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**REPORT TO THE SUBCOMMITTEE
ON CENSUS AND STATISTICS
COMMITTEE ON POST OFFICE
AND CIVIL SERVICE
HOUSE OF REPRESENTATIVES**



**Bureau Of The Census
Cost Estimates For
Mid-Decade Census Proposals**

B-78395

Department of Commerce

**BY THE COMPTROLLER GENERAL
OF THE UNITED STATES**

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JULY 27, 1973



COMPTROLLER GENERAL OF THE UNITED STATES

WASHINGTON, D.C. 20548

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Dear Mr. Chairman:

In your letter of March 26, 1971, you advised us of your Subcommittee's recent investigation of the 1970 decennial census conducted by the Bureau of the Census and stated that during the investigation State and local officials recommended alternatives to the current practice of conducting a census every decade. Specifically these alternatives were (1) the establishment of a mid-decade census and (2) the use of special sample surveys to be taken on a regular basis that would utilize in-depth and detailed interviews. You requested that we evaluate which method--a mid-decade census or the use of special surveys--would yield more fruitful results, taking into consideration the costs and the final product.

In accordance with discussions with your office, we agreed to provide you with (1) estimates of the costs--in current dollars--of four mid-decade census proposals presented during hearings held by the Subcommittee on Census and Government Statistics in 1961 and 1962 and (2) whatever information we could develop to indicate which method--a mid-decade census or special surveys--would yield more fruitful results, taking into consideration the costs and the final product.

This letter transmits the cost estimates of the four mid-decade census proposals. We plan to transmit the information relative to the second phase of your request in September 1971.

At our request the Bureau of the Census developed cost estimates for each of the four mid-decade census proposals. The estimates, shown below, were made available for our review on June 4, 1971. The Bureau's estimates show what the four mid-decade census proposals would cost as of January 1, 1971, on the basis of work-load projections to 1975.

<u>Proposal</u>	<u>Estimated cost</u> <u>(millions)</u>
Level I	\$154
Level II	169
Level III	170
Level IV	228

A detailed presentation of these estimates is shown in enclosure I. A description of the four proposals and our comments on certain factors used by the Bureau in developing the cost estimates are presented in subsequent sections of this report.

In view of your urgent need for this report, we did a very limited amount of testing and verification of the estimates and the underlying assumptions made by the Bureau. (See p. 3.) As evidenced by the comments presented below regarding certain assumptions made by the Bureau concerning price and work-load increases (see p. 5) and other factors noted relative to the cost estimates (see p. 6), the Bureau's estimates should not be considered to be precise. However, they do appear to fall within reasonable limits.

MID-DECADE CENSUS PROPOSALS

The following descriptions of the four mid-decade census proposals were presented by the Director, Bureau of the Census, in his testimony before your Subcommittee on June 10, 1971.

The level I proposal provides for (1) a head count of the entire population and the accumulation of the basic characteristics of name, address, relationship to head of household, sex, race, and age and (2) a collection of information concerning persons of Spanish cultural heritage. The Director indicated that data collected could be tabulated for every State, every county and its subdivisions, and every census tract¹ in the metropolitan areas and for areas as small as enumeration districts.² Also the data for enumeration districts could be arranged to provide data for larger areas, such as voting districts, school districts, and other special areas for which such data are needed. The Bureau's estimated cost for this proposal is about \$154 million.

The level II proposal would seek answers to all of those questions asked of 100 percent of the population in the 1970 decennial census. This would include the same type of information as the level I proposal plus additional information on basic housing characteristics, such as type of unit, condition, occupancy, rooms, tenure, vacancy, and plumbing facilities. The Director said that this information could be tabulated in the same degree of geographic detail as that under the level I proposal and could be tabulated also by city block for the urbanized areas within the metropolitan areas. The Bureau's estimated cost for this proposal is about \$169 million.

¹Census tracts are small areas into which large cities and their adjacent areas have been divided for statistical purposes.

²An enumeration district is a small area which is assigned to an enumerator and which must be canvassed and reported on separately. In most cases an enumeration district contains approximately 250 housing units.

The level IV proposal is a replication of the 1970 decennial census and provides for the collection of the same type of data as the level II proposal plus data--to be gathered by a 20-percent sample of the population--on education, income, employment and unemployment, commuting, migration, foreign origin, type of work, method of heating housing units, fuels used, age of structure, and air conditioning. Bureau officials informed us that the tabulations and publications program for this proposal could be similar to that executed for the 1970 decennial census. The Bureau's estimated cost for this proposal is about \$228 million.

The level III proposal provides for the collection of the same type of data as the level IV proposal. All the data, however, would be collected from a sample of 25 percent of the population. Bureau officials informed us that the data would not be tabulated for any area with a population of less than 25,000 because of the unreliability of the sample data collected in such areas. The Bureau's estimated cost for this proposal is about \$170 million.

