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Final Report on the Pre–Enumeration Survey of the 1986 Census of Central Los Angeles County

by

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THE PRE–ENUMERATION SURVEY OF THE 1986 CENSUS OF CENTRAL LOS ANGELES COUNTY

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I. BACKGROUND and PURPOSE of the PRE–ENUMERATION SURVEY

The Pre–Enumeration Survey (PrES) was conducted in conjunction with the 1986 Census of Central Los Angeles County. It was the first test of this method of measuring census coverage. Coverage measurement is evaluation of how many persons are missed (undercounted) or duplicated (overcounted) in census enumerations (Section II overviews the theory). A related and better known coverage measurement survey is the Post Enumeration Survey (PES). Childers et al (1987) present developments manifest in the 1986 PES. In a PES, the survey data is collected after Census Day. The PrES collects coverage measurement data before the census.

The PrES collects names and characteristics (kinship, sex, race, ethnicity, age, and marital status) of persons living in sample households (Section III describes the sample). It also seeks other addresses where the sample persons might be enumerated by the census. At each of these addresses, PrES data is matched person–to–person against names and characteristics collected in the census. A match status code (matched, not matched, out–of–scope, or unresolved) is assigned for each survey sample person. Counts in those code categories are used to compute coverage rates and estimates. More detail on the operations is presented in Section IV of this report.

In 1986, the PrES was a test of its feasibility and advantages relative to a PES. Since the PES has been more extensively developed, it is a good basis for comparison. Indeed, the PrES has evolved out of and as a variation of the PES. The two enumeration surveys share the same purpose and kinds of operations, but the difference in timing dictates differences in conducting those operations. For example, PES respondents are asked, "What was . . .'s address on (Census Day)?" PrES respondents don't always know where they will be on Census Day. They are asked, "What is the address where . . . may move?" Tentativeness about this address is a major problem that, if not remedied by tracing procedures, could introduce a new bias in results.

Interest arose in conducting the coverage measurement survey before Census Day because of possible benefits to schedule and data quality. Since its operations begin earlier, PrES results might be obtained earlier than PES results (Citro & Cohen, 1985). Meeting early deadlines could become important if coverage measurement estimates gain priority. Early results do depend on the census data being prepared as early as the survey data. This becomes increasingly feasible as census automation progresses, but it was not tested in 1986.

Another advantage of the PrES comes from conducting it closer to Census Day. Census followup interviews continue for at least three months after Census Day and keep PES interviewers out of the field for that time. PrES interviewing, on the other hand, can be conducted up to the week before

Census Day. The shorter interim between survey and census means fewer movers, people who change address between survey and census. Fewer movers generally leads to fewer persons to followup, fewer matching problems, and lesser followup costs. The relative proximity of the PrES and its followup to Census Day was a major advantage over the 1977 to 1983 time frame for the CPS–Census Retrospective Study (Diffendal, 1986) that tested coverage measurement with data originating before the census but collected for some other purpose.

On the other hand, there were concerns about the PrES. A more difficult followup situation counterbalances the data quality and cost advantages of the fewer movers. As already noted, census enumeration address cannot be as reliably collected by the PrES as by the PES. That address is important for matching data records, and also for locating sample persons in order to followup. That means other not–matched persons besides movers must be included in the followup. Also, in many cases, followup interviewers had to visit more than the sample address in the effort to locate respondents. This was called tracing. Tracing is expensive and, if unsuccessful, leaves cases unresolved, which translates to uncertainty in the data. Because of the importance of these operations, PrES tracing techniques are explained and evaluated in Section VII of this report. The comparison of PrES and PES estimates, presented in Section V, addresses the question of whether the results of PrES followup and matching are on a par with those of PES. However, some caution must be exercised in interpreting these comparisons because of the PrES's small sample size and unrefined procedures.

Another issue is the possibility that the PrES may have an effect on the Census results. Besides its impact on data quality or costs, such interference could distort or invalidate the main PrES purpose – evaluation. As an example of such impact, if PrES respondents did not understand that answering the PrES was not the same as responding to the census, they may believe they need not submit their census form. The effect might also be to enhance census response. A PrES interviewer who convincingly elicits cooperation for the survey may be promoting cooperation with the census as a side effect. Comparisons of PrES to Non–PrES blocks on various census response variables are presented in Section VI to investigate this concern.

A variety of other findings and evaluations are included in Section VIII of this report. How do costs compare to those of a PES? What has been learned about a PrES schedule? What can be done to ensure independence between coverage measurement survey data collection and census enumeration that follows it? How did computer matching work for the PrES? Conclusions summarized in Section IX.

II. THEORY

Coverage measurement surveys generally use the theory of dual system estimation to produce estimates of the census undercount. This estimation builds upon counts of persons from the sampled area who are enumerated in the census, in the survey, and in both. These tabulations are related to each other in Figure 1 and in this formula, comparable to the dual system estimator, $\hat{x}_D$, developed in Wolter (1986):

$$DSE = \frac{N^*_c}{(M / N_p)}, \text{ where}$$

DSE = dual system estimate of the population size
N^*_c = census count minus estimated unmatchable or erroneously enumerated persons
M = estimate of PrES persons in the census, i.e. count of PrES data records matched to census
N_p = number of persons in the PrES

	In PES	PES Missed	All
In Census	M		N^*_c
Census Missed			
All	N_p		DSE

Figure 1. Relevant Cells of the Dual System Scheme.

If the survey and census are independent of each other, the ratio of M to N_p should be the same as N^*_c to the value to be estimated. If they are not independent, there is a bias. Specifically, response correlation bias occurs when the same persons are likely to be missed by both the census and the survey. Other questions of precision and bias arise when practical difficulties prevent a person from being unambiguously assigned as a match or as a census miss.

While the theory applies equally to the PrES and the PES, the practical problems of collecting complete and accurate counts will not necessarily treat both types of the surveys equally. Section V compares PrES to PES results in a general way in order to detect and help evaluate important differences in

procedures. The match rate is the main statistic used in those comparisons. It is the ratio, among all PrES cases, of persons found by matching in both sets of data. It is evident in the denominator of the dual system estimator as it is presented above. Match rates are useful when the focus is on survey differences. Comparisons of match rates are thus not confounded by census counts, which should be the same for both surveys if the sample areas represent the same areas. This report's match rate comparisons are qualified by discussions of noninterviews in the initial and followup data collections.

Part of the issue analyzed in section VI can also be expressed in terms of this theory. If the existence of the PrES affected the census data collection, it could mean an effect, one way or another, on N^*_c and M. While it is not clear in which direction or how much rates or estimates might be affected, any influence on the coverage results due to the coverage measurement itself, would invalidate the evaluation. This feasibility test of the PrES tried to evaluate the possibility of distortion in these estimates rather than measure it.

III. SAMPLE DESIGN

For the 1986 PrES, a sample of 96 blocks (101 city blocks, with small ones clustered together to guarantee a minimum block size) was drawn from the originally planned site of The 1986 Census of Central Los Angeles County. In fact, PES and PrES samples for the area were designed together to permit the analyses presented in this report. The blocks had been stratified by their predominant race, hispanic origin, and housing type. Some strata were more heavily sampled in order to improve the representation of groups which traditionally have had large undercount estimate variance. In this original sample, blocks were paired within strata and enough pairs drawn to supply the desired PES sample size for that stratum. Final selections were made from the blocks designated for the PrES in the 186 pairs.

The sample was reduced, however, by a Census Bureau decision to reduce the size of the test site. PrES interviewing was over, and supplemental PrES blocks could not be added, as for the PES, within the reduced site in order to maintain the desired sample size. The final PrES sample had 33 blocks (34 city blocks). The racial composition of the area the sample represents is summarized in Table 1.

Table 1. Race and Ethnic Composition of Residents in Site

Group	Percent
Hispanic	71.0
White (Non–Hispanic)	19.6
Asian	8.2
American Indian	0.7
Black (Non–Hispanic)	0.5

Fourteen large PrES blocks, with 70 or more households, were subsampled to an average size of about 43 households. The subsampling reduced interviewing caseloads with little effect on sampling variance.

IV. OVERVIEW OF OPERATIONS

After the sample of blocks was selected, PrES interviewers used Census Bureau maps to locate the block, walk the block perimeter, and list addresses for each household in an Address List Book (See Appendix A). As a quality control check, randomly selected addresses from an independent (IRS) list of the block's addresses were compared to entries in these listings. If an address was missing or very different in the field listing, the whole listing failed and was sent back into the field for correction. Subsampling was done as needed, using accepted address listings. These operations were completed during January, 1986.

Interviewing, using the form copied in Appendix B, began on January 22, 1986. Interviewers were hired, trained, and coordinated out of one collection office for the whole original test census area of Los Angeles. The decision to reduce the test area came after all PrES data were collected. All interviewing and quality control contacts with respondents were completed by March 8, 1986, seven days before Census Day.

The postal movers check captured changes of address for sample heads of households who recorded a new address with the Post Office. The United States Postal Service Address Information Services Centers provided the address changes during July, 1986. That information was collected to help in tracing cases during field followup. (See also Section VI.)

Most of the subsequent PrES operations were processing phases similar to and adapted from ones designed for the PES. PrES keying and matching were done after the corresponding task was completed for the PES. This was to make sure that the PrES work did not delay or interfere with the higher priority deadlines of the PES. PrES data were keyed in September.

In early November, PrES and Census data were compared by a computer matching algorithm that did much of the tedious search for similarities in the two sets of data (See also Section VII.4). The matching continued with clerks, who were trained to review match status code assignments or to assign such codes to unresolved cases among PrES data. The most difficult cases were decided by a Special Match Group or sent for field followup. A list of match codes and definitions, arranged by match status category, are included in Appendix.

Field followup, using the form copied in Appendix C, began on December 5 to clarify data where needed: to find the Census Day address of PrES sample persons not found in the census data, and to confirm or refute imperfect matches, and to collect missing characteristic data. Some different methods of tracing followup persons, including interviewer visits to additional addresses, were tested. (See Section VI.)

The results of the followup interviews were reviewed along with all census and survey records for the cases to determine a final match code assignment. Match codes are summarized in Appendix D. The final review and match code assignments were completed by January 8, 1987. To ensure quality of the new matching procedures, all followup forms and match code histories were checked again at headquarters.

V. PrES–PES COMPARISONS

The analyses of this section focus on determining if the Pre–Enumeration Survey can produce results that are in keeping with Post Enumeration Survey results. The PES has been tested and refined. The PrES results should be reasonably close, if it is measuring the same thing – even on this trial run when PrES operational procedures are still being shaped.

As explained in Section II, match rates are a good summary statistic for comparing coverage measurement surveys while holding census data issues constant. Missing–data statistics, however, explain or qualify the comparisons made on the match rates, while they are themselves a basis for comparison.

1. Missing Data

Missing data may be limited to an item on a household's form or may mean there is no response for a whole household. The former, partial nonresponse, is less critical in the initial interview, because such inadequacies can be sent to followup. On the other hand, each noninterview increases dependence on assumptions about persons missed. The noninterview adjustment used in the PES and PrES essentially assumes characteristics and match statuses within a block have the same proportions among persons responding as among those not responding. Low noninterview rates are much preferred, in case noninterviews are not actually representative of the rest of the block.

