RESEARCH REPORT SERIES
(Survey Methodology #2010-18)

Effects of the 1986 Motivational Insert on Census Form Mail Response

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Report originally published: October 1, 1986

Report made available online: June 29, 2010

I. PROJECT OVERVIEW

The 1986 Inserts Pilot Study was conducted in the Mississippi site and both of the Los Angeles sites of the 1986 census test. The purpose of the study was to examine the impact of including a brief appeal for cooperation in the census mailing package on census form mailback behavior and other indices of cooperation, such as item nonresponse and follow-up cooperation rates. With the assistance of the Direct Marketing Association--and especially one of their member agencies, Ogilvy & Mather Direct--the Center for Survey Methods Research (CSMR) developed a mailing package insert for use in the 1986 test. The messages on the insert were designed: (1) to address respondent concerns as derived from prior census research (e.g., by describing the purpose and uses of census data); (2) to reflect central tenets of the "common wisdom" about factors which motivate (and inhibit) census response (e.g., by providing assurances of confidentiality, and by describing the personal benefits of response and the personal risks of nonresponse); and (3) to assist respondents over the hurdle of simply getting started filling out the form.

Using standard random selection procedures, half of the addresses on the Address Control File (ACF) in each site were assigned to receive an insert and the other half to serve as a control (no insert) condition. Analyses in this preliminary report focus only on mail return rate[1] differences for the two treatment groups; subsequent analyses (with data not yet available) will address more detailed issues such as demographic subgroup differences, item nonresponse effects, and effects on cooperation with nonresponse follow-up enumeration[2].

II. MAJOR FINDINGS

In all three sites of the 1986 motivational insert pilot experiment the mailing package insert had a significant positive effect on census mail response. Households which received a mailing package containing an insert mailed back their census forms at a significantly higher rate than did no-insert households. The positive effect of the insert was constant across short and long census form types (all sites); type of form delivery (standard mail versus "update/leave," applicable in Mississippi only); the

[1]Except for data from the South Los Angeles office, the analyses in this report refer to differences in mail return rates--the rates of mailback from occupied housing units. Since the census was terminated in South Los Angeles before follow-up, unoccupied units could not be completely identified. These data, therefore, are in the form of mail response rates, which are calculated as the number of mailed-back forms divided by the total number of forms mailed out.

[2]Again, since the census was terminated in South Los Angeles before follow-up, no data will be available from that office for the more detailed analyses.

use of mail reminder postcards (zero, one, or two cards, applicable in LA only[3]); and structure type (single versus multiunit, applicable in LA only).

Although many important questions are as yet unanswered, these results suggest that mailing package inserts may be a simple and relatively inexpensive means of improving census mailback rates. The results certainly justify further testing and refinement of the inserts technique as a possible tool for use in 1990.

III. DESIGN

Study Background

The idea for testing a census mailing package insert arose out of research evaluating the effectiveness of the 1980 census public information campaign. Of primary importance was the evidence that, despite the considerable success of the 1980 outreach effort, a substantial proportion of people got their first "news" about the upcoming census with the arrival of the census form. Overall, about one-quarter of all households reported that they were introduced to the 1980 census in this way, and about five percent said they had never heard of any census before they received a 1980 form. Among low income Black and Hispanic households (which traditionally have been the most difficult to enumerate) the figures were even more dramatic--30 to 40 percent were first informed of the 1980 census through their census form, and 15 to 20 percent had never heard of any census before the form arrived (Moore, 1982). These results underscored the untapped potential of the mailing package as a public information vehicle, and especially its status as the only sure channel of census information for substantial proportions of important population subgroups.

As originally planned, the inserts study was also intended as an experiment to investigate the effects of different themes or messages (Moore and Sedlacek, 1984), both for use with the census mailing package and possibly as input to the development of a mass media advertising strategy. However, the Decennial Planning Division's (DPLD) concern that multiple insert panels would place too much strain on mailing package assembly procedures caused us to scale back the project to the testing of a single, general-purpose mailing package insert versus no insert.

The revised plan was thus restricted to investigating the effects of inserts in general as a new channel of information, and not to the effects of specific messages. This decision directed us toward using an experimental insert with multiple messages rather than one which arbitrarily selected one of the many messages which we or others had reason to believe might be

[3]A reminder card experiment was also conducted in Mississippi. However, the design of the experiment (confounded with the update/leave study), combined with serious problems in delivery procedures, prevent a formal evaluation of the interaction of inserts and reminder cards in Mississippi.

effective (since with only one message negative results would be inconclusive as to whether the medium or the message had been ineffective).

