UNITED STATES DEPARTMENT OF COMMERCE
Bureau of the Census
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DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES B-15

MEMORANDUM FOR   Howard Hogan
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Subject: Accuracy and Coverage Evaluation Survey: Contributions of Service
                 Based Enumeration Multiplicity Estimation to Corrected Census
                 Results (Prototype)

The attached document is a prototype of the report that we will prepare, per your request,
following completion of applicable operations. The completed report is intended to aid the
Executive Steering Committee on Accuracy and Coverage Evaluation Survey (A.C.E.) Policy
(ESCAP) in its recommendation regarding the release of the statistically corrected data or the
data without statistical correction as the P.L. 94-171 data. This report, together with other
reports, will assess the operations and results of both the initial Census and the A.C.E. Both sets
of assessments will be available to the ESCAP to aid the Committee in reaching its
recommendation regarding the use of the statistically corrected data.

The attached prototype contains both empty table shells and a description of textual analysis that
will assess specific aspects of the applicable operations. This report focuses on how Service
Based Enumeration Multiplicity Estimation (SBE) contributes to corrected Census results. SBE
is not part of A.C.E. This report presents results from both SBE and A.C.E.

It is important to note that the conduct of the operations may lead us to modify the attached
format by including additional information. It is also likely that descriptions and definitions will
be enhanced or the data items could undergo revision. Conversely, we may conclude, for a
variety of reasons, that some of the information set forth in the attached prototype may not be
available. The attached document sets forth our conclusions prior to completion of the A.C.E.
and SBE about what information would properly inform the ESCAP on this subject, but is
subject to modification.

Accuracy and Coverage Evaluation 2000: Service Based Enumeration Multiplicity Estimation Results

prepared by Richard Griffin

Introduction

The uncorrected census 2000 counts do not include any estimation derived from the use of sampling. Accuracy and Coverage Evaluation (A.C.E.) data are used to produce Dual System Estimates (DSE) for up to 448 post-strata . These DSEs account for person undercoverage within the household population, and the results of A.C.E. are not applied to housing units or to the group quarters population. Additionally, the A.C.E. does not account for relationship data in its population estimates. The DSEs are used to estimate the number of people missed (or erroneously included) in the initial enumeration in a given geographic area with certain demographic characteristics, but it does not attempt to place them in specific housing units or assign specific relationships to them.

The Service Based Enumeration (SBE) is designed to provide people with no usual residence an opportunity to be enumerated. The Bureau planned special procedures to enumerate such persons at shelters, soup kitchens, mobile food vans, and certain outdoor locations with no apparent means of shelter. Because the SBE can only account for people at these facilities on the day of enumeration, the Bureau planned to apply multiplicity estimation to account for people who use these facilities but did not use them on the day of the SBE . The uncorrected census count for the non-Institutional Group Quarters population includes only those people actually enumerated (after unduplication) at these service locations on this one day.

The corrected census data will have different counts of total population than the uncorrected data due to joining results from the DSE and the SBE multiplicity estimation with results from the actual Census 2000 enumeration used to produce uncorrected census counts. Specifically, the corrected data uses DSEs to make additions for missed people and correct for erroneous inclusions in the household population count and uses SBE Multiplicity Estimation to estimate the number of people who use services but not on the day of enumeration.

The purpose of this report is to show the counts from the actual enumeration and the components added due to DSE and SBE Multiplicity Estimation by selected demographics for the United States and total population for each state and the District of Columbia.

The 1990 Census had a special operation, S-Night, designed to locate and enumerate persons without usual residence including those who use shelters, soup kitchens and other targeted service locations, but the data collection procedures were entirely different from those for the Census 2000 SBE and no estimation techniques were used. The Census Bureau felt it could improve on the 1990 methodology and the Census 2000 SBE and multiplicity estimation procedures were devised. Because it is a new system, we do not have any estimation results from 1990 to compare to Census 2000 SBE multiplicity estimates.

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Results

Tables 1, 2, and 3 show data at the United States level by race, sex, and age. Tables 2 and 3 are similar but deal with the Census 2000 multiple race option differently. The race categories shown are Black and Non-Black (Thus, these results can be easily compared to Demographic Analysis which only provides race results in these two categories). Model 1, used in Table 2, includes in the Black category those who mark only the race circle for "Black," all others are included in the Non-Black category. Model 2, used for Table 3, includes in the Black category all persons who marked the race circle for "Black" regardless of whether they marked any other race response circles, all others are included in the Non-Black category. Model 1 will lead to a lower count of Blacks than the Model 2 approach.

