RESULTS OF ETHNOGRAPHIC STUDIES OF 1988 DRESS REHEARSAL CENSUS COVERAGE[1]

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Keywords: behavioral causes of undercount, race, gender reporting effects

Introduction

The research reported in this paper seeks to identify and test causal hypotheses of why the undercount (especially of Black males) occurs. Two explanations have been advanced at the Census Bureau to explain the high undercount of Black men (Pritzker and Rothwell, 1967): deliberate concealment, and mobile and transient residency patterns. Although these hypotheses are plausible, evidence is sparse and indirect. It is difficult to gain direct evidence about people who deliberately avoid surveys or whose lifestyle leads them to be missed from household-based surveys. However, intensive small-area studies conducted by researchers who live in or are accepted in a neighborhood may tell us a great deal about who is missed in the census, and why, for that small area.

In the late 1960s, the Census Bureau sponsored a pioneering study by two ethnographers in a low income, Black and Hispanic city block in Brooklyn (Valentine and Valentine, 1971). This study provided the first direct evidence that household members were deliberately concealed from the Census Bureau. The ethnographers conducted a census of 33 housing units, and submitted the results to the Census Bureau for comparison with rosters obtained independently by Census Bureau interviewers at the same addresses. For the 25 occupied housing units, the results were dramatic: overall, 17 percent of all persons and 61 percent (or 17 of 28) of the adult men observed living in the "sample" households were not reported to Census Bureau interviewers. The Valentines concluded that female respondents deliberately concealed the men when disclosure of their presence could jeopardize household income from public assistance or from his participation in the underground economy or illegal activities.

The Valentines' findings cannot be generalized to any population, since the number of households is so small and does not represent a sample in any sense. Nevertheless, the study convinced many people that deliberate omission of men from household rosters was an important cause of undercoverage. They also observed men who did not maintain a stable residence in any one household. They did not count these transient men among those missing from the household rosters, but noted that these men were also likely to be missed.

Since the Valentines' study, the Census Bureau has sponsored additional qualitative research to explore causes of undercount. Hainer (1987), working in a low-income Black neighborhood, found his informants tried to present a consistent "official" version of household membership which matched records of government bureaucracies and commonly omitted men, in order to protect household resources. Anderson (1990) suggested fear and a sense of powerlessness as motives for concealment, noting his informants' intimidation by "paper" and fear of being "written up," especially by anyone in an official capacity. Bourgois (1990) found many Black and Puerto Rican people in East Harlem who believe there exists a conscious and systematic plan on the part of the Federal Government and the rich to make living conditions intolerable for the poor and the non-white. He predicted census undercounts resulting from alienation and ideological resistance to mainstream society.

Motivational barriers to enumeration are compounded by the complex and fluid structure of many households, which may not fit the Census Bureau's concept of a "usual residence." Anthropologists (Aschenbrenner, 1975; Hainer, 1987) working in Black inner city communities describe large, loosely structured domestic units with flexible living arrangements, spread over several addresses. Complete enumeration of such households is difficult to achieve. For many people it is unclear which of several addresses is their "usual residence," so they may be enumerated more than once or not at all. Others may slip between the cracks because they have no "usual residence" at the time of the census. Many men go through periods of homelessness, especially when weather is warm (Hudgins, Holmes, and Locke, 1990). Gerber (1990) found that when life circumstances are complex and ambiguous, her informants (who were primarily poor and Black) used various criteria to determine where someone lives. These include a person's intentions and agreements, the location of his or her belongings, and where a person receives mail, which are not part of the census definition. Their calculations may lead respondents to leave off "marginal" people who should be included. Gerber's analysis is consistent with Fay's (1989) finding that a marginal relationship within a household predicts inconsistent reporting of a person in the census and an independent survey in the same household. Some of the race differential in coverage may occur

because Black households include more people in categories of relationships which are less consistently included.

