we believe that the results in column (2) are more accurate, and that about 90 percent of the sites were visited by enumerators. In New Orleans and Los Angeles study areas, it makes little difference what we assume: in New Orleans, we have evidence that all sites were visited by enumerators, and in Los Angeles, about half. In the Phoenix study area, evidence suggests that between 57 and 67 percent of sites were visited by enumerators, and in the Chicago study area, between a third and a half. Thus, no matter what we assume about the anomalous sites, evidence suggests that substantial numbers of sites may have

been missed in Chicago, Los Angeles, and Phoenix.

The quality of observer questionnaire data. Observer questionnaires were filled out immediately after S-Night, generally at 5 or 6 a.m. Observers were tired, and some questionnaires were incomplete or poorly filled out. A few street observers appear to have been functionally illiterate or not fluent in English, and for a number of questionnaires there are indications that questions were misread or misunderstood. The data yield useful information about the S-Night street enumeration, but the quality of the data is not high, and it would not be valid to attempt to develop precise estimates of how many people might have been missed in S-Night on the basis of them.

## Comparison of Census and Observer Counts

Table 4 compares total census counts for the sites with the high and low numbers of people the observers estimated to be at the sites between 2 and 4 a.m. The range of low estimates was calculated by selecting the lowest observer's estimate of the low number people in each site and summing over sites, and then by summing over the highest observer's estimate of the low number of people in each site. For sites with one observer, his or her estimate was included in both sums. The range of high estimates was calculated similarly. (As an example, if one observer at a site reported 4 and 10 as the lowest and highest number of people, respectively, while another reported 9 as both the lowest and highest number, then for that site the range of low estimates is 4-9, and the range of high estimates is 9-10.) Separate totals are given for sites according to whether census enumerators were observed there or not. The observers' reports of numbers of people at the sites should be treated with caution, since the summed estimates of their low and high numbers cover considerable ranges. Possibly, some observers were selective in whom they counted, as some enumerators appear to have been (see below), which would introduce variability in the observer estimates.

Variability in observer estimates also partly reflects the way the sums were formed as well as error in the data. In some sites, different observers, although technically reporting on the same site, may have had different vantage points and different areas they were reporting about.

In addition to high inter-observer variability, there are large differences between the low and high number of people estimated by observers to be present in the sites between 2 and 4 a.m. These differences imply considerable mobility into and/or away from sites, and suggest the possibility that mobile persons could be counted at multiple sites, or not at all, if they left a site before enumeration or arrived afterwards. Differences between the low and high numbers of people present also imply that the timing of enumeration could influence the size of the count at any given site, depending on whether enumerators arrived at the low point or peak of its occupancy. We have no evidence to assess possible effects of mobility, however.

In all study areas except New York, census counts are within the range of observer estimates of the low number of people present in sites where enumerators were seen. This finding probably reflects enumerator selectivity, as discussed below. In addition, observers reported their low and high estimates over the entire 2 hour period; enumerators would not necessarily have been present at the time when the greatest number of people was present.

New York produces census counts higher than the highest observer counts. In some New York sites, lack of comparability between sites as defined by the census and by observers implies that the two sets of counts refer to different entities. An example is a large transportation terminal where the census counted 653 people. Observers were stationed at specific areas within the terminal, and their counts refer to those areas. A comparison of the high observer count (100) for the site with the census count of 653 is misleading, because the former refers to a particular part of the site and the latter to the entire terminal. When observer counts are adjusted to sum across all

parts of the site, observer estimates are closer to census counts. Similarly adjusted figures may be calculated to take account of similar situations in New Orleans and Chicago, where observers' counts refer to subparts of larger census sites and hence should be summed.[5]

Observers reported substantial numbers of people in sites where no enumerators were observed. Although there are official census returns for some of these sites, comparison of observer estimates with census counts suggests that considerable numbers of people may have been missed in sites where enumerators were not seen in Los Angeles and Chicago study areas. (But note the high variability in Los Angeles observers' estimates.)

