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*REPORT TO THE HOUSE
COMMITTEE ON POST OFFICE
AND CIVIL SERVICE*

093746



*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

Programs To Reduce The Decennial Census Undercount

Department of Commerce

The Bureau of the Census estimates that 2.5 percent of the population, 5.3 million people, were not counted in the 1970 census. The undercount rate, according to the Bureau, varies throughout the country and, therefore, the 2.5 percent rate is not applicable at State, city, and local levels.

GAO recommends that the Bureau assess and increase, if necessary, its efforts to distribute undercounts. GAO determined that the Bureau's undercount estimate was understated by the number of illegal aliens in the U.S. and recommends that the Bureau develop methods for estimating them.

GAO doubts that coverage will appreciably improve in the 1980 census. However, GAO believes that a simplified population questionnaire and the use of mailcarriers for followup enumeration work may help.



COMPTROLLER GENERAL OF THE UNITED STATES

WASHINGTON, D.C. 20548

B-78395

C1
The Honorable David N. Henderson
Chairman, Committee on Post Office
and Civil Service
House of Representatives

R Dear Mr. Chairman:

C2
This report responds to your request of June 12, 1975, expressing the interest of the Subcommittee on Census and Population that we study the 1980 census program. In accordance with the request we have studied the 1970 census undercount problem and preliminary 1980 census plans concerning undercounts and have made recommendations concerning the 1980 census plans.

On December 9, 1975, we briefed Subcommittee Chairwoman Schroeder on the results of our review as of that date. As discussed with the Subcommittee, we are providing copies of this report to other committees and Members of Congress and to other interested individuals.

We are also sending copies of this report to the Director, Office of Management and Budget; the Secretary of Commerce; and the Director, Bureau of the Census.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James B. Heath".

Comptroller General
of the United States

D I G E S T

In each census some persons are missed and others are double counted. For the 1970 census the Bureau of the Census estimated a net undercount rate of 2.5 percent--about 5.3 million persons. GAO believes the prospect for substantial gains in coverage rates is doubtful for 1980 and, therefore, recommends that the Bureau assess and increase, if necessary, its efforts to distribute undercounts to subnational levels.

Because the Bureau does not include illegal aliens in figuring the national undercount, its estimate understates the problem. GAO believes that the Bureau's net undercount estimate of about 5.3 million in 1970 is too small because it represents the difference between the 1970 census figure and an estimate of the true population which is short by the number of illegal aliens residing here. GAO recommends that the Bureau develop methods for estimating the number of illegal aliens so that the undercount can be estimated more accurately in 1980. (See p. 9)

Questionnaire complexity could increase the undercount problem in 1980. The Bureau's program to expand its mail-out/mail-back coverage in 1980 to cover virtually the entire population places greater reliance on the public's ability to read and respond accurately to the questionnaire. GAO recommends that the Bureau consider using two questionnaires in 1980--an abbreviated and simplified form for obtaining a population count only and a second for obtaining additional population and housing characteristics. GAO believes that a higher response rate, less followup, and quicker response to the abbreviated form will provide population figures more rapidly, thus providing quicker preliminary counts for review by local officials while field offices are still open. This would also allow more time to field check discrepancies. (See p. 19)

GAO urges the Bureau to reconsider using mailcarriers for census followup work on unreturned and incomplete questionnaires. The Bureau considered this action in 1970 but because of cost and other factors rejected it. Higher enumerator costs, however, are anticipated in 1980 in the Bureau plan (to be tested) using team-enumeration in difficult areas. GAO suggests, therefore, that the local mailcarrier also be considered for use in such areas. (See p. 20)

Population undercounts can adversely affect Federal, State, and local planning. Population figures are used in planning educational programs, welfare assistance programs, health and hospital facilities, transportation and highway needs, crime prevention and public safety programs, and so on. When population figures are understated, particularly in regard to low-income persons, the programs and facilities planned may prove inadequate to the needs of the area.

The Bureau spent \$11 million in 1970 on programs designed to improve coverage. Without these programs which the Bureau credits with an increase in coverage of 1.1 percent, the undercount rate in 1970 would have been 3.6 percent. The net effect, however, after adding the gains from the coverage improvement programs, reduced the rate to about 2.5 percent from the 2.7 percent of 1960. Nevertheless, the estimated number of persons not counted in 1970 increased by 238,000 over 1960, and coverage of black males decreased.

The 1980 coverage improvement plan, as described in chapter 4, consists of many of the 1970 program elements and several new programs which will be field tested. The 1970 programs to be repeated will be modified.

In commenting on this report, the Director of the Bureau pointed out that the undercount problem is better appreciated when one considers that the difficulty of counting a highly mobile, diverse American people has been magnified by rapid social change including a growing alienation from Government.

He also mentioned that the long-term ongoing research which created coverage measurement techniques was done at the Bureau's initiative and that severe statistical difficulties are involved in extending undercount estimates to subnational levels. He emphasized that a major thrust in 1980 will be to reduce undercount differentials among areas and population groups. (See appendix III.)

GAO appreciates the difficulties faced by the Bureau in dealing with the undercount problem and it is in the light of these difficulties that it has encouraged the Bureau to assess and increase, if necessary, efforts to distribute undercounts.

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CHAPTER 1

INTRODUCTION

Article I, section II of the U.S. Constitution established the census. The first census was taken in 1790, and the article required that subsequent censuses be conducted at 10-year intervals.

The census was to provide an equitable basis for apportioning congressional representatives and direct taxes among the States. Some Members of Congress--notably James Madison--urged collection of additional facts about the population for use as a guide in future legislation. The first census, however, was restricted to (1) number of persons, (2) male or female, (3) free or slave, (4) males 16 or over, and (5) names of heads of households. The first census counted about 4,000,000 persons at a cost of \$40,000--about one penny per person counted.

Between 1800 and 1830, questions were added relating to physical disabilities and persons of foreign birth. After 1830 the amount of data collected grew rapidly. By 1890 the census included 238 questions, but by 1930 the number of questions had dropped to 42. In 1970 the basic questionnaire consisted of 27 questions while 2 longer versions contained 81 and 94 questions directed at 15 and 5 percent of the population, respectively.

Weaknesses in the census procedure prompted the Congress to pass legislation which authorized hiring qualified professionals for the 1880 census. Not until after 1900 did the census organization become permanent. In 1902 the Bureau of the Census was established in the Department of Commerce and Labor; later, when the Department was split, it remained with the Department of Commerce.

Many changes occurred between 1900 and 1970. Data collection procedures were refined, mechanical and electronic processing of data was developed, and sampling techniques were introduced. Today, the Bureau is the Federal Government's major statistical agency. In addition to the decennial census, the Bureau is responsible for a variety of statistics on subjects ranging from manufacturing to local government finances.

All levels of government use the population figures produced by the Bureau. For example, population figures determine Federal and State election district boundaries; guide the planning and administering of Federal, State, and local programs; and annually affect the distribution of billions in Federal funds.

TAKING THE 1970 CENSUS

The Bureau used two general procedures to take the 1970 census.

1. Mail-out/mail-back procedure. In large metropolitan areas, covering about 60 percent of the population, residents received questionnaires by mail. Each resident was directed to complete the questionnaire and mail it back. Enumerators (census takers) contacted only those households that did not return questionnaires or that gave incomplete answers.
2. Conventional procedure. For remaining areas, mailcarriers delivered unaddressed questionnaires to all households on their routes. Each household was directed to complete the questionnaire and hold it for pickup by an enumerator.

Three questionnaire types were used. All contained the same basic questions, but two contained additional questions. The basic questions were to cover the entire population, and the two longer versions were to cover 15 percent and 5 percent of the population, respectively.

Respondents were first directed to complete their own questionnaire in the 1960 census. Self-enumeration, according to the Bureau, has certain advantages over door-to-door enumeration. It gives the respondent an opportunity to check his replies for correctness and avoids biases which could be introduced by an enumerator who presupposes answers to questions.

For areas covered by the mail-out/mail-back procedure, the Bureau developed mailing lists. The mailing lists were also used as check-lists for mailed-back questionnaires, providing an element of control which the Bureau believes improved coverage.

Mailing lists were compiled in two ways. For Post Office city delivery areas, the Bureau purchased commercial lists containing about 34 million addresses at a cost of about \$800,000. Mailing lists for adjacent outlying areas were created by physically canvassing and listing the housing units in those areas. The Postal Service reviewed both lists for completeness. Special procedures were used for dealing with relatively small population groups, such as institutional populations, in-transit populations, military personnel, and overseas citizens.

The Bureau employed about 193,000 persons for the 1970 census which cost over \$200 million. About 205 million persons were counted. For 1980 the Bureau plans to use the mail-out/mail-back technique for virtually the entire country. The Bureau estimates that the 1980 census will cost between \$400 and \$500 million.