For each category in these tables the columns are as follows:

Column (1): The uncorrected census count of persons

Column (2): Uncorrected census count of persons in housing units (HU)

Column (3): Uncorrected census count of persons in Non-institutional Group Quarters (GQ).

Column (4): Uncorrected census count of persons in Institutional GQs

Note: Column (1) is the sum of columns (2), (3), and (4).

Column (5): Count of person records added due to A.C.E. These person records are added to the HU population count but they are not placed in specific housing units. Note that these counts are based on applying A.C.E. Coverage Correction Factors to uncorrected census counts at the national or state level before the Census 2000 controlled rounding algorithm is implemented. Thus, these counts may differ slightly from final published counts.

Column (6): Count of persons added due to SBE multiplicity estimation. These persons are added to the non-institutional GQ count.

Column (7): Total count of persons added in the category. This is the sum of columns (5) and (6).

Column (8): Total corrected population count. This is the sum of columns (1) and (7).

Table 4 is for the 50 states and the District of Columbia. For each state, the counts as described above are given in columns (1) through (8) for total population only.

Assessment of Results

[Prototype Note: An assessment of the data provided in the Tables will be provided in the final report]

Table 1 - Corrected vs. Uncorrected Counts by Sex and Age Groups at U.S. Level

Sex/Age	Uncorrected Census Count of Persons				Persons added to Count due to correction			Total corrected Count
	Total (1)	in HUs (2)	in N.I. GQs (3)	in Inst. GQs (4)	in HUs by A.C.E. * (5)	in N.I. GQs by SBE (6)	Total (7)	(8)
TOTAL								
Male								
All ages 0-17 18-29 30-49 50+								
Female								
All ages 0-17 18-29 30-49 50+								

* May differ from final corrected estimates due to a controlled rounding step.

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Table 2 - Corrected vs. Uncorrected Counts by Race, Sex and Age Groups at U.S. Level (Model 1 used for Race)

Sex/Age	Uncorrected Census Count of Persons				Persons added to Count due to correction			Total Corrected Count
	Total (1)	in HUs (2)	in N.I. GQs (3)	in Inst. GQs (4)	in HUs by A.C.E.* (5)	in N.I. GQs by SBE (6)	Total (7)	(8)
Black Male								
All ages 0-17 18-29 30-49 50+								
Black Female								
All ages 0-17 18-29 30-49 50+								
Non-Black Male								
All ages 0-17 18-29 30-49 50+								
Non-Black Female								
All ages 0-17 18-29 30-49 50+								

* May differ from final corrected estimates due to a controlled rounding step.

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Table 3 - Corrected vs. Uncorrected Counts by Race, Sex and Age Groups at U.S. Level (Model 2 used for Race)

Sex/Age	Uncorrected Census Count of Persons				Persons added to Count due to correction			Total Corrected Count
	Total (1)	in HUs (2)	in N.I. GQs (3)	in Inst. GQs (4)	in HUs by A.C.E.* (5)	in N.I. GQs by SBE (6)	Total (7)	(8)
Black Male								
All ages 0-17 18-29 30-49 50+								
Black Female								
All ages 0-17 18-29 30-49 50+								
Non-Black Male								
All ages 0-17 18-29 30-49 50+								
Non-Black Female								
All ages 0-17 18-29 30-49 50+								

*May differ from final corrected estimates due to a controlled rounding step.

Table 4 - Corrected vs. Uncorrected Counts for Total Population by State

State	Uncorrected Census Count of Persons				Persons added to Count due to correction			Total Corrected Count
	Total	in HUs	in N.I. GQs	in Inst. GQs	in HUs by A.C.E.*	in N.I. GQs by SBE	Total	(8)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Alabama								
Alaska								
Arizona								
Arkansas								
California								
Colorado								
Connecticut								
Delaware								
District of Columbia								
Florida								
Georgia								
Hawaii								
Idaho								
Illinois								
Indiana								
Iowa								
Kansas								
Kentucky								
Louisiana								
Maine								
Maryland								
Massachusetts								
Michigan								
Minnesota								
Mississippi								
Missouri								
Montana								
Nebraska								
Nevada								
New Hampshire								
New Jersey								
New Mexico								
New York								
North Carolina								
North Dakota								
Ohio								
Oklahoma								
Oregon								
Pennsylvania								
Rhode Island								
South Carolina								
South Dakota								
Tennessee								
Texas								
Utah								
Vermont								
Virginia								
Washington								
West Virginia								
Wisconsin								
Wyoming								

*May differ from final corrected estimates due to a controlled rounding step.

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