To measure the consistency between the two sets of data, Table 5 presents correlations between census and observer counts of the number of people present at the sites. The top panel shows that, for sites where enumerators were seen, the highest observer's estimates of the low and high numbers of people present in the site are both significantly correlated with the census counts. None of these correlations is high, suggesting large amounts of error and variability in these data.

The second panel in Table 5 presents results separately for the South Manhattan District Office (where the 10 anomalous sites were) versus all other areas. Outside of south Manhattan, there are no significant correlations between observer and census counts in sites where no enumerators were observed. This is expected, since only 6 such sites have positive census counts. In south Manhattan, however, observer and census counts are positively correlated for sites where no enumerators were seen. The positive correlations imply a relationship between the two sets of data, and are consistent with the conclusion that, in this district office, observer and census counts are both genuine and refer to (roughly) the same sites.

## Enumerator Behavior

Enumerators were instructed to enumerate everyone visible at the site, except for people in uniform or engaged in money-making activities. They were not to waken sleeping respondents to interview them, but rather to estimate age, and record race and sex based on observation. If a person seemed dangerous, or was mentally incapable of being interviewed, enumeration by observation also was permitted.

Every observer should have been interviewed. Observers were instructed to remain in sight and allow themselves to be interviewed by enumerators.

Table 6 presents the percent of observers who report they personally were interviewed or thought they were counted by observation, in the matched, processed sites. (Tables 6 and 7 exclude observer reports for the 16 sites where no enumerators were seen but census counts were returned.) The proportion of observers interviewed varies enormously, ranging from two-thirds in New Orleans down to only 7 percent in the Chicago study area. An additional 6 to 29 percent of observers in each study area believed they were counted, or thought they might have been. Thus, Table 6 implies the percent of observers who were certainly or probably enumerated in each study area is:

| | |
|---|---|
| New Orleans | 84% |
| New York | 66% |
| Phoenix | 55% |
| Los Angeles | 39% |
| Chicago | 25% |

Several sources of error that influence observer reports have been discussed. However, even granting that some observers might have been counted who believed they were not, these rates are very low in some study areas and show extreme variability among areas. In part, the variability occurs because substantial numbers of sites apparently were not enumerated in Phoenix, Los Angeles, and Chicago, where observers saw no enumerators, and census counts of 0 were returned, for 33, 48, and 46 percent of sites, respectively.

In addition, selective interviewing and enumeration by observation contributed to variability in interview rates. Table 7 presents observers' reports of whom census enumerators approached to interview. These reports are of unknown reliability, since there are high rates of missing data, mostly from observers who said they couldn't tell whom enumerators approached. The proportion of observers who report that census enumerators approached everyone visible in the street varies from 12 percent in New York to almost half in Phoenix[6]. Overall, 19 percent of observers report that enumerators approached only people who appeared homeless, with no statistically significant variation among study areas. In all 5 study areas (but especially Chicago and New York), observers commonly reported that enumerators neither approached everyone, nor did they approach only homeless-appearing individuals. In some areas (especially in New York; see Hopper, 1991a) census enumerators apparently conducted the enumeration predominantly or entirely by observation, regardless of whether the people in the site were awake and capable of being interviewed. Enumeration by observation would not necessarily result in counting errors, although data on age, race, and sex obtained this way are not as accurate as data obtained by personal interview. Data on marital status and Hispanic origin were not obtained for cases enumerated by observation.

These results suggest low, and variable, compliance with the standard S-Night procedure of enumerating all visible persons. Observer reports indicate no consistent pattern in whom enumerators approached to interview, either within or across study areas. Enumerators who complied with the procedure of enumerating all visible persons would obtain more complete counts of sites than enumerators who enumerated only homeless-appearing people or who were otherwise selective. Therefore, if observer reports are reliable, variations in who was selected for enumeration imply that the completeness of the counts varies among sites within study areas, and among study areas.

