

RESULTS OF THE 1995 TEST OF INTEGRATED COVERAGE MEASUREMENT MOVER OPERATIONS

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I. Introduction

Studies of previous censuses confirm that persons moving at a time close to Census Day are at greater risk of being omitted from the census or of being enumerated at the wrong address. These "movers" also tend to be classified as "unresolved" at higher rates than non-movers. For purposes of this study, we define movers as households reported to have moved their residence between Census Day (March 4, 1995) and the time of the Integrated Coverage Measurement (ICM) Survey interview.

In the 1990 Post Enumeration Survey (PES), the Census Bureau employed an "in-mover" methodology whereby field interviewers asked sample household respondents "Where were you on Census Day?" For "in-movers" - PES persons who moved in to the sample address since Census Day - trained staff attempted to search for them at their reported census day address for purposes of matching to the census. In the 1995 test of ICM, the Census Bureau employed an "out-mover" methodology where interviewers asked "Who was here on Census Day?". Census field staff then attempted to trace out-mover households to their current address and conduct an interview.

The out-mover methodology used in the 1995 ICM defines the sample roster in a different way than did the 1990 PES. In 1990, the sample roster consisted of everyone reported to be at the sample housing unit on the day of the PES interview. In 1995, the sample roster consisted of everyone reported to be at the sample housing unit on census day.

An important component of the 1995 test of ICM involved obtaining information on household members who lived at an ICM sample address on census day. Based on 1990 PES data, we expected about 6 to 8 percent of Census Day households to have moved out by the time an ICM interviewer visited the address. For the mover household, the ICM interviewer was instructed to obtain a proxy interview, if possible. Since past studies suggest that information provided by a household member is more accurate than that provided by a proxy respondent, we attempted to locate or "trace"

the mover household and obtain an interview with a member of that household.

This paper discusses the methodology used in implementing the out-mover operation in the 1995 test of ICM and reports on the results of a study that evaluates the quality and effectiveness of out-mover tracing and interviewing.

II. Objectives and Methodology

This evaluation study focuses on the following three objectives:

1. Evaluate the efficacy and accuracy of the proxy information we obtained regarding out-movers.
2. Evaluate the effectiveness of extensive tracing of out-movers during ICM production.
3. Find ways to improve the process of tracing and interviewing out-movers.

For whole-household out-movers, the ICM survey, using Computer Assisted Personal Interviewing (CAPI), attempted to get proxy information that included the new address and phone number. Staff at the Regional Office (RO) were to prepare out-mover interview forms that would include proxy information relevant to tracing the out-mover household. Field Representatives (FRs) did not conduct CAPI for out-movers at their new (traced) addresses. Instead they attempted to interview by telephone or personal visit using Paper and Pencil Interviewing (PAPI). For out-movers traced to addresses outside the test site, ICM employed telephone interviewing when possible. ICM did not interview by personal visit for these out-movers if they couldn't be reached by phone. If ICM could not trace and interview out-movers successfully, census staff would use proxy data, if available, for matching.

Given the above plans for ICM production, the evaluation of ICM out-movers included an attempt to conduct personal visits on a sample of out-mover households not visited during ICM production. This sample was limited to the Oakland, California test site.

Unlike ICM production, we used census roster information in order to evaluate its effectiveness as an aid in tracing out-movers. While this violates the independence desired by the Dual System Estimation methodology employed in the 1995 Test Census, such independence is not necessary for the CensusPlus methodology.

For those cases successfully traced and interviewed (either by personal visit or phone) during production, this evaluation study made no attempt to retrace or re-interview.

To illustrate plans for the evaluation of ICM out-movers, we include Table 1, which shows evaluation activities based on the outcome of the case during ICM production.

III. Results

Consistent with previous studies, ICM movers had a high non-interview rate associated with them. Table 2 shows the results of interviewing by outcome code for out-mover households. There were a total of 346 households classified as out-movers. This represents 3.5% of the overall total of 9953 sample households processed by ICM. By comparison, the 1990 PES identified 8.2 percent of the PES sample as movers (Alberti and Anolik, 1991). The out-mover operation successfully traced and interviewed 49 cases, which represent 14% of the total mover workload.

An important part of this evaluation study compared proxy data to out-mover interview data when both were available. This gave us a measure of the effectiveness of tracing when proxy data is available. Out-mover data, when obtained as a result of successfully tracing and completing an interview with a mover household, always replaced CAPI proxy data during ICM production. Table 3 shows the results of comparing this out-mover interview data to proxy data that was captured during the original CAPI interview when both were available. The comparison is made in terms of sufficiency for matching.

We classified proxy data for a given household as sufficient if coverage (household size) agreed with the out-mover interview data and we had enough name information to suggest a whole household match with the out-mover interview data. In general, the content and coverage of proxy data we observed were not as complete as the out-mover interview data. Although we have not yet done so, it might be of interest to compare

the ICM estimates calculated using only proxy data to the estimates incorporating the results of tracing and interviewing, particularly given the high cost in time and money of these activities and the fact that relatively few out-mover households were successfully traced.

Another indication of the quality of proxy data is given in Table 4. Examining data used for producing dual system estimates, we tabulated match status for movers and non-movers with movers broken down by whether they were obtained by proxy interview or a successfully traced and interviewed mover household.

The higher rate of matched cases and lower rate of unresolved cases for completed interviews with out-mover households displayed in Table 4 illustrate to some extent the effectiveness of successful tracing and interviewing, despite the difficult nature of such an operation.

The evaluation of out-movers involved field work based on the outcome of the original ICM interview (see Table 1). Due to staff limitations and other field operations conducted simultaneously, we decided to limit our field work. Eligible cases included those that could not be traced during ICM production. Of these cases, the census roster information that was loaded for the original CAPI interview was made available to the field staff as a potential tracing source. Out of 107 cases in the out-mover evaluation workload, 29 (27%) were coded as successfully traced with a completed interview. This result further illustrates the difficulty of tracing, even when household roster information is available.