CHAPTER 2

THE UNDERCOUNT PROBLEM

The census should count the true population, but authorities agree that no census in history has completely succeeded. Each census misses some people and double counts others. In U.S. censuses the result has been a national undercount.^{1/}

George Washington noted the existence of an undercount after our first census and outlined the reasons:

"Returns of the census have already been made * * * by which it appears that we shall hardly reach four millions; but one thing is certain our real numbers will exceed, greatly, the official returns of them; because the religious scruples of some, would not allow them to give in their lists; the fears of others that it was intended as the foundation of a tax induced them to conceal or diminish theirs, and thro' the indolence of the people, and the negligence of many of the Officers numbers are omitted."

ESTIMATING THE UNDERCOUNT

The Bureau has four sets of estimates of the size of the undercount. To derive the undercount the Bureau estimates a true population at the national level and subtracts the actual number of persons counted in a census from this estimate. The difference, if any, is the estimated undercount. To derive the true population the Bureau uses prior census data, birth and death records, immigration data, and medicare records.

The Bureau considers its estimate of true population to be more accurate than the figures obtained from the actual census count. The following table shows the basis for estimating a true population for various age groups, as used for developing its preferred set of estimates.

^{1/}In this report we use the terms "coverage" or "undercount" as appropriate. For example, incomplete coverage results in an undercount; coverage improvement programs are actions taken to diminish the size of the undercount by expanding coverage.

Basis For Estimating True Population

<u>Age group</u>		<u>Basis for estimate</u>	<u>Percent of total population in age group</u>	
<u>1970</u>	<u>1980</u>		<u>1970</u>	<u>1980 (note a)</u>
0 through 34	0 through 44	Births minus deaths plus net immigration	58	69
35 through 64	45 through 64	Research based on prior census data	32	20
65 and over	65 and over	Adjusted medicare data	10	11

a/Based on the Bureau's population projections.

For persons born after 1935, ages 0 through 34 in 1970, birth and death records along with net immigration figures were used to estimate the true population. The first year in which birth and death records are considered complete enough to be used to estimate population is 1935. In 1980 relatively complete records will be available for the age group 0 through 44, comprising almost 70 percent of the total population.

In 1970 estimates for the age group 35 through 64 were based on extensions to 1970 of data from two research studies. The estimated true population of white females age 35 through 64 was derived from extensions to 1970 of data prepared by Coale and Zelnik.^{1/} Similar

^{1/}Ansley J. Coale and Melvin Zelnik, "New Estimates of Fertility and Population in the United States" (Princeton, N.J.: Princeton University Press, 1963), ch. 2.

estimates for black females were derived from data prepared by Coale and Rives.^{1/} Males aged 35 through 64 were then derived by applying expected sex ratios (number of males per 100 females) to the corrected figures for females. In 1980 this age group will comprise ages 45 through 64, representing only 20 percent of the population.

Medicare records, adjusted by sex ratios to account for nonregistration, are used to estimate the age group 65 and older. By the year 2000, birth, death, net immigration, and Medicare records could be used to estimate the entire population.

CHARACTERISTICS OF THE UNDERCOUNT

Bureau studies have shown that the rate of undercount differs for various segments of the population. In general, blacks are more undercounted than whites; males more than females. Limited Bureau evidence also indicates that the poor are more undercounted than the affluent; and persons in the South more than those in the North.

The following table compares by race the national undercount estimates derived through the Bureau's preferred method for 1960 and 1970. It shows the percent of the resident ^{2/} U.S. population undercounted for each category.

^{1/}Ansley J. Coale and Norfleet W. Rives, Jr., "A Statistical Reconstruction of the Black Population of the United States, 1880-1970: Estimates of True Numbers by Age and Sex, Birth Rates, and Total Fertility" (Population Index, January 1973, Office of Population Research, Princeton University, and Population Association of America, Inc.). pp. 3-36.

^{2/}Resident population excludes U.S. military personnel overseas, U.S. civilian citizens residing overseas, and the population of other areas, such as Puerto Rico, outside of the 50 States and the District of Columbia.

Estimates Of The Amount And Rate Of
Undercount, By Race

<u>Race</u>	1970		1960	
	<u>Undercounted/overcounted(-)</u>		<u>Undercounted/overcounted(-)</u>	
	<u>Number</u> (thousands)	<u>Percent</u>	<u>Number</u> (thousands)	<u>Percent</u>
White	3,446	1.9	3,249	2.0
Black	1,873	7.7	1,630	8.0
Other (note a)	<u>-18</u>	-0.7	<u>184</u>	10.2
Total	<u>5,301</u>	2.5	<u>5,063</u>	2.7

a/These figures are the residuals obtained by subtracting the Bureau's estimate for the black race from the Bureau's estimate for black and other races. The Bureau considers these residual figures unreliable.

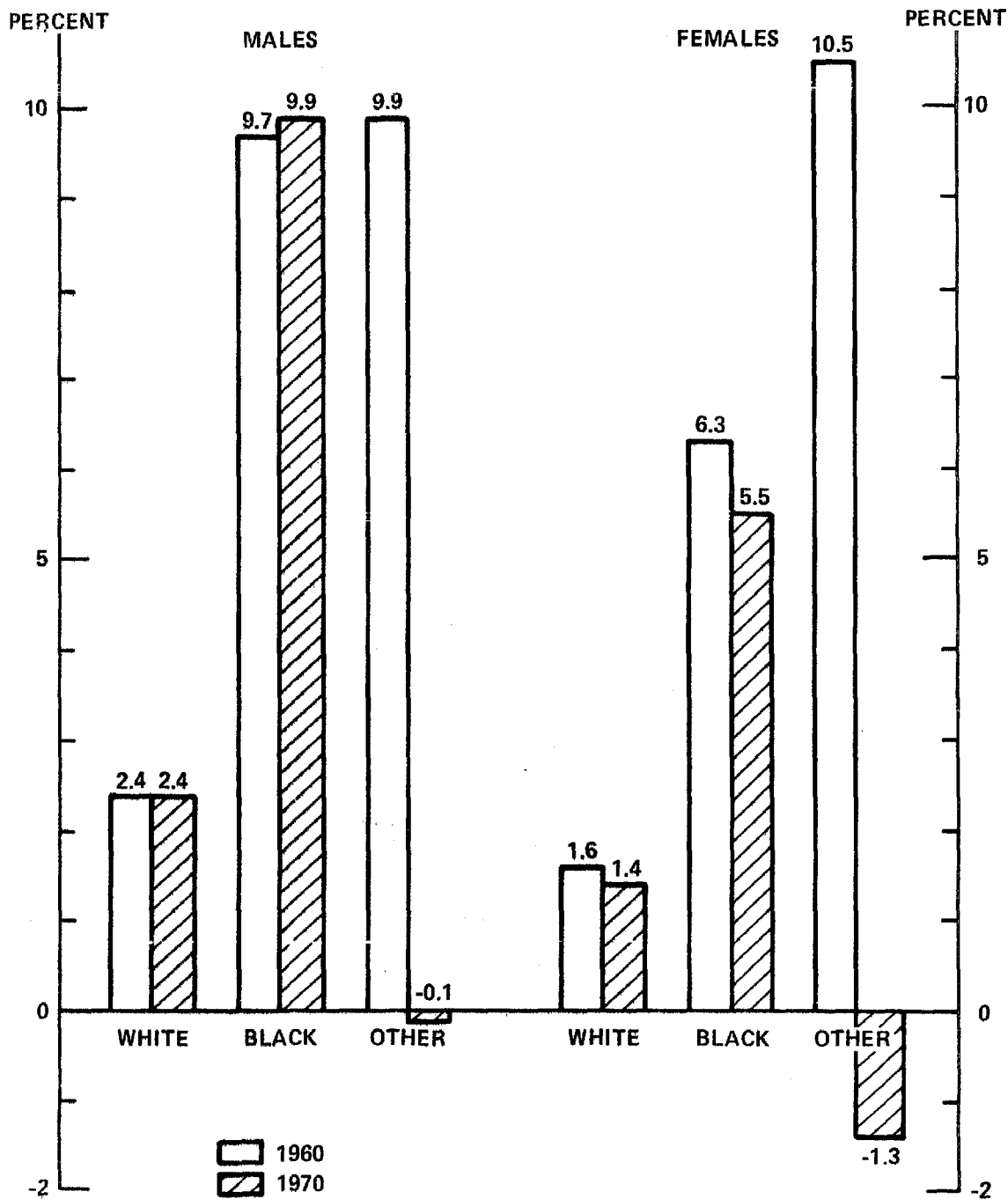
The table shows that, although there are nearly twice as many uncounted whites as there are blacks, the rate of undercount for blacks is about four times as great as for whites. The chart on the following page compares the 1960 and 1970 undercount rates by race for males and females.

As shown in the chart, the undercount rate for white males remained about the same, but the rate for black males was slightly greater in 1970 than in 1960. The undercount rate for females in all race categories declined. The largest relative improvement for both males and females is in the other-races category (however, see note "a," table above). Although the reason for the large change in this category is not really known, one Bureau demographer suggested that it may be due to more persons reporting themselves as Indians in 1970 than would be expected on the basis of available demographic data. The other-races category, including Chinese, Japanese, Filipinos, Indians, and other races, comprises only about 1.5 percent of the U.S. population.