The exploratory ethnographic research sponsored by the Census Bureau suggests several related causes of the undercount of Black men, including protection of household resources, alienation from mainstream society, and different household structure and residency patterns for the Black population. These factors are themselves direct or indirect consequences of poverty and economic marginality, which are correlated with undercounts (Robinson, 1988). The same (as well as other) factors may contribute to undercounts of other groups (e.g., Asians, Hispanics, etc.) for whom less is known about census coverage errors. (For research on causes of undercount for other groups, see reports issued in the Ethnographic Exploratory Research Report Series, Center for Survey Methods Research, Bureau of the Census.)

Methodology

The ethnographic coverage evaluation method was further tested and modified in the 1988 Dress Rehearsal Census of eastern Washington State, the city of St. Louis and South Central Missouri. Sites were purposively selected to include groups thought likely to be undercounted. The 5 sites included a mixed (Laotian, Black, White, Hispanic) neighborhood in South St. Louis; Black urban neighborhoods in East Central Missouri and in North St. Louis City; the Colville Indian Reservation in eastern Washington State; and an Hispanic farmworker community in eastern Washington State.

At each of 5 sites, ethnographers selected 2 census blocks (about 100 households) where they conducted alternative enumerations 4 to 6 months after the census. Ethnographers were asked to document census day residence for all persons enumerated, and to note which residents had moved in after census day. After their lists were matched to census forms for the same blocks, the researchers returned to the field to resolve discrepancies between the two enumerations. In the field followup, the ethnographers sought evidence to confirm or disconfirm the census version of the households. In cases where the ethnographers had reported an entire household moving in, and no contrary evidence about the prior household was available, the household reported on census forms was arbitrarily accepted. This gives the benefit of the doubt to the census in the case of outmovers about whom there is no information available except the census.

A number of persons who moved in after the census nevertheless were matched to census records at the new residence. This happens if a census enumerator visits a nonresponse household days or weeks after census day, after new residents have moved in. Such cases were also accepted as correct census enumerations even though, strictly speaking, they are erroneous enumerations because the households should have been enumerated at their census day residence. Again, in the absence of contrary evidence, the benefit of the doubt was given to the census version.

Of the 10 sample blocks, 7 were completed and provided usable data. Data from the Hispanic site had to be dropped because the researchers did not record census day residence and did not return to the field to resolve discrepancies. A racially mixed block which could not be resolved due to high mobility of its college student population was also dropped.

Results

The limitations of these data must be emphasized. First, the 7 blocks do not represent a probability sample in any sense, and the numbers of cases are small, so the results cannot be generalized to any population or group. Second, data were not collected using a standardized instrument or set of specifications. Alternative enumerations and explanations of discrepancies were often in the form of detailed, case-by-case narratives, which had to be coded. Third, the comparisons reported below are based primarily on the census forms, and do not reflect census imputations or any changes made during the local review process or other census operations. For these reasons, these results should be treated as preliminary.

TABLE 1
Results of Matching Census and Ethnographic Enumerations in 7 Blocks

(1) Matched persons	594
Nonmatches	
(2) "Correct" census enumerations: confirmed by ethnographers, or no contrary evidence	143
(3) Census omissions	85
(4) Census erroneous enumerations	58

Table 1 shows that, after resolution, 594 matched persons were identified by both the census and the ethnographers, and 286 non-matched persons were identified by one or the other but not both. Of the non-matches, 143 were accepted as correct census enumerations. The 85 census omissions are individuals listed by the ethnographer as Census Day residents, missed (or enumerated elsewhere) in the census, and confirmed as omissions by evidence gathered in followup fieldwork. Over half of the missed persons were whole household omissions, and somewhat less than half were left off the rosters

of households which were enumerated. Census erroneous enumerations include geocoding errors as well as persons who lived at other addresses; these cases were confirmed as well.

These results imply a gross census omission rate of 12.5 percent (85/679), and an erroneous enumeration rate of 7.3 percent (58/795), for these 7 blocks. These gross error rates are almost certainly underestimates. The several months' lag between the census and the alternative enumeration meant the trail had gone cold for many outmovers, and the benefit of the doubt was given to the census in such cases.