The lack of consistency in whom enumerators approached to interview may

reflect a weakness of S-Night training. However, the problem of enumerators ignoring the instruction to enumerate all visible persons was documented in previous tests (see e.g., Siegel, 1989), so the procedure was emphasized in training in 1990. As noted, almost a fifth of observers report that enumerators only approached people who appeared homeless. It has been suggested that the publicity surrounding S-Night as a "count of the homeless" seemed contradictory with a procedure of enumerating everyone, leading enumerators to ignore the procedure and improvise their own ways of "counting the homeless." Training may not improve compliance by enumerators who reject the procedure because it appears inconsistent with their understanding of the task. Enumerator selectivity may be an unavoidable weakness of the 1990 S-Night procedures.

## Limitations of the Assessment

The assessment provides only limited data about the adequacy of S-Night street enumeration. The assessment was not designed to estimate how completely the homeless population was counted in the 1990 Census. As yet, no methods have been developed to accurately measure census coverage of this population. In addition, it is not valid to generalize the results from the 8 district offices in the assessment to other places or the nation as a whole. Thus, this assessment study cannot support conclusions about the rate of census coverage of the homeless population in these cities or in the country, nor can it support conclusions about how well or poorly S-Night street enumeration was conducted in places not included in the assessment. In addition, there is very little information to evaluate several important aspects of the operation.

Adequacy of street site selection. Street sites to be enumerated were compiled by district offices with assistance from cities and other agencies, advocate groups, etc. The criteria used and the adequacy of the compilations

of street sites appear to vary from place to place. The assessment reports note that a number of sites on the census lists appear to be daytime rather than nighttime congregating sites, and raise other questions about the adequacy of the sites for enumerating homeless people. However, the quality and completeness of the list of street sites are unknown.

Who was counted. S-Night enumeration was intended to include homeless people who otherwise would not have been counted in the census. However, it is unknown how many of the people who were counted on S-Night had a usual home elsewhere and were eligible for enumeration there.

Duplication with other operations. S-Night was conducted March 20-21, about 2 weeks before Census Day, April 1. It is unknown how many people who were counted in the streets on S-Night also were counted as part of regular household enumeration or as part of another census operation.

## Summary and Conclusions

Consistency of observer reports and census results. Although they provide useful information, observer reports about the census enumeration process are fallible. Observational errors could occur in large sites with visual obstructions, if observers did not locate the correct site, if census enumeration was conducted unobtrusively or by car, if people who were not enumerators were misidentified as such, if census enumeration was conducted outside of the scheduled 2-4 a.m. period, or if observers arrived late, left early, or left the site unobserved. The effect of most of these factors would be observer underreports of the presence of enumerators. In general (with the exception of south Manhattan), observer results are sufficiently consistent with census results that the effect of these factors on observer reports appears not to have been too great. In south Manhattan, followup investigation indicates that the complexity and size of the sites combined with ambiguities in site descriptions and timing problems resulted in some

discrepancies between observer and census results, probably because observers and enumerators were not at precisely the same locations at the same times. The observational method used in the assessment yielded valuable information about the street enumeration process. Several of the operational problems uncovered were not anticipated, and we might not have identified them at all, or realized their extent, without the information provided by the observers. However, it is clear that this method is absolutely dependent on accurate and consistent information about site locations, if reliance is to be placed on observer reports about what happened (or what failed to happen) in a street site scheduled for enumeration. In large and complex sites, the method is vulnerable to observational and definitional difficulties which can affect the reliability of observer reports (see Hopper, 1991b, on this point).

Adherence to procedures. Observer reports suggest that enumerators in the 5 study areas did not consistently follow standard procedures for conducting street enumeration. The most serious problem is indicated by the evidence suggesting that enumerators may have missed half the street sites in Chicago and Los Angeles study areas, and a third in Phoenix. The effects on the count would depend on the numbers of people in missed sites who should have been enumerated. Adverse effects are indicated in Chicago and Los Angeles, where substantial numbers of people were reported by observers in sites which may not to have been enumerated. The number of people who should have been enumerated is unknown, due to inter-observer variability and variability in the numbers of people present in the sites between 2 and 4 a.m. However, only in Chicago does the number of people in missed sites appear large relative to the total census count for all sample sites. Observer reports indicate that the street count in the Chicago study area might have been doubled, or more, had the missed sites been enumerated.

