

REGISTRATION

**Thursday
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Part III

**Department of
Commerce**

**Office of the Under Secretary for
Economic Affairs**

**Final Guidelines for Considering Whether
or Not a Statistical Adjustment of the
1990 Decennial Census of Population
and Housing Should Be Made for
Coverage Deficiencies Resulting in an
Overcount or Undercount of the
Population; Notice**

DEPARTMENT OF COMMERCE

[Docket No. 91282-0068]

Office of the Under Secretary for Economic Affairs

Final Guidelines for Considering Whether or Not a Statistical Adjustment of the 1990 Decennial Census of Population and Housing Should Be Made for Coverage Deficiencies Resulting in an Overcount or Undercount of the Population

AGENCY: Office of the Under Secretary for Economic Affairs, U.S. Department of Commerce.

ACTION: Final notice.

SUMMARY: These Final guidelines are published pursuant to the Stipulation and Order agreed to by the Federal Government and the City of New York and others in the case of *City of New York et al. v. Department of Commerce, et al.* Docket No. 88 Civ. 3474 (U.S. Dist. Ct., EDNY filed November 3, 1988) (The "Stipulation"). The purpose of this notice is to inform the public about these final guidelines.

On Monday, December 11, 1989, the U.S. Department of Commerce published proposed guidelines in the *Federal Register* (FR Vol. 54, No. 236, part XI pp. 51002-51005). This notice requested comments from the widest possible audience and set the due date of January 25, 1990 for receipt of comments. On January 24, 1990, a second notice was announced in the *Federal Register* (FR Vol. 55, No. 16, p. 2397), extending the last date for comments to February 2, 1990.

EFFECTIVE DATE: March 15, 1990.

FOR FURTHER INFORMATION CONTACT: Mark W. Plant, Deputy Under Secretary for Economic Affairs, U.S. Department of Commerce, Room 4848, Herbert C. Hoover Building, Washington, DC 20230.

SUPPLEMENTARY INFORMATION:

Background

Paragraph 4 of the Stipulation provides, in part, that " * * * the Department will promptly develop and adopt guidelines articulating what defendants [Department of Commerce] believe are the relevant technical and nontechnical statistical and policy grounds for decision on whether to adjust the 1990 Decennial population counts."

Paragraph 4 of the Stipulation goes on to state that the Department's proposed guidelines shall be published in the *Federal Register* by December 10, 1989, with a request for comments, and then published in final form in the *Federal*

Register by March 10, 1990. Because December 10, 1989, fell on a Sunday, the publication in the *Federal Register* of the proposed guidelines occurred on Monday, December 11, 1989.

Paragraph 5 of the Stipulation and Order states that the "Defendants [Department of Commerce] shall determine whether an adjustment satisfies the guidelines specified in para. 4 hereof [above]. If the Secretary determines to make an adjustment, defendants [Department of Commerce] shall publish corrected 1990 Decennial Census population data at the earliest practicable date and in all events, not later than July 15, 1991."

Paragraph 5 of the Stipulation and Order goes on to state that "If the Secretary determines not to make an adjustment, defendants [Department of Commerce] shall publish at the earliest practicable date and, in all events, not later than July 15, 1991, a detailed statement of its grounds, including a detailed statement of which guidelines in para. 4 above were not met and in what respects such guidelines were not met."

Copies of all comments received pursuant to the request for comments were made and are available for public inspection in the Department's Central Reference Records and Inspection Facility, Room 6628 in the Hoover Building.

One hundred fifty-six (156) letters were received commenting on the proposed guidelines. There were responses from thirty-six (36) States, eight (8) Cities, sixteen (16) private individuals (including four [4] members of the Secretary's Special Advisory Panel), seventy-eight (78) members of the U.S. House of Representatives, three (3) members of the U.S. Senate, seven (7) Governors of the States, nine (9) interest groups, two (2) Federal agencies, and seventy-four (74) members of State legislatures representing thirty-six (36) States. We also received comments orally from attorneys representing plaintiffs in the lawsuit cited in the "SUMMARY" during a meeting at the Department of Commerce on March 6, 1990. The comments made during this meeting are included in the administrative record, and are available for public inspection in Room 6628 of the Hoover Building.

Among the total responses were seventy-six (76) expressions of support for the complete set of proposed guidelines, four hundred and forty-nine (449) expressions of specific support for specific guidelines, sixty-five (65) expressions of disapproval of the entire set of proposed guidelines, five hundred and forty-seven (547) expressions of

disapproval for specific proposed guidelines, and one hundred sixty-seven (167) comments on specific proposed guidelines which expressed neither approval nor disapproval.

Thirty (30) commentators asserted that there should be no adjustment of the Census enumeration regardless of the circumstances; two (2) commentators expressed the opinion that the Census enumeration should be adjusted under any circumstances.

Dated: March 12, 1990.

Michael R. Darby,

Under Secretary for Economic Affairs.

Introduction

Article I, Section 2, Clause 3, of the Constitution of the United States reads, in part:

Representatives and direct Taxes shall be apportioned among the several States which may be included within the Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct.

Amendment 14, Section 2, to the Constitution, reads in part:

Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed.

The orderly redistribution of political representation, which in the ordinary course of events means transfer of political power, is effected on the basis of the decennial census. The decision on whether to adjust the 1990 census for net undercounts or net overcounts has substantial consequences. Whatever decision is made, it will affect the nation for at least the next ten years. It is not a simple technical decision: It is a momentous decision which will be made by the Secretary of Commerce, an official appointed by the President and confirmed by the Senate.