A 1970 census study indicates persons with low incomes are not as well counted as the more affluent. A Bureau paper has stated

" * * * median family income of persons missed in the census was only about 73 percent as great as the median family income of the entire population."

NET UNDERCOUNT RATES OF RACE-SEX GROUPS:
1960 VS 1970



NOTE: A MINUS INDICATES A NET OVERCOUNT.

A Bureau document, issued in August 1975, commented on the coverage differential between North and South:

"On the basis of the various studies * * * the South consistently appears to have the poorest coverage rate * * *."^{1/}

THE PROBLEM OF ILLEGAL ALIENS

Because Bureau demographers do not include any factor to account for illegal aliens residing in this country, the undercount rates derived from the true population may be seriously understated. Bureau demographers, in deriving the estimate of the undercount, use their estimate of the true population as the correct population and subtract the population counted in the census from this estimate to derive the undercount. Although illegal aliens may be counted in the census, they are excluded, by definition, in the Bureau's estimate of true population.

For example, if the true population, excluding illegal aliens, is estimated as 210 million, and the census count, which may include some illegal aliens, is only 205 million, the undercount is 5 million.

A recent study done for the Immigration and Naturalization Service reported as many as 8 million illegal aliens living in this country during 1975. If, for example, 8 million illegal aliens were added to the above estimate of the true population, the estimate would increase to 218 million. The estimated undercount would then be 13 million instead of 5 million.

Bureau comments on estimating illegal aliens

In commenting on this report (see appendix III), the Director of the Bureau stated that the Bureau believed the estimate on the number of illegal aliens in this country developed for the Immigration and Naturalization Service was based on a very questionable procedure. He pointed out that while he agrees that it may be appropriate to allow for illegal aliens in estimating the undercount, the number of illegal aliens in 1970 may have been far smaller than the 8 million used in our illustrative example. We used the 8 million figure in our example to illustrate the effect of excluding this element in figuring the undercount and not to reflect the 1970 undercount deficiency.

^{1/}The States and area the Bureau included in the South were Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Oklahoma, Texas, and Louisiana.

Recommendation

We recommend that the Director of the Bureau develop methods which take into account the existence of illegal aliens when estimating the undercount in 1980.

EFFECTS OF POPULATION UNDERCOUNTS

Undercounts affect equity in three major areas.

- Federal and State benefits.
- Federal, State, and local planning.
- Federal, State, and local political representation.

Population is often a major factor used to distribute Federal and State benefits. The Congressional Research Service of the Library of Congress analyzed the use of population as a factor in Federal formula grant-in-aid programs. According to this study:

"The growth of Federal assistance to State and local governments over the years has been substantial. At the turn of the century, State and local Governments annually were receiving less than \$10 million in Federal aid; * * * In 1976, Federal aid is expected to total \$56 billion. Of this amount, Federal formula grant-in-aid programs probably account for 70 percent or more of the total."

Undercounts can result in a misallocation of Federal funds distributed through formula grants because undercount rates differ between geographic regions. A larger undercount will place one area at a disadvantage with respect to other areas less undercounted when population is used in calculating Federal benefits.

Population undercounts can adversely affect Federal, State, and local planning. Population figures are used in planning educational programs, welfare assistance programs, health and hospital facilities, transportation and highway needs, crime prevention and public safety programs, and so on. When population figures are understated, particularly in regard to low-income persons, the programs and facilities planned may prove inadequate to the needs of the area.

For example, on the basis of census studies, the rate of undercount for black and poor persons is greater than for others. If population is used to plan for essential community facilities and services, communities with heavy concentrations of such populations may tend to have lower per capita services, such as police protection, fire protection, schools, and hospitals, than other communities.

The effect of population undercounts on political representation is obvious since representation is based on population. In writing on the importance of census counts, a Bureau official states

"* * * the drawing of electoral districts for all kinds of legislative bodies--from the national Congress through State legislatures to local councils--is done on the basis of census figures. * * * this districting has been done, during recent years, under close judicial scrutiny to make sure that all the districts for a particular legislative body have virtually the same population size (this is known as the 'one man, one vote' rule)."

CHAPTER 3 COVERAGE IMPROVEMENT PROGRAMS, 1970

In the 1970 census the Bureau used two types of programs for coverage improvement. First, procedural programs, costing approximately \$3 million, were used during or just before taking the census to identify persons or housing units that could be missed by the general census procedures. Through these programs the Bureau added about 2,304,000 persons to the census count--about 1.1 percent of the total U.S. population.

Second, other programs costing about \$8 million were used to improve public cooperation, increase enumerator efficiency, and assist individuals in filling out the questionnaires. For example, programs aimed at minority groups publicized the purpose of the census and the potential benefits to be gained by cooperating with enumerators. According to the Bureau, these programs could not be evaluated in terms of coverage gains.

PROCEDURAL PROGRAMS

1. "Question A"--Each questionnaire included a question which asked the individual to report the number of housing units in his building. This information could then be checked against the Bureau's records to see if all units were accounted for. By checking when the numbers reported disagreed with the Bureau's listings, an estimated 380,000 additional persons were found and counted. According to the Bureau, the payoff on this program could have been higher, but in about one-third of the cases where differences occurred, the question was not properly edited or followed up.
2. Precanvass operations--Just before taking the census, the Bureau verified mailing lists in selected problem enumeration districts in 17 large metropolitan areas. This operation was done after the Postal Service had reviewed the commercial list. As a result, an estimated 234,000 additional persons were found and counted.
3. Movers check--The Bureau conducted a movers check to identify persons who moved during the enumeration period and were missed at both their old and new addresses. The Bureau obtained change of address cards from post offices and checked these against census records. Enumerators followed up with persons not found in the census records. The procedure was used only in the 17 metropolitan areas covered in the prec canvass operation and only with persons who moved within

the metropolitan area. About 15,000 additional persons were found and counted as a result of this procedure. This gain was less than the Bureau had anticipated from its pretest research. This was due in part to misclassification of movers already enumerated and inadequate enumerator followup.

4. National vacancy check--Housing units classified as vacant were rechecked, on a sample basis, to determine their actual status at the time of the census. Similar checks during pretests for the census had identified the misclassification problem as a significant factor in population undercounts. However, because of time limits and budget constraints a complete check of reportedly vacant units could not be made.

On the basis of the sample, ratios were developed showing the proportion of misclassified units and the average number of persons per misclassified unit for 12 areas of the United States. During computer processing, the ratios were used to reclassify reportedly vacant units in each enumeration district.

An estimated 1,069,000 additional persons were added to the count because of this procedure. The Bureau believes that the number added is a conservative estimate, since several steps in the procedure tended to introduce a downward bias.

5. Postenumeration post office check--For the 16 southern States in those areas where mailing lists were not developed and conventional enumeration procedures were used, enumerators prepared an address card for each housing unit visited. These cards were checked by mailcarriers who reported addresses on their routes for which no card had been prepared. Field enumerators followed up a sample of the addresses not found in the census records.

Using techniques similar to those used with the national vacancy check, an estimated 484,000 persons were added to the census count.

6. Supplemental forms operation--Supplemental forms were placed in strategic places for use by persons not at their regular addresses on census day. The Bureau reviewed these forms to identify those persons for whom a questionnaire had not been received. For example, a person staying in a hotel during the census period may not have returned the questionnaire delivered to his residence. An estimated 122,000 additional persons were found and counted by this procedure.

7. Missed persons campaign--The Bureau distributed cards, captioned "please make sure I am counted in the census," through such places as barbershops, pool rooms, and carry outs. The cards were printed in Spanish and Chinese as well as English. Several hundred thousand cards were distributed, but only 324 were returned.

OTHER PROGRAMS

1. Special enumerator efforts--In 20 large cities enumerators were paid at higher than normal rates and given lower workloads. In addition, local offices were supervised by Bureau personnel rather than persons hired strictly for taking the census.
2. Assistance centers--In the same 20 cities the Bureau established assistance centers where respondents could obtain assistance in filling out questionnaires. Some centers were staffed with bilingual persons. In addition, telephone assistance was available in all mail-back areas as noted on the questionnaire.
3. Foreign language aids--The Bureau provided Spanish and Chinese instruction sheets in areas containing high concentrations of Spanish and Chinese people.
4. Community educator programs--The Bureau hired local community representatives to speak to residents on the census and to distribute literature to local groups. The thrust of their efforts was to obtain the trust of groups and individuals and make them aware of the advantages of being included in the census.
5. Work with black organizations--The Bureau enlisted major black organizations to assist in obtaining cooperation with the census from their constituencies.

ASSESSMENT OF THE 1970 COVERAGE IMPROVEMENT PROGRAMS

Without the coverage improvement programs, which the Bureau credits with an increase in coverage of 1.1 percent, the undercount rate in 1970 would have been 3.6 percent, or 0.9 percent greater than in 1960. However, after adding the gains resulting from the coverage improvement programs the rate was reduced to about 2.5 percent from the 2.7 percent rate of 1960. Nevertheless, the estimated persons not counted in 1970 increased by 238,000 over 1960, and coverage of black males decreased.

