FABRICATION DURING THE 1990 NONRESPONSE FOLLOWUP OPERATION

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I. INTRODUCTION

The Nonresponse Followup (NRFU) was an operation that was conducted to obtain accurate information from the households that did not return a questionnaire. During the NRFU operation, enumerators visited each nonresponse unit to determine the occupancy status of the unit on Census Day. Based on the status, the enumerator completed the appropriate items of the census questionnaire, even if the household respondent said that he/she returned a questionnaire by mail.

This operation was conducted in 447 out of the 449 District Offices (DOs). These DOs were stratified into four types (Type 1, Type 2, Type 2A, and Type 3). The two DOs that did not conduct NRFU were Type 3 List/Enumerate areas only. The operation lasted from April 26 through July 27. During that period of time, the NRFU enumerators interviewed over 34 million housing units.

The primary function of census enumerators during NRFU was to visit each housing unit and gather data according to specific procedures. The enumerators under no circumstances were to "make up" data. If they did, this was referred to as fabrication or falsification and was, of course, illegal, punishable by termination of employment and possible fines.

The NRFU reinterview program was a quality assurance operation whose major objective was to detect NRFU enumerators who were falsifying data and to provide the information to management so the appropriate administrative action could be taken to correct the problem.

This paper presents the design and methodology of the reinterview operation. This paper also provides information on how well the enumerators performed or abstained from fabrication of data and to provide some implementation assessment of the reinterview program.

II. REINTERVIEW PROGRAM

During the NRFU, a reinterview program was instituted where a reinterview enumerator verified the occupancy status and household roster from a sample of cases. Reinterview was not conducted on the cases completed during closeout of the DOs.

The objectives of the reinterview program were to detect data falsification as quickly as possible and to encourage the enumerators' continuous improvement over time. To meet these objectives, a sample was taken from the enumerators' assignment. An assignment consisted of the completed questionnaires on a given day. The reinterview program included two sampling plans, random and administrative. There were requirements (cost, timing, accuracy of detection, and fairness) that encouraged the selection of this type of reinterview program.

A. Program Requirements

The reinterview program had to be designed to contain the following features.

1. The reinterview program had to be cost effective.

2. The reinterview process had to identify fabrication quickly.

3. The reinterview sample chosen had to be able to catch enumerators that fabricated at a large level with a high degree of accuracy.

4. The reinterview sample had to select only reinterview enumerators that had a high potential for fabrication based upon administrative analysis of work performance.

5. The design had to be such that correct personnel decisions would be made; with respect to determining and taking administrative action for data falsification.

B. Sampling Methods

The random sample was designed to identify early fabrication when not much control and content data existed on the performance of the enumerator to identify potential fabrication. Each original enumerator's assignment was sampled for reinterview every other day for the first 16 days of the NRFU operation. It was believed this sample would catch those enumerators that would fabricate early in the operation and would provide information to deter enumerators from starting this type of behavior.

The administrative analysis was designed to take advantage of control and content data, to identify those enumerators whose work characteristics were sufficiently "different" that it might indicate potential fabrication of data. This phase was to start in the third week of NRFU when there was expected to be enough data on the enumerators to indicate trends. The reinterview staff selected questionnaires from only those enumerators who had vacancy rate, household size, miles per case and/or cases per hour significantly different from other enumerators in their same assignment area that could not be easily explained by the supervisor.

C. Reinterview and Fabrication Validation Process

After the sample was selected, the reinterviewer proceeded to verify the household status and the household roster on Census Day by telephone or personal visit. Once the reinterviewer obtained the information from the respondent, a preliminary decision (accept or reject) was made on the potential of fabrication. The decision on "suspected fabrication" (reject) was based on the following criteria.

1. The unit status from the original interview was different from the unit status obtained during reinterview.

2. The household roster from the original interview contained at least a fifty percent difference from the household roster obtained during reinterview.

The Field Office Supervisor (FOS) for NRFU made the final decision as to whether fabrication exist on those cases that indicate potential data fabrication (i.e. reject-original enumerator accountable for the difference). If fabrication existed, the appropriate administrative action was taken on the NRFU enumerator.