The basic decision the Secretary will face is whether the counts are made more accurate by adjustment or whether an adjustment would introduce more error into the census counts. He must also take account of other implications of his decision on the public. These guidelines are written to ensure that the counts produced from the 1990 census are the most accurate that can practically be produced. They are intended to provide a framework for a

balanced consideration by the Secretary as to whether to adjust the census enumeration. In that framework, the quality of the census and the degree of accuracy of the census enumeration play fundamental roles.

Enumeration is the basic procedure for counting the population that is mandated by the Constitution. Accordingly, throughout its history the Census Bureau has developed, refined, and increased the precision of the methods involved in that procedure. Those refinements and the improvements in the count that they have brought about have given us great confidence in the basic census procedure. Thus, we view enumeration as the basis for the census counts, and require that statistical techniques used to modify the counts in an attempt to improve them be subject to close scrutiny. This is not a bias against adjusting the counts for net undercount or net overcount. Rather, it is a prudent stance that requires that procedures that infer population counts be shown clearly to yield better counts, that is, counts subject to smaller errors than the enumeration procedures themselves. The true population may, in statistical theory, be inherently unknowable, but the enumeration must necessarily be considered closest to the true population count unless convincing evidence can be marshalled to show otherwise. Furthermore, this evidence must also allow us to generate better counts—it cannot just show deficiencies in the enumeration. It must enable us to correct those deficiencies.

Much of the confusion that surrounded the proposed guidelines stemmed from differing visions of the census process. The census process is divided into several distinct phases. The first phase is the enumeration of the population. The second phase is the conduct of a post-enumeration survey, based on a probability sample of housing units. This sample provides data for three purposes: evaluation of the accuracy of the enumeration, assessment of the net overcount or undercount of basic enumeration subgroups using the capture-recapture methodology and, should it prove desirable, calculation of weights for the adjustment of the enumerated counts. The third phase of the census process is a determination of the adequacy of the post-enumeration survey as an evaluation and adjustment tool.

If a determination is made that the census enumeration counts are flawed, that the post-enumeration survey is adequate and accurate, and that the application of the weights generated by

the post-enumeration survey would result in more accurate counts, then the census counts could be adjusted.

For these reasons, we view the census enumeration as an operation distinct and separable from the operations used to evaluate the enumeration. We, therefore, do not subscribe to an integrated view of the census, where enumeration and evaluation are inextricably bound together to produce counts. The enumeration produces counts which are subsequently evaluated. Should the evaluation show them deficient and correctable into more accurate counts, a decision can be made to adjust. Thus, sacrificing any parts of the enumeration and replacing them with evaluation activities is not appropriate. It is from this view of the census that the guidelines are drawn.

It is worth noting that the technical grounds for adjustment are contained in these guidelines in a manner that is intended to be understandable to the general public. The level of detail that some members of the public would desire is greater judging from the comments on the proposed guidelines. In consideration of this desire, the Department of Commerce will publish a detailed outline of technical operations and procedures. The Department of Commerce and the Bureau of the Census will keep the public informed as plans for implementing the procedures leading to an adjustment decision progress.

The guidelines will be weighed collectively. Not every consideration in each guideline need be completely satisfied or resolved in order to reach a decision. The issues of accuracy, fairness, disruption, and constitutionality must be addressed together in making the decision on whether an adjustment will increase the accuracy of the 1990 Census sufficiently to proceed with it.

The Department of Commerce will rely on the Bureau of the Census to implement the technical operations and procedures used in the decisionmaking process. These include operations to evaluate the accuracy of the census enumeration and the proposed adjustments to the census enumeration, the reliability of statistical models used in the adjustment process and the quality of the resulting estimates. The Bureau of the Census will use the highest levels of professional standards in carrying out these operations, procedures and evaluations, and will document all their judgments in a way that allows the statistical community to evaluate them. Ultimately, however, the Secretary will, in the exercise of his

sound discretion, determine whether to adjust the census.

Each of the following guidelines is accompanied by an explanation or example of its intent. Where appropriate, a brief description of the empirical information and technical operations bearing upon it is presented.

A treatment of substantive comments on the proposed guidelines is then presented. Favorable and unfavorable comments on each proposed guideline are both presented, followed by a summary analysis of the comments. Each substantive objection to each guideline is addressed individually. General comments on the proposed guidelines are presented and addressed last.

Guidelines

[1] The Census shall be considered the most accurate count of the population of the United States, at the national, state, and local level, unless an adjusted count is shown to be more accurate. The criteria for accuracy shall follow accepted statistical practice and shall require the highest level of professional judgment from the Bureau of the Census. No statistical or inferential procedure may be used as a substitute for the Census. Such procedures may only be used as supplements to the Census.

Explanation: The mandate of the Census Bureau is to enumerate the population in a manner that assures that the count of the population is the best achievable given current methodology. As stated in the introduction, the assertion that a method involving statistical inference could lead to a more accurate enumeration warrants close scrutiny.

A set of adjusted counts would be based on a statistical inference that unaccounted for persons were present and that persons who were actually enumerated do not exist or were counted twice. Both determinations are based on a survey of a sample of similar blocks from locations across the country. Thus, the evidence, to be acceptable, must show convincingly that the count can be improved by statistical adjustment at national, state and local levels. In making this assessment, we will examine the effects of the proposed adjustment on the accuracy of counts at all geographic levels.

Comparison of estimates of population size. The estimates of the size of the population from the original enumeration, the demographic analysis, and the post-enumeration-survey estimates will be compared to assess their consistency. The comparison will take into consideration the uncertainty

inherent in the demographic analysis and post-enumeration-survey estimates. For the reasons explained in the introduction, the original enumerations will be considered to be more accurate for all geographic areas unless the evidence from demographic analysis and the post-enumeration survey demonstrates convincingly that the dual-system estimate is more accurate.