Another part of this study evaluated the results of tracing during ICM production to give a measure of which sources were being used and which were most effective. From Figure 1, we see that use of the phone book was the most frequently cited tracing source in attempting to obtain address and/or phone number for out-movers during production. Note that the Post Office was not cited at all. During the out-mover evaluation field work, training stressed the potential importance of the Post Office as well as directory assistance (411). As Figure 2 shows, both of these sources were apparently used more often during evaluation field work with some degree of effectiveness.

Another evaluation study (West and Griffiths, 1996) suggested problems with correctly identifying out-mover households in the 1995 ICM. The results of the ICM Evaluation Interview, which was designed to interview only non-mover households from ICM

production, indicated that 42 cases or 4.5% of the total Evaluation Interview workload of 940 households were classified as out-mover households.

Also of interest, data keyed from the out-mover tracing questionnaire indicated a degree of misclassification in the other direction. Namely, examining the notes section of the out-mover tracing questionnaire for cases initially classified as out-mover, we noticed that 64 of them were misclassified because the current residents of the sample address stated that they had not moved since Census Day. These cases were reclassified as non-movers in ICM production during subsequent clerical operation. Anecdotal evidence from reported field observations, as well as examination of CAPI trace files, indicate that the design of the CAPI instrument coupled with inadequate training of field staff were to some extent responsible for the degree of misclassification we observed.

IV. Limitations

- Based on the results of the Evaluation Interview, as well as anecdotal reports from field observation, the ICM CAPI instrument had difficulty assigning mover/non-mover status. The results shown here do not reflect ICM production non-movers later classified as movers by the Evaluation Interview.
- We experienced a high non-interview rate for the cases we sent out to the field for tracing and interviewing due to the difficult nature of the cases. In addition, as in any coverage measurement survey, the cases we were able to contact were subject to recall bias because of the time between census day and the ICM interview.
- Due to staffing and resource limitations, out-mover tracing was not done in the Los Angeles Regional Office as originally planned. Instead, the FRs in the Oakland test site conducted out-mover tracing as well as interviewing with little or no prior experience and training in such an operation. In addition to the difficult nature of the cases, this likely explains the relatively small number of successfully traced and interviewed mover households.

V. Summary and Recommendations

Mover operations in a coverage measurement survey have always been difficult. The 1995 test of ICM was no exception. Data keyed from the out-mover tracing questionnaire, in addition to results from another evaluation study suggest that field staff encountered difficulties in identifying out-mover households. Anecdotal evidence suggests that the CAPI instrument design coupled with inadequate training were at least partly responsible. For households correctly identified as out-movers, Field staff had limited success in tracing and interviewing, both by phone and personal visit. Consistent with past studies, the non-interview rates were higher for mover households as were rates of omission from the census.

An important aspect of this evaluation dealt with the quality of proxy data. Although the amount of data is small, the results suggest, not surprisingly, that contacting the out-mover household directly yields better quality data, in terms of both content and coverage. However, given the expensive and time consuming nature of tracing, it might be useful to further study the effect on ICM estimates of forgoing such tracing.

In terms of tracing sources, we apparently need to better coordinate our efforts with the local Post Office. We also need staff with more experience and or better training in activities related to tracing. In addition, we should consider the use of frequently updated automated databases, such as those currently available on CD-ROM, which link names, addresses and phone numbers for a large segment of the population. With such planning and resources, and with better instrument design, training and procedures, we recommend a further test of the out-mover methodology for 1996.

VI. References

- Alberti, N. and Anolik, I. (1991), "Matching Movers in the 1990 Post Enumeration Survey" American Statistical Association Proceedings of the Section on Survey Research Methods.
- West, K. and Griffiths, R. (1996), "Results From the 1995 Integrated Coverage Measurement Evaluation Interview" American Statistical Association Proceedings of the Section on Survey Research Methods - to be published.

Table 1
Summary of Evaluation Fieldwork Plan Based on Outcome of ICM Production Interview

| ICM Production - Outcome of Case | Evaluation - Action Taken |
|--|--|
| Successfully traced. Interviewed by personal visit or phone | None |
| Successfully traced. No interview obtained. | Review sample of cases. Attempt to contact (retrace if necessary). |
| Unsuccessfully traced. | Review sample of cases using census roster information when attempting to trace. |
| Successfully traced. Partial interview or last resort data obtained. | Review sample of cases. Attempt to contact (retrace if necessary). |

Table 2
Outcome of Interviewing for Out-mover Households

| Outcome | Number of Households | % |
|----------------------------|-----------------------------|----------|
| Traced/ Complete Interview | 49 | 14 |
| Proxy - Complete | 142 | 41 |
| Proxy - Partial | 104 | 30 |
| Non-interview | 51 | 15 |
| Total | 346 | 100 |

Table 3
Comparison Showing Proxy Data Quality
Relative to Out-mover Interview Data

| Quality | Number of Households | % |
|----------------|-----------------------------|----------|
| Sufficient | 32 | 68 |
| Insufficient | 13 | 28 |
| Undetermined | 2 | 4 |

Table 4
Match Status Versus Mover/Non-mover Classification

| Match Status | Classification - % | | | |
|-------------------|--------------------|-------------|------------------|---------------|
| | Non-mover | Mover (All) | Mover (Complete) | Mover (Proxy) |
| Matched to Census | 77.8 | 53.8 | 73.4 | 43.4 |
| Non-Matched | 18.2 | 28.0 | 21.1 | 31.7 |
| Unresolved | 4.0 | 18.2 | 5.5 | 24.9 |