Housing Unit Coverage Errors. Whole-household omissions account for 48 of the 85 missed persons. Of these, 25 lived in housing units misclassified by the census as vacant, and 15 lived in housing units with addresses which did not appear on the Address Control File (ACF) for the block. These housing units were either missing from the census master address list, or were misgeocoded to another block. (Most were apartments within buildings which appear on the ACF, so geocoding error probably explains at most 2 of these missed units. However, we did not search for missed persons or units outside the sample blocks.) One household of 4 people was missed because the camera unit containing the form was missing, and 2 households, a total of 4 people, were missed because neighbors (N=2) were erroneously enumerated (as duplicates) in the housing units where they lived.

The ethnographic data suggest that many housing unit coverage errors occurred because of deviations in address and building types in areas dominated by a regular pattern. In urban St. Louis City, much of the housing is two-flat attached row houses (Aschenbrenner, 1989; Rynearson and Gosebrink, 1989a, b). Units missed or erroneously enumerated were those that broke the repetitive 2-flat pattern, because the 2 units were reconverted to one housing unit, or flats had been subdivided. Rynearson and Gosebrink (1989a) found that in South St. Louis older owners of two-family flats may live in one unit, usually the second floor, and leave the other empty for security reasons. Several such households were enumerated twice, once by mail return, and again when the census enumerator called at the nonresponding, nonexistent second unit.

A false assumption of homogeneity appears to underlie this class of error. For errors of this type to occur and persist, an assumption of homogeneity had to have been shared by the commercial vendors who prepared the address lists, the census takers who checked them, and the enumerators who enumerated the housing units. Perhaps vendors and census listers rely too exclusively on addresses to determine the number of housing units. Rynearson and Gosebrink (1989a) recommend that enumerators use additional clues (e.g., mailboxes and electric meters) to determine the number of units in large complex buildings.

Coverage of persons. Forty-four percent of census omissions occurred within enumerated households. Table 2 presents the percent of different race-gender groups missed and correctly enumerated in the 7 sample blocks. (Correct enumerations include categories 1 and 2 in Table 1.)

TABLE 2
Census Omissions, by Race and Gender

Race and Gender	N	Percent distribution Total	Correct Enum.	Whole HH miss	Within HH miss
Total	813	100	90	6	4
White male	125	100	86	10	4
White female	127	100	88	12	0
Black male	131	100	86	4	10
Black female	157	100	96	3	1
Am. Ind. male	104	100	88	3	9
Am. Ind. female	91	100	91	2	7
Asian male	24	100	92	4	4
Asian female	23	100	83	9	9
Other Race male	21	100	90	10	0
Other Race female	10	100	10	0	0

Table 2 shows that most missed White persons were whole-household omissions, while most omissions of Blacks occurred within enumerated households. (Eighty-four percent of White omissions were whole households, in contrast to 40 percent of Black omissions.) Note the high rate of within-household omission of Black men. These results are consistent with prior research, although the higher total omission rate for Whites in this sample is not. Whites in these 7 blocks are atypical in that they live in racially mixed areas: many were elderly homeowners still living in neighborhoods which other Whites had deserted. For both Black and White residents of the 7 sample blocks, gender was linked to within-household omission, as shown in Table 3.

TABLE 3
Types of Census Omissions of Blacks and Whites, by Gender

	Male	Female
Total Black and White omissions	35	21
Whole-household omissions	17	20
Within-household omissions		
Left off mail questionnaire	10	0
Left off enumerator return	8	1

Black and White males were about equally likely to be missed because they were left off household rosters or because an entire household was missed, and nearly equal numbers were left off rosters in mail return questionnaires and in enumerator returns. In striking contrast to the males, Black and White females in this sample were missed in the census only if an entire household was missed. Only 1 female, Black or White, was left off a household roster. (However, gender does not have a consistent effect: note in Table 2 that American Indian females and males were both left off household rosters.)

Although the numbers are very small, it is of interest to compare the net effect of census omissions and erroneous enumerations for different race gender groups, shown in Table 4.