Accordingly, the Bureau of the Census shall carefully scrutinize and fully describe the size of any net undercount or net overcount inferred from demographic analyses of population sub-groups and the sources of any net undercount or net overcount of population subgroups inferred from the analysis of the post-enumeration survey.

Discussion of Technical Grounds

Demographic Analysis. Estimates of the size of certain cohorts of the population are based on assumptions about or studies of the behavior of those populations. For some cohorts these assumptions have led to conclusions of net undercounts or net overcounts in several different censuses. The extent to which such conclusions result from specific assumptions will be described. Moreover, the extent to which these assumptions are warranted, and the sensitivity of such conclusions to changes in these assumptions, will be assessed. The potential sources or error in the demographic analyses the Bureau currently plans are:

- Birth registration completeness.
- Net immigration of undocumented aliens.
- White births, 1915-1935.
- Black births, 1915-1935.
- Foreign-born emigrants.
- Population over age 65.
- Models to translate historical birth-record racial classifications into 1990 self-reported census concepts.

The Bureau will examine the effect of errors in each of these measurements on estimates of the net overcount or net undercount. These studies will yield ranges of uncertainty for the demographic estimates of the population which will in turn yield ranges of uncertainty for the net overcount or net undercount. The effect of uncertainty in each of these components will be cumulated into overall levels of potential error.

Post-Enumeration Survey. The capture-recapture method lies at the heart of the post-enumeration-survey models for estimating population coverage deficiencies. The use of this methodology to derive the net undercount or net overcount estimates will be clearly explained. The appropriateness of this methodology to

the enumeration of the population will be assessed.

Like demographic analysis, the post-enumeration-survey adjustment mechanism relies on numerous assumptions. The extent to which these assumptions are warranted, and the sensitivity of the conclusions to changes in these assumptions, will be assessed.

Survey methods are based on randomly chosen samples that use statistical inference to estimate the population of the Nation and its components. Such estimates are subject to statistical variation within some range of values—that is, a replication of the process used to make the estimate (including taking the sample) may not lead to the same estimate as the original procedures. Thus, there is a likely range of estimates around the “true” count of the population that depends on the random sample chosen.

If the range of estimates likely to occur is small and near the “truth,” then any particular estimate is close to the truth and, thus, acceptable as an approximation of the “truth.” If the range is very large, then any particular estimate may not be close to the “truth,” and the estimation process gives us little information about the “truth.”

A relevant technical criterion related to uncertainty introduced by sampling is how small any possible range of dual-system estimates must be to conclude that any particular outcome of the dual-system estimation process is more accurate than the enumeration itself.

Because the post-enumeration survey itself is a sample, the quantified parameters of the deficiencies are themselves estimates and subject to statistical variability. This variability must be small enough to ensure that any modification of the enumeration is an improvement over the unadjusted counts.

The post-enumeration survey serves two functions. The first function is to detect any deficiencies in the enumeration. For the post-enumeration survey to show convincingly that the enumeration is deficient, it must be clear that the deficiencies are not a result of problems in taking the post-enumeration survey. It follows, then, that the quality of the post-enumeration survey is a central concern in the decision whether to adjust.

The second function is to quantify any deficiencies attributed to the enumeration precisely enough to allow the enumeration to be modified in such a way that we are reasonably certain that the modified enumeration is more accurate than the original enumeration. Thus the post-enumeration survey must

quantify the deficiencies of the enumeration precisely and accurately.

How much uncertainty in the measures of deficiency of the enumeration is acceptable?

(1) If the likely range of measures of deficiency would include outcomes that would call for no modification in the enumeration, then no modification would be done.

(2) The enumeration could be modified if the likely range of measures of deficiency would lead to potential modifications that would be substantially similar in terms of their impact on the counts of demographic groups, their impact on apportionment of Congress, and their impact on local population counts.

The quality of the net overcount or net undercount estimates that result from the post-enumeration survey depends on the quality of a series of operations used to gather and process the required data. The Bureau of the Census will undertake a series of studies to assess the statistical quality of the post-enumeration survey data. The results of these studies will yield measures of the precision and accuracy of the net overcount and net undercount estimates and a range of estimates for the net undercount and net overcount.

The current plans of the Bureau include investigation of the following sources of error for the dual system estimate of population size based on the post-enumeration survey and the census:

- Missing data
- Quality of the reported census day address
- Fabrication in the P sample
- Matching error
- Measurement of erroneous enumerations
- Balancing the estimates of gross overcount and gross undercount
- Correlation bias
- Random error

These and other component errors will be combined to produce an estimate of the overall level of error. In all evaluations, analyses will examine data for the population as a whole and for race, sex, Hispanic origin, and geographical detail.

[2] The 1990 Census may be adjusted if the adjusted counts are consistent and complete across all jurisdiction levels: national, state, local, and census block. The resulting counts must be of sufficient quality and level of detail to be usable for Congressional reapportionment and legislative redistricting, and for all other purposes and at all levels for which census counts are published.

Explanation: This guideline acknowledges that the population

counts must be usable for all purposes for which the Census Bureau publishes data. The guideline also reinforces the fact that there can be, for the population at all geographic levels at any one point in time, only one set of official government population figures.

Thus, the level of detail must be adequate to produce counts for all such purposes. If the 1990 Census count is to be adjusted, it must be adjusted down to the census block level. It must be arithmetically consistent to eliminate confusion, and to prevent any efforts to choose among alternative sets of numbers to suit a particular purpose.

