## Discussion

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First, let me thank Raj Singh for organizing this session. This is an exceptionally cohesive session, with all the papers containing truly useful information. Each paper was easy to read and understand - as a result, it took me less effort to prepare for this session than any of the other times I have been a discussant. It's a real pleasure for me to discuss these papers, since I was involved in work related to them when I was at the Census Bureau.

All the papers deal with methods for improving or/and evaluating coverage and listing. The papers are mostly concerned with the U. S. and Canadian censuses, but there are also applications to household surveys for each of the papers. Three of the papers are concerned with field methods for conducting better household listings. One of the three is primarily concerned with omissions from listings, whereas the other two are concerned with extraneous inclusions as well as omissions. The Julien/Mayda paper is different from the others in that it is concerned with computer and analytic methods. It is also more concerned with coverage evaluation than with coverage improvement.

I will first discuss the Julien/Mayda paper. I find their methods to be very promising and valuable. Field work is an expensive undertaking, so that if their matching methodology can be a substitute for field work, there can be a substantial cost savings. It also appears that their methodology results in better quality evaluation than does traditional field methodology.

One recommendation I have is that the paper include some history and references on past work. I am unfamiliar with matching methodology, so I don't know if this work is a major breakthrough or an incremental improvement on past work. In either case, the methods are very valuable and should be investigated by the U. S. and other countries that are concerned with coverage.

It appears to me that matches could be extended to one person households. Since one person matches in an EA have a 1.00 true match rate, there would probably be a very high match rate for one person households as well.

The three Census Bureau papers all deal with determining adds and deletes to an existing address file. Table 1 compares add and delete rates for the methodologies presented in the three papers. This is no doubt somewhat like comparing apples to oranges, and I am unsure whether it is completely fair and valid to make such direct comparisons. However, according to this comparison, the Urrutia/Treat intensive listing method is clearly the most effective in detecting adds.

Delete rates are shown for only the methodologies for the Barrett and the Mersch et al papers. Although delete rates can be obtained from the other two papers in this session, it does not appear valid to make comparisons with them. The Barrett precanvass method is more effective than the Mersch et al local update method for both delete rates and add rates.

I have only a couple of specific comments on the Mersch et al paper. My only substantive comment is with respect to Table 11 of the long version of the paper, which is not included in the shortened published version. I suggest the authors consider the percent of the ACF non-matches that were deleted. If the percent is high, then it appears best that the ACF non-matches should be left out of the listing. My only other comment on the paper is that there should be references in the paper to past and other related work.

The Barrett paper states that the percent of adds and deletes is comparable to the percent of housing units by type of structure. In other words, there is no big differential by type of structure in the add and delete rates. However, Table 2, Precanvass ADDS by Type and Size of Structure, shows that single units have only a few adds and small multi-unit structures have many adds. Thus, I believe this conclusion is not supported by the data.

I have more extensive comments on the Urrutia/Treat paper than on the other papers. This paper differs from the others in that this paper has considerable direct reference to household surveys.

Let me first provide some additional background for the intensive address listing research. The Census Bureau workgroup of 1992 envisioned that intensive listing be done on a production basis in selected areas for household surveys if it proved worthwhile in testing(Shapiro et al, 1993A). The Census Bureau uses Decennial Census addresses and new construction permits for most areas in most of their household surveys. Thus, it is generally not possible for a survey to have any better coverage than did the Census. Intensive listing is intended to enable surveys to include some of the housing units missed

in the Census. It can alleviate undercoverage due to other reasons as well. The research reported on in this paper addresses only Census misses, so its full benefit may be greater than reported here.

Was intensive listing a success in this experiment? Urrutia and Treat report that there was at least a 4.6% net add rate, determined by taking the difference between the adds from PALE and the misses from PALE. The estimated 1990 Decennial Census missed rate for Blacks is 2.8%(Childers, 1992). The overall Black household undercoverage in Census Bureau surveys is estimated at about 7% in addition to the Decennial Census misses(Shapiro et al, 1993B). The 4.6% improvement here is larger than 2.8% and is a sizable portion of 7%. Thus, on the basis of this research, I would judge intensive listing to be quite successful. There is no information in this paper on costs, so that issues of cost effectiveness can't be addressed.

I will make a recommendation, assuming that the cost of intensive address listing is not too high. The Census Bureau should implement intensive listing on a semi-production basis. For example, for either the Current Population survey or the Survey of Income and Program Participation, select a small group of sample blocks in which to implement this listing and integrate the adds into the survey. If this proves successful, then intensive address listing should be done for larger groups of sample blocks in future years. One drawback to this recommendation is that this will affect the time series for the survey, since coverage will be slowly improved over time and will not be consistent for any two time periods of comparison.

I plan to recommend intensive address listing for Abt Associates surveys, as appropriate, at least for evaluation purposes.

I now make a couple of specific comments. I suggest an exact explanation be given of the intensive address listing procedure. Among other things, I wonder if there was special training for the listers (I think some is desirable), and if there were interviewer safety problems that caused problems.

In the part of the paper dealing with the comparison of the effect of contact on the Census, I suggest comparing procedure 3 to procedures 1 and 2 combined, as well as the pairwise comparisons that are made.

I have some concluding remarks about coverage research in general. These papers show the continuing serious research efforts by both the Census Bureau and Statistics Canada with respect to Census coverage, for which the agencies should be congratulated. However,I am disappointed in the level of Census Bureau research on survey coverage. In 1992 and 1993, I was instrumental in establishing Census Bureau research plans for survey coverage research. The Urrutia/Treat paper on Census misses is right on schedule. Unfortunately, however, everything else is considerably behind schedule. A 1992 anonymous interviewing experiment was rather spectacularly successful (Kearney et al,1993). I understand that there is a completed research proposal for the necessary followup research, but it has not been approved by the Census Bureau for implementation. Work on improving coverage of mobile homes was scheduled to begin in late 1993 but has only recently begun. A plan for improving interviewer belief in confidentiality, including preparation of a new video, has been devised. However, implementation hasn't been funded and therefore may not occur. Several other projects were to have been worked on in 1994 and 1995, but to my knowledge have not.

I strongly urge the Census Bureau Executive Staff to fund and support this extremely important set of survey coverage research projects. The Urrutia/Treat paper is further evidence that research in this area can be productive.

## REFERENCES


Childers, Danny(1992). "The 1990 Housing Unit Coverage Study". In *Proceedings of the Section on Survey Methods Research of the American Statistical Association.*

Shapiro, Gary, Chip Alexander, Lawrence Cahoon, Gregg Diffendal, Sheila Grimm, Howard Hogan, Cliff Loudermilk and Barbara Williams (1993A). "Final Report of the Whole Unit Undercoverage Group", Unpublished draft report, U. S. Census Bureau, 8/25/93

Shapiro, Gary, Gregg Diffendal and David Cantor(1993B). "Survey Undercoverage: Major Causes and New Estimates of Magnitude". In *Proceedings of the Annual Research Conference*, Washington DC: U.S. Census Bureau.

## TABLE 1: ADD AND DELETE RATES COMPARED FOR 3 METHODOLOGIES

| | Add Rates | | | Delete Rates | | |
|---|---|---|---|---|---|---|
| | Paterson | Oakland | Average | Paterson | Oakland | Average |
| Precanvass (Barrett Paper) | 3.4% | 2.2% | 2.8% | 7.8% | 5.7% | 6.75% |
| Local Update (Mersch Paper) | 2.6% | 0.6% | 1.6% | 2.8% | 0.8% | 1.8% |
| Intensive Listing (Urrutia Paper) | -- | -- | 4.6% | -- | -- | -- |