The PrES noninterview rate for the initial interview (7.1% – see Table 2) was higher than for the PES but lower than for the Current Population Survey in that area (Steinfeld, 1986). Schenker (1987) reported a very low noninterview rate for the 1986 PES (0.54% or 32 out of 5935 nonvacant households). The 189 (3.2%) proxy interviews helped keep that rate down. If we assume the PrES could also get proxy interviews for most of the noninterviews, the PrES rate could also be reduced. Some of the difference in noninterview rates is also explained by problems in the PrES field work schedule discussed in Section VIII.2. For the most part, they could be avoided. Fourteen PrES households were assigned to whole household noninterview after followup determined the household was out of scope, e.g. ficticious or deceased by Census Day.

Table 2. Field Results for the Initial PrES Interview

		Households	Percent
Completed Interviews		1260	92.9
Noninterviews:	Refusals	28	2.1
	Other Field	54	4.0
	Assigned	14	1.0
	Total	96	7.1
Total Occupied Housing Units		1356	100.0
Vacant Housing Units		50	
Sampled Housing Units (33 blocks)		1406	

Noninterview rates for field followup were ten times higher for the PrES (see Table 3) than for the PES. The difference is mainly in the households not traced. The large number of not–traced PrES persons is important to match rate interpretations.

Table 3. Field Results for the PrES Followup Interview

		Households	Percent
Completed Interviews		210	75.5
Noninterviews:	Refusals	2	0.7
	Not Traced	60	21.6
	Other	6	2.2
	Total	68	24.5
Followup Sample Size		278	100.0

2. Match Rates

Before comparing match rates, a look at raw PrES match results, listed in Table 4, will show the degree of uncertainty in the PrES match rate estimator. There are two lines on the table for unresolved match statuses (not traced and other unresolved), accounting for 3.9% of persons in scope. In computing match rates, to what degree should these cases be counted matched or not? The answer is not clear. Any one assumption about match rates among the unresolved, given so many unresolved, could yield a considerably biased estimate and would misleadingly convey confidence in its precision.

Table 4. PrES Persons Matched

	Stage of Matching			
	Computer	Clerical	---Final---	
			All Cases	Followup
Match Status				
Matched	2971	3852	3894	40
Not (Yet) Matched	984	641	394	389
Possible Match	567	13	*	*
Not Traced	*	*	140	140
Other Unresolved	*	11	35	29
Out of Scope	*	5	59	55
Total Sample	4522	4522	4522	653
Match Rates				
Preliminary	65.7%	85.5%	*	*
High Estimate	*	*	90.8%	9.3%
Low Estimate	*	*	87.6%	*

* Tally or rate is not relevant or available.

Relative to the PES, PrES unresolved match statuses introduced more uncertainty into its data. The PES had a 0.8% unresolved rate; the PrES had 3.9%. A large part of the difference was due specifically to PrES respondents not traced during followup. The not–traced rate (among completed interviews) was 0.1% for the PES and 3.1% for the PrES. The rate of other unresolved for both surveys is then about the same. The PrES clearly needs development on the tracing of cases requiring followup.

Two match rate estimates were developed for the PrES data in order to represent the variation in the rates caused by unresolved match statuses. Neither is as extreme a treating the unresolved as if they would be 0% or 100% matched. The two rates may be viewed as a range of reasonable values in which the precise match rate should fall. The high rate excludes unresolved cases from both the numerator (matches) and denominator (total) counts. This is like imputing matches for the unresolved at the rate of matches among all resolved in the group (e.g. 90.8% for the raw total sample). The low rate counts unresolved persons in the base of the rate and augments the match count at the same rate as matches found among resolved followup cases (i.e. 9.3%).*

Both PrES rates, weighted to adjust for probability of selection and for noninterview rates, are listed in Table 5 for the total samples and for major subgroupings. PES match rates computed from weighted counts reported by Wolter (1987), are presented for comparison. The PES imputed for age and sex characteristics missing in about 2.5% of its cases. About 9.8% of PrES cases had missing age or sex data. PrES standard errors are around 1.5 for the overall sample and vary up to 2.8 among subgroupings and 5.7 for the missing characteristic rates.

The PES rates were affected very little by imputation procedures. Imputation of incomplete characteristic data and unresolved match statuses and use of proxy data make a difference of only 0.2% in the overall PES match rate reported here (Schenker, 1987). Considering the 3% difference between PrES high and low match rate estimates, a comparison of unimputed PES match rates to the PrES rates would look much the same as the comparison of imputed match rates.

* Those acquainted with the 1980 PEP will note that the high rate is analogous to the estimator series numbered fourteen; the low rate corresponds to series three. See Cowan and Bettin (1982).

Table 5. Weighted Match Rates

	PrES High Rate	PrES High Standard Error	PrES Low Rate	PrES Low Standard Error	PES
Whole Sample	92.16	(1.3)	89.40	(1.7)	88.56
Race/Ethnicity Groups					
Hispanic	91.69	(1.6)	88.78	(1.9)	87.64
Asian	92.99	(2.3)	92.36	(2.0)	90.39
Other	94.78	(1.3)	91.96	(2.0)	91.79
Age by Sex Groups					
0–14 M	91.13	(2.0)	88.08	(2.6)	88.61
F	92.74	(1.9)	90.11	(2.3)	87.59
15–29 M	87.68	(2.6)	85.27	(2.8)	83.67
F	90.40	(1.7)	86.67	(2.2)	83.97
30–44 M	93.53	(1.2)	90.23	(1.8)	86.71
F	93.00	(1.5)	90.06	(1.8)	91.54
45–64 M	96.12	(1.2)	93.95	(1.7)	92.94
F	96.60	(1.0)	93.93	(2.1)	93.71
65+ M	97.34	(0.8)	97.34	(0.8)	93.19
F	96.41	(1.1)	94.54	(1.3)	94.85
Missing Age/Sex	88.66	(5.4)	86.25	(5.7)	*

* For the PES, imputation assigned characteristics where missing.

As Figure 2 also shows, the PES match rates are close to the low PrES rate, generally just below it, for race and ethnicity subgroups as well as the aggregate. The high PrES rates are about 3% higher.

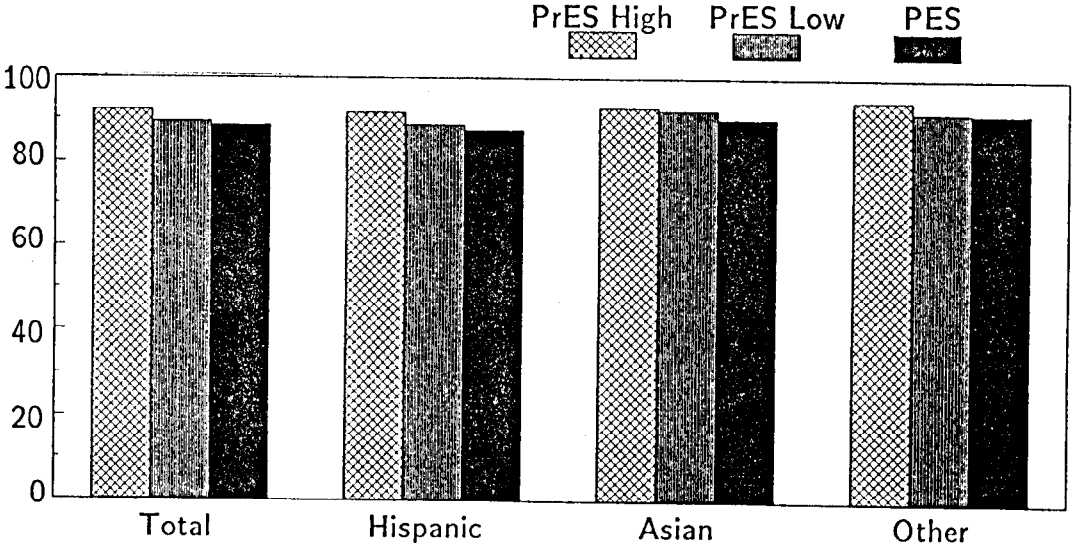

Figure 2. Match Rates by Survey and Race/Ethnicity.

That pattern runs across the estimates for age by sex subgroups as well, displaying a consistency in how PrES and PES rates relate. In fact, a correlation of .89 or more ($p < .01$) between the PrES (high or low) and PES match rates across age–sex groups supports a view that they are measuring the same thing. Figure 3 graphically presents the correspondence of age–related trends in rates for each gender. Note that variations in rates are amplified by the truncated vertical scale.

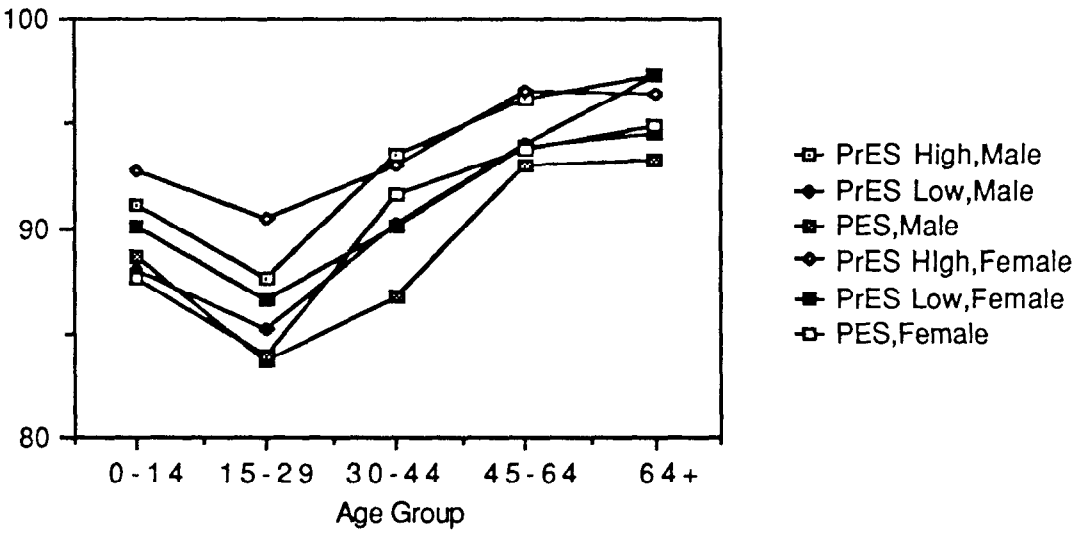

Figure 3. Trends in Match Rates across Age by Survey and Gender.

Figures 4 and 5 show scatterplots of sample block pair match rates: PES against PrES (low or high). The axis scales are cut off at 50% on these plots to better see the dispersion, clustered in one quadrant. There was one outlier, however, not shown in each plot; it was located above the diagonal. Plot points would center on the diagonal if the match rates differed only randomly. PrES high rates seem to lie higher than PES rates, suggesting a difference. Statistical tests, the t–test and the Wilcoxon Matched–Pair Test (Marascuilo & McSweeney, 1977), were done using the same data as in the plots and summarized in Table 6. Both show the PrES high (but not the low) match rates are significantly higher than the PES rates.