Insert Development and Design

We used two methods for developing a list of potentially effective themes or messages: expert opinion and a review of prior Census Bureau research. From the latter we drew evidence suggesting: (1) the critical importance of understanding the purpose and uses of the census in eliciting mailback cooperation (Moore, 1982; NBO, Ltd., 1978; Response Analysis Corporation, 1978), and (2) that the most difficult barrier to filling out the form is simply getting started (DeMaio and Moore, 1979; DeMaio, 1983). From the former, other themes were repeatedly suggested--the importance of self-interest motives, the key role of confidentiality beliefs, and the possibility that knowledge of the mandatory nature of census response might also persuade people to cooperate. Using these basic ideas as a starting point, we prepared draft copy for a single-page insert with six different arguments urging cooperation with the census.

With the Public Information Office (PIO) acting as our liaison, we met in early September with Mr. Richard Barton, Senior Vice President for Government Affairs with the Direct Marketing Association (DMA), a trade association of direct mail market advertisers. Mr. Barton subsequently arranged a meeting involving other DMA officials and representatives of member advertising agencies at which we explained the purpose and design of the study, provided background information, summarized prior research, presented our suggestions for insert copy, and enlisted their creative assistance on the design of an insert for use in the 1986 test.

DMA and the participating agencies readily and eagerly agreed to help, at no cost to the Census Bureau, with the design of the insert. In October, they (specifically, Ogilvy & Mather Direct, the mail marketing arm of the Ogilvy & Mather advertising agency) delivered graphic design and copy for the insert. The copy drew heavily on CSMR's draft version. We distributed the agency's proposed design to the 1986 Test Census Coordinators for their comments, and met with DPLD's Outreach Coordination Staff to review those comments and to modify the copy as necessary. We did not alter the agency's proposed graphic design. S. Miskura (DPLD) and P. Bounpane (DIRS) reviewed and approved the final design. E. Couts of the International Statistical Programs Center (ISPC) prepared a Spanish translation of the insert[4], and the Publication Services Division prepared a final camera-ready version of the graphic design. A copy of the insert is included as Attachment 1.

Sample Design

The sample design for the inserts study was very simple. Within each of the three sites of the 1986 test the Statistical Methods Division (SMD) assigned every other ACF housing unit to the experimental (insert) treatment condition, with samples designated separately for long and short form households. Group quarters and special places were excluded from the sample

[4]The insert was printed in English on one side and in Spanish on the other.

universe, as were time of delivery and casing adds. (Sample design specifications are contained in Jones, 1985.)

Quality Control

SMD also designed quality control procedures to assure that mailing packages were correctly assembled--that mailing packages designated to contain an insert did and that those assigned to the no insert condition did not. As part of these procedures, SMD reviewed a small (approximately .16 percent) sample of assembled mailing packages and found none to be in error (Jones, 1986).