TESTING REASONABLENESS OF COST ESTIMATES

The Bureau used the cost of the 1970 decennial census of \$218 million--comprising actual costs of \$151 million for the period 1964 through fiscal year 1970 and budgeted costs of \$67 million for postcensus work to December 31, 1972--as the basis for estimating the costs for each of the four mid-decade census proposals. The estimated cost for the level IV proposal (replication of the 1970 census) was determined by adjusting the total of \$218 million for (1) annual increases in prices and costs for personnel services from fiscal year 1964 to January 1, 1971 (applied against the actual cost portion of the total costs), (2) costs of increases in work loads projected to 1975, (3) costs of nonrecurring activities, and (4) costs of increased personnel services for anticipated overtime requirements. The costs for the levels I, II, and III proposals were determined by eliminating from, or adding to, the estimated cost for the level IV proposal certain costs applicable only to such proposals.

The assumptions as to price increases for updating the costs of the 1970 decennial census to January 1, 1971, are for the most part not well supported. The Bureau was handicapped in this regard because of the lack of readily available historical information concerning price increases. The Bureau's assumptions as to work-load requirements for each of the proposals were based principally on personal judgment.

Our tests of the cost estimates included (1) evaluation of the methodology used by the Bureau in estimating the costs of the mid-decade census proposals, (2) verification of the accuracy of the cost of the 1970 decennial census by tracing the majority of fiscal year 1970 program costs to the Bureau's cost accounting summary documents, (3) examination of the Bureau's

working papers supporting the costs attributable to three program activities--mailing preparation, data collection, and data processing (these activities accounted for about \$149 million, or 68 percent of the total costs of the 1970 decennial census), and (4) discussions with Bureau employees regarding the basis for the assumptions used in developing the cost estimates.

Due to the limited time available for our review and the fact that many of the Bureau's assumptions were based on personal judgment, we were unable to evaluate the reasonableness of the assumptions.

Our review resulted in several adjustments in the various costs comprising the total estimated cost for each of the mid-decade census proposals. Because these revisions were generally offsetting, however, the net effect on the total estimated cost for each of the mid-decade census proposals was negligible.

FACTORS WHICH COULD SIGNIFICANTLY
AFFECT VALIDITY OF COST ESTIMATES

Several significant factors in relation to the Bureau's cost estimates for the four mid-decade census proposals should be noted by the Subcommittee in its evaluation of the costs of a mid-decade census.

The cost estimates are based on January 1971 prices and therefore do not include price increases that have occurred, or can be expected to occur, between January 1971 and the time that costs would be incurred for a mid-decade census. For example, the cost estimates do not provide for the increase in the cost of mailing census questionnaires resulting from postage-rate increases which occurred in May 1971 or for any Federal pay increases which may occur after January 1971.

Another factor is the Postal Service charge for checking and updating mailing addresses. For the 1970 decennial census, the Post Office Department, under a negotiated contract, charged the Bureau \$2.9 million on the basis of 8 cents for every address checked and updated. The Bureau estimated that these costs for a future Postal Service contract would amount to \$3.9 million.

The Postal Service is required by legislation to become self-sustaining by January 1, 1978. Bureau employees informed us that postal officials had not been contacted to obtain their views concerning what the costs may be for such work for a mid-decade census.

An additional factor is the variance in the method of data collection between the level IV proposal and the levels I, II, and III proposals. The costs for the level IV proposal were based on the assumption that 60 percent of the questionnaires would be returned by mail and that the remaining 40 percent would be collected by enumerators. This ratio was used in the 1970 decennial census. Costs for the other three proposals, however, were based on the assumption that 90 percent of the questionnaires would be returned by mail and that the remaining 10 percent would be collected by enumerators. The estimates for the levels I, II, and III proposals are therefore not comparable to the estimate of the level IV proposal because of cost variances associated with the different mail-back ratios.

Bureau officials informed us that the cost estimates for the four mid-decade census proposals had originally been determined on the basis of the 90 to 10 mail-back ratio. Because of some concern over the indicated higher costs associated with the 90 to 10 mail-back ratio, the cost of the level IV proposal was recomputed on the basis of the 60 to 40 ratio--the same as that used in the 1970 decennial census. Bureau officials informed us further that because of time constraints they considered it impracticable to recompute the other proposals on this same basis.

As indicated earlier the Bureau made a number of necessary assumptions in revising the costs of the 1970 decennial census to arrive at the estimate of the cost for each of the mid-decade census proposals. The recomputed cost estimates for projected work-load increases amounted to about \$19 million and for the price increases amounted to about \$16 million. Following are some of the principal assumptions made by the Bureau.

- The number of housing units in 1975 would be 12.2 percent higher than in 1970 based on the estimated housing-unit starts and losses for the 1970-75 period.
- The cost of personnel compensation for both permanent and temporary employees for the 1970 decennial census would be increased at the rate of increase in Federal pay for the June 1964 through January 1971 period.
- The cost of personnel benefits was based on the application of several estimated percentages to the 1970 decennial census costs for personnel services as adjusted for salary increases. The estimated percentages were based on (1) increases in Federal Insurance Contributions Act taxes paid by temporary employees and (2) the ratio of permanent and temporary employees in the various census program areas.