If the Census is to be adjusted, a process called synthetic adjustment will be used. A synthetic adjustment assumes that the probability of being missed by the census is constant for each person within an age, race, Hispanic origin, sex, and tenure category in a geographical area. A synthetic adjustment is performed in two steps. First, the preferred adjustment factors are estimated for a variety of post strata defined by age, race, Hispanic origin, sex and tenure within geographic areas. Then the adjusted estimate in each category for a census block is obtained by multiplying the unadjusted census estimate in that category by the adjustment factor. The adjusted census estimate for the census block is computed by adding the estimated adjustments for each post strata cell of the block. Put simply, in an adjusted population count each individual enumerated will receive a relative weight according to his or her race, age, sex, ethnic background, tenure, and place of residence. The aggregate counts will then be built up from the weighted individuals to census block, local area, state and national counts. We will conduct evaluations of small area estimations to ensure that this process results in counts that are in fact more accurate.

Evaluations of small area estimation. Coverage error may vary substantially within the post-enumeration-survey post-strata, although the post-strata were drawn to be homogeneous with respect to expected coverage error. The goal of this analysis is to determine whether or not the assumptions underlying a synthetic adjustment of the census are valid and produce counts which are more accurate at all geographic levels at which census data are used. In particular, the within-strata block-to-block variance in characteristics and net overcounts or net undercounts will be analyzed.

[3] The 1990 census may be adjusted if the estimates generated from the pre-specified procedures that will lead to an

adjustment decision are shown to be more accurate than the census enumeration. In particular, these estimates must be shown to be robust to variations in reasonable alternatives to the production procedures, and to variations in the statistical models used to generate the adjusted figures.

Explanation: The Bureau of the Census will determine the technical and operational procedures necessary for an adjustment decision before the results of the post-enumeration survey are known. This procedure shall be chosen to yield the most accurate adjusted counts that pre-census knowledge and judgment can provide. The Bureau of the Census will then assess the components of systematic and random error in the procedure and it will assess the robustness of the estimates generated from the procedure.

Various procedures and statistical models can be used to generate estimates of net overcounts or net undercounts and adjustment factors. This guideline specifies that a set of procedures for generating proposed adjusted counts will be determined in advance of receiving the 1990 post-enumeration-survey estimates. This guideline requires that these procedures be evaluated. These evaluations will identify other procedures and models that could be considered as reasonable alternatives to the chosen production process. These alternatives will be used to assess the accuracy and precision of the proposed adjusted counts. In addition they will be used to assess whether and by how much the adjusted counts could vary if alternative procedures were used.

[4] The decision whether or not to adjust the 1990 census should take into account the effects such a decision might have on future census efforts.

Explanation: The Decennial Census is an integral part of our democratic process. Participation in the census must be encouraged. Respect for the objectivity, accuracy, and confidentiality of the census process must be maintained. Accordingly, if evidence suggests that adjustment would erode public confidence in the census or call into question the necessity of the population participating in future censuses, then that would weigh against adjustment. On the other hand, if evidence suggests that the failure to adjust would erode public confidence in the census and thus result in widespread disinclination to participate in future censuses, that would argue for adjustment. The extent to which adjustment or non-adjustment would be perceived as a politically motivated act, and thus would

undermine the integrity of the census, should also be weighed in making any adjustment decision.

[5] Any adjustment of the 1990 Census may not violate the United States Constitution of Federal statutes.

If an adjustment would violate Article I, Section 2, Clause 3 of the U.S. Constitution, as amended by Amendment 14, section 2, or 13 U.S.C. section 195, or any other Constitutional provision, statute or later enacted legislation, it cannot be carried out.

[6] There will be a determination whether to adjust the 1990 census when sufficient data are available, and when analysis of the data is complete enough to make such a determination. If sufficient data and analysis of the data are not available in time to publish adjusted counts by July 15, 1991, a determination will be made not to adjust the 1990 census.

Explanation: It is inappropriate to decide to adjust without sufficient data and analysis. The Bureau will make every effort to ensure that such data are available and that their analysis is complete in time for the Secretary to decide to adjust and to publish adjusted data at the earliest practicable date and, in all events, not later than July 15, 1991, as agreed to in the stipulation. Note, however, that the Department and the Bureau have consistently stated that this is the earliest possible date by which there is a 50 percent chance that an analysis could be completed on which a decision to adjust could be based. If, however, sufficient data and analysis of the data are not available in time, a determination will be made not to adjust the 1990 Census. The coverage evaluation research program will continue until all technical operations and evaluation studies are completed. Any decisions whether to adjust other data series will be made after completion of those operations.

[7] The decision whether or not to adjust the 1990 Census shall take into account the potential disruption of the process of the orderly transfer of political representation likely to be caused by either course of action.

Explanation: This guideline is intended to ensure that the factor of disruption of the process of the orderly transfer of political representation is explicitly taken into account as the decision is reached. For example, many states have pointed to adjustment as being disruptive to the redistricting plans. Likewise, members of some communities that are believed to have been historically undercounted contend that if the Census were not adjusted, this would disrupt the orderly and

proper transfer of political representation to their communities. The inability to ensure accuracy of counts at local levels may result in politically disruptive challenges by localities to official census counts.

This guideline recognizes that the Decennial Census plays a pivotal role in the orderly redistribution of political representation in our democratic republic. The process used to generate the required counts must not be arbitrary either in fact or appearance. The Secretary is thus obliged to consider the impact of his decision on the fairness and reasonableness of that redistribution to all those affected. This guideline requires an explicit statement of how and to what degree adjustment or non-adjustment would be disruptive. Even though these are concepts that are not easily quantifiable, they warrant serious consideration in order for the Secretary to make a prudent decision on an issue that profoundly affects public policy.