TABLE 4
Net Undercounts and Overcounts for Race-Gender Groups

Race and Gender	(1) Census Omissions	(2) Erroneous Enumerations	(2) - (1) Net error
Total persons*	84	58	-26
White male	17	4	-13
White female	15	2	-13
Black male	18	14	-4
Black female	6	11	5
Am. Indian male	12	5	-7
Am. Indian female	8	7	-1
Asian male	2	9	7
Asian female	4	6	2
Other Race male	2	0	-2
Other Race female	0	0	0

*One case with missing data on race and gender is omitted.

The high net undercount of White residents of the 7 blocks is inconsistent with prior research. A second anomalous finding is the net overcount of Black females, which contrasts with a net undercount of Black males. Although this finding is quite tentative, the overcount of Black women is readily explained in terms of the extended family household structure which characterizes many low income Black households, as discussed below. A pattern of overcounts of Black females combined with undercounts of Black males, if it occursconsistently, would contribute to extremely skewed sex ratios for the Black population. Finally, we find net undercounts of American Indians, especially males, net overcounts of Asians, and a tiny undercount of Other Race persons. (All the erroneous enumerations of Asians were due to census geocoding errors.) We emphasize again the limitations of these data; we present them here to suggest possible clues about the dynamics and nature of census coverage errors which will be investigated further in the 1990 evaluation.

The census omissions include both cases of concealment and ambiguous residence, as we had hypothesized. There were several cases of female respondents failing to report, and in some instances deliberately concealing, the presence of adult men who were their unmarried partners. Interestingly, a woman's unwillingness to report a man did not always appear to be shared by the man himself. In some cases, men more openly acknowledged their residence in households than the women who failed to report them. Similar cases have turned up in previous ethnographic studies, as well (e.g., Hainer, 1987). Based on focus group research, Hudgins, Holmes, and Locke (1990) found that while Black women express fear or suspicion of the census, Black men do not. Gerber finds evidence that some women leave male partners off the roster (as well as leases and other documentation) in order to keep control of the living space. We will investigate the possible effects of gender reporting differences on coverage of men in the 1990 study.

As expected, ambiguous residence also explains coverage errors. The pattern of an extended family occupying several neighboring housing units characterized some of the Black households in St. Louis, and accounted for 2 cases of double counting older Black women. In both cases, the woman was enumerated by the census as the "mother" or "grandmother" in one household and as the principal householder at an adjacent unit. It is possible that this type of household arrangement may simultaneously lead to overcounts of Black women and undercounts of Black men who occupy marginal statuses in these extended family households, as described by Hainer (1987). We will examine this hypothesis further in the 1990 study.

Several omitted persons were temporarily absent, although the housing unit was their usual residence. This situation was common among the American Indians omitted within households, several of whom were visiting relatives when the census taker called. Ackerman (1989) discusses a "here and now" temporal view of who is and is not a resident or member of the household which affected census enumeration of the Colville Reservation. (Some people who were away visiting at the time of the census may have been enumerated where they were staying.)

1990 Ethnographic Evaluation of Census Coverage

The methods of the 1988 dress rehearsal pilot studies were refined and revised for a full-scale ethnographic evaluation of 1990 census coverage, which includes 29 sites of about 100 households

each. Five groups in which undercounts are known or suspected to be high are represented: Blacks, Hispanics, Asians, American Indians, and undocumented residents. Using purposive methods, sites were selected in 3 types of settings: racially or ethnically homogeneous urban sites, heterogeneous urban sites, and homogeneous rural sites (see Brownrigg and Martin, 1989, for a more complete description of the study design).

A major limitation of the 1988 pilot studies was the long lag time between the census and the alternative enumerations. The 1990 study improves on the 1988 study in this regard by requiring that alternative enumerations be conducted during a 6-week period within 3 months after Census Day. However, a gap of up to 3 months is still far from ideal: it would be most desirable to conduct the alternative enumeration simultaneously with the census.

As in the 1988 study, the results of the matching will be returned to the ethnographer for field followup to investigate and resolve discrepancies. This time, however, the ethnographers will document the resolution and reasons for the discrepancies according to a more standard format. The researchers also will collect more observational data about individuals, households, and the neighborhood. Finally, at 2 sites, there is a double-blind overlap with the PES, yielding a third independent enumeration of about 200 households.