III. EVALUATION RESULTS

This section provides information on the fabrication of census data by enumerators during the NRFU operation. Also provided is certain performance information implemented during the reinterview program to monitor the degree enumerators fabricated census data. Any comparisons that are identified in the results were tested at the 90 percent Confidence Level.

A. Degree of Fabrication

This section provides a variety of information on fabrication of census data. The data reflect the status of fabrication prior to any actions taken to correct the errors.

1. Overall

It is estimated that 0.09 percent of the census questionnaires were fabricated during NRFU with a S.E. of 0.016. We are 90% confident that between 20,000 and 42,000 NRFU questionnaires were fabricated during the 1990 Census. This estimate can not be compared directly to other operational estimates of fabrication, because of the varying methods of classifying fabrication.

2. By Type of Area (District Office Type)

Four types of offices conducted the NRFU operation; Type 1 (Metropolitan Areas containing approximately 175,000 housing units), Type 2 (usually a suburban

area containing approximately 260,000 housing units), Type 2A (suburban, rural, and seasonal areas in the south and midwest containing approximately 270,000 housing units), and Type 3 (rural areas of the west and far north containing approximately 215,000 housing units). Type 3 DOs were not selected in the evaluation sample because the List/Enumerate operation also took place in those DOs. Figure I provides the estimated fabrication rate for each of the three District Office types.

Figure I: Fabrication Rate By DO Type

Type 1 = Metropolitan Areas
Type 2 = Suburban Areas
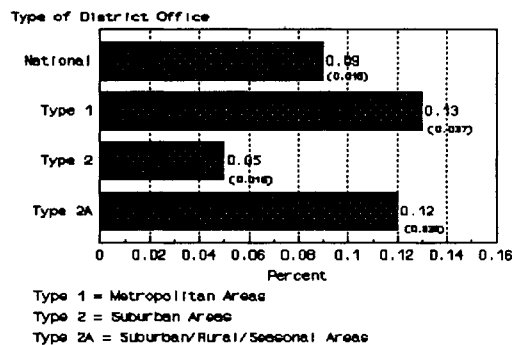Type 2A = Suburban/Rural/Seasonal Areas

Figure I indicates that Type 1 DOs had the highest point estimate of 0.13 percent with Type 2A DOs following with .12 percent. The estimated fabrication rate in Type 2 DOs is "greatly" different from the national estimate. It was expected that metropolitan areas (Type 1 DOs) would have a higher fabrication rate than suburban or rural areas, but in fact, Type 1 DOs do not have a significantly different estimate from Type 2A DOs. The estimate for the Type 1 and Type 2A DOs is not significantly different from the estimated fabrication rate for Type 2 DOs.

B. Characteristics of Fabrication

1. Over Time

The time between the start and end of the NRFU operation were divided into three time periods (approximately 3 weeks each) as follows:

a. Period 1 = Beginning of the operation through May 13th.

b. Period 2 = May 14th through June 3rd.

c. Period 3 = June 4th through the end of the operation.

The estimated fabrication rate ranged from 0.09 percent the first 3 weeks to 0.12 percent the last 3 weeks. Even though the point estimate for the last weeks was higher that the other weeks the difference was not found to be significant. The reason(s) for the fabrication in the last period could be credited to harder to enumerate cases and/or the pressure to get the job done.

2. By Form Type

The enumerator completed one of three forms during NRFU; long form, short form, or deletion record. The long form and short form were predesignated for occupied and vacant units. The deletion records were used to account for housing units no longer in existence.

Figure II: Fabrication Rate By Form Type

Long Form   Short Form   Deletion Record
Type 1 = Metropolitan Areas
Type 2 = Suburban Areas
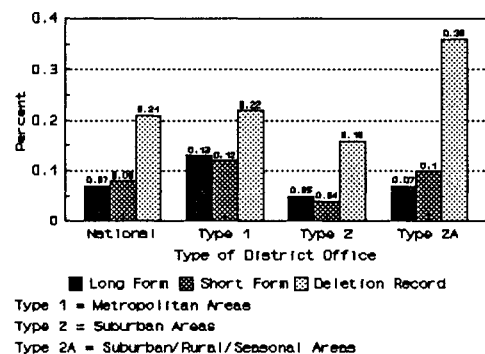Type 2A = Suburban/Rural/Seasonal Areas

Figure II indicates that across the country regardless of the type of area, a higher percent of deletion records were fabricated as compared to the long or short forms. The differences between the deletion records and both the long and short forms are greatly significant. The data also suggest no significant difference between short and long

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forms. This implies that in many cases, an enumerator fabricated by classifying a housing unit as non-existent.