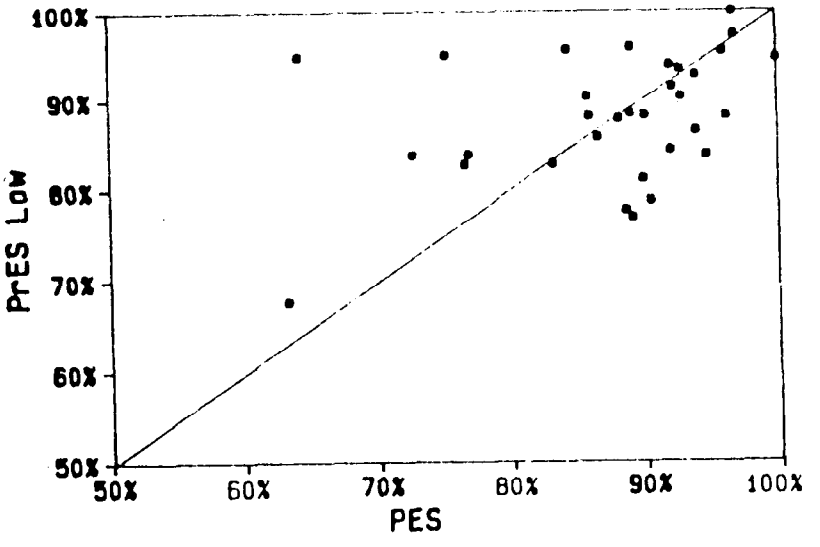

Figure 4. Match Rates: PrES Low vs PES.

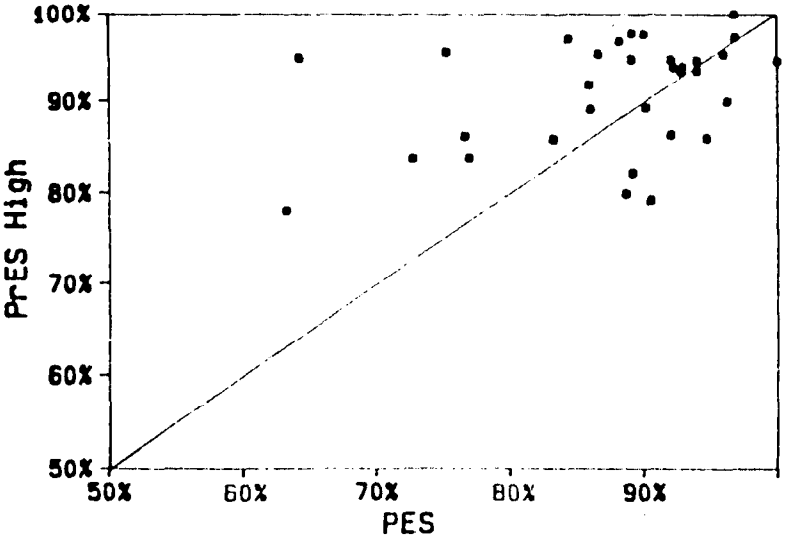

Figure 5. Match Rates: PrES High vs PES.

Table 6. Test Comparisons of Weighted Match Rates

t–Tests

PES vs:	Difference in the Means	Standard Error of the Means	Observed t–Value	Probability of the Observed t–Value
PrES (High)	–5.35%	2.32	–2.30	0.03
PrES (Low)	–2.38%	2.40	–0.99	0.33

Wilcoxon Matched–Pairs Test

PES vs:	Continuity Corrected T(+)–E(T)	Standard Error of T(+)	Observed Z(T) Approximation	Probability of the Observed Z(T)
PrES (High)	–139	56.0	–2.48	0.01
PrES (Low)	–4	56.0	–0.07	0.94

A procedural error observed during review of the PrES clerical work could account for higher PrES match rates. In final stages of matching, some followup cases were assigned out–of–scope or unresolved when they should have been coded not–matched. It appears that a clerk or two used PES rather than PrES decision charts. It had not been long since PES work. The errors were corrected when a post hoc review confirmed a case labelled out–of–scope should be not–matched. About a dozen cases were left as out–of–scope because there was not enough data at headquarters to confirm Census Day residence in site. Refined procedures and training – more emphatic instructions and lack of interfering tasks – could easily avoid such problems in the future.

In summary, the uncertainty surrounding the unresolved cases qualifies any conclusion about PrES and PES comparability. When trace procedures are developed so that there are few unresolved cases to impute and one estimate is sufficient for the PrES, analysis of a possible bias or difference in biases will be possible. Also, for this initial test, it is likely that problems in unrefined procedures led to some systematic difference between PrES and PES estimates. The high correlation of match rates across subgroups of the sample does support a conclusion that the PES and PrES are measuring the same thing, although at slightly different levels.

VI. PrES EFFECT ON THE CENSUS

The Pre–Enumeration Survey contacts people before the census. There is some possibility that something in that contact changes how people view or respond to the census. The ideal investigation would be, "Did the PrES affect the census coverage in sample blocks?" But since our only gauge of census coverage in this test census is the coverage measurement results now in question, other variables drawn strictly from census data were used.

If the PrES had an effect on the census, it could show up in initial census response: census mail–back rates and failed edit rates. Home visit interviews and telephone followup repair most household nonresponse and failed edits before final census data are tabulated, so these rates do not necessarily reflect final census coverage. If any influence on initial census response is found, it is a warning, rather than proof, that census results might have been affected.

The mail return rate presented here is the percent of occupied households on the block's mail–out list that mailed back their census form before nonresponse followup. The overall failed edit rate is the percent of occupied households' forms that failed any response edit check at any stage of processing. The coverage edit failure rate is the percentage of mail returns with answers missing on certain items. The content edit failure rate is the percentage of mail returns with dubious answers (e.g. out of range or inconsistent with other answers)

The plots in Figures 6–9 illustrate the initial census response rates for blocks where the PrES did or did not have a chance to affect those rates. PES blocks, which were paired with the PrES blocks in the sampling design, were used to represent those not affected by the PrES. It is appropriate to view PES blocks as controls in this analysis since, until the census enumeration is finished, respondents there know no more about census evaluation than those in other non–PrES blocks. Each plot point represents a specific pair of PES and PrES blocks as assigned by the sampling design. Those points would center along the diagonal if there were no effect.

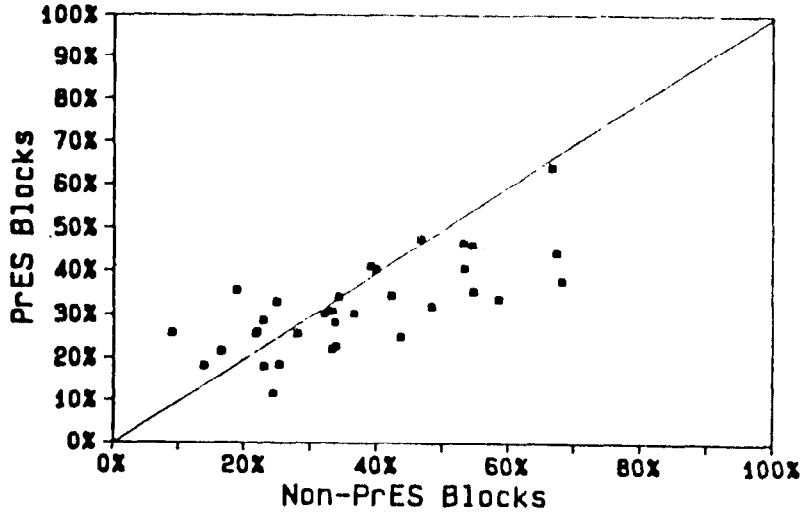

Figure 6. Mail Return Rates: Sample–Designed Pairs.

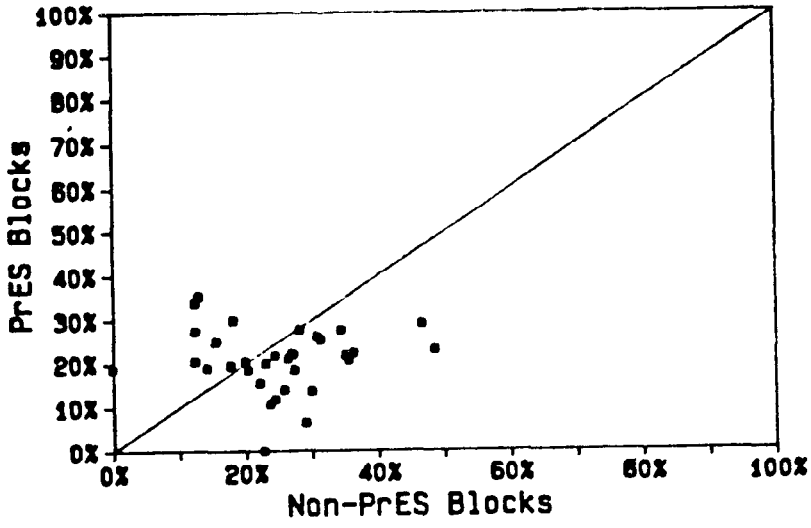

Figure 7. Overall Failed Edit Rates: Sample–Designed Pairs.

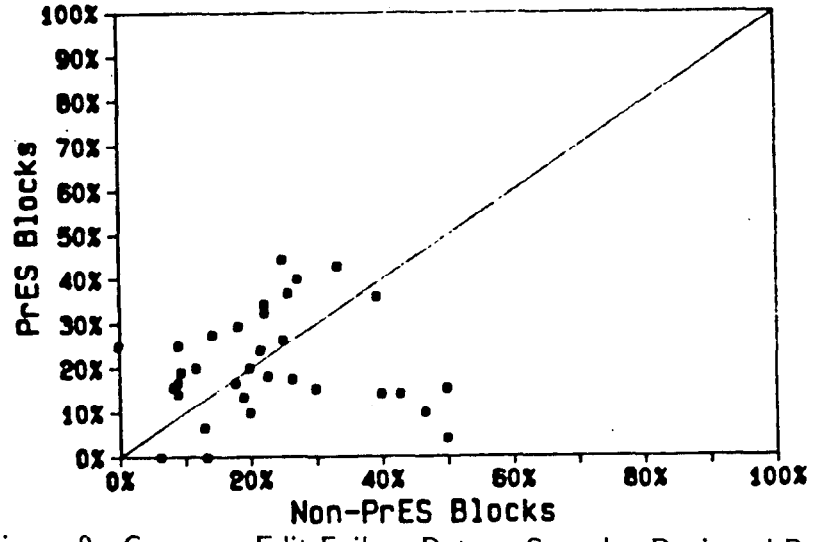

Figure 8. Coverage Edit Failure Rates: Sample–Designed Pairs.