IV. DETAILED FINDINGS

Analytical Techniques

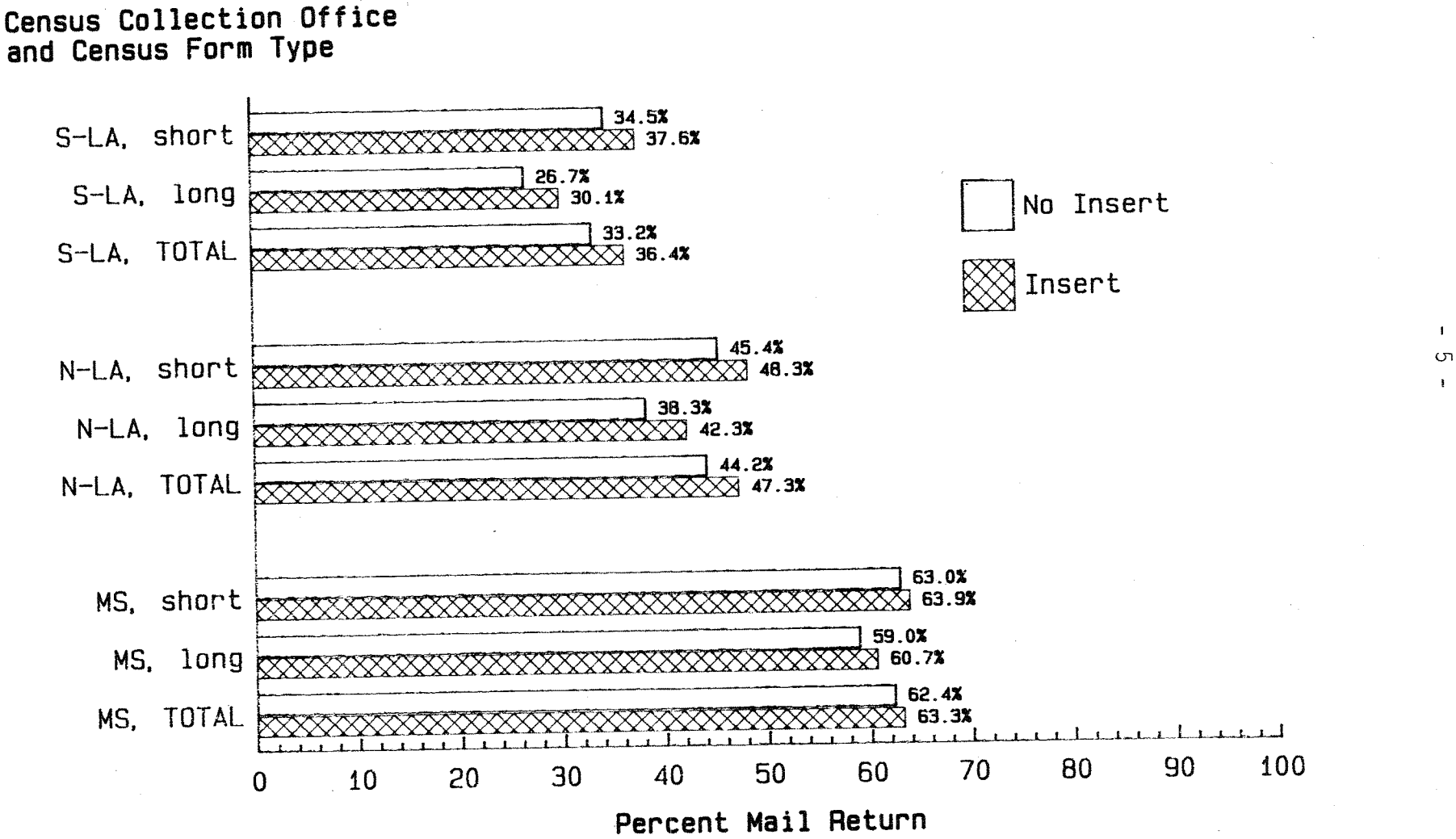
Since the dependent variable in this preliminary analysis is dichotomous--mail response or nonresponse--we used logit models to assess the effect of the insert. These models specify the odds of a particular outcome in the dependent variable (e.g., the odds of a mail response) as a function of a set of independent ("predictor") variables (see Feinberg, 1980). The advantage of this technique over traditional contingency table analysis is that it permits the testing of both main effects and interactions among the predictor variables.

We used the BMDP stepwise logistic regression program (Engelman, 1985) with maximum likelihood estimation to develop the logit models. This program tests the ability of each independent variable and each combination of variables to explain the observed between-treatment differences in the dichotomous dependent variable--in this case, mail response or nonresponse. The variables and combinations of variables which significantly ($p < .05$) improve the fit of the hypothesized model to the data are retained to form the final model; the fit of the final model is assessed with a chi-square test of the correspondence of the observed and predicted values for the dependent variable. Since very little difference between the observed and predicted values indicates a good fit, small values of chi-square (with large probabilities of occurrence) indicate that the hypothesized model accurately describes the observed data.

Results

Figure 1 summarizes mailback results for experimental (insert) and control (no insert) households, separately by census form type for all three collection offices in the 1986 census test. The differences in mail return rates are not large--three to four percent in the Los Angeles offices and one to two percent in Mississippi--but they are consistent and statistically significant. Regardless of collection office, census form type, type of census form delivery in Mississippi (standard mail versus update/leave; not shown in the figure), use of reminder cards in Los Angeles (not shown in the figure), or type of structure in Los Angeles (single versus multiunit; not shown in the figure), households which received an insert mailed back their forms at a higher rate than did households which did not receive an insert.

Figure 1: MAIL RETURN RATES (by form type and total across form types) FOR THE 1986 CENSUS OFFICES BY INSERT TREATMENT



"S-LA" = South Los Angeles Collection Office
"N-LA" = North Los Angeles Collection Office
"MS" = Meridian, Mississippi Collection Office

Attachment 2 presents the statistical analyses on which these results are based. In each of the three separate analyses (one for each collection office), the model showing the best fit to the observed data includes an insert parameter (among others) but no parameters for the interaction of inserts with any other predictor variable. Thus, the effect of the insert on mailback behavior was constant across all other predictor variables examined.