In sites which were enumerated, observer reports indicate that enumerators often did not conduct interviews even when it was possible to do

so. Enumeration by observation appears to have been common, especially in New York. However, there is no evidence that people were missed because of it, and census counts are high relative to observer estimates in New York.

Many enumerators in all 5 study areas appear to have interviewed selectively; 30 to 61 percent of observers reported that enumerators did not approach everyone visible on the street meeting S-Night criteria. This does not necessarily mean people were missed: in sites enumerated by observation, enumerators may have approached no one but counted everyone who was eligible to be counted. This may have happened in New York, where enumeration by observation apparently did not result in missed people or lower counts (although it may have affected data quality.)

However, almost 20 percent of observers report that enumerators only approached people who appeared homeless, with no significant variation among study areas. Enumerator selectivity clearly influences the numbers of people counted, and is potentially a large source of variability in the size of the street counts from site to site and city to city.

Variability among cities. Based on observer reports, street enumeration was carried out very differently in the 5 study areas in the assessment study. The various departures from standard enumeration procedures appear to have had effects on the S-Night street counts ranging from slight to quite large. Missed sites in the Los Angeles and Chicago study areas led to substantial numbers of missed people. For 4 study areas, census counts are within the range of low numbers of people observed in the sites where enumerators were seen. Enumerator selectivity may have contributed to lower counts. (However, comparison of observer and census counts cannot support this conclusion in any definitive way since observers' estimates refer to the entire 2-4 a.m. period, not to the time enumerators were present.) On the other hand, census counts in the New York study area exceed observer estimates. Early enumeration, which was reported more commonly in New York than anywhere else, may have

yielded higher census counts there than would have been obtained if all sites were enumerated between 2 and 4 a.m. However, we have no systematic evidence on the extent of early enumeration in New York or elsewhere so cannot assess its possible effect on the counts.

Limitations of S-Night data from street enumeration. As emphasized above, the observer data cannot support estimates of coverage of the homeless population. Despite all the caveats noted above, this assessment can support several conclusions about the limitations of the S-Night street data. It appears clear that street enumeration was not carried out in a comparable, standardized way in the district offices represented in the assessment. Substantial departures from standard procedure appear to have occurred to varying degrees in all 5 study areas, and the variations in how S-Night was carried out affected the counts obtained. Most departures from S-Night procedures (e.g., missed sites, enumerator selectivity) would result in undercounts, although some departures from procedure (e.g., early enumeration) could produce overcounts, relative to the standard procedure. Variations in how S-Night was carried out imply that street counts are not comparable from place to place, and should not be used to make comparisons of the absolute or relative size of the homeless population in different places.

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TABLE 1

Total Population Counted at Matched, Census-Defined Sites, by Study Area

| | New Orleans | New York | Phoenix | Los Angeles | Chicago | Total |
|---|---|---|---|---|---|---|
| Census count | 109 | 1,318 | 135 | 218 | 23 | 1,803 |
| Number of sites | (18) | (54) | (21) | (23) | (14) | (130) |
| Site deleted from the census | | | 2 (4) | 47 (6) | | 49 (10) |
| Matched sites | 18 | 54 | 25 | 29 | 14 | 140 |

TABLE 2

Census Outcomes for Sites Where Observers

Did and Did Not Observe Enumerators[a]

| | Enumerators observed | | Not observed | |
|---|---|---|---|---|
| Census Outcome | N | % | N | % |
| Positive official count for site | 55 | 66% | 16 | 36% |
| Zero official count for site | 28 | 34% | 29 | 64% |
| Total matched, processed sites[b] | 83 | 100% | 45 | 100% |

[a]The determination that enumerators were observed was based on observers' answers to the question, "What was the total number of enumerators you saw at your site from 2 to 4 a.m.?" Observer questionnaires also were coded to record any explicit statement that enumerators did, or did not, come to the site, and to record whether there were conflicting or ambiguous statements about enumerator presence. This information was used when data on number of enumerators was missing. If any of the observers at a site saw enumerators, or if observers reported that enumerators came before or after the 2-4 a.m. enumeration period, or were near a site but not in it, the site was counted as one where enumerators were observed.

[b]Two sites where enumerator presence was not ascertained are excluded from tables 2-4, for a total of 128 sites.