- The cost of travel and transportation of persons was increased by the rates of increases in Government reimbursements for the use of privately owned automobiles during the 1964-71 period. Other cost elements, such as travel by common carrier and per diem, were not considered. The costs incurred for reimbursements for use of privately owned automobiles accounted for the major part of the costs in travel and transportation of persons for the 1970 decennial census.
- The costs of printing and reproduction and of other services were assumed to be higher than the actual costs of the 1970 decennial census by 25 percent and 75 percent, respectively, of the rates of Federal pay raises during the 1964-71 period. Bureau officials could provide us with no firm bases for these assumptions.
- The costs of rents, communications, utilities, supplies and materials, equipment, and the transportation of things were all increased over the actual costs of the 1970 census by 2 percent a year. A Bureau official informed us that this percentage had been arrived at by considering the yearly increases indicated by the consumer price index and the wholesale price index.

IMPROVEMENTS RECOMMENDED BY THE
SUBCOMMITTEE ON CENSUS AND STATISTICS

The Bureau's cost estimates for the four mid-decade census proposals could be significantly understated should the Bureau implement, in a mid-decade census, the improvements recommended by the Subcommittee on Census and Statistics in a "Report on Accuracy of the 1970 Census Enumeration," dated December 17, 1970.

At the time of our review, the Bureau had developed estimates for the costs of some of these improvements for each of the four mid-decade census proposals. The cost of the improvements, however, were not included in the cost estimates presented on page 1. The recommended improvements and the Bureau's estimated cost for some of the improvements are shown in enclosure II.

We did not verify the accuracy of the estimates shown in enclosure II. Bureau officials advised us that the estimate of \$20 million for additional publicity was suggested by the Subcommittee as the minimum amount required to achieve an adequate public awareness. The Bureau had not developed any information concerning the composition of such a publicity program.

The Subcommittee recommended that the Bureau's temporary district offices remain open for a longer period of time after completion of the enumeration, to enable local community officials who complain of an undercount

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to deal directly with the Bureau official having responsibility for carrying out the census locally. The cost estimates developed by the Bureau for this improvement were based on keeping the district offices open 1 additional month.

We plan to make no further distribution of this report unless copies are specifically requested, and then we shall make distribution only after your agreement has been obtained or public announcement has been made by you concerning the contents of the report. Members of my staff will be available to discuss these matters with you further if you desire.

Sincerely yours,



Comptroller General
of the United States

The Honorable Charles H. Wilson, Chairman
Subcommittee on Census and Statistics
Committee on Post Office and Civil Service
House of Representatives

BUREAU OF THE CENSUS
 COST ESTIMATES FOR
 MID-DECADE CENSUS PROPOSALS

<u>Program activities</u>	<u>Level I proposal</u>	<u>Level II proposal</u>	<u>Level III proposal</u>	<u>Level IV proposal</u>
	----- (000 omitted) -----			
Program planning, direction, and review	\$ 4,431	\$ 4,802	\$ 7,439	\$ 7,439
Pretests and dress rehearsals	720	800	1,100	1,100
Geographic work	13,077	13,077	13,077	13,077
Mailing preparation	14,706	16,139	14,090	13,882
Data collection	98,587	107,996	80,001	129,899
Data processing	7,272	8,920	32,844	34,116
Publications	554	869	2,033	3,730
Sampling, statistical studies, and evaluations	2,100	2,100	4,678	4,478
Outlying areas	1,603	1,972	1,306	2,866
Publicity	521	521	521	521
History	172	172	172	172
Improvements of data usability	310	402	1,458	1,548
Office space, Bureau general expenses, etc.	8,049	8,717	8,840	11,604
Capital outlay	<u>2,215</u>	<u>2,461</u>	<u>2,506</u>	<u>3,413</u>
Total	<u>\$154,317</u>	<u>\$168,948</u>	<u>\$170,065</u>	<u>\$227,845</u>

BUREAU OF THE CENSUS
 COST ESTIMATES FOR
 CERTAIN IMPROVEMENTS RECOMMENDED BY
 THE SUBCOMMITTEE ON CENSUS AND STATISTICS

<u>Improvements</u>	<u>Level I proposal</u>	<u>Level II proposal</u>	<u>Level III proposal</u>	<u>Level IV proposal</u>
	(000 omitted)			
Additional publicity (note a)	\$20,000	\$20,000	\$20,000	\$20,000
Keep temporary district offices open for 1 additional month after completion of the enumeration (note b)	3,507	3,750	4,296	4,850
Expand precanvas survey	<u>1,250</u>	<u>1,250</u>	<u>1,250</u>	<u>1,250</u>
Total	<u>\$24,757</u>	<u>\$25,000</u>	<u>\$25,546</u>	<u>\$26,100</u>

a

Amount suggested by the Subcommittee on Census and Statistics as the minimum amount required to achieve an adequate public awareness.

b

Includes release of preliminary population and housing counts.

Note: The Bureau had not developed cost estimates for the following recommendations by the Subcommittee.

1. Increase of two or three regional field offices.
2. Eliminate unused census questionnaires.
3. Extend postenumeration check.
4. Improve postenumeration check.
5. Improve coordination between Census Bureau's and Post Office Department's population growth estimate program.
6. Arrange for Executive order making better coordination possible between the Census Bureau and other Government agencies.