In commenting on our report, the Director of the Bureau pointed out that the undercount problem is better appreciated when one considers that the difficulty of counting a highly mobile, diverse American people has been magnified by rapid social change, including a growing alienation from Government. He also mentioned that the long-term, ongoing research which created coverage measurement techniques was done at the Bureau's initiative, and that a major thrust in 1980 will be to reduce undercount differentials among areas and population groups.

CHAPTER 4
PLANNED COVERAGE IMPROVEMENT, 1980

To improve coverage and minimize coverage differentials, the Bureau plans to repeat several coverage improvement programs used in 1970, introduce new coverage improvement techniques which will be tested before the 1980 census, and expand the use of the mail-out/mail-back technique.

1970 PROGRAMS TO BE REPEATED IN 1980

The following programs were used in 1970 and will be used--with modifications as indicated--in 1980.

1. "Question A"--As mentioned in chapter 3, edit and followup were major problems in 1970. The Bureau believes that through the use of improved edit procedures and more complete followup this program will be more effective.
2. Precanvass operations--The Bureau plans to expand the use of the precavass operation which in 1970 was limited to inner-city enumeration districts. In 1980 the Bureau plans to expand the operation to additional areas and employ more systematized procedures than were used in 1970. A decision as to the full extent of the precavass operation for 1980 had not been made at the time of our review.
3. Movers check--The Bureau plans to use the movers check again in 1980. In 1970 it restricted the movers check to 17 large metropolitan areas and followed up only on persons moving within a local area. For 1980, Bureau officials are investigating procedures which could be used on a broader scope.
4. National vacancy check--The Bureau plans to develop procedures to identify all units incorrectly classified as vacant rather than employ the sampling basis used in 1970. The Bureau will pretest several methods for accomplishing this before the 1980 census.
5. Supplemental forms operation--The format of the coverage improvement part of this operation had not been formulated at the time of our review.

Bureau officials do not plan to use the postenumeration post office check (used in 1970 in conventional enumeration areas) because of the 1980 plans to practically eliminate conventional enumeration. Also, because of its lack of success in 1970, the missed-persons campaign will

probably not be used. At the time of our review, Bureau officials had not completely formulated their plans for reuse of the other 1970 programs. The Bureau does, however, plan to place special emphasis on the use of the community educator programs.

NEW PROGRAMS FOR 1980

The Bureau will pretest several new programs before the 1980 census, including:

1. Team enumeration--Teams of two or more enumerators will be used in metropolitan innercity areas. This program is being considered because of difficulties experienced during 1970 with recruiting and retaining people to do followup work in some innercity areas. The Bureau plans to test the use of teams before the 1980 census to determine (1) how to identify areas where team enumeration is needed, (2) at what point in the fieldwork teams become necessary, (3) the correct size of a team, and (4) how assignments are made and progress can be evaluated.
2. Spanish questionnaire--A Spanish language version of the questionnaire will be prepared for use in 1980. Instructions and model questionnaires in foreign languages were available in 1970, but the questionnaires used to take the census were in English. The Bureau has developed and is testing a procedure for distributing Spanish language questionnaires.
3. Reviews by local officials--In prior censuses the Bureau made only limited efforts to obtain reviews of preliminary census counts by local officials. However, after the 1970 census, the Bureau received about 1,900 complaints from local officials who disagreed with these counts. Because field offices had been closed before many of the complaints were received, investigations were difficult and expensive. As a result of these complaints and hearings held during late 1970, the Chairman of the Subcommittee on Census and Statistics, House Committee on Post Office and Civil Service, recommended that extensive local review of statistics be included as part of the 1980 census.

In response to this recommendation, the Bureau plans to provide procedures for local review of the statistics during the 1980 census. Local officials will be given two opportunities to review data.

- A. The Bureau will provide housing unit counts compiled from mailing lists by census areas for review before the census is taken.

- B. The Bureau will provide preliminary counts for census areas for review before the field offices are closed.

The Bureau is testing a nationwide computer terminal network for quickly producing the preliminary counts. The Bureau must also identify appropriate local officials for reviewing the counts and must develop procedures for checking discrepancies.

4. Record checks--The Bureau is considering checking the census records against other lists, such as vehicle drivers license records to identify persons not counted in the census. There are, however, several legal, policy, and technical questions to be resolved concerning the use of other lists. Consequently, the Bureau had not determined at the time of our review whether this program would be feasible.
5. Minority groups--The Bureau has established black and Spanish advisory committees to assist with problems relating to these minority groups and has contacted other minority groups about the desirability of forming additional advisory committees.

The Bureau hopes to obtain better qualified enumerators in 1980 to help prevent the followup and classification problems that existed in 1970. For example, Bureau officials have discussed establishing a college course in data research methods which requires fieldwork--taking the 1980 census--as part of the course content.

The National Academy of Sciences recommended another means of upgrading enumerators. A 1972 report entitled "America's Uncounted People" recommended that the Census Bureau consider using mailcarriers as followup enumerators in difficult to enumerate areas. The report noted that mailcarriers

"* * * are not typically targets of hostility; they know the people in their delivery areas and are known by them; they are highly visible and easily identified by their uniforms, and they are, as a group, highly literate."

Bureau officials considered using mailcarriers for followup work in 1970 but rejected the idea because of cost, organizational difficulties, and potential problems with the public's perception of census confidentiality.

EXPANSION OF THE MAIL-OUT/ MAIL-BACK TECHNIQUE

Bureau officials plan to expand the mail-out/mail-back technique to cover virtually the entire country because they believe the increased

control provided by mailing lists will reduce the number of missed housing units. Conventional census techniques used in the past relied on the enumerator to cover all housing units in his territory. If housing units were missed by an enumerator, it was not usually detected by the district office. However, when complete mailing lists are developed for a census district, a central control list is available to check on completeness of mail returns and followup enumeration for non-returns. Of course the degree to which this check will improve the housing count depends on the completeness of the lists. Several of the 1970 coverage improvement programs, such as "Question A" and the pre-cavass operation, were designed to improve the completeness of this control list.

Because of increased use of the mail-out/mail-back technique, the respondent's ability to read and comprehend the questionnaire will be more important in 1980 than in 1970. City officials complained to the House Subcommittee on Census and Statistics that the 1970 questionnaire was too complex for many people to understand.

A March 1975 study by Dr. Norvell Northcutt of the University of Texas at Austin entitled "Adult Functional Competency" indicates that many respondents may have problems with reading and comprehension. According to this study, about 20 percent of the U.S. population has difficulty in performing even the most simple paperwork tasks required in our daily lives. This study judged reading competency by testing ability to read such newspaper items as grocery and help wanted advertisements and writing competency by testing ability to write a grocery list.

In contrast to these simple tests, the short form of the 1970 census questionnaire challenged the respondents' reading competency and comprehension by asking them to list household members according to relationship to the head of the household, sex, color or race, date of birth, and marital status. Also, it asked the respondent a dozen household questions, such as do you have complete kitchen facilities, is there hot and cold piped water in your building, do you have a flush toilet, and if rent is paid what is it? The long form was more complex. (See app. II for complete questionnaire.)

A Bureau evaluation of the 1970 census returns indicates potential problems created by questionnaire length. The following table taken from the Bureau's evaluation shows the percent of mail response and the responses needing followup, classified by length of form.

<u>Type of questionnaire</u>	<u>Percent of mail response</u>	<u>Percent of responses needing followup</u>
Short forms	88	14
Long forms	83	56

As can be seen from the table a higher percentage of the shorter questionnaires were returned and, of those received, a lower percentage required followup. Although nonrespondents are followed up on as part of the standard census procedure, incomplete followup was a problem in 1970. As a result the lower response rate for longer forms may have worked against complete coverage.

ASSESSMENT OF THE 1980 COVERAGE IMPROVEMENT PLANS

In 1970 the Bureau spent about \$11 million on coverage improvement and reduced the undercount to 2.5 percent. A Bureau official stated "more may have to be done just to remain at the same [the 1970] level." Thus the prospect for substantial gains in coverage in 1980 is also doubtful.

Because of inadequate followup and the 1970 classification problems, the Bureau is exploring the possibility of hiring better qualified enumerators and using enumerator teams. These steps will undoubtedly increase enumerator costs.

We believe the Bureau should reconsider the National Academy of Sciences' suggestion to use mailcarriers as enumerators. The Bureau's objection that mailcarriers would cost too much may no longer be the case in view of the Bureau's proposed use of the more costly team enumeration approach. The Bureau's other objections to using mailcarriers should be examined to determine if they apply to the expected 1980 situation.

The expanded use of the mail-out/mail-back technique increases emphasis on the respondent's ability to read and understand the questionnaire. We believe the Bureau should, therefore, carefully consider the effect of a complicated questionnaire on coverage. The Bureau may be able to improve coverage by developing two questionnaires--a shortened and simplified one dealing solely with the count of the population and another more detailed form dealing with questions related to population and housing characteristics. Such a two-stage approach might be more effective, and the shorter form should require minimum followup. This procedure may also provide quick preliminary counts for check by local officials.