The 1990 study has several goals. The major goal is to provide direct evidence documenting census coverage errors within the selected sites, and to describe patterns of undercount and overcount and examine possible behavioral causes. This information can inform the design of future census methodology and will be applied to address issues of coverage in household surveys as well. The causal factors which account for coverage errors in this study also could be considered as variables for post-stratifying the Post-Enumeration Survey (if available on the file), in order to improve the efficiency and accuracy of the Census Bureau's official estimates of census coverage. Finally, and more important for the 1990 census, the results of the ethnographic study provide an independent source of corroborating evidence which, while not based on statistically defensible sample, can be used to comment on and shed light on the results of the PES.

The 1990 PES is based on a probability sample design and has a sample size that permits detailed geographic analysis, so it enjoys obvious advantages over the ethnographic approach. But as we have noted, PES studies of previous decennial censuses have failed to account fully for the differential undercount of adult men, especially of adult Black men, as indicated by demographic analysis. The 1990 ethnographic studies may furnish information about the characteristics of the sorts of persons prone to ineffective treatment by PES.

Investigation of systematic differences between ethnographic research and PES in matching nonmovers is one of the most potentially fruitful comparisons from the 1990 study. The available evidence suggests potential differences between the two methodologies with respect to within household omissions. The ethnographic method may obtain better coverage of the kinds of people, especially adult men, inadequately covered in PES. Comparisons of whole-household omissions may prove interesting as well, although there is not a comparable body of research to establish that previous PES evaluations have failed to detect the effects of whole household omissions. However, it is possible that PES address listers made the same mistaken assumption of homogeneity that we believe affected the census in some areas of St. Louis. If so, ethnographic results may prove illuminating about the extent to which PES is affected by this problem.[2]

Ethnographic research has no advantage over PES for measuring two components of erroneous enumeration: geocoding errors and duplications. Ethnographic observation may furnish insights on circumstances leading to these types of errors, but it is unlikely that results from ethnographic research on these two items would call the 1990 PES figures into question. Geocoding errors were also defined more strictly in the 1988 ethnographic studies than the PES, which accepted enumerations within a ring or two rings of neighboring blocks as correct. Similarly, duplicate enumerations in the PES are detected with respect to the ring or double ring. In the ethnographic studies, the search for matching cases was conducted only within the geocoded block.

The treatment of definitional erroneous enumerations requires care. In an important respect, the analysis of the 1988 studies differed from PES in the treatment of persons who moved in after Census Day but were enumerated at the new address anyway. Since the matching of movers was not attempted in the 1988 ethnographic analysis, the census enumeration was accepted as correct in spite of the conflict in dates, unlike the PES. Except for the case of such in-movers, erroneous enumerations are defined comparably between the ethnographic studies and the PES. In practice, the two methodologies may yield different measures of erroneous enumerations because the nature of information obtained by ethnographic research may differ from the PES.

This assessment implies that comparison between the 1990 ethnographic studies and the PES be focused on omissions of nonmovers, especially those within households, and on comparisons of

definitional erroneous enumerations, with particular care in treating in-movers after census day.

Notes

[1]This paper reports the results of research undertaken by Census Bureau staff. The views expressed are attributable to the authors and do not necessarily reflect those of the Census Bureau. We thank Robert Groves, Howard Hogan, and especially Jeffrey Moore for helpful comments.

[2]If PES listers were similarly affected by an assumption of homogeneity, then we would expect to find units which were missed or misclassified in the census to be similarly treated in PES. Although we have not yet surmounted all the technical problems involved in creating and analyzing data files based on the 3-way matched data, we did check on the PES status of occupied housing units misclassified by the census as vacant, and occupied units missing from the ACF, in the 2 PES overlap blocks in St. Louis. The results are:

Of 2 units missing from the ACF, one unit and its occupants (N=2 people) was also missed by PES and one was counted (N=3).

Of 3 units misclassified by the census as vacant, one (N=3) was included in PES and 2 units (N=4) were missed (or misgeocoded) by PES.

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