[8] The ability to articulate clearly the basis and implications of the decision whether or not to adjust shall be a factor in the decision. The general rationale for the decision will be clearly stated. The technical documentation lying behind the adjustment decision shall be in keeping with professional standards of the statistical community.

Explanation: It is the responsibility of the government to have its critical decisions understood by its citizens. We recognize, however, that the degree to which a decision can be understood cannot alone dictate an important policy decision.

The decennial census is a public ceremony in which all usual residents of the United States are required to participate. If the census count were statistically adjusted, the rationale for the action must be clearly stated and should be understandable to the general public. If the decision were made not to adjust, the elements of the decision must also be clearly stated in an understandable way. It will be the responsibility of the Department of Commerce and the Bureau of the Census to articulate the general rationale and implications of the decision in a way that is understandable to the general public.

This does not require the Bureau or the Department to explain in detail to the general public the complex statistical operations or inferences that could lead to a decision to adjust. But, as with any significant change in statistical policy, the government has the duty to explain to the public, in terms that most can understand, the reason for the change. If the decision is

not to adjust (that is not to change) the public will be informed as well.

The last part of the guideline ensures that the methods, assumptions, computer programs, and data used to prepare population estimates and adjustment factors will be fully documented. The documentation will be sufficiently complete for an independent reviewer to reproduce the estimates. These standards apply to the post-enumeration survey estimates, the demographic analysis estimates, and the small area synthetic estimates.

Treatment of Substantive Comments on the Proposed Guidelines

There was considerable variation among the comments on the proposed guidelines. Therefore, all substantive objections to each proposed guideline is discussed. Each guideline is treated in turn. There are five parts to the analysis of each guideline. First, the proposed guideline and explanation is restated as it appeared in the **Federal Register**. Second, comments that support the guideline follow. Third, comments that raise substantive objections are presented. Fourth, an overall analysis of comments on the guideline is presented. Fifth, each substantive objection to the guideline is addressed.

After the comments on each of the twelve proposed guidelines are presented and analyzed, general substantive comments not specifically related to a particular guideline are presented. Generally supportive comments are followed by comments that raised substantive objections. Finally, a response to each substantive objection is presented.

Because the numbering of the guidelines changed from the proposed guidelines, the following convention is adopted. When a comment or response refers by number to a proposed guideline, the guideline is referred to as "proposed guideline" and the words are presented in lower case and regular type. When a response refers to a final **GUIDELINE**, the guideline is referred to as "final **GUIDELINE**" and is presented in upper case, bold type and underlined.

Proposed Guideline 1

[1] The Census shall be considered the best count of the population of the United States unless an adjusted count is shown to be more accurate, within acceptable margins of statistical error, at the national, state, local, and census block levels.

Explanation: The constitutional mandate of the Census Bureau is to enumerate the population, and the investment it makes in decennial census operations is to assure that the count is

the best count of the population achievable given current methodology. The census is a standard. Other data collection activities are compared to census results to assess their quality. In the past, no sample survey has had as complete coverage as the decennial census, and no coverage measurement survey has produced data of better quality than the census. Strengths and weaknesses of the census are well known and extensively documented. The census is understood and because of its quality has wide acceptance and extensive use among policy makers and other users. Before replacing the census, we must be sure that the replacement is an improvement. The assumption that any effort involving less than an attempt to enumerate the entire population can lead to a more accurate enumeration calls into question the process the Census Bureau has developed over the past two hundred years. The enumeration is based on evidence that physical persons are in a particular location or block at a particular time. A set of adjusted counts would be based on a statistical inference that unaccounted for persons were present and that persons who were actually enumerated do not exist or were counted twice. Both determinations are based on a survey of a sample of similar blocks from locations across the country. To reiterate, there is no reason to adjust the census unless the adjusted count is shown to be better for all the uses to which census counts are put. Thus, the evidence to be acceptable must show overwhelmingly that the count can be improved by statistical adjustment in order to overturn the premise that the actual enumeration is the best count possible.

Comparison of estimates of population size. The estimates of the size of the population from the original enumeration, the demographic analysis, and the post-enumeration-survey estimates will be compared to assess their consistency. The comparison will take into consideration the uncertainty inherent in the demographic analysis and post-enumeration-survey estimates. The original enumerations will be considered to be more accurate for all geographic areas unless contrary evidence is presented.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) One of the strengths of the present guidelines is the clear distinction they make between the nature of the Census enumeration and the nature of estimates involving the Post-Enumeration Survey or demographic analysis. The

enumeration is different in kind from these others sorts of estimates. For the enumeration, each tally corresponds in principle to a particular person. For a set of estimates, there is no direct correspondence between terms in the count and particular persons. There can of course be evidence that an enumeration is fraught with error and there can be evidence that the inferences behind a set of estimates are soundly based. Proposed guideline 1 also recognizes this point clearly, and seems to be an even-handed account.

(2) This proposed guideline appropriately takes into consideration the policy question of whether or not an adjustment should be made, and is consistent with the "one man; one vote" principle. A vigorous effort should be made to count every individual residing within our borders. However, it is unacceptable to make a substantial upwards adjustment affecting specific congressional districts based on across-the-board statistical assumptions. The assumptions are just that, assumptions. There are grave objections to going ahead with an adjustment that has no relevance to any specific area of the country.

(3) Conventional wisdom that a census by enumeration is a method far superior in scope and accuracy to a theoretical statistical model is correct and should be supported.

(4) The procedures of the census should not be changed without clear and convincing evidence that an adjustment would improve the accuracy of the census. A substantial and clearly evident improvement should be a minimum before tampering with any numbers.