TABLE 3

Alternative Estimates of the Proportion of Sites

Visited by Enumerators, by Study Area

| | (1) Percent of sites where enumerators were seen | | (2) Percent of sites where enumerators were seen OR + census counts | | |
|---|---|---|---|---|---|
| Study Area | % of total | N of sites | % of total | N of sites | Total Sites |
| New Orleans | 100% | 18 | 100% | 18 | 18 |
| New York | 72% | 38 | 91% | 48 | 53 |
| Phoenix | 57% | 12 | 67% | 14 | 21 |
| Los Angeles | 48% | 11 | 52% | 12 | 23 |
| Chicago | 31% | 4 | 54% | 7 | 13 |
| Total | 65% | 83 | 77% | 99 | 128 |

TABLE 4

Official Census Counts,

Compared with Observer Reports of Low and High Numbers of People at Sites[a]

| | Enumerators were seen | | | | Enumerators were not seen | | | |
|---|---|---|---|---|---|---|---|---|
| | Census Count | Observer Low | Observer High | N of sites | Census Count | Observer Low | Observer High | N of sites |
| New Orleans | 109 | 34-123 | 78-248 | 18 | -- | -- | -- | 0 |
| New York | 1240 | 256-441 | 455-732 | 38 | 69 | 68-102 | 124-160 | 15 |
| Phoenix | 104 | 90-144 | 122-170 | 12 | 31 | 13-19 | 21-45 | 9 |
| Los Angeles | 217 | 139-258 | 171-337 | 11 | 1 | 32-212 | 67-238 | 12 |
| Chicago | 11 | 9-23 | 32-43 | 4 | 12 | 33-37 | 104-109 | 9 |

[a]Low and high observer reports are based on responses to the question, "The following questions refer to the total number of different people at your site eligible to be enumerated by the census, that is, all persons except those who were in uniform and those involved in money-making activities, other than panhandling. If you do not know the exact number, please fill in your best estimate in the "Approximate Number" column.

| | Exact Number | Approx. Number |
|---|---|---|
| a) If the number of people in the site changed: | | |
| 1. What was the lowest number there between 2 and 4 a.m.? | _____ | _____ |
| 2. What was the highest number there between 2 and 4 a.m.?" | _____ | _____ |

For calculation of ranges of low and high observer estimates, see text. Preference was given for exact rather than approximate numbers when both were

given; responses are eliminated for a few observers who gave low numbers greater than their high numbers. If a high number was missing, the low number was substituted; and if a low number was missing, the high number was used. Figures given are totals across sites, with no adjustment for missing observer data (N=2 sites).

TABLE 5

Correlations between Census Counts and

Observer Estimates of Numbers of People in Sites

| | Sites where enumerators were seen | | |
|---|---|---|---|
| Low number of people in site | | | |
| Lowest observer estimate | .06 | | |
| Highest observer estimate | .35** | | |
| High number of people in site | | | |
| Lowest observer estimate | .19 | | |
| Highest observer estimate | .42** | | |
| Number of sites | 83 | | |
| | Sites where enumerators were not seen | | |
| | South Manhattan | Other offices | Total |
| Low number in site | | | |
| Lowest observer estimate | .66* | -.02 | .23 |
| Highest observer estimate | .22 | -.07 | -.03 |
| High number in site | | | |
| Lowest observer estimate | .80** | -.09 | .05 |
| Highest observer estimate | .47 | -.05 | -.00 |
| Number of sites | 12 | 33 | 45 |

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*p<.01 (one-tailed test)

**p<.001 "

TABLE 6

Percent of Observers Who Report Being Interviewed or Counted, by Study Area[a]

| | New Orleans | New York | Phoenix | Los Angeles | Chicago |
|---|---|---|---|---|---|
| Interviewed | 67% | 37% | 44% | 33% | 7% |
| Not interviewed: | | | | | |
| Counted | 10 | 17 | 8 | 2 | 0 |
| Maybe counted | 7 | 12 | 3 | 4 | 18 |
| Not counted | 10 | 20 | 10 | 13 | 25 |
| Did not see enumerators | 5 | 14 | 36 | 48 | 50 |
| Total | 100 | 100 | 100 | 100 | 100 |
| N of observers | 58 | 104 | 39 | 46 | 28 |

[a]Results based on answers to the questions, "Were you interviewed by an enumerator?" (Yes, No), and "Do you think you were counted by an enumerator without being interviewed?" (Yes, Maybe, No). Results are based on reports of all observers at matched, processed sites, excluding 16 sites where no enumerators were seen but census counts were returned. Two cases with missing data excluded. Percents may not sum to 100 due to rounding error.