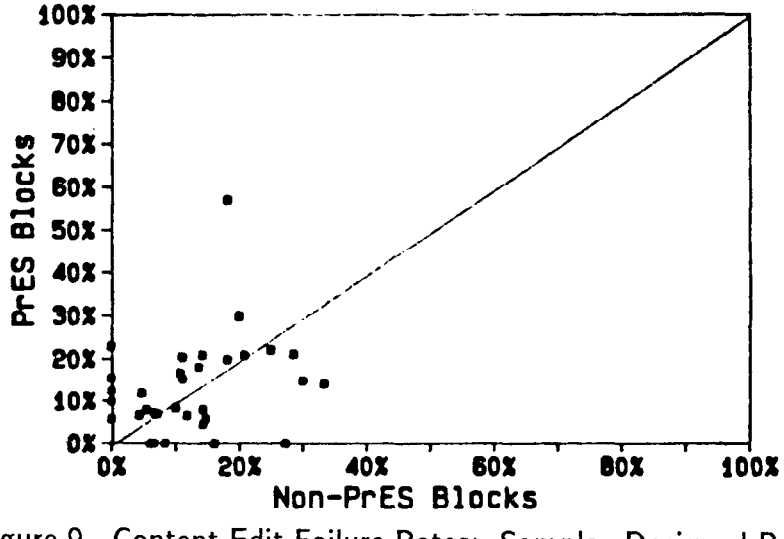

Figure 9. Content Edit Failure Rates: Sample–Designed Pairs.

Table 7 summarizes comparisons of the rates using the t–test and the Wilcoxon Matched–Pair Test. As before, the different tests closely agreed for a given comparison, testifying to the robustness of the first and the power of the second test on this data.

Table 7. Test Comparisons of Census Cooperation Rates: PrES vs. Non–PrES Blocks

	Difference in the Means	Standard Error of the Means	Observed t–Value	Probability of the Observed t–Value
t–Tests				
Mail Returns	4.93%	1.91	2.58	0.01
Failed Edits:				
Overall	3.88%	2.18	1.78	0.08
Coverage	1.91%	2.95	0.65	0.52
Content	–0.65%	2.19	–0.30	0.77
Wilcoxon Matched–Pairs Test				
	Continuity Corrected T(+)–E(T)	Standard Error of T(+)	Observed Z(T) Approximation	Probability of the Observed Z(T)
Return Rates	133	56.0	2.38	0.02
Failed Edits:				
Overall	107	56.0	1.91	0.06
Coverage	–5	56.0	–0.09	0.93
Content	–10	56.0	–0.18	0.86

The mail return plots show an effect most clearly. Most of the plot points lie below the diagonal, illustrating that PES blocks had higher proportions of mail returns. PrES blocks yielded significantly lower mail return rates. The lower rate of mail returns in PrES blocks could be explained in several ways. Having given responses once to Census Bureau employees, residents may think mail response is not important or needed. Respondents may be tired or suspicious of repeated questioning.

The overall failed edit rates tend to look better in PrES blocks than in non–PrES blocks. The plot points generally lie below the diagonal, showing fewer edit failures per occupied household in PrES areas. Both tests of the differences are significant at the 90% but not the 95% confidence level. PrES

blocks required fewer edit followup contacts. The failed edit tests, seemingly at odds with the mail return tests, might actually be explained by the possibility of a positive relation between mail returns and edit failures: if a census enumerator collects the data, there are fewer mistakes to find.

To remove the effect of mail returns from edit failure ratios, the number of mail returns can be used in the denominator as in the rates for the two kinds of edit failures: coverage and content. The plots and the tests show no effect on edit failures when mail response is controlled suggesting that people were giving equally accurate responses in PrES and non–PrES blocks, when that response was obtained by mail.

Initial response rates may have been affected, but what about final response rates? The census imputes persons from available information when final responses are inadequate. An equal number (18 or 55%) of the investigated PrES and non–PrES blocks had no census imputes at all. The differences in paired–block imputation rates were not significant ($t=0.1$, $p=0.90$).

Another clue to any impact on final census results might be in within–household coverage. The average number of persons per occupied household was also not significantly different from PrES to non–PrES blocks ($t=0.6$, $p=0.54$). It does not appear likely that a PrES suppresses (or enhances) reporting of residents within a household.

There is a way that the PrES could influence census results that would not show up in these analyses. Since the interviewing in the area occurs for the survey first, the census can learn from the PrES ways to avoid or remedy problems that would not be corrected in regions where there is no PrES. The issue is not whether the census benefits from forewarning of a problem. Such a fortuitous side effect would be considered welcome as long as it did not invalidate the evaluation. Rather, the issue is whether the areas under survey are differentially influenced so that they do not represent those larger areas they were designed to represent. In the 1986 test, census supervisors noted PrES interviewer recruitment and attrition patterns and made changes in management plans for subsequent census operations. Their changes were made for the whole test area, so the coverage measurement was not invalidated.

These results do not show that final census results were distorted by the presence of a PrES. Mail returns rates appeared somewhat lower in PrES areas, but subsequent census procedures obtained completion rates that correspond with other comparable areas.

VII. EVALUATION OF TRACE OPERATIONS

Trace operations are the key to a PrES. Tracing is the search beyond the survey sample address for an acceptable respondent to questions about a followup person. Unanswered followup questions lead to unresolved match codes and thus to imprecision in survey estimates. Tracing is not generally used in a PES. A PES respondent who needs to be followed up is usually found at a survey address, visited only a few months earlier. For the PrES, the interim from survey, when followup persons' addresses were last observed or tentatively collected, to followup is at least six months. In this PrES test it was ten months. The longer the period between survey and followup, the more people move from survey addresses. Any future address, given before the respondent knows the details––or even the possibility––of a move, is bound to be less reliable than a report of a past address, as in a PES. Because PrES data on Census Day address is thus less dependable, all not–matched survey persons need to be followed up to confirm or determine that address. The greater percent of relocated followup persons and the greater fallibility of their data make tracing much more important to a PrES.

1. Alternate Addresses

Tracing efforts began in the initial PrES interview. Respondents were asked at what other (besides the sample address) addresses household members might be found on Census Day or in following months. In the PrES all such responses were referred to as alternate addresses. Some alternate addresses represent second valid addresses, such as a temporary residence address; others represent an expected permanent residence address for persons who plan to move. Persons or whole households not matched at the original address could be sought at the specific alternate address. The opportunity for and results of PrES alternate address search during computer or clerical matching before followup are summarized in Table 8. Alternate addresses were also used in tracing efforts during followup and are included in the discussion of tracing followup persons below.

Table 8. Alternate Addresses for PrES Households

	Households	Percent
Alternate Address Given	31	2.3
& Match Found at Sample Address	18	1.3
& Match Found at Alt Addr	2	.1
Out of Site	6	.4
Total Occupied Housing Units	1356	100.0

The limited usefulness of PrES alternate addresses is evident in this data. For the thirty–one households supplying alternate addresses, over half were not needed to resolve residents' match statuses––even before followup. The residents simply had not moved (yet) as they thought they might or they did not change their view of their primary residence before Census Day For two

households, however, the alternate address facilitated a match before followup which might otherwise have been difficult to trace. For thirteen households the address provided leads for followup trace, although even for the six out–of–scope cases, the match status needed to be verified in the field. Alternate addresses were worth including in initial data collection and processing, but their performance in the PrES is disappointing.

2. Postal Movers Check

An operation called the Postal Movers Check was another attempt to maintain current addresses for sample households. It obtained changes of address submitted to the post office by a PrES head of household. Names and addresses were sent to the United States Postal Service (USPS) for updating by standard mailing list correction procedures at the regional Address Information Services offices. This operation was more likely to capture changes of address for whole households of sample persons who moved together at one time than for individual household members who moved alone. Whole–household movers are especially difficult to trace, since there is no one left behind at the sample address to either respond to the followup or to help locate someone who can. The timing of the search was about three months after Census Day so that most of those who moved between survey and census would have time to record a change of address and so the changes sought would not yet have been discarded.

The results are shown in Table 9. A number of households were dropped from the operation because the name of householder or ZIP Code was not captured in time or because cards were not returned by the post office. Of the households checked, a typical percent (about 5% for a four month interval) had evidence of a move. But over a third of those had no change of address. That left under 3% with addresses for a nationwide trace and less than 1% for a trace within the test site. Only a handful of households were resolved (five, compared to the 68 unresolved in the final data). Two cases would have been resolved by trace operations––even without the postal check. Perhaps some more precise means of targeting movers for address updating can make this approach more cost efficient.

Table 9. Postal Movers Check of PrES Households

	Households	Percent
Postal Movers Check Cards:		
Moved, No Address	19	1.4
New Address in US	34	2.5
For Followup Cases	9	.7
Traced and Resolved	5	.4
Only Way Traced	3	.2
Total Returned	1152	85.0
Address Cards Lost or Not Sent	204	15.0
Total Occupied Housing Units	1356	100.0

3. Tracing During Followup

Tracing efforts were mainly centered on followup and used various types or sources of addresses. Alternate addresses and contact addresses from the initial interview, and USPS changes of address were recorded on the followup form. Contact addresses came from the question asking respondents for the name and address of persons who could help in locating sample persons after Census Day. There was a place to record also a census form address, as when another household member had matched elsewhere or when an extra address was written in on the census form, but none of these was found. The followup form also probed for entirely new trace addresses in any interview which failed to find an acceptable respondent. In a few cases more than one of these new addresses were obtained. Interviewers were guided with these arrangements for and limits on their tracing efforts: (1) Accept an interview only from a followup person, about whom the followup information is being sought, or someone who lived during 1986 with him or her. (2) Stay within the assigned interviewing territory. (3) Visit the original sample address first, unless a confirmed change of address within the test site is marked as the place to start. (4) Contact or visit other addresses as needed and available in that area before passing the questionnaire to a supervisor for reassignment within the site or noninterview conversion. (5) Use extra followup forms for persons who no longer appear to live with other followup persons in the household, avoiding the need for a single form to be routed two directions at once. (6) Ask specifically for a followup person rather than the head of the original household when introducing oneself at the door. These rules were meant to optimize the cost efficiency and comprehensiveness of the trace.

Table 10 summarizes the numbers of each type of trace address available or used in various ways during followup. The numbers of trace addresses available, actually visited, and visited on the last try––with either a completed or a noninterview outcome––were tallied on a sample household

Table 10. Use of Trace Addresses in Followup

Type of Trace Address	For Sample Households: Available	Visited	Where Interview Completed	Visited Last, Noninterview	For Persons: Where Status Resolved	Where Sought Last, Unresolved
Sample	268	264	172	25	330	85
Postal Check	9	6	4*	1	11	3
Alternate	13	2	1*	1	4	1
Contact	173	27	3	16	6	30
New	64	54	24	22	76	42
Two or More New	15	11				

* For one household the address at which the interview was completed was given by both the Postal Movers Check and the alternate address sources.

basis. The table also includes numbers of followup sample persons' match statuses resolved and left unresolved after a final interview attempt at each type of trace address. Ten households were left out of this trace analysis due to ambiguity or incompleteness in the record of visits.