We believe the Bureau may, in developing this concept, be able to draw on its experience in 1960 where a two-stage approach was employed in districts containing 82 percent of the population. The first stage consisted of delivery of an advance census form containing population and housing questions. The answers on this form were later transcribed by enumerators to census schedules. The second stage form was left at every fourth household by the enumerators for mail return by the recipient.

Our proposal, as described above, would require the development of a first stage mail-out/mail-back card. The card or abbreviated format is to contain only population questions, and the questions are to be restricted to minimum data needed for compiling population counts. In the second stage, supplementary population and housing data may be obtained on a 100-percent or sampling basis, as required. We believe that simplifying and shortening the first stage will encourage greater public cooperation and thereby improve the accuracy of population counts.

RECOMMENDATIONS

We recommend that for 1980 the Director of the Bureau of the Census

--reconsider the use of mailcarriers for followup enumeration work and

--consider for possible use in 1980 a two-stage questionnaire as described in this report.

CHAPTER 5
PLANNED DISTRIBUTION OF
POPULATION UNDERCOUNTS, 1980

One of the Bureau's objectives for the 1980 census is to develop procedures by which the residual undercount can be distributed at least to State and major metropolitan areas so that corrected population counts can be published.

At the time of our review, the Bureau had not fully developed the methods by which the residual undercount was to be distributed to State and local levels. It was, however, working on three methods, all of which are still in the research and development stage.

1. Dual system estimation.
2. Demographic analysis.
3. Regression and synthetic techniques.

The principles of dual system estimation involve (a) matching a sample of persons or living quarters from an independent list with the 1980 census list to determine the portion of the sample which had been enumerated (the sample must be of persons or living quarters which exist in 1980--for example, a sample of persons selected from the 1970 census must eliminate persons who die or leave the United States before April 1, 1980) and (b) deriving the proportion of the sample enumerated in 1980 and using it as an estimate of the completeness of the enumerated population to estimate the "true" population. If this method is successful, the Bureau believes it may provide estimates of the undercount below the State level.

By using demographic data such as births, deaths, and immigration statistics, the Bureau has developed an experimental model to derive undercount rates at the State level. Some results from this method are expected in the spring of 1976. Bureau professionals cautioned us, however, that such rates might be of questionable reliability. Estimates below the State level will not be available from this method.

Regression and synthetic techniques involve applying national undercount rates by race and age groups to determine State and local population corrections. The Urban League and several individual researchers proposed the synthetic method for officially adjusting the 1970 population figures. The Bureau, however, believed the technique, as it was proposed, was not valid for official use but may use an improved version of it with the other techniques mentioned above to form composite estimates.

IMPORTANCE OF COVERAGE MEASUREMENT

If State and local estimates of the true population (or the methods by which they could be derived) were available by 1980, the Bureau would be able to evaluate the 1980 preliminary population counts while offices were still open. Since the Bureau plans to keep field offices open longer in 1980 than in previous censuses, areas with potentially large undercounts can be identified and field investigations conducted while the census workforce is still in place.

In commenting on this report, the Director of the Bureau pointed out that there are

"* * * severe statistical difficulties involved in extending the undercount estimates to more population groups and to subnational areas, including the fact that all these estimates are subject to change as additional data become available."

Bureau officials added that all work on methods to distribute the undercount is experimental and that the method of demographic analysis has not yet proven its effectiveness for developing estimates of the undercount even at the State level.

The Bureau has stated that one of its objectives in 1980 is to develop procedures by which the undercounts can be distributed so that corrected population counts can be published. Because of (1) the increasing importance of population counts in the administration of Federal, State, and local programs, (2) the minimal coverage gains in 1970, and (3) the prospect that coverage improvement may also be minimal in 1980, we believe that attainment of the Bureau's objective in 1980 is of paramount importance.

RECOMMENDATIONS

We recommend that the Director of the Bureau assess the progress on the development of experimental methods to attain the Bureau's goal in 1980 to distribute undercounts and publish corrected population figures. If this assessment proves that the 1980 goal will probably not be met with the present level of effort, we recommend that additional effort be applied in this area to increase the probability that the Bureau's 1980 goal--to at least distribute the residual undercount to State and major metropolitan areas--will be met.

CHAPTER 6
SCOPE OF REVIEW

In response to a request by the House Committee on Post Office and Civil Service, we reviewed

- the Bureau's 1970 coverage improvement program,
- the Bureau's 1980 coverage improvement program plans, and
- other possible actions and suggestions having potential for improving coverage in 1980.

We interviewed Bureau officials and reviewed studies of the undercount problem prepared by the Bureau and by other researchers. We obtained information on the Bureau's method for estimating the undercount.

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U.S. House of Representatives
 COMMITTEE ON POST OFFICE AND CIVIL SERVICE
 207 CANNON HOUSE OFFICE BUILDING
 Washington, D.C. 20515

June 12, 1975

B-78395

Honorable Elmer B. Staats
 Comptroller General of the
 United States
 General Accounting Office
 441 G Street, N.W.
 Washington, D. C. 20548

Dear Mr. Staats:

Representative Patricia Schroeder, Chairwoman of the Subcommittee on Census and Population, has expressed a desire that the General Accounting Office conduct a study concerning the 1980 Census program.

Chairwoman Schroeder's interest in this study of the 1980 Census falls within 3 areas:

First, a review and evaluation of the 1970 Census program, its implementation, content, effectiveness in terms of meeting its general purpose, and difficulties encountered by the Census Bureau in its 1970 program should be included. In particular, the Subcommittee is interested in the problem of 1970 Census undercounts.

Secondly, a study of the preliminary 1980 Census plans, including, how it is to be administered, what subject matters will be covered and how the Bureau is dealing with problems that arose from the 1970 program - again particularly in regard to undercounts.

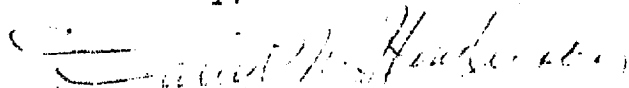
Finally, the study should incorporate what recommendations GAO has, if any, of how the 1980 Census can better be implemented, and list recommendations that have been made by various individuals and organizations outside of the Bureau of the Census concerning the 1980 plans. These recommendations should take into account 1970 problems, again specifically undercounts.

Honorable Elmer B. Staats
Page 2
June 12, 1975

If Congress is to have a positive impact on a 1980 program, the GAO study should be completed no later than December, 1975. I hope you will be able to meet this request in a timely fashion.

I appreciate your cooperation.

Sincerely,



DAVID N. HENDERSON
Chairman



This leaflet shows the content of the questionnaires being used in the 1970 Census of Population and Housing. See explanatory notes on the page 1 flap.

UNITED STATES CENSUS

This is your Official Census Form
Please fill it out and mail it back
on Census Day, Wednesday,
April 1, 1970

	a1.	a2.	a3.	a4.	a5.
COPY					
If the address shown above has the wrong apartment identification, please write the correct apartment number or location here:					

5. Answer the questions in this order:

- Questions on page 2 about the people in your household.
- Questions on page 3 about your house or apartment.

6. In Question 1 on page 2, please list each person who was living here on Wednesday, April 1, 1970, or who was staying or visiting here and had no other home.

How To Fill This Form

1. Use a black pencil to answer the questions.

This form is read by an electronic computer. Black pencil is better to use than ballpoint or other pens.

Fill circles "O" like this: ●

The electronic computer reads every circle you fill. If you fill the wrong circle, erase the mark completely, then fill the right circle.

When you write an answer, print and write clearly.

2. See the filled-in example on the yellow instruction sheet.

This example shows how to fill circles and write in answers. If you are not sure of an answer, give the best answer you can.

If you have a problem, look in the instruction sheet.

All instructions are numbered the same as the questions on the Census form.

If you need more help, call the Census office.

You can get the number of the local office from telephone "Information" or "Directory assistance."

3. Your answers are CONFIDENTIAL. The law (Title 13, United States Code) requires that you answer the questions to the best of your knowledge.

Your answers will be used only for statistical purposes and cannot, by law, be disclosed to any person outside the Census Bureau for any reason whatsoever.

The householder should make sure that the information is shown for everyone here.

If a boarder or roomer or anyone else prefers not to give the householder all his information to enter on the form, the householder should give at least his name, relationship, and sex in questions 1 to 3, then mail back the form. A Census Taker will call to get the rest of the information directly from the person.

4. Check your answers. Then, mail back this form on Wednesday, April 1, or as soon afterward as you can. Use the enclosed envelope; no stamp is needed.

Your cooperation in carefully filling out the form and mailing it back will help make the census successful. It will save the government the expense of calling on you for the information.

PLEASE CONTINUE

EXPLANATORY NOTES

This leaflet shows the content of the 1970 census questionnaires. The content was determined after review of the 1960 census experience, extensive consultation with many government and private users of census data, and a series of experimental censuses in which various alternatives were tested.