3. By Housing Unit Status

One concern about fabrication was that one type of housing unit was more likely to be fabricated. There are three types of units; occupied, vacant, and non-existent (not a living quarters). Figure III provides a graph of fabrication rates for each housing unit type at the national and DO type levels. The housing unit type represents the final housing unit status listed during the reinterview operation.

Figure III: Fabrication Rate By Housing Unit Status

Type 1 = Metropolitan Areas
Type 2 = Suburban Areas
Type 2A = Suburban/Rural/Seasonal Areas
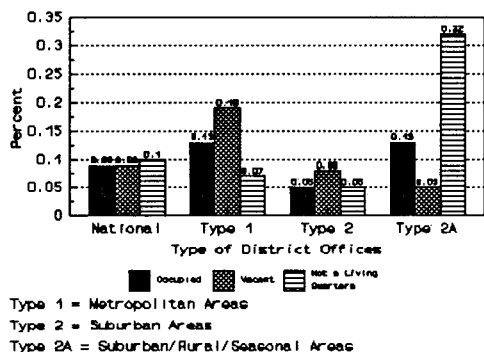
The data suggest, nationally, that there is no significant difference in the fabrication rate by type of housing unit. Across the country in Type 2A DOs, non-existent housing units had a point estimate higher that the other housing unit status estimates in Type 2A areas but it was not significantly different.

4. By Source of Information

The NRFU enumerator was to conduct the interview with someone living in the household. If the enumerator was unable to locate anyone in the household after numerous attempts, the enumerator was allowed to interview neighbors, landlords, etc.

Figure IV: Fabrication by Source of Data at National and DO Levels

Type 1 = Metropolitan Areas
Type 2 = Suburban Areas
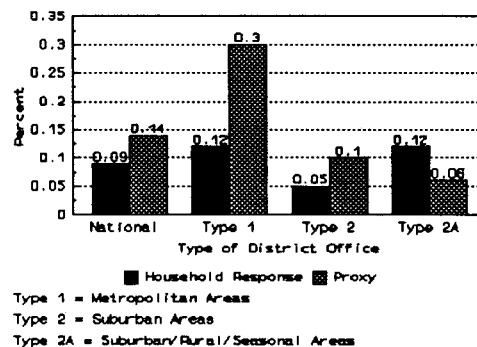Type 2A = Suburban/Rural/Seasonal Areas

Figure IV shows that the national fabrication rate for those cases where the housing information is collected from a proxy is 0.14 percent and 0.09 percent for cases where the information is collected from an actual household member. No significant difference is found at the 90 percent Confidence Level for the national or DO type data.

5. Number of Persons in Household

The reinterviewer dependently verified the household roster obtained by the original enumerator. Another concern about fabrication was whether there was a effect due to the number of household members listed on the roster by the enumerator.

Table I: Fabrication by Number of Persons in Household

# of Persons in Household	Fabrication Percent	Fabrication Std Error
0	0.17	0.036
1	0.10	0.034
2	0.04	0.014
3	0.08	0.022
4	0.06	0.020
5	0.01	0.007
6	0.02	0.012

Table I shows that the household roster which contained six or more household

members were the least likely to be fabricated and the household rosters with zero (vacant or delete) members were most likely to have been fabricated. The household roster with zero is more likely to have been fabricated than those households with two or more members, but is not more likely than a household with one member. A household roster with one household member is greatly significant from a household roster which contains five, six or more household members. This suggests that more work should be done to study household rosters with zero or one persons.

C. Actions For Confirmed Fabrications

Once enumerators were confirmed to have falsified data, it is estimated that 37.0 percent were released, 21.0 percent resigned, 20.0 percent were warned or advised, and 7.0 percent were recorded as no action taken. It was expected that more than fifty percent of the enumerators would be released. The status of the remaining cases (15.0 percent) could not be assessed from the data. In the future the reinterview program should be designed to assure that proper action is taken on the fabricated cases.