(5) Any tampering with the census will undoubtedly tie up the federal congress and state legislatures in court for who knows how long, since any "adjusted" figures will definitely be challenged in court.

(6) Since the numbers serve as the basis for all reapportionment and redistricting efforts, one must seriously question whether or not the principle of one person-one vote can ever be achieved if the numbers are altered.

(7) The Secretary should have to justify advantages of adding persons who do not exist and removing any person actually counted along with a different relative weight in the adjusted count based upon ethnic background, etc. Specific detail on any adjustment should also be required in order to not only authenticate the adjustment but to give the necessary detail for the minute detail necessary to stay within court approved guidelines.

(8) Since the census has been the standard for many decades, the pro-adjustment advocates should be required to prove specifically where the census is wrong and how any adjustment would be more accurate.

(9) Initially, although the issue is obviously moot at this point, it should be pointed out that even the mere consideration of undertaking a formalized analysis of whether technical and nontechnical statistical means should be used to alter the actual enumeration of the census is wrong.

(10) If the United States is going to change the method by which it makes its decennial determination of population, such should be initiated through a change in the Constitution which mandates an actual enumeration. Even if the current procedure can be statistically proven to be inadequate, at least it has been consistently statistically inadequate for 200 years. If we use a statistical model to change our actual enumeration this time, will the same exact statistical model be appropriate in the year 2000 or 2010? If not, we will have embarked upon a procedure which will continue to change the method of determining our population with each successive census, and will thus erode the public confidence that the census is not subject to political manipulation.

(11) It is clear that the Constitution mandates that the decennial enumeration be used for reapportionment purposes. It does not seem logical, therefore, that a series of often conflicting statistical estimates be used as a justification to change the actual enumeration results, and that those changed figures be labelled the "official" census results.

(12) The United States Constitution calls for an "Actual Enumeration" of the population not a near estimate. Considering the Constitutional mandate the proponents of an "adjusted count" have the burden of proving that any "adjusted count" is more accurate. The standard of proof must be equal to any standard which seeks to derogate a Constitutional mandate.

(13) Proponents of an adjustment cannot seek an adjustment based upon inferences or assumptions. Any adjustment must meet the same Constitutional standard of an "actual enumeration".

(14) Any attempt to adjust the decennial survey must meet the same standard as the decennial enumeration. At the most any post-enumeration survey is simply an informational device and can be used at the most as a tool for developing better methods and

techniques, but not as an adjustment to the decennial enumeration.

(15) The 1990 census should be adjusted only if the adjusted counts are consistent and complete across all jurisdictional levels: National, state, local and census block. This would prohibit the adjustment of census counts at the state level without the same adjustments at the census block level.

(16) The Department has correctly focused its attention in proposed guideline 1 on the policy question of whether a post-census adjustment should be done in the first place as opposed to merely how an adjustment could be performed. In the past, enumeration efforts of the Census Department within Illinois have been conducted with accuracy, and there is no reason to adjust the census for a hypothetical undercount. There is no reason to adjust the census unless the adjusted count is shown to be better for all uses to which the census counts are put. It is believed that rigorous enumeration efforts of the Department would result in a more accurate census count without the application of statistical theories to alter such counts. A person-by-person enumeration is so vastly superior to statistical theories that the count should not be adjusted unless evidence shows beyond a reasonable doubt that the adjustment will improve the accuracy of the count.

(17) The last phrase of this guideline should read " * * * error at all levels of data, national, state, local and census block." This makes this proposed guideline more consistent with proposed guideline 4.

(18) The Census has a 200 year history of statistical integrity and political impartiality. We should be very reluctant to imperil that record. Therefore, as stated in the explanation of the first proposed guideline, the evidence must show overwhelmingly that the count can be improved by statistical adjustment in order to overturn the premise that the actual enumeration is the best count possible. Simply stated, unless we are totally sure, we shouldn't use it.

(19) The possibility that an adjustment might sacrifice accuracy for an unknown possible improvement must be discouraged. There is also disagreement over which adjustment procedure is the most accurate. This disagreement invites political influence and manipulation as determinants in the selection of adjustment procedure.

Comments on this proposed guideline raised the following substantive objections:

(1) While an unadjusted census may well be the most accurate count available, a fair evaluation of adjustment methodology should not begin with the strong presumptions against the merits of the procedure.

(2) This proposed guideline should recognize that the primary role of the census is to ensure equal representation in the House of Representatives. Contrary to this, this proposed guideline requires that adjusted data be better for all the uses to which the census is put.

(3) The premise spelled out in this proposed guideline that "the actual enumeration is the best count possible" cannot be sustained because "statistical corrections based on the post-enumeration survey are not fundamentally different from other census operations."

(4) This proposed guideline should indicate whether correction will be precluded by a showing that accuracy has not been increased for one particular geographic unit or whether a demonstration of greater accuracy will suffice.

(5) The Constitution "demands the most accurate counts." The proposed guideline's requirement of accuracy down to the block level is inconsistent with the Constitutional requirement.

(6) This proposed guideline should state that statistical corrections, like any other program or technique, should be included in the census if it makes the count more accurate.

(7) The explanation of this proposed guideline erroneously asserts that there is some fundamental distinction between the bundle of programs and techniques that historically have constituted the census and statistical corrections.

(8) The proposed guideline's claim that a statistically corrected census is somehow fundamentally different from the initial population estimate cannot withstand analysis.

(9) Statistical corrections cannot be distinguished from all other census operations because both make use a statistical inference.

(10) Statistical correction is no different from other inferential methods used in the past by the Bureau to improve the accuracy of the count. Two examples of such methods used in the 1970 census are the National Vacancy Check and the Post-Enumeration Post Office check. Another example which has been used in previous censuses, and which will also be used in 1990, is imputation. Thus, statistical correction based on the post-enumeration survey is not fundamentally different from other census operations. Accordingly, statistical correction should not have

more stringent standards than applied to other census operations.

(11) The inclusion of the words "within acceptable margins of statistical error" provides no guidance as to what degree of statistical accuracy will be considered sufficient to demonstrate the greater accuracy of corrected counts. The proposed guideline does not identify what constitutes an acceptable margin of error. No ground for ultimate decision is provided.

(12) The words "shown to be" in the proposed guidelines are objectionable because they are "far too strong" unless used in a statistical way.

(13) The proposed guideline states incorrectly that the adjustment count must be better for all the uses to which census counts are put.

(14) This proposed guideline unreasonably requires improvement in all 8 million census blocks.

(15) The word "overwhelming" in the thirteenth sentence of the explanation of this proposed guideline is too one-sided.

(16) The word "assumption" in the eighth sentence of the explanation is misleading.

(17) This proposed guideline incorrectly sets up the traditional enumeration as a standard and should be rewritten.

(18) The following new guideline should be substituted: "Guideline [1]. The census shall be considered the best count of the population of the United States unless an adjusted count is shown to be more accurate. An adjusted count would be considered more accurate if either:

(i) Evidence from the post-enumeration survey and from demographic analysis suggests that there is at least a ninety percent chance that there was a net undercount of the national population in the census, taking into consideration plausible alternative assumptions for sources of error in estimation; or

(ii) Evidence from the post-enumeration survey and from demographic analysis suggests that there is at least a ninety percent chance that there was a differential undercount rate between the black population and the non-black population, or a differential undercount rate between the Hispanic population and the non-Hispanic population, taking into consideration plausible alternative assumptions for sources of error in estimation; or

(iii) Evidence from the post-enumeration survey and from demographic analysis suggests that there is at least a ninety percent chance that at least five states would consistently receive fewer

Congressional seats using the census counts than they would using the adjusted counts, taking into consideration plausible alternative assumptions for sources of error in estimation."

(19) Change the word "overwhelmingly" to "convincingly" in the last sentence of the first paragraph of the explanation, because "overwhelmingly" conveys too strong a presumption against adjustment. As such, it could be interpreted as indicating a partisan bias against adjustment.

(20) Criteria for adjustment should be what is technically feasible rather than historic achievement and the absence of any competitive survey efforts.

(21) This proposed guideline "should state that we want to be confident that the adjustment will improve the data."

(22) The following new guideline should be substituted: "The census should use a statistical adjustment if it is shown to make the count more accurate. In making the determination emphasis should be placed on the Census Bureau's [C]onstitutional obligation to count all persons as well as the historic undercount of population groups, including Hispanics, minorities, and undocumented residents."

(23) The proposed guideline is misleading. A more accurate statement than "The Census" would be "The attempted enumeration."

(24) The following new guideline should be substituted: "The purpose of deciding whether or not to adjust the results of the classical enumeration is to bring the Census results as close to the truth as possible."

(25) The following new guideline was suggested: "The Bureau, and the members of the Secretary's Special Panel, will report to the Secretary, before July 15, 1991, on the strength of the evidence indicating which of the unadjusted classical enumeration, or of that enumeration adjusted in the light of the Post-enumeration Survey, has a generally larger error, or more importantly, which one has a generally more intolerable error, the latter assessed in view of the cardinal importance of population ratios and the relative unimportance of equal percentage errors for all geographic units."

Analysis of Comments Received on Proposed Guideline 1

Proposed Guidelines 1, 1a, 1b, and 1c have been extensively revised, and combined into final **GUIDELINE 1**. The comments that were critical said that the proposed guidelines were too severe,

and were biased against any possibility of adjusting the census enumeration no matter how flawed that enumeration was. Many comments accused the Department of betraying a bias against adjustment with these proposed guidelines. Since it is the intention of the Department to be even-handed, and it was the intent of the original proposed guidelines to be even-handed, our failure to avoid such a misperception of the intent of these proposed guidelines was regrettable.

We have, therefore, modified these proposed guidelines, noting that statistical standards and professional judgment from the Bureau of the Census with respect to the adequacy of the census enumeration, and the adequacy of the analyses of that enumeration and of the post-enumeration survey and demographic analysis, shall inform the adjustment decision. As explained in the introduction to the **GUIDELINES**, the priority assigned to the census enumeration is maintained. However, a detailed presentation of the logic underlying the relationship between the census enumeration and the post-enumeration survey is incorporated into the description of the technical grounds and operations underlying **GUIDELINE 1**.

We have also made clear that the census enumeration will be assessed for adequacy, but we have continued to note that acceptable amounts of variation with respect to adjusted estimates remains a key element in that assessment. In addition, the explanation of **GUIDELINE 1** makes clear that there must be evidence that counts can be improved by adjustment at the national, state and local levels.

Each substantive objection to proposed guideline 1 will now be addressed in turn:

(1) We do not intend to make any presumption against the merits of the adjustment methodology. For the reasons explained in the **Introduction**, it is our view that the census enumeration must necessarily be considered the most accurate count of the population, unless an adjusted count is shown to be more accurate. This view is affirmed by various supporting comments, notably (1), (4) and (8).

(2) The role of the census in apportionment is a Constitutionally specified purpose. However, as described in final **GUIDELINE 2**, it is our position that all statutory uses must be met by any official census of the population, whether it has involved the use of a procedure described as adjustment or not. This view is affirmed by various supporting comments, notably (15), (16), and (17).

(3) It is our position, as we noted in (1) above, that the census enumeration must necessarily be considered the most accurate count unless proven otherwise. Whether corrections based on the post-enumeration survey are fundamentally different from other census operations is debatable. Because of the importance attached to the adjustment issue, adjustment related activities warrant close scrutiny. This view is affirmed by various supporting comments, notably (1), (4), (7), (8), (10), (11), (12), and (18).

(4) The explanation in final **GUIDELINE 1** makes clear that there must be evidence that counts can be improved by adjustment at the national, state, and local level. Showing that accuracy has not been improved for a particular geographic unit will not preclude adjustment.

(5) See comment (2) above.

(6) The first sentence of final **GUIDELINE 1** states this.

(7) See comment (3) above.

(8) See comment (3) above.

(9) It is our view that statistical corrections can be distinguished from other census operations. Comment (3) above notes the difference. See also (10) below.

(10) See (3) above. The 1970 National Vacancy Check was instituted on a sample basis as an emergency measure. In 1980 the vacancy check was done on a 100% basis. Similarly, the Post Enumeration Post Office Check was done on a sample basis in 1970 and on a 100% basis in 1980.

(11) We have changed **GUIDELINE 1** to require that the Census Bureau will follow accepted statistical practice and exercise the highest level of professional judgement in making such a determination.

(12) The phrase "shown to be" will be treated as in (11) above.

(13) See comment (2) above.

(14) See comments (2) and (4) above.

(15) The word "overwhelmingly" has been changed to "convincingly."

(16) The word "assumption" has been changed to "assertion" in the explanation of **GUIDELINE 1**.

(17) See comment (1) above. The standard in the guidelines is the accuracy of the census enumeration, not the "traditional enumeration" itself.

(18) **GUIDELINE 1** has used language equivalent to the first sentence of this substitute guideline. The standards of accuracy proposed by in the comment are not appropriate. The first standard focuses only on the national count (see comment (3) above). The second standard focuses only on a particular sub-group of the population and the third standard focuses only on the uses of the count for apportionment.

Accuracy must be assessed across the many potential uses of the census. We will rely on the professional judgement of the Census Bureau and its technical staff, rather than the routine application of arbitrary standards, such as a fixed probability.

(19) See (15) above. The original word was not intended to imply a bias against adjustment.

(20) The adjustment decision is not only technical in nature, as stated in the introduction to the **GUIDELINES**. The criteria for adjustment are embodied in the **GUIDELINES** as a whole. Historic achievement and the absence of any competitive survey efforts are not considered as such criteria.

(21) We agree. Final **GUIDELINE 1** does state that we want to be confident that an adjustment improves the accuracy of the census enumeration.

(22) We believe the final **GUIDELINES**, taken as a whole respond to this comment. The proposed language alone is insufficient. See (18) and (20) above.

(23) This is a matter of semantics. We believe the term "Census" is accurate as used in final **GUIDELINE 1**.

(24) We do not think the proposed substitute guideline adequately describes the task. Final **GUIDELINE 1** states our aim to generate the most accurate counts practicable.

(25) The suggested guideline is covered by other **GUIDELINES**. Specifically, final **GUIDELINE 1** articulates the relationship between the adjusted census enumeration and the unadjusted census enumeration and our interpretation of accuracy. Material in support of the application of this **GUIDELINE** is described in the explanation of the **GUIDELINE**.

Proposed GUIDELINE 1a

[1a] The post-enumeration survey is not to be considered as a substitute for the Census as a count of the population of the United States, any state, any locality, or any census block.

Explanation: The post-enumeration survey can provide an estimate of the total count of the population, based on techniques of survey sampling. It does not provide a substitute for that complete count. Its proper use is as an adjunct to the population count which provides an estimate of its completeness, within statistical limits of error. Thus, any adjustment of the population count, using post-enumeration-survey information, must be based on the enumeration.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) With respect to proposed guideline (1A), (1B) and (1C) census enumeration must proceed with the highest commitment to completeness. Every effort must be made to count every person. However, given different regional characteristics, various demographic categories may be undercounted or overcounted by different rates. It is possible that a national policy of adjustment developed through post-enumeration studies or demographic analysis techniques may well push the Census count of any given region further from reality than an unadjusted count. Introducing error into Census counts in this way undermines the purpose of the Census, and has insidious effect on franchise, redistricting and reapportionment.

(2) This guideline requires any adjustment of the population count using post-enumeration survey information to be based on the enumeration itself and not some other data. Specifically, any adjustment must not be based on the post-enumeration survey as a substitute for the census count of the population. The census count itself should be the standard for accuracy.

Comments received on this proposed guideline raised the following objections:

(1) The wording of 1A, 1B, and 1C is clumsy and indirect. This guideline should say that there should be an initial good faith attempt to count everyone residing in the country as of April 1, 1990. That should be stated very simply and very directly. As there is no dispute about this matter, and since these proposals are unlikely to affect final decisions one way or another, these guidelines could be dropped altogether.

(2) Guidelines (1a), (1b), and (1c) are meaningless and trivial because the PES has always been understood as a means of measuring and correcting the undercount in the census.

Analysis of Comments Received on Proposed Guideline 1a

See the summary analysis of guideline 1.

Each objection to proposed guideline 1a will now be address in turn:

(1) Proposed guidelines 1a, 1b, and 1c, have been eliminated as free standing GUIDELINES. Final GUIDELINE 1 now includes the statement that the procedures they described cannot be used as substitutes for the census, but only as supplements to it.

(2) See (1) immediately above.

Proposed Guideline 1b

[1b] Demographic analysis of the population is not to be