In comparing the different types of trace addresses, the sample address remains the best source of followup information. Still it was not sufficient in about one hundred (40%) of the followup households. There were 91 followup households (about 1/3 of the followup workload) that did not have any trace address other than the original sample address before followup. Only seven households were resolved at an address other than the original sample one or one obtained during followup. Contact addresses were not even expected to yield acceptable respondents––just leads to new addresses where one could be found. For about 65% of sample persons who needed followup, a contact name and address had been provided. Apparently the contacts were not as able or willing to help; about 59% of those called upon provided no further leads. Those who did were valuable in resolving up to eleven households. New addresses were second to sample addresses in followup resolutions. But in about half of the new address traces, the trace still had not succeeded. Dead ends to the trace were close to evenly split between the original sample address, the contact address, and the followup–requested (new) trace address.

In summary, there remains much room to improve the trace procedures. Some gains may come from refining procedures and training for related operations. Trace will improve if followup is closer to Census Day and is given higher priority in overall census operations. Alternate address and contact address collection were worthwhile but more limited than hoped. More efficient arrangements for the Postal Movers Check would help. Other innovative ways to obtain more trace leads where needed in followup should also be developed.

VIII. EVALUATION OF OTHER ISSUES

1. Costs

Costs, for the most part, are about the same for the PrES as for a similarly scaled PES. In the 1986 test, many cost items were not separable. Many tasks, including preparation of the sample design or of training materials or of field manuals or of clerical procedures, built upon preceding effort or could only be done in tandem.

One place where costs are not equal is in tracing. The postal movers check was an expense that has not been incurred by the PES. It can be done with less cost by focussing change of address requests on only followup persons. Extra visits during the followup also make the followup interview about twice as expensive per case for the PrES as for the PES.

2. Schedules

The initial collection of PrES data before Census Day was scheduled for about one month. It was finished with a weeks extension and with some help from current survey field staff. Unexpected severe weather, a week of torrential rains, and unexpected interviewer attrition due in part to local conditions and in part to assignments, as described in the next topic, created the delays in interviewing progress. Census Day was an inflexible deadline for all PrES data collection. To ensure a fallback period for finishing initial interviews and to pursue data for households that would otherwise be noninterviews, an earlier start for initial PrES interviewing would be wise. Blizzards and snowfall are sure to cut days or weeks out of a January or February interviewing schedule in many states. Different regions will provide their own unique problems to data collection each time a new series of operations is begun. If the PrES is the first to confront these problems in the field, it needs time to adapt and ensure it has finished the tasks properly.

In 1986, a major scheduling issue was how early the census file could be prepared with all information needed for the matching. The census file was ready at just about the time that the PES file was ready. An earlier census file would miss many updates and corrections that come from late census operations. The promise of a PrES for earlier results can be realized only to the extent that an accurate and complete census file is ready earlier than a PES file could be. As the census schedule is trimmed or rearranged and as automation technology improves the speed and accuracy of the census processing, earlier census file preparation dates become more feasible and PrES data more valuable in meeting earlier final deadlines.

3. Methods to Ensure Independence

Undercount estimates depend on independence of errors in the two sets of data. Since the coverage measurement survey and census often hire the same people and people are likely to continue making the same mistakes, oversights, or shortcuts, one source of correlated errors would be having one interviewer collect both the PrES and the census data at all the households of one or more blocks. Interviewer reassignment to a given area is not unlikely if both census and survey use the rule that interviewers work only in their home neighborhoods. The PrES tried to avoid repeated assignments to an area by sending workers residing in one half of the original test site to the other for field assignments.

This precaution was, in hind sight, more extreme than necessary. It even hindered interviewing progress. PrES interviewers were sent so far that most of them ended up in areas where they did not feel comfortable and were not trusted by the residents. It was discouraging to be repeatedly warned not to stay in the neighborhood into the evening – just because one did not live there. It was inconvenient to call back often to areas that were up to 20 miles from home. The PrES supervisor at the collection office reported high interviewer attrition and, for interviewers who kept on working, low morale and efficiency (Steinfeld, 1986). Census interviewers were restricted much closer to home. The PrES could have, as the PES later did, let its interviewers work in more familiar areas closer to their homes, given stringent precautions against reassignment to those areas in later census work. This is something that could be worked out wherever the census definition of an interviewers' home areas can be predicted.

4. Computer Matching

Most of the arrangements and procedures for the computer matching of PrES data to the census data were designed to be consistent with those of the PES matching. Input and output file specifications were the same so algorithms would not need superficial changes. Because PrES and PES samples represent the same people, the matching parameters (estimated probabilities of observing a matching characteristic for two records, conditioned on whether they really are matches) were assumed the same. Still, there were some differences. Fewer matching passes through the data were done for the PrES than for the PES. That meant some change in the blocking factors in order to increase the chance that two matchable records would be compared by the computer. Also, the PrES data had a lower proportion of reliable alternate addresses for households or persons who moved or might be found at another address. Cutoffs for the statistical weighting assignment of computer match codes were relaxed from the levels of the PES cutoffs.

The resulting computer match rate (66%) was lower than for the PES (74%). Possible matches identified by the computer matcher made it easy to evaluate another 12% of cases. Indeed, the initial clerical review increased the match rate to 77% and the Special Match Group further raised it to 85%.

In addition to the overall match rate, the rate of computer matches resulting from extended search is important. Extended search is an effort to match movers even though the addresses are not in the same block. Eight of nineteen PrES persons known to have moved within the test site were matched by the computer, and seven more were matched clerically before followup, because of leads supplied by the computer match. Ten of these extended matches in two large families were successful because the respondents had given accurate and complete future addresses. Five persons in three households were matched from different blocks with no leads.

Automated matching shows much promise for a PrES. It was certainly helpful in the test PrES. Only twelve working days were taken to adapt the algorithms and cutoffs to the PrES situation. There was no test data available before the real data for estimating parameters optimal to a PrES. Also, ongoing PES analyses took precedence. Still the computer match results were reasonable and facilitated later operations. With more testing and shaping, the computer matcher could do even better for the PrES.

IX. CONCLUSIONS

The overall results of comparing PrES estimates to PES estimates do not clearly show that they are different. The lower end of the reasonable range of PrES match rates does not significantly differ; the upper end does; the true PrES match rate may or may not. Evidence of differences may be due in part to unrefined PrES trace procedures that left cases unresolved and necessitated use of high and low match rate estimates. It also may be due to unrefined operational procedures that may have affected results to some small degree.

The high priority and greatest challenge for further development of the PrES is to continue innovative development of trace procedures. Other operational procedures adapted from the PES can be revised to ensure the efficiency and accuracy of data collection and processing.

The lower mail return rate in PrES areas is evidence that a PrES effect on the census results is possible. Since nonresponse followup compensates for fewer mail returns, guaranteeing nearly complete housing coverage, and since analyses of failed edit, imputation, and within–household coverage rates showed no differences, the effect on the final census count may be negligibly small.

The PrES becomes valuable to meeting earlier coverage measurement deadlines as census processing speeds up with developments in automation and other streamlining of census operations. If a complete, corrected census file is available for matching several weeks before the PES file is ready, matching instead against a PrES file may put the coverage measurement on a faster schedule. However, if followup interviewing is going to take longer because of the trace, such gains may be offset.

In summary, the Pre–Enumeration Survey is an alternative coverage measurement survey that could be implemented if refined further. This trial run has helped clarify its advantages and disadvantages relative to the Post Enumeration Survey.

ACKNOWLEDGEMENTS

Many persons in many Divisions of the Bureau of the Census in Los Angeles as well as headquarters diligently worked to ensure the success of the Pre–Enumeration Survey. This report benefitted directly from the theoretical and editorial guidance of Howard Hogan and Gregg Diffendal, from the consultation with Nick Alberti (of the Statistical Support Division) and David Chapman regarding estimation of standard errors for the match codes, and from guidance on generating graphics by Sue Odell and Irwin Anolik.

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BOOK ____ OF ____ BOOKS

FORM DC-1352-U
(10-10-85)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

ADDRESS LISTING BOOK

PRE-ENUMERATION SURVEY

1986 Census of Central Los Angeles County

NOTICE — Response to this inquiry **is required by law (title 13, U.S. Code)**. By the same law, your report to the Census Bureau is **confidential**. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are **immune from legal process**.

Section I — IDENTIFICATION

1. CBNA number	2. Block number	3. Stratum number

4. Collection Office — 1 ☐ North 2 ☐ South — Code 3201/2

5. County: LOS ANGELES — Code 037

6. State: CALIFORNIA — Code 06

7. Block boundaries

APPENDIX A

Section II — ASSIGNMENT INFORMATION

	Name (a)	Address (b)	Telephone number (c)	DATE Assigned (d)	DATE Started (e)	DATE Completed (f)
1. ENUMERATOR						
2. REASSIGNMENT ENUMERATOR(S)						

Section III — RECTIFICATION

1. Is rectification required? ☐ Yes ☐ No

2. Date completed — Month | Day | Year

3. Results — *Mark (X) all that apply*
- ☐ Different block relisted
- ☐ New address(es) added
- ☐ Original address(es) corrected
- ☐ No change — Original block listed correctly

Section IV — BLOCK TOTALS

	Listing (a)	Interviewing (b)
1. Total number of control numbers		
2. Number of sampled control numbers		
3. Interview forms completed		

NOTES

NOTICE TO FINDER — This book is the property of the United States government. *Please mail it to the address shown below. Postage is prepaid.*

FROM *(Finder's name and address)*

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-202
FIRST CLASS MAIL

TO: Chief, Statistical Research Division
Bureau of the Census
Washington, D.C. 20233

INSTRUCTIONS

1. Begin at a convenient corner and canvass the block.

2. Travel clockwise to your right around the block. Enter each court, alley, side road, and passageway within the block as you come to it, but always return to the point where you turned off the main road.

3. As you canvass a block, list ALL structures large enough to contain housing units, regardless of whether the structure contains any units.

   a. For structures containing no housing units, complete columns (1) through (3) and record the use of the structure in column (6).

   b. For single-unit structures complete columns (2), (3), and (5).

   c. For multiunit structures, complete columns (2) through (6). List each housing unit in the structure on a separate line. The "total units" entry in column (4) should be the total housing units in the structure and will be completed for only the first housing unit listed in the structure.

   d. For special places complete columns (1) through (6) and record the name and type of special place in column (6).

4. If you list a structure that uses more than one address:

   a. List each address on a separate line.

   b. If there is more than one unit in the structure, list each unit on a separate line and note in column (2) the address used by each unit.

5. If two structures use the same address, list each structure on a separate line.

6. If there is a housing unit in a special place, list the housing unit separate from the special place. Record in column (6) that is a "housing unit in a special place."

7. You must inquire to obtain information for the following types of structures:

   a. **Structures that appear to be completely nonresidential or mixed (i.e. residential and nonresidential)** — *ASK:* "Does this structure contain any housing units?"

      If the structure does not contain any housing units, list the structure and continue canvassing the block.

      If the structure contains housing units, *ASK:* "What is the total number of units in this structure?" and collect the required information.

      If the structure is mixed, list the nonresidential units on one line and each unit containing living quarters on a separate line.

   b. **Structures where the number of housing units is not obvious and multiunit structures where all the units are not numbered or lettered** — *ASK:* "What is the total number of housing units in this structure?"