Results of focus group studies conducted in Los Angeles after the 1986 test provide additional evidence regarding the potential effectiveness of the insert (Prism Corporation, 1986). Very few of the focus group participants remembered having seen the insert, and even fewer reported actually having read it. However, given the opportunity in the sessions to unfold the insert and read it carefully, the group members "were very impressed with the information [the insert] provided. They thought it provided the information needed to motivate one to submit their Census information" (Prism Corporation, 1986, p. 14). The focus group participants were quite negative regarding the size of the insert and the manner in which it was folded--perhaps explaining why more were not exposed to the insert at the time of the census--but their assessment of the messages it carried supports the experimental result that the insert had a positive impact on those who made the effort to read it.

The focus group findings are somewhat at odds with the results of a survey conducted in a sample of Los Angeles households shortly after Census Day[5]. In this survey, about one-third (36 percent) of those who said they received and opened the census mailing reported that the envelope contained an insert[6], and of those the vast majority (81 percent) said they read it. The survey results offer some corroboration of the mailback results reported above--households in which respondents reported that they read the insert mailed back their forms at a significantly higher rate than did those who did not read the insert (McDonald and Moore, forthcoming).

Limitations

The results of this pilot study offer support for the notion that inserting persuasive messages in census mailing packages may yield small improvements in census mailback rates. Projected to the magnitude of the decennial census, where even one or two percentage point increments in mailback rates translate into millions of dollars in reduced follow-up costs, the differences observed in the 1986 pilot study would be highly cost-effective. However, the study's limitations preclude a definitive conclusion about the use of mailing package inserts in the 1990 census. The setting for the study--a test census--although

[5]The survey was the "General Population Survey," the major component of a five-part evaluation of the Census Community Awareness Program in the Los Angeles sites of the 1986 census test.

[6]The survey did not attempt to verify that the reported insert was, in fact, the insert that is the focus of this report--for example, by asking for a description of the insert, or by showing one to respondents for verification.

as close to "the real thing" as possible, differs in many important ways from a decennial census. One of the most important differences with regard to insert effects is the greatly reduced opportunity in a test census (and especially a test census in a part of a metropolitan area) for an effective outreach effort. It is possible that inserts "worked" in the test census sites because there was little other information to be had, but that a more successful outreach effort would have swamped the additional informational value of the insert[7]. (This argument does not hold, however, if the primary insert "targets" are households which tend to be bypassed by typical mass media outreach efforts.)

A second major difference (perhaps partly a function of the first) is the substantially lower base rate of census mail response in a census test as opposed to the decennial census[8]. Inserts may only be able to exert influence on people who are otherwise able and who have no major active resistance to cooperating (i.e., whose initial noncooperative stance mostly reflects indifference), and not on "hard-core" noncooperators. In a decennial census there are substantially greater forces acting on the former group to push them into cooperating, so that the pool remaining for the inserts to affect is comprised more predominantly of the "hard-core" types. Therefore, it may be very difficult for inserts to produce a noticeable positive impact on decennial census mail response behavior.

Other limitations of these results may be resolved in subsequent analyses--namely, whether the insert had different effects on different population subgroups, and whether it had an impact on the quality of returned forms. Results of experiments using mail reminder cards (Sedlacek, 1986) suggest that there may be a tradeoff in data quality from attempts to improve mail response. If this is also the case with inserts--that is, if inserts increase mail response but the additional forms returned tend to be less completely filled out--then the formula for calculating the benefits of inserts becomes much more complex.

A final major limitation is that the pilot study tested only one insert design out of an infinite set of possibilities. It is unlikely that our single attempt resulted in the optimal design for all segments of the population. Indeed, we have cited evidence (from focus groups) that the physical design of the insert certainly could have been improved; it may well be that different messages might also have produced substantially

[7]McDonald and Moore (1986) report data indicating that only 39 percent of households in the Los Angeles census area were reached by any outreach effort. No assessment was made of outreach effectiveness in the Mississippi test site.

[8]Mail return rates in the 1980 census, according to data supplied by DPLD, were about 70 percent in Los Angeles and about 75 percent in Mississippi. These figures need to be interpreted with caution because the geographic areas from which they are derived differ from the areas included in the 1986 tests. Nevertheless, the differences between the 1980 results and the 1986 test support the common finding that decennial census mailback levels typically exceed those of a test census.

greater effects. The only way to address this limitation, of course, is with more research testing (in a realistic setting with appropriate experimental control) a larger "sample" of inserts which vary on the basic dimensions of insert design--e.g., messages, graphics, and size.