Three questionnaires are being used in the census and each household has an equal chance of answering a particular form.

80 percent of the households answer a form containing only the questions on pages 2 and 3 of this leaflet.

15 percent and 5 percent of the households answer forms which also contain the specified questions on the remaining pages of this leaflet. The 15-percent form does not show the 5-percent questions, and the 5-percent form does not show the 15-percent questions. On both forms, population questions 13 to 11 are repeated for each person in the household but questions 21 to 11 do not apply to children under 11 years of age.

The same sets of questions are used throughout the country, regardless of whether the census in a particular area is conducted by mail or house-to-house canvass. An illustrative example is enclosed with each questionnaire to help the householder complete the form.

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Please answer questions 11 and 12 at the bottom of page 2.

80, 15, and 5 percent (100 percent)

A. How many living quarters, occupied and vacant, are at this address?

One
 2 apartments or living quarters
 3 apartments or living quarters
 4 apartments or living quarters
 5 apartments or living quarters
 6 apartments or living quarters
 7 apartments or living quarters
 8 apartments or living quarters
 9 apartments or living quarters
 10 or more apartments or living quarters
 This is a mobile home or trailer

Answer these questions for your living quarters

H1. Is there a telephone on which people in your living quarters can be called?
 Yes — What is the number? _____
 No _____
Phone number

H2. Do you enter your living quarters—
 Directly from the outside or through a common or public hall?
 Through someone else's living quarters?

H3. Do you have complete kitchen facilities?
Complete kitchen facilities are a sink with piped water, a range or cook stove, and a refrigerator.
 Yes, for this household only
 Yes, but also used by another household
 No complete kitchen facilities for this household

H4. How many rooms do you have in your living quarters?
Do not count bathrooms, porches, balconies, foyers, halls, or half-rooms.

1 room 6 rooms
 2 rooms 7 rooms
 3 rooms 8 rooms
 4 rooms 9 rooms or more
 5 rooms

H5. Is there hot and cold piped water in this building?
 Yes, hot and cold piped water in this building
 No, only cold piped water in this building
 No piped water in this building

H6. Do you have a flush toilet?
 Yes, for this household only
 Yes, but also used by another household
 No flush toilet

H7. Do you have a bathtub or shower?
 Yes, for this household only
 Yes, but also used by another household
 No bathtub or shower

H8. Is there a basement in this building?
 Yes
 No, built on a concrete slab
 No, built in another way (include mobile homes and trailers)

H9. Are your living quarters—
 Owned or being bought by you or by someone else in this household? *Do not include cooperatives and condominiums here.*
 A cooperative or condominium which is owned or being bought by you or by someone else in this household?
 Rented for cash rent?
 Occupied without payment of cash rent?

H10a. Is this building a one-family house?
 Yes, a one-family house
 No, a building for 2 or more families or a mobile home or trailer

b. If "Yes"—Is this house on a place of 10 acres or more, or is any part of this property used as a commercial establishment or medical office?
 Yes, 10 acres or more
 Yes, commercial establishment or medical office
 No, none of the above

H11. If you live in a one-family house which you own or are buying—
 What is the value of this property; that is, how much do you think this property (house and lot) would sell for if it were for sale?

Less than \$5,000
 \$5,000 to \$7,499
 \$7,500 to \$9,999
 \$10,000 to \$12,499
 \$12,500 to \$14,999
 \$15,000 to \$17,499
 \$17,500 to \$19,999
 \$20,000 to \$24,999
 \$25,000 to \$34,999
 \$35,000 to \$49,999
 \$50,000 or more

If this house is on a place of 10 acres or more, or if any part of this property is used as a commercial establishment or medical office, do not answer this question.

H12. Answer this question if you pay rent for your living quarters.
 a. *If rent is paid by the month—*
 What is the monthly rent?
 Write amount here \$ _____ .00 (Nearest dollar)
 and
 Fill one circle
 Less than \$30
 \$30 to \$39
 \$40 to \$49
 \$50 to \$59
 \$60 to \$69
 \$70 to \$79
 \$80 to \$89
 \$90 to \$99
 \$100 to \$119
 \$120 to \$149
 \$150 to \$199
 \$200 to \$249
 \$250 to \$299
 \$300 or more

b. *If rent is not paid by the month—*
 What is the rent, and what period of time does it cover?
 \$ _____ .00 per _____
 (Nearest dollar) (Week, half-month, year, etc.)

FOR CENSUS ENUMERATOR'S USE ONLY

94. Block number	a5. Serial number
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

B. Type of unit or quarters

Occupied
 First form
 Continuation

Vacant
 Regular
 Usual residence elsewhere

Group quarters
 First form
 Continuation

For a vacant unit, also fill C, D, A, H2 to H8, and H10 to H12

C. Vacancy status
 Year round—
 For rent
 For sale only
 Rented or sold, not occupied
 Held for occasional use
 Other vacant

Seasonal
 Migratory

D. Months vacant
 Less than 1 month
 1 up to 2 months
 2 up to 6 months
 6 up to 12 months
 1 year up to 2 years
 2 years or more

C/O

Make no mark in this margin

Make no mark in this margin

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H13. Answer question H13 if you pay rent for your living quarters.
In addition to the rent entered in H12, do you also pay for—

a. Electricity?
 Yes, average monthly cost is \$ _____ .00
 Average monthly cost
 No, included in rent
 No, electricity not used

b. Gas?
 Yes, average monthly cost is \$ _____ .00
 Average monthly cost
 No, included in rent
 No, gas not used

c. Water?
 Yes, yearly cost is \$ _____ .00
 Yearly cost
 No, included in rent or no charge

d. Oil, coal, kerosene, wood, etc.?
 Yes, yearly cost is \$ _____ .00
 Yearly cost
 No, included in rent
 No, these fuels not used

H14. How are your living quarters heated?
Fill one circle for the kind of heat you use most.

Steam or hot water system
 Central warm air furnace with ducts to the individual rooms, or central heat pump
 Built-in electric units (permanently installed in wall, ceiling, or baseboard)
 Floor, wall, or pipeless furnace
 Room heaters with flue or vent, burning gas, oil, or kerosene
 Room heaters without flue or vent, burning gas, oil, or kerosene (not portable)
 Fireplaces, stoves, or portable room heaters of any kind
 In some other way—Describe _____
 None, unit has no heating equipment

H15. About when was this building originally built? Mark when the building was first constructed, not when it was remodeled, added to, or converted.

1969 or 1970 1950 to 1959
 1965 to 1968 1940 to 1949
 1960 to 1964 1939 or earlier

H16. Which best describes this building?
Include all apartments, flats, etc., even if vacant.

A one-family house detached from any other house
 A one-family house attached to one or more houses
 A building for 2 families
 A building for 3 or 4 families
 A building for 5 to 9 families
 A building for 10 to 19 families
 A building for 20 to 49 families
 A building for 50 or more families
 A mobile home or trailer
 Other—
 Describe _____

H17. Is this building—

On a city or suburban lot?— Skip to H19
 On a place of less than 10 acres?
 On a place of 10 acres or more?

H18. Last year, 1969, did sales of crops, livestock, and other farm products from this place amount to—

Less than \$50 (or None) \$2,500 to \$4,999
 \$50 to \$249 \$5,000 to \$9,999
 \$250 to \$2,499 \$10,000 or more

H19. Do you get water from—

A public system (city water department, etc.) or private company?
 An individual well?
 Some other source (a spring, creek, river, stream, etc.)?

H20. Is this building connected to a public sewer?

Yes, connected to public sewer
 No, connected to septic tank or cesspool
 No, use other means

H21. How many bathrooms do you have?
A complete bathroom is a room with flush toilet, bathtub or shower, and wash basin with piped water.
A half bathroom has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.

No bathroom, or only a half bathroom
 1 complete bathroom
 1 complete bathroom, plus half bath(s)
 2 complete bathrooms
 2 complete bathrooms, plus half bath(s)
 3 or more complete bathrooms

H22. Do you have air-conditioning?

Yes, 1 individual room unit
 Yes, 2 or more individual room units
 Yes, a central air-conditioning system
 No

H23. How many passenger automobiles are owned or regularly used by members of your household?
Count company cars kept at home.

None
 1 automobile
 2 automobiles
 3 automobiles or more

15 and 5 percent

15 percent

The 15-percent form contains the questions shown on page 4. The 5-percent form contains the questions shown in the first column of page 4 and the questions on page 5.