D. Performance of the Reinterview Program

This section provides information on the implementation results of the reinterview program such as the reinterview workload and lag time.

1. Overall

There was over 34 million housing units completed during the NRFU operation. The reinterview program sampled 4.79 percent of the NRFU households. Of the households that were sampled for reinterview, 7.70 percent were non-interviews. Documentation for the non-interviews indicated that 10.56 percent of the non-interviews were refusals; while the other 89.44 percent were documented as unable to locate/other.

2. Workload by Sample Type

Eighty-two percent of the reinterview cases were identified as collected during the random phase of the reinterview process. It was estimated that 40 percent of the reinterview questionnaires would be sampled during the administrative phase. Some offices continued the random phase throughout the operation; thus meaning that the random sample overlapped with the administrative sample; thus, causing the random phase to sample more questionnaires than expected.

3. Lag Time from Original Interview to the Reinterview

The reinterview was to take place as close to the date of the original interview as possible. The desired lag time was less than 4 days. The average reinterview lag time is estimated at 5.1 days. Geographically, the lag time point estimates ranged from 4.6 (Type 2A DOs) to 5.6 days (Type 1 DOs).

E. Evaluation of the Administrative Phase

This section provides information based upon the sample estimates of the administrative phase. These sample estimates represent reinterview data for enumerators with abnormal control information which flagged them for administrative reinterview sample. The administrative flags were vacancy rate, household size, miles per case and cases per hour significantly different from other enumerators in their same assignment area. The data have not been weighted or adjusted because of unmeasured biases during implementation of the administrative phase, as stated in the limitation section. Table III gives a brief description of the administrative sample estimates.

Table II: Administrative Characteristics

Characteristics	Levels	Percent
Fabrication Rate by DO Type	Overall	0.18
	Type 1	0.22
	Type 2	0.13
	Type 2A	0.06
Fabrication Rate by Time Period	Period 1	0.00
	Period 2	0.20
	Period 3	0.17

The table indicates that 0.18 percent of the questionnaires in the administrative sample were fabricated. This sample estimate is slightly different from the NRFU estimate at the national level. As shown in Table II, Type 1 DOs (Metropolitan areas) had an above average point estimate of 0.22 percent.

Fabrication was detected more during the first weeks of the administrative sample. This is opposite of what happened during NRFU as a whole, where there were no significant differences in fabrication between the time periods.

The average lag time between the original interview and reinterview is 6.0 days (not shown). This estimate is different from the random sample lag time of 5.1 days. The difference was expected because of the extra administrative duties associated with identifying enumerators with abnormal control information.

VI. RECOMMENDATIONS/CONCLUSIONS

The data indicate that no extensive fabrication took place at the national level. The majority of the questionnaires targeted as suspected fabrication were not falsified. This indicates that research should be done to refine our definition of "suspected" fabrication.

Design a reinterview system to detect enumerators with a lower degree of fabrication at a higher confidence level. Whether the system design is random, administrative, or a combination of the two, the system's reliability should be significant for all degrees of fabrication.

Refine the use of administrative analysis to predict instances of fabrication. Research should continue on identifying variables as well as the use of statistical models to predict instances of fabrication.

A concurrent evaluation should be used to evaluate the effectiveness of the administrative sample. This study will help to evaluate and refine the administrative model used to detect fabrication.

There were indicators of fabrication that should be studied further such as households with zero or one persons and delete households.

Even though lag time was an improvement over the experience of the 1988 Dress Rehearsal, work is needed to improve lag time between the original interview and the validation process of confirming that the enumerators fabricated data. Perhaps the use of telephone capabilities will improve this.

In addition to identifying fabrication, the reinterview operation should provide information on the accuracy of the population assigned to each household. Immediate reconciliation should be designed to correct under/over coverage of Nonresponse Followup.

There were a substantial number of confirmed fabrications with unexplainable actions taken on the enumerators. The reinterview program need to be designed to ensure that the proper action is taken on confirmed fabricators.

More work is needed to stress the importance of the full completion of all QA forms and the adherence to the procedures. This is needed to properly administer the program and to allow an effective evaluation. By providing a clear description of the purpose of collecting data and sampling procedures will enable accomplishing the overall objectives of the reinterview operation.