8. If an assigned block has no structures in it, record "NO STRUCTURES" on the cover of this book and on the first listing page. This will show the office that you did canvass the entire block and no structures were located in it.

9. If an assigned block has NO structures with housing units, complete the listing of nonresidential structures as required and record "NO HOUSING UNITS" on the cover of this book.

OMB No. 0607-0502: Approval Expires September 30, 1986

Section V — LISTING PAGE

Control number (1)	Street address (2)	Does this address contain any housing units? (3)	How many housing units are in this address? (4)	Householder name (5)	Remarks (6)	Final outcome of interview (7)	OFFICE USE ONLY: CENSUS ADDRESS CONTROL FILE NUMBER CBNA No. (8)	Block No. (9)	ID No. (10)	Form type (11)	Match status (12)	(13)	(14)
001	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
002	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
003	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
004	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			

Section V — LISTING PAGE — Continued

Control number (1)	Street address (2)	Does this address contain any housing units? (3)	How many housing units are in this address? (4)	Householder name (5)	Remarks (6)	Final outcome of interview (7)	OFFICE USE ONLY: CENSUS ADDRESS CONTROL FILE NUMBER CBNA No. (8)	Block No. (9)	ID No. (10)	Form type (11)	Match status (12)	(13)	(14)
005	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
006	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
007	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			
008	House number / Street name Unit / City State / ZIP Code	☐ Yes ☐ Single unit — *SKIP to (5)* ☐ Multiunit ☐ Special place } *Go to (4)* ☐ No ☐ Business address ☐ Not fit for habitation } *SKIP to (6)*		First / Middle initial Last						☐ Long ☐ Short			

APPENDIX B

OMB No. 0607-0502: Approval Expires September 30, 1986

NOTICE — Response to this inquiry **is required by law (title 13, U.S. Code).** By the same law, your report to the Census Bureau is **confidential.** It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are **immune from legal process.**

FORM **DC-1350-U** (11-18-85)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

PRE-ENUMERATION SURVEY INTERVIEW FORM

1986 Census of Central Los Angeles County

NOTE — *Please PRINT entries.*

A. CBNA number	**B.** Block number	**C.** Control number

D. Collection Office — *Mark (X) one*

1☐ North 2☐ South

E. Householder name (Person No. 1 in item 1)

F. House number and street name (or Route and Box No.) Unit

G. City or Post office State ZIP Code

H. Interviewer name Code

I. Record of Visits

Date (a) Month	Date (a) Day	Time started (b)	Outcome *(Enter code from column (d))* (c)
		a.m. p.m.	
		a.m. p.m.	
		a.m. p.m.	
		a.m. p.m.	
		a.m. p.m.	
		a.m. p.m.	
J. Final outcome of interview →			

Outcome codes (d)

1 = Completed interview
2 = Partial interview (schedule another call or visit)
3 = Vacant
4 = Noninterview — Refused
5 = Noninterview — Not at home
6 = Noninterview — Other *(Specify in column c)*

K. Continuation sheets

1☐ None
1☐ For items 1 – 11
1☐ For item 14
1☐ For item 20

INTRODUCTION

Hello. I'm *(your name)* **from the United States Bureau of the Census. Here is my identification. We are conducting a survey that will check the accuracy of the upcoming 1986 Census of Central Los Angeles County and I have a few questions to ask. Title 13 of the United States Code guarantees that your answers are confidential and will only be used for statistical purposes. Here is your official letter from the Director of the Census Bureau.** *(Hand respondent a copy of the letter from the Director.)*

Notes

	PERSON NO.1	PERSON NO. 2
1. What is the full name of each person now living at this address? *(Start with the name of the household member in whose name the house is owned or rented.)*		
First name		
Middle name		
Last name (Family name)		
Mark (X) appropriate box for the person providing information.	1 ☐ Respondent	1 ☐ Respondent
2. Are there other persons temporarily living or staying here?	1 ☐ Yes — *Enter name(s) in next available column(s) in item 1* 2 ☐ No	
3. How is . . . related to . . . *(person No. 1)*?	Person No. 1	1 ☐ Husband/wife 2 ☐ Son/daughter 3 ☐ Brother/sister 4 ☐ Father/mother 5 ☐ Other relative — *Specify* _____ 6 ☐ Nonrelative — *Specify* _____
4. *Ask or verify* **Is . . . male or female?**	1 ☐ Male 2 ☐ Female	1 ☐ Male 2 ☐ Female
5. What is . . .'s date of birth?	Month | Day | Year	Month | Day | Year
If DK, ask: **About how old is . . . ?**	1 ☐ DK Estimated age	1 ☐ DK Estimated age
If date of birth is after 1972 (or age is under 15), skip to item 8. **6. Is . . . now married, widowed, divorced, separated, or has . . . never been married?**	1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married — *Skip to item 8*	1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married — *Skip to item 8*
If person is female and is either married, widowed, divorced, or separated ask: **7. What is . . .'s maiden name?**	_____ 1 ☐ NA	_____ 1 ☐ NA
8. Which of these categories best describes . . .'s race? *Show flashcard A to respondent.*	1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other — *Specify* _____	1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other — *Specify* _____
9. Is . . . of Spanish or Hispanic origin? *If "Yes," show flashcard B to respondent.* **Which of these categories best describes . . .'s origin?**	1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.	1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.
10. Does . . . ever use a different first or last name, such as a nickname or name from a previous marriage?	1 ☐ Yes 2 ☐ No *Print alternate name here* First Middle Last	1 ☐ Yes 2 ☐ No *Print alternate name here* First Middle Last
11. What is . . .'s Social Security number? *Mark (X) "NA" if the person does not have a Social Security number.*	☐☐☐ - ☐☐ - ☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal	☐☐☐ - ☐☐ - ☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal

FORM DC-1350-U (11-18-85)

PERSON NO. 3	PERSON NO. 4	PERSON NO. 5	PERSON NO. 6
1 ☐ Respondent	1 ☐ Respondent	1 ☐ Respondent	1 ☐ Respondent
1 ☐ Husband/wife 2 ☐ Son/daughter 3 ☐ Brother/sister 4 ☐ Father/mother 5 ☐ Other relative – *Specify* ______ 6 ☐ Nonrelative – *Specify* ______	1 ☐ Husband/wife 2 ☐ Son/daughter 3 ☐ Brother/sister 4 ☐ Father/mother 5 ☐ Other relative – *Specify* ______ 6 ☐ Nonrelative – *Specify* ______	1 ☐ Husband/wife 2 ☐ Son/daughter 3 ☐ Brother/sister 4 ☐ Father/mother 5 ☐ Other relative – *Specify* ______ 6 ☐ Nonrelative – *Specify* ______	1 ☐ Husband/wife 2 ☐ Son/daughter 3 ☐ Brother/sister 4 ☐ Father/mother 5 ☐ Other relative – *Specify* ______ 6 ☐ Nonrelative – *Specify* ______
1 ☐ Male 2 ☐ Female	1 ☐ Male 2 ☐ Female	1 ☐ Male 2 ☐ Female	1 ☐ Male 2 ☐ Female
Month | Day | Year 1 ☐ DK Estimated age	Month | Day | Year 1 ☐ DK Estimated age	Month | Day | Year 1 ☐ DK Estimated age	Month | Day | Year 1 ☐ DK Estimated age
1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married – *Skip to item 8*	1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married – *Skip to item 8*	1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married – *Skip to item 8*	1 ☐ Married 2 ☐ Widowed 3 ☐ Divorced 4 ☐ Separated 5 ☐ Never married – *Skip to item 8*
______ 1 ☐ NA	______ 1 ☐ NA	______ 1 ☐ NA	______ 1 ☐ NA
1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other – *Specify* ______	1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other – *Specify* ______	1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other – *Specify* ______	1 ☐ White 2 ☐ Black or Negro 3 ☐ Asian or Pacific Islander 4 ☐ American Indian, Eskimo, or Aleut 5 ☐ Other – *Specify* ______
1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.	1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.	1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.	1 ☐ Not Spanish/Hisp. 2 ☐ Mexican/Mex.-Amer./Chicano 3 ☐ Puerto Rican 4 ☐ Cuban 5 ☐ Other Spanish/Hisp.
1 ☐ Yes 2 ☐ No *Print alternate name here*	1 ☐ Yes 2 ☐ No *Print alternate name here*	1 ☐ Yes 2 ☐ No *Print alternate name here*	1 ☐ Yes 2 ☐ No *Print alternate name here*
First	First	First	First
Middle	Middle	Middle	Middle
Last	Last	Last	Last
☐☐☐-☐☐-☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal	☐☐☐-☐☐-☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal	☐☐☐-☐☐-☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal	☐☐☐-☐☐-☐☐☐☐ 1 ☐ DK 2 ☐ NA 3 ☐ Refusal

To make sure we count people in the right area, I need to ask about other places where any of you may live sometimes.

		Name(s) (x)	Enter person No(s). from item 1 (y)	Enter box letter from item 14 to identify address. (z)
12. Do any of the people now living here stay part of the year – *If "Yes," fill in columns (x) and (y).*				
a. at a college or university?	1 ☐ Yes → 2 ☐ No			
b. on a military base or ship?	1 ☐ Yes → 2 ☐ No			
c. at a second home?	1 ☐ Yes → 2 ☐ No			
d. with another relative?	1 ☐ Yes → 2 ☐ No			
e. at a place of work?	1 ☐ Yes → 2 ☐ No			
f. somewhere else for any reason? *Specify reason* →	1 ☐ Yes → 2 ☐ No			
13. Do any of these people plan to move away from this address *(read item F entry from page 1)* **during the next six months?** *If "Yes," fill in columns (x) and (y).*	1 ☐ Yes → *(or maybe)* 2 ☐ No			

CHECK ITEM A Is "Yes" marked anywhere in item 12 or 13?

☐ Yes – *Go to 14*
☐ No – *Skip to 15*

Notes

Enter person No(s).	*For each "Yes" in item 12 or 13 ask —* **14. What is the address where . . . stays (or may move)?** *(Fill column (z) in item 12 or 13.)*		
A No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
B No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
C No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
D No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
E No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
F No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
G No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
H No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
I No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
J No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
K No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
L No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code
M No. ____ No. ____ No. ____	House number and street name		Unit
	City or Post office	State	ZIP Code

INTERVIEWER —

- For every name in column (x) (items 12 or 13), verify that column (y) has the correct person number, and column (z) the correct box letter.
- In item 14, verify that the correct person numbers are filled in for each address.

NOTE — *Items 15 – 19 refer to the address on the front page of the questionnaire.*

15. What is the exact mailing address here?

House number and street name | Unit

City or Post office | State | ZIP Code

16. Next, I am looking for the category that best describes the building at this address.

Is it a —

Read categories and show flashcard C.

Mark (X) only one.