H24a. How many stories (floors) are in this building?
 1 to 3 stories
 4 to 6 stories
 7 to 12 stories
 13 stories or more

b. If 3 or more stories—
 Is there a passenger elevator in this building?
 Yes No

H25a. Which fuel is used most for cooking?
 Gas From underground pipes serving the neighborhood
 Bottled, tank, or LP
 Electricity
 Fuel oil, kerosene, etc.
 Coal or coke
 Wood
 Other fuel
 No fuel used

b. Which fuel is used most for house heating?
 Gas From underground pipes serving the neighborhood
 Bottled, tank, or LP
 Electricity
 Fuel oil, kerosene, etc.
 Coal or coke
 Wood
 Other fuel
 No fuel used

c. Which fuel is used most for water heating?
 Gas From underground pipes serving the neighborhood
 Bottled, tank, or LP
 Electricity
 Fuel oil, kerosene, etc.
 Coal or coke
 Wood
 Other fuel
 No fuel used

H26. How many bedrooms do you have?
Count rooms used mainly for sleeping even if used also for other purposes.
 No bedroom 3 bedrooms
 1 bedroom 4 bedrooms
 2 bedrooms 5 bedrooms or more

H27a. Do you have a clothes washing machine?
 Yes, automatic or semi-automatic
 Yes, wringer or separate spinner
 No

b. Do you have a clothes dryer?
 Yes, electrically heated
 Yes, gas heated
 No

c. Do you have a dishwasher (built-in or portable)?
 Yes No

d. Do you have a home food freezer which is separate from your refrigerator?
 Yes No

H28a. Do you have a television set? Count only sets in working order.
 Yes, one set
 Yes, two or more sets
 No

b. If "Yes"— Is any set equipped to receive UHF broadcasts, that is, channels 14 to 83?
 Yes No

H29. Do you have a battery-operated radio?
Count car radios, transistors, and other battery-operated sets in working order or needing only a new battery for operation.
 Yes, one or more No

H30. Do you (or any member of your household) own a second home or other living quarters which you occupy sometime during the year?
 Yes No

5 percent

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The 15-percent and 5-percent forms contain a pair of facing pages for each person in the household (as listed on page 2). Shown on each pair of pages in the 15-percent form are the questions designated as 15-percent here on pages 6, 7, and 8. Shown on each pair of pages in the 5-percent form are the questions designated as 5-percent here on pages 6, 7, and 8.

Name of person on line ① of page 2		20. Since February 1, 1970, has this person attended regular school or college at any time? Count nursery school, kindergarten, and schooling which leads to an elementary school certificate, high school diploma, or college degree.		15 percent	
Last name _____ First name _____ Initial _____		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, public <input type="checkbox"/> Yes, parochial <input type="checkbox"/> Yes, other private			
15 and 5 percent	13a. Where was this person born? (If born in hospital, give State or country where mother lived. If born outside U.S., see instruction here; distinguish Northern Ireland from Ireland (Eire).)		21. What is the highest grade (or year) of regular school he has ever attended?		15 and 5 percent
	<input type="radio"/> This State OR (Name of State or foreign country; or Puerto Rico, Guam, etc.)		Fill one circle. If now attending, mark grade he is in. <input type="radio"/> Never attended school—Skip to 23 <input type="radio"/> Nursery school <input checked="" type="radio"/> Kindergarten Elementary through high school (grade or year) 1 2 3 4 5 6 7 8 9 10 11 12 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		
5 percent	b. Is this person's origin or descent— (Fill one circle)		College (academic year)		15 and 5 percent
<input type="radio"/> Mexican <input type="radio"/> Central or South American <input type="radio"/> Puerto Rican <input type="radio"/> Other Spanish <input type="radio"/> Cuban <input type="radio"/> No, none of these		1 2 3 4 5 6 or more <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			
15 percent	14. What country was his father born in?		22. Did he finish the highest grade (or year) he attended?		15 and 5 percent
<input type="radio"/> United States OR (Name of foreign country; or Puerto Rico, Guam, etc.)		<input type="radio"/> Now attending this grade (or year) <input type="radio"/> Finished this grade (or year) <input type="radio"/> Did not finish this grade (or year)			
15 percent	15. What country was his mother born in?		23. When was this person born?		5 percent
<input type="radio"/> United States OR (Name of foreign country; or Puerto Rico, Guam, etc.)		<input type="radio"/> Born before April 1956— Please go on with questions 24 through 41. <input type="radio"/> Born April 1956 or later— Please omit questions 24 through 41 and go to the next page for the next person.			
5 percent	16. For persons born in a foreign country—		24. If this person has ever been married—		5 percent
a. Is this person naturalized?		a. Has this person been married more than once?			
<input type="radio"/> Yes, naturalized <input checked="" type="radio"/> No, alien <input type="radio"/> Born abroad of American parents		<input type="radio"/> Once <input type="radio"/> More than once _____ ↑ _____ ↑ b. When did he get married? When did he get married for the first time?			
b. When did he come to the United States to stay?		c. If married more than once— Did the first marriage end because of the death of the husband (or wife)?		15 and 5 percent	
<input type="radio"/> 1965 to 70 <input type="radio"/> 1950 to 54 <input type="radio"/> 1925 to 34 <input type="radio"/> 1960 to 64 <input type="radio"/> 1945 to 49 <input type="radio"/> 1915 to 24 <input type="radio"/> 1955 to 59 <input type="radio"/> 1935 to 44 <input type="radio"/> Before 1915		<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/>			
15 percent	17. What language, other than English, was spoken in this person's home when he was a child? Fill one circle.		25. If this is a girl or a woman—		15 and 5 percent
<input type="radio"/> Spanish <input checked="" type="radio"/> Other— <input type="radio"/> French Specify _____ <input type="radio"/> German <input type="radio"/> None, English only		How many babies has she ever had, not counting stillbirths? Do not count her stepchildren or children she has adopted.			
15 percent	18. When did this person move into this house (or apartment)? Fill circle for date of last move.		1 2 3 4 5 6 7 8 <input type="radio"/> 1969 or 70 <input type="radio"/> 1965 or 66 <input type="radio"/> 1949 or earlier <input type="radio"/> 1968 <input type="radio"/> 1960 to 64 <input type="radio"/> Always lived in this house or apartment <input type="radio"/> 1967 <input type="radio"/> 1950 to 59		15 percent
<input type="radio"/> 1969 or 70 <input type="radio"/> 1965 or 66 <input type="radio"/> 1949 or earlier <input type="radio"/> 1968 <input type="radio"/> 1960 to 64 <input type="radio"/> Always lived in this house or apartment <input type="radio"/> 1967 <input type="radio"/> 1950 to 59		9 10 11 12 or None <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> more <input type="radio"/>			
15 percent	19a. Did he live in this house on April 1, 1965? If in college or Armed Forces in April 1965, report place of residence there.		26. If this is a man—		15 percent
<input type="radio"/> Born April 1965 or later Skip to 20 <input type="radio"/> Yes, this house <input type="radio"/> No, different house		a. Has he ever served in the Army, Navy, or other Armed Forces of the United States? <input type="radio"/> Yes <input checked="" type="radio"/> No			
15 percent	b. Where did he live on April 1, 1965?		b. Was it during— (Fill the circle for each period of service.)		15 percent
(1) State, foreign country, U.S. possession, etc. _____ (2) County _____ (3) Inside the limits of a city, town, village, etc.? <input type="radio"/> Yes <input type="radio"/> No (4) If "Yes," name of city, town, village, etc. _____		Vietnam Conflict (Since Aug. 1964) <input type="radio"/> Korean War (June 1950 to Jan. 1955) <input type="radio"/> World War II (Sept. 1940 to July 1947) <input type="radio"/> World War I (April 1917 to Nov. 1918) <input type="radio"/> Any other time <input type="radio"/>			

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27a. Has this person ever completed a vocational training program?
For example, in high school; as apprentice; in school of business, nursing, or trades; technical institute; or Armed Forces schools.
 Yes No—Skip to 28

b. What was his main field of vocational training? Fill one circle.
 Business, office work
 Nursing, other health fields
 Trades and crafts (mechanic, electrician, beautician, etc.)
 Engineering or science technician; draftsman
 Agriculture or home economics
 Other field—Specify

28a. Does this person have a health or physical condition which limits the kind or amount of work he can do at a job?
If 65 years old or over, skip to question 29.
 Yes
 No

b. Does his health or physical condition keep him from holding any job at all?
 Yes
 No

c. If "Yes" in a or b—How long has he been limited in his ability to work?
 Less than 6 months 3 to 4 years
 6 to 11 months 5 to 9 years
 1 to 2 years 10 years or more

29a. Did this person work at any time last week?
 Yes—Fill this circle if this person did full- or part-time work. (Count part-time work such as a Saturday job, delivering papers, or helping without pay in a family business or farm; and active duty in the Armed Forces)
 No—Fill this circle if this person did not work, or did only own housework, school work, or volunteer work. Skip to 30

b. How many hours did he work last week (at all jobs)?
Subtract any time off and add overtime or extra hours worked.
 1 to 14 hours 40 hours
 15 to 29 hours 41 to 48 hours
 30 to 34 hours 49 to 59 hours
 35 to 39 hours 60 hours or more

c. Where did he work last week?
If he worked in more than one place, print where he worked most last week.
If he travels about in his work or if the place does not have a numbered address, see instruction sheet.
 (1) Address (Number and street name) _____
 (2) Name of city, town, village, etc. _____
 (3) Inside the limits of this city, town, village, etc.?
 Yes
 No
 (4) County _____ (5) State _____ (6) ZIP Code _____

d. How did he get to work last week? Fill one circle for chief means used on the last day he worked at the address given in 29c.
 Driver, private auto Taxicab
 Passenger, private auto Walked only
 Bus or streetcar Worked at home
 Subway or elevated Other means—Specify
 Railroad

After completing question 29d, skip to question 33.