TABLE 7

Observer Reports of Who Enumerators Approached, by Study Area[a]

| Enumerators approached-- | New Orleans | New York | Phoenix | Los Angeles | Chicago |
|---|---|---|---|---|---|
| Everyone visible on the street | 35% | 12% | 48% | 14% | 23% |
| Only those who appeared homeless | 15 | 17 | 22 | 32 | 15 |
| Neither everyone, nor homeless-appearing only | 15 | 42 | 13 | 23 | 46 |
| Couldn't tell who approached; missing data | 35 | 28 | 17 | 32 | 15 |
| Total | 100 | 100 | 100 | 100 | 100 |
| N of observers | 52 | 88 | 23 | 22 | 13 |

[a]Results based on questions, "Did the enumerators approach: Everyone visible on the street (except those in uniform or those engaged in money-making activities other than panhandling?"; "...Only those who appeared homeless?" (Yes, No, Couldn't tell). Results include reports of all observers at matched, processed sites who saw enumerators. Percents may not sum to 100 due to rounding error.

## Notes

1.This paper reports the results of research undertaken by Census Bureau staff. The views expressed are the author's and do not necessarily reflect those of the Census Bureau. The S-Night Assessment project was managed by Pamela Campanelli and Matt Salo, who, assisted by Laurel Schwede, did an admirable job of planning and implementing the project and designing all procedures within a very short time period. Rita Williamson and Diane Barrett conducted the matching, and Annetta Clark and Judy Dawson gave special assistance. Nancy Bates, Jenny Hess, Brian Jackson, and Elaine Fansler provided coding and clerical assistance. The assessment method was originally proposed by Kim Hopper, and data were collected and assessment reports prepared under the direction of Kim Hopper (New York), James Wright and Joel Devine (New Orleans), Kathryn Edin (Chicago), Michael Cousineau (Los Angeles), and Louisa Stark (Phoenix). Thanks to Paul Siegel, Florence Abramson, Annetta Clark, Diane Barrett, Robert Fay, Robert Groves, Laurel Schwede, Paula Schneider, Nampeo McKenney, Laurie Moyer, Nancy Mathiowetz, and Robert Tortora for useful comments on earlier drafts.

2.The study areas covered Manhattan south of 110th St. on the westside and 96th St. on the eastside; part of central Chicago (including the loop); central Los Angeles (including Skid Row area), most of Phoenix excluding the westernmost portion, and Orleans Parish.

3.The correspondence between numbers of observer and census-defined sites is:

| | Observer Sites | Census-defined sites |
|---|---|---|
| New Orleans | 29 | 18 |
| New York | 41 | 54 |
| Phoenix | 25 | 25 |
| Los Angeles | 29 | 29 |
| Chicago | 16 | 14 |

| | | |
|---|---|---|
| TOTAL | 140 | 140 |

4.Numbers comparable to Table 2 for the South Manhattan District Office are:

| | Enumerators observed | Not observed |
|---|---|---|
| + census count | 12 | 10 |
| 0 census count | 1 | 2 |

5.Summing figures across observers at subparts of sites to adjust for more inclusive census site definitions yields the following revised observer estimates for sites where enumerators were seen:

| | Observer low | Observer high |
|---|---|---|
| New Orleans | 81-155 | 178-303 |
| New York | 564-911 | 751-1160 |
| Chicago | 13-24 | 47-55 |

6.The difference among study areas in the proportion who say everyone was approached is significant ($X^2$=18.4, df=4, p<.01; calculation does not take account of clustering in the data).