1 ☐ **One-family detached house?**
2 ☐ **One-family house attached to one or more houses?**
3 ☐ **Commercial building with one apartment?**
4 ☐ **Building with 2 to 4 apartments?**
5 ☐ **Building with 5 to 9 apartments?**
6 ☐ **Building with 10 to 49 apartments?**
7 ☐ **Building with 50 or more apartments?**
8 ☐ **Mobile home or trailer?**
9 ☐ **Other (boat, tent, van, etc.)?**

17. Is your house or apartment —

Read categories.

Mark (X) only one.

1 ☐ **Owned (or being bought by anyone in the household)?**
2 ☐ **Rented for cash rent?**
3 ☐ **Occupied without payment of cash rent?**

18. How many housing units are at this address?

NOTE — *If this number is larger than the number recorded in column 4 of the listing book for this control number, add units to the listing book and complete an interview for each missed unit.*

_____ Housing units

19. Is there a telephone number here in case we need to contact you again?

Area code | Number

Notes

20. **We may need to contact you again in the future. In case anyone in the household moves, we would like to contact him/her at the new address.** *(For each person in the household ask or verify.)* **What are the names, addresses, and telephone numbers of two people, such as close relatives or friends, at another address who would know where . . . is living?** *(Be sure each household person number is circled or filled in its appropriate box.)*

Household person No(s).	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
A 1 2 3 4 5 6	House number and street name / Unit	House number and street name / Unit
No. ____ No. ____	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number
B 1 2 3 4 5 6	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
No. ____ No. ____ No. ____ No. ____	House number and street name / Unit	House number and street name / Unit
	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number
C 1 2 3 4 5 6	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
No. ____ No. ____ No. ____ No. ____	House number and street name / Unit	House number and street name / Unit
	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number
D 1 2 3 4 5 6	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
No. ____ No. ____ No. ____ No. ____	House number and street name / Unit	House number and street name / Unit
	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number
E 1 2 3 4 5 6	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
No. ____ No. ____ No. ____ No. ____	House number and street name / Unit	House number and street name / Unit
	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number
F 1 2 3 4 5 6	Name (First, MI, Last) / Relationship	Name (First, MI, Last) / Relationship
No. ____ No. ____ No. ____ No. ____	House number and street name / Unit	House number and street name / Unit
	City or Post office / State / ZIP Code	City or Post office / State / ZIP Code
	Area code / Telephone number	Area code / Telephone number

END QUESTIONS

Notes

APPENDIX C

OMB No. 0607-0540: Approval Expires March 31, 1987

NOTICE — Response to this inquiry **is required by law (Title 13, U.S. Code)**. By the same law, your report to the Census Bureau is **confidential**. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are **immune from legal process.**

FORM **DC-1351-U** (9-25-86)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

PRE-ENUMERATION SURVEY FOLLOWUP

1986 Census of Central Los Angeles County

NOTE — *Please PRINT entries.*

1. FORM NUMBER FOR THIS HOUSEHOLD

a. Processing Office prepared — Form _____ of _____ forms

b. Field form split — Number _____ of _____

2. PRES SAMPLE ADDRESS

a. CO No.	**b.** CBNA No.	**c.** Block No.	**d.** Control No.
3201			

3. Name

4a. House No. and street name (or route and box No.) | Unit

b. City or post office | **c.** State **CA** | **d.** ZIP Code

e. Telephone → Area code | Number

5. *INTERVIEWER — Visit this address first.*

1 ☐ Item 4 above — *Ask item 1 on page 3*

2 ☐ Item 5a, page 3 — *Ask item 5b on page 3*

6. Interviewer name | Code

7. OBTAIN INFORMATION FOR SECTION(S) MARKED (X):

1 ☐ Section III (pages 6 and 7) — Reconciliation of Extra Persons

2 ☐ Section IV (pages 8 and 9) — Reconciliation of Possible Matches

3 ☐ Section V (pages 10 and 11) — Reconciliation of Households with Incomplete Information

4 ☐ Section VI (page 12) - Reconciliation of Other Miscellaneous Problems

8. RECORD OF VISITS

Date (a)	Time started (b)	Outcome: Section number (c)	Outcome: Outcome *Enter code from column (e)* (d)	Outcome codes (e)
	a.m. p.m.			
	a.m. p.m.			
	a.m. p.m.			
	a.m. p.m.			
	a.m. p.m.			
	a.m. p.m.			

1 = Completed interview
2 = Noninterview — Refused
3 = Noninterview — Not at home
4 = Noninterview — Other reason *(explain in notes)*

9. FINAL OUTCOME OF INTERVIEW →

NOTES

Section I — REFERENCE INFORMATION

1. Household members at address in item 4 on page 1 *(Reference only)*

Followup persons *Mark (X)*	Name	Relationship	Sex	Date of birth	Age	Race	Hispanic origin
☐	1						
☐	2						
☐	3						
☐	4						
☐	5						
☐	6						

NOTES

2. Other addresses *(For use by crew leaders and processing office)*

Box letter	Address	Address source
A	House No. and street name — Unit City or post office — State — ZIP Code Area code — Telephone number	1 ☐ Post Office check 2 ☐ PrES, items 12 and 14 3 ☐ PrES, items 13 and 14 4 ☐ Census → CBNA No. | Block No. | ID No.
B	House No. and street name — Unit City or post office — State — ZIP Code Area code — Telephone number	1 ☐ Post Office check 2 ☐ PrES, items 12 and 14 3 ☐ PrES, items 13 and 14 4 ☐ Census → CBNA No. | Block No. | ID No.
C	House No. and street name — Unit City or post office — State — ZIP Code Area code — Telephone number	1 ☐ Post Office check 2 ☐ PrES, items 12 and 14 3 ☐ PrES, items 13 and 14 4 ☐ Census → CBNA No. | Block No. | ID No.

3. Person reported to know where the household members are living (PrES, item 20)

Name (First, MI, Last) — Relationship	Name (First, MI, Last) — Relationship
House No. and street name — Unit	House No. and street name — Unit
City or post office — State — ZIP Code	City or post office — State — ZIP Code
Area code — Telephone number	Area code — Telephone number

FORM DC-1351-U (9-25-86)

Section II — FINDING A CORRECT RESPONDENT

INTRODUCTION **Hello, I'm . . . from the United States Bureau of the Census. Here is my identification. We visited your area recently and we have some additional questions to ask. Title 13 of the United States Code guarantees that your answers are confidential and will only be used for statistical purposes. Here is your official letter from the Director of the Census Bureau.** *(Hand respondent a copy of the letter from the Director. Continue the interview with the questions in this section.)*

Read introduction above; then ask —

1. Is this the *(name from item 3 on page 1)* **residence?**

1 ☐ Yes — *Skip to a section marked in item 7 on page 1*
2 ☐ No — *Continue with item 2*

2. Is this *(address from item 4 on page 1)*?

1 ☐ Yes — *Continue with item 3*
2 ☐ No — *Stop and locate correct address. Then ask item 1 again.*

3. Do you know where we can find someone from the *(name from item 3 on page 1)* **household?**

1 ☐ Yes — *Continue with item 4*
2 ☐ No — *Stop and attempt to locate knowledgeable respondent*

4. What is that address and telephone number?

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

CHECK ITEM A

Is the item 4 address above in your assigned area?

1 ☐ Yes — *Enter address in item 5a. Continue with item 5.*
2 ☐ No } *Return form to supervisor*
3 ☐ No address in item 4 }

5a. *Visit this address.*
Read introduction and continue with item 5b.

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

ADDRESS SOURCE
1 ☐ From item 4 above
2 ☐ From page 2, box _____

b. Is this the *(name from item 3 on page 1)* **residence?**

1 ☐ Yes — *Skip to a section marked in item 7 on page 1*
2 ☐ No — *Continue with item 6*

6. Is this *(address from item 5a)*?

1 ☐ Yes — *Continue with item 7*
2 ☐ No — *Stop and locate correct address. Then ask item 5b again.*

7. Do you know where we can find someone from the *(name from item 3 on page 1)* **household?**

1 ☐ Yes — *Continue with item 8*
2 ☐ No — *Stop and attempt to locate knowledgeable respondent*

8. What is that address and telephone number?

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

CHECK ITEM B

Is the item 8 address above in your assigned area?

1 ☐ Yes — *Enter address in item 9a. Continue with item 9.*
2 ☐ No } *Return form to supervisor*
3 ☐ No address in item 8 }

9a. *Visit this address.*
Read introduction and continue with item 9b.

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

ADDRESS SOURCE
1 ☐ From item 8 above
2 ☐ From page 2, box _____

Section II — FINDING A CORRECT RESPONDENT — *Continued*

9b. **Is this the** *(name from item 3 on page 1)* **residence?**

1 ☐ Yes — *Skip to a section marked in item 7 on page 1*
2 ☐ No — *Continue with item 10*

10. **Is this** *(address from item 9a)*?

1 ☐ Yes — *Continue with item 11*
2 ☐ No — *Stop and locate correct address. Then ask item 9b again.*

11. **Do you know where we can find someone from the** *(name from item 3 on page 1)* **household?**

1 ☐ Yes — *Continue with item 12*
2 ☐ No — *Stop and attempt to locate knowledgeable respondent*

12. **What is that address and telephone number?**

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

CHECK ITEM C

Is the item 12 address above in your assigned area?

1 ☐ Yes — *Enter address in item 13a. Continue with item 13.*
2 ☐ No
3 ☐ No address in item 12
} *Return form to supervisor*

13a. *Visit this address. Read introduction and continue with item 13b.*

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

ADDRESS SOURCE
1 ☐ From item 12 above
2 ☐ From page 2, box _____

b. **Is this the** *(name from item 3 on page 1)* **residence?**

1 ☐ Yes — *Skip to a section marked in item 7 on page 1*
2 ☐ No — *Continue with item 14*

14. **Is this** *(address from item 13a)*?