V. RECOMMENDATIONS FOR FUTURE RESEARCH

The pilot test has demonstrated that inserts can improve census form mailback rates in a test census, but whether this result will generalize to the decennial census is unknown. Unfortunately, the currently available option for further formal testing of mailing package inserts, the 1987 National Survey, will suffer the same basic shortcomings as the 1986 census test, but to an even greater degree. The 1987 National Survey will not be publicized, and is expected to yield very low rates of mail return, rendering it unsuitable for research on how inserts would perform, and what format and messages and graphics would be most effective, in a decennial census situation. (The very limited nature of the planned 1987 census test and its focus on "conventional" enumeration methods also makes that setting inappropriate for inserts research.)

We propose instead the following research strategy: (1) In conjunction with the Advertising Council and the designated volunteer advertising agency[9], we will carry out a more informal program of research to develop and refine the insert technique. This research will be of the type usually employed by advertising agencies to develop advertising copy--for example, in-depth group or individual interviews--but will not involve a formal mailout, mailback survey experiment. (2) The product of this research will be a limited set of promising insert alternatives which we will then put to a formal test in the 1988 "dress rehearsal" census, which will mimic decennial census conditions (especially with regard to the level of general outreach activities) as much as possible. The dress rehearsal test should provide clear guidance about whether (or how) to use mail package inserts in 1990.

VI. SUMMARY AND CONCLUSIONS

The experimental mailing package insert used in the 1986 census test produced small but statistically significant improvements in mail response compared to a control (no insert) treatment. The positive impact of the insert was evident in all three sites of the 1986 test, and was independent of other predictor variables, such as census form length, type of form delivery, use of reminder cards, and type of structure. The results of this pilot research are sufficiently positive to justify further investigation of the insert

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9This assumes that the Census Bureau will contract with the Advertising Council for a public-service-type advertising campaign to support the 1990 census, and that such an agreement will become effective well before the scheduled 1988 "dress rehearsal." Although there are preliminary indications that this will be the case, as of the date of this report no such contract has been signed.

technique, although the generalizability of test census (or special test) results to the decennial census is questionable. We recommend that the next step in the investigation of inserts involve advertising professionals in the development and refinement of alternative inserts, and that a limited number of experimental inserts produced in this interim developmental stage be tested formally in the 1988 dress rehearsal.

ACKNOWLEDGEMENTS

I gratefully acknowledge the active and able participation of Deborah Sedlacek in the planning stages of this project, and her leadership in planning and carrying out the statistical analyses. In addition, I owe thanks to Catharine Burt, Theresa DeMaio, Elizabeth Martin, and Sarah-Kathryn McDonald, who provided many useful comments on early drafts of this report.

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ATTACHMENT 1

1986 Census Test Experimental Mailing Package Insert

ATTACHMENT 2

Summary of Statistical Analyses

A. Final Logit Model--North Los Angeles Collection Office

Parameter	Coefficient	Std. Error	T-Value
CONSTANT	-.42256	.01052	-40.18
FORM (short/long)	-.19625	.01235	-15.88
CARD (two/one)	-.05230	.00969	- 5.40
(any/none)	.17735	.01791	9.90
INSERT (yes/no)	-.09093	.00920	- 9.88
DENSITY (single/multi)	-.44836	.00988	-45.38

Fit Statistic for the Overall Model: $L^2 = 21.54$ ($p = .253$)

B. Final Logit Model--South Los Angeles Collection Office

Parameter	Coefficient	Std. Error	T-Value
CONSTANT	-.83954	.01118	-75.07
FORM (short/long)	-.27442	.01570	-17.47
CARD (two/one) [1]	-.09609	.01255	- 7.66
(any/none) [2]	.21195	.02435	8.70
FORM x CARD [1]	-.02961	.01761	- 1.68
[2]	.07523	.03420	2.20
INSERT (yes/no)	-.10005	.00849	-11.78
DENSITY (single/multi)	-.29911	.01112	-26.90
CARD x DENSITY [1]	.00929	.01277	0.73
[2]	-.06957	.02405	- 2.89

Fit Statistic for the Overall Model: $L^2 = 10.92$ ($p = .692$)

C. Final Logit Model -- Meridian, MS Collection Office

Parameter	Coefficient	Std. Error	T-Value
CONSTANT	.47559	.01002	47.44
FORM	-.07620	.01002	- 7.60
INSERT (yes/no)	-.02066	.00756	- 2.73

Fit Statistic for the Overall Model: $L^2 = 4.42$ ($p = .490$)