30. Does this person have a job or business from which he was temporarily absent or on layoff last week?
 Yes, on layoff
 Yes, on vacation, temporary illness, labor dispute, etc.
 No

31a. Has he been looking for work during the past 4 weeks?
 Yes No—Skip to 32

b. Was there any reason why he could not take a job last week?
 Yes, already has a job
 Yes, because of this person's temporary illness
 Yes, for other reasons (in school, etc.)
 No, could have taken a job

32. When did he last work at all, even for a few days?
 In 1970 1964 to 1967 1959 or earlier | Skip
 In 1969 1960 to 1963 Never worked | to 36
 In 1968

5 percent

15 percent

15 and 5 percent

15 and 5 percent

- continued -

33-35. Current or most recent job activity
Describe briefly this person's chief job activity or business last week, if any. If he had more than one job, describe the one at which he worked the most hours.
If this person had no job or business last week, give information for last job or business since 1960.

33. Industry
a. For whom did he work? *If now on active duty in the Armed Forces, print "AF" and skip to question 37.*

(Name of company, business, organization, or other employer)

b. What kind of business or industry was this?
Describe activity at location where employed.

(For example: Junior high school, retail supermarket, dairy farm, TV and radio service, auto assembly plant, road construction)

c. Is this mainly— *(Fill in circle)*
 Manufacturing _____ Retail trade _____
 Wholesale trade _____ Other (agriculture, construction, service, government, etc.) _____

34. Occupation
a. What kind of work was he doing?

(For example: TV repairman, sewing machine operator, spray painter, civil engineer, farm operator, farm hand, junior high English teacher)

b. What were his most important activities or duties?

(For example: Types, keeps account books, files, sells cars, operates printing press, cleans buildings, finishes concrete)

c. What was his job title?

35. Was this person— *(Fill one circle)*
 Employee of private company, business, or individual, for wages, salary, or commissions...
 Federal government employee...
 State government employee...
 Local government employee (city, county, etc.)...
 Self-employed in own business, professional practice, or farm—
 Own business not incorporated...
 Own business incorporated...
 Working without pay in family business or farm...

36. In April 1965, what State did this person live in?
 This State _____
 OR _____
(Name of State or foreign country, or Puerto Rico, etc.)

37. In April 1965, was this person— *(Fill three circles)*
a. Working at a job or business (full- or part-time)?
 Yes No

b. In the Armed Forces?
 Yes No

c. Attending college?
 Yes No

38. If "Yes" for "Working at a job or business" on question 37—
Describe this person's chief activity or business in April 1965.
a. What kind of business or industry was this?

b. What kind of work was he doing (occupation)?

c. Was he—
 An employee of a private company or government agency...
 Self-employed or an unpaid family worker...

39a. Last year (1969), did this person work at all, even for a few days?
 Yes No—Skip to 41

b. How many weeks did he work in 1969, either full-time or part-time?
Count paid vacation, paid sick leave, and military service.
 13 weeks or less 40 to 47 weeks _____
 14 to 26 weeks _____ 48 to 49 weeks _____
 27 to 39 weeks _____ 50 to 52 weeks _____

40. Earnings in 1969— *Fill parts a, b, and c for everyone who worked any time in 1969 even if he had no income. (If exact amount is not known, give best estimate.)*
a. How much did this person earn in 1969 in wages, salary, commissions, bonuses, or tips from all jobs?
(Before deductions for taxes, bonds, dues, or other items)
 \$ _____
(Dollars only)
 OR None

b. How much did he earn in 1969 from his own nonfarm business, professional practice, or partnership?
(Net after business expenses. If business lost money, write "Loss" above amount.)
 \$ _____
(Dollars only)
 OR None

c. How much did he earn in 1969 from his own farm?
(Net after operating expenses. Include earnings as a tenant farmer or sharecropper. If farm lost money, write "Loss" above amount.)
 \$ _____
(Dollars only)
 OR None

41. Income other than earnings in 1969— *Fill parts a, b, and c. (If exact amount is not known, give best estimate.)*
a. How much did this person receive in 1969 from Social Security or Railroad Retirement?
 \$ _____
(Dollars only)
 OR None

b. How much did he receive in 1969 from public assistance or welfare payments?
Include aid to families with dependent children, age assistance, general assistance, and to the blind, or similar benefits.
 \$ _____
(Dollars only)
 Exclude: spousal payments for hospital or other medical care. OR None

c. How much did he receive in 1969 from all other sources?
Include interest, dividends, retirement payments, pensions, and other regular payments. (See instruction sheets.)
 \$ _____
(Dollars only)
 OR None

15 and 5 percent

15 and 5 percent

5 percent

15 and 5 percent

5 percent



UNITED STATES DEPARTMENT OF COMMERCE
Bureau of the Census
Washington, D.C. 20233

OFFICE OF THE DIRECTOR

March 18, 1976

Mr. Victor L. Lowe
Director, General Government Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Lowe:

Thank you for the opportunity to review your proposed report entitled "Programs to Reduce the Decennial Census Undercount," transmitted in your letter of March 4. We certainly appreciate the efforts expended by GAO in reviewing this portion of the Bureau's program and in preparing suggestions for improvement. We should like to offer several general comments and, in the enclosure, we are appending a number of specific comments for your consideration. These comments are offered in the spirit of making this report potentially more useful for the important tasks to which it will certainly be put.

In our opinion, the readers' understanding of the complexity of the undercount problem, and thus their appreciation of the GAO analysis and findings, would be greatly enhanced by more explicit mention of such factors as (1) the difficulties in enumerating a population as large, diverse, and mobile as the American people, difficulties which are being magnified by rapid social change including alienation from the government; (2) the Bureau's long-term efforts in this area, including the intensive staff work which went into the development of the 1970 coverage improvement program and the current work on the 1980 program; (3) the fact that a major thrust of the 1980 coverage improvement program is to reduce undercount differentials among areas and groups since these differentials are, in some ways, more grievous than the overall level of undercount; (4) the years of research which were required to create the coverage measurement techniques, including the Bureau's initiative in undertaking such a program and publicizing the results; (5) the sensitivity and technical issues posed by research into the root causes of underenumeration; (6) the severe statistical difficulties involved in extending the undercount estimates to more population groups and to subnational areas, including the fact that all these estimates are subject to change as additional data become available; and (7) the real operational and statistical enigma which the illegal aliens pose.

Since there are a number of references to the illegal aliens in the report, we should like to mention two points. First, although it may be appropriate to allow for illegal aliens in developing estimates of the "true" population in 1970, there is no reliable estimate available for the number of illegal aliens. The difficulty of deriving such a figure,

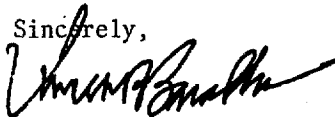


at least with the information currently in hand, is so great that the task may be impossible now. The estimate of 8 million cited in the report and drawn from the study by Lesko Associates for the Immigration and Naturalization Service, was developed by a very questionable procedure; in this connection, you may find useful the enclosed copy of my letter of December 23, 1975, to Congressman Herman Badillo, responding to his request that we review the Lesko study. Second, adding the number of 8 million to our estimate of the "true" population is misleading. The computations through which the number of 8 million was developed imply a far smaller figure for 1970; i.e., most illegal aliens in the United States in 1975 were presumed to have arrived after 1970.

The Bureau appreciates GAO's encouragement in our efforts to develop techniques for preparing subnational estimates of the undercount in 1980 and also GAO's suggestions for improvements in field personnel and methods. Some of these items are discussed further in the appended material.

As indicated by our comments, we believe that the report could be deemed incomplete for the important decisions and actions on which it will have impact. Also, certain factual statements require correction. If you should like any further input from us, my staff and I are ready to assist in any way we can.

Sincerely,



VINCENT P. BARABBA
Director
Bureau of the Census

Enclosures

GAO note: Enclosures not included in this report. Report has been revised based on material presented in the enclosures and further discussion with Bureau of the Census' officials.

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DISCUSSED IN THIS REPORT

Tenure of office
From To

DEPARTMENT OF COMMERCE

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Elliot Richardson	Dec. 1975	Present
Rogers C. B. Morton	Mar. 1975	Dec. 1975
Frederick B. Dent	Feb. 1973	Mar. 1975
Peter G. Petersen	Feb. 1972	Feb. 1973
Maurice Stans	Jan. 1969	Feb. 1972

DIRECTOR, BUREAU OF THE CENSUS:

Vincent P. Barabba	Aug. 1973	Present
Vincent P. Barabba (acting)	May 1973	Aug. 1973
Robert L. Hagan (acting)	Mar. 1973	Apr. 1973
Joseph R. Wright, Jr. (acting)	Jan. 1973	Mar. 1973
George Hay Brown	Sept. 1969	Jan. 1973

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