1 ☐ Yes — *Continue with item 15*
2 ☐ No — *Stop and locate correct address. Then ask item 13b again.*

15. **Do you know where we can find someone from the** *(name from item 3 on page 1)* **household?**

1 ☐ Yes — *Continue with item 16*
2 ☐ No — *Stop and attempt to locate knowledgeable respondent*

16. **What is that address and telephone number?**

House No. and street name — Unit

City or post office — State — ZIP Code

Area code — Telephone number

RETURN FORM TO SUPERVISOR

NOTES

NOTES

Section III — RECONCILIATION OF EXTRA PERSONS

	1	2
A. Extra person(s) on form (Characteristics are listed for interviewer reference only. Do NOT give out confidential information.)	Name	Name
	Sex	Sex
	Date of birth	Date of birth
	Age	Age
	Race	Race
	Hispanic origin	Hispanic origin
For each person listed in columns 1 through 6, ask the following questions: **1. Do you know** *(person listed in A)*?	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*
2. What is your relation to . . .?	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*
3. What was . . .'s address on Census Day, March 16, 1986?	1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*	1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*
	House No. and street name Unit	House No. and street name Unit
	City	City
	State ZIP Code	State ZIP Code
4. What are the names of the cross streets closest to that address?	Cross streets	Cross streets
5. What are the names of two neighbors living near that address?	Neighbors	Neighbors
6. Is there any other information you can give me to identify this address, such as the name of a nearby shopping center, or the distance and direction from a landmark?		
7. Is *(address recorded in item 3)* **also the mailing address?**	1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*	1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*
8. What is the mailing address for that residence?	House No. and street name Unit	House No. and street name Unit
	City	City
	State ZIP Code	State ZIP Code
9. What is . . .'s current address?	1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*	1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*
	House No. and street name Unit	House No. and street name Unit
	City	City
	State ZIP Code	State ZIP Code
	Skip to next person	*Skip to next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

FORM DC-1351-U (9-25-86)

Section III — RECONCILIATION OF EXTRA PERSONS — *Continued*

3	4	5	6
Name	Name	Name	Name
Sex	Sex	Sex	Sex
Date of birth	Date of birth	Date of birth	Date of birth
Age	Age	Age	Age
Race	Race	Race	Race
Hispanic origin	Hispanic origin	Hispanic origin	Hispanic origin
1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*
1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*
1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*	1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*	1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*	1☐Same as item 4 on page 1 — *Skip to item 9* 2☐DK — *Skip to item 9*
House No. and street name Unit	House No. and street name Unit	House No. and street name Unit	House No. and street name Unit
City	City	City	City
State ZIP Code	State ZIP Code	State ZIP Code	State ZIP Code
Cross streets	Cross streets	Cross streets	Cross streets
Neighbors	Neighbors	Neighbors	Neighbors
1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*	1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*	1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*	1☐Yes — *Skip to item 9* 2☐No — *Continue with item 8*
House No. and street name Unit	House No. and street name Unit	House No. and street name Unit	House No. and street name Unit
City	City	City	City
State ZIP Code	State ZIP Code	State ZIP Code	State ZIP Code
1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*	1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*	1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*	1☐DK 2☐Same as address in item 3, above 3☐Other — *Specify*
House No. and street name Unit	House No. and street name Unit	House No. and street name Unit	House No. and street name Unit
City	City	City	City
State ZIP Code	State ZIP Code	State ZIP Code	State ZIP Code
Skip to next person	*Skip to next person*	*Skip to next person*	*Skip to next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

Section IV — RECONCILIATION OF POSSIBLE MATCHES

	1	2
A. Information as provided on PrES form	Name	Name
	Sex	Sex
	Date of birth	Date of birth
	Age	Age
	Race	Race
	Hispanic origin	Hispanic origin
B. Information as provided on census form	Name	Name
	Sex	Sex
	Date of birth	Date of birth
	Age	Age
	Race	Race
	Hispanic origin	Hispanic origin
We are trying to be sure that we counted everyone in the 1986 Census of Central Los Angeles County. **1. Do the following names and descriptions refer to the same person?** *Read entries from A and then read corresponding entries from B.*	1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*	1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*
2. Do you know *(name listed in A)*?	1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*
3. Did . . . ever live or stay at *(address from item 4, page 1)*?	1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*
4. When did (he/she) live or stay at that address? *If year is 1986, obtain month and day.* *If earlier than 1986, obtain year only.*	Month / Day / Year **From** **To** ☐ PRESENT	Month / Day / Year **From** **To** ☐ PRESENT
CHECK ITEM D Do the dates recorded in item 4 above include March 16, 1986?	1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*
5. Is there another address where . . . might have lived or stayed in March, 1986?	1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*
6. Do you know where . . . was living on or about March 16, 1986?	1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*
7. What was that address?	House No. and street name / Unit City State / ZIP Code *Skip to item 1 for next person*	House No. and street name / Unit City State / ZIP Code *Skip to item 1 for next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

NOTES

Section IV — RECONCILIATION OF POSSIBLE MATCHES — *Continued*

3	4	5	6
Name	Name	Name	Name
Sex	Sex	Sex	Sex
Date of birth	Date of birth	Date of birth	Date of birth
Age	Age	Age	Age
Race	Race	Race	Race
Hispanic origin	Hispanic origin	Hispanic origin	Hispanic origin
Name	Name	Name	Name
Sex	Sex	Sex	Sex
Date of birth	Date of birth	Date of birth	Date of birth
Age	Age	Age	Age
Race	Race	Race	Race
Hispanic origin	Hispanic origin	Hispanic origin	Hispanic origin
1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*	1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*	1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*	1 ☐ Yes — *Skip to next person* 2 ☐ No 3 ☐ DK } *Continue with item 2*
1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 3* 2 ☐ No — *Skip to item 1 for next person*
1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 4* 2 ☐ No — *Skip to item 6*
From Month / Day / Year To ☐ PRESENT	From Month / Day / Year To ☐ PRESENT	From Month / Day / Year To ☐ PRESENT	From Month / Day / Year To ☐ PRESENT
1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*	1 ☐ Yes — *Continue with item 5* 2 ☐ No — *Skip to item 6*
1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Skip to item 7* 2 ☐ No — *Skip to item 1 for next person*
1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*	1 ☐ Yes — *Continue with item 7* 2 ☐ No — *Skip to item 1 for next person*
House No. and street name Unit	House No. and street name Unit	House No. and street name Unit	House No. and street name Unit
City	City	City	City
State ZIP Code	State ZIP Code	State ZIP Code	State ZIP Code
Skip to item 1 for next person	*Skip to item 1 for next person*	*Skip to item 1 for next person*	*Skip to item 1 for next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

NOTES

Section V — RECONCILIATION OF HOUSEHOLDS WITH INCOMPLETE INFORMATION

A. Household member(s) to be reconciled	**1**	**2**
	Name	Name
For each person listed in columns 1 through 6, ask the following questions: **1. Do you know** *(name listed in A)*?	1☐Yes – *Continue with item 2* 2☐No – *Skip to next person*	1☐Yes – *Continue with item 2* 2☐No – *Skip to next person*
2. What is your relation to . . .?	1☐Respondent is person listed in A 2☐Other household member 3☐Other – *Specify* → _____	1☐Respondent is person listed in A 2☐Other household member 3☐Other – *Specify* → _____
3. Is . . . male or female?	1☐Male 2☐Female	1☐Male 2☐Female
4. What is . . .'s date of birth?	Month | Day | Year	Month | Day | Year
	1☐DK	1☐DK
If "DK," ask: **Could you estimate . . .'s age?**	Estimated age	Estimated age
If date of birth is March 16, 1972–1986 or age is 14 or less, skip to item 6. **5. Is . . . now married, widowed, divorced, separated, or has . . . never been married?**	1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married	1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married
6. What is . . .'s race? White, Black, Asian or Pacific Islander, American Indian, other?	1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other – *Specify* → _____	1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other – *Specify* → _____
7. Is . . . of Spanish or Hispanic origin or descent? *If "Yes," ask:* **Which of the following categories best describes . . .'s origin? Mexican/Mexican-American/Chicano, Puerto Rican, Cuban, Other Spanish/Hispanic?**	1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic	1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic
8. Does . . . ever use a different first or last name, such as a middle name, nickname, or name from a previous marriage?	1☐No 2☐Yes – *Print alternate name* →	1☐No 2☐Yes – *Print alternate name* →
	First Middle	First Middle
	Last	Last
	Skip to next person	*Skip to next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

NOTES

Section V — RECONCILIATION OF HOUSEHOLDS WITH INCOMPLETE INFORMATION — *Continued*

3	4	5	6
Name	Name	Name	Name
1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*	1☐Yes — *Continue with item 2* 2☐No — *Skip to next person*
1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*	1☐Respondent is person listed in A 2☐Other household member 3☐Other — *Specify*
1☐Male 2☐Female	1☐Male 2☐Female	1☐Male 2☐Female	1☐Male 2☐Female
Month | Day | Year	Month | Day | Year	Month | Day | Year	Month | Day | Year
1☐DK	1☐DK	1☐DK	1☐DK
Estimated age	Estimated age	Estimated age	Estimated age
1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married	1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married	1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married	1☐Married 2☐Widowed 3☐Divorced 4☐Separated 5☐Never married
1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other — *Specify*	1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other — *Specify*	1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other — *Specify*	1☐White 2☐Black or Negro 3☐Asian or Pacific Islander 4☐American Indian, Eskimo, or Aleut 5☐Other — *Specify*
1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic	1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic	1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic	1☐Not Spanish/Hispanic 2☐Mexican/Mexican-American/Chicano 3☐Puerto Rican 4☐Cuban 5☐Other Spanish/Hispanic
1☐No 2☐Yes — *Print alternate name*	1☐No 2☐Yes — *Print alternate name*	1☐No 2☐Yes — *Print alternate name*	1☐No 2☐Yes — *Print alternate name*
First Middle	First Middle	First Middle	First Middle
Last	Last	Last	Last
Skip to next person	*Skip to next person*	*Skip to next person*	*Skip to next person*

END QUESTIONS AND REFER TO ITEM 7 ON PAGE 1 TO SEE IF ANOTHER SECTION SHOULD BE COMPLETED

NOTES

Section VI — RECONCILIATION OF OTHER MISCELLANEOUS PROBLEMS

a. Questions to be inserted by matching reviewers on a case-by-case basis

b. Use this space to answer the questions shown above

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☆ U.S. Government Printing Office: 1986--748-036/40045

APPENDIX D

PrES MATCH CODES

MATCHED

M Matched
MF Match at FU—reported Census Day address.
MX Match at an extended search of all address leads.

NOT MATCHED

N Nonmatch: exists in PrES; not found in census
L1 Matching census name found on physical questionnaire but no questionnaire data captured on the DCF.

OUT OF SCOPE

DE Duplicate census enumeration.
DP Duplicated PrES person.
E Census person not matched, i.e., not captured in PrES
H1 PrES person moved outside test site area before Census Day.
K1 Census name is blank or incomplete, but two or more person characteristics are given.
K2 Census name is blank and one person characteristic is given, or census name is complete and one person characteristic is given, or census name is incomplete (i.e. first or last name only) and one or no person characteristics are given, or Pop F or G.P. filled and the number of persons agrees, or Pop F or G.P. filled with the census person count blank (unresolved).
S2 PrES or census person found to reside at a special place.
S3 PrES person found (during followup) to have died before Census Day.
S4 PrES person indicated (during followup) to be fictitious.

UNRESOLVED or FOLLOWUP NONINTERVIEW

J1 PrES name is blank or incomplete, but two or more person characteristics are given.
J2 PrES name is blank or incomplete and one person characteristic is given.
J3 PrES name is complete, but fewer than two person characteristics are given.
G1 Mover's (i.e. someone who moved between PrES and census data collections) address not given to geocode or "DK" entered.
G2 Mover's alternate address refused
G3 Mover's address incomplete
G4 Mover's address complete but could not be geocoded.
L2 Census questionnaire not found in the questionnaire library for a matching address evident on the DCF.
P Possible match
W1 Followup form outcome code = 1 and the answer to (Section III, item 1 or Section IV, item 2 or Section V, item 1) = "No" and there is no indication in the notes that the PrES person is fictitious.
W2 Followup form outcome code = 2.
W3 Followup form outcome code = 3.
W4 Followup form outcome code = 4; could not trace.
W5 Not sent to followup, although it should have.
W6 Followup form outcome code = 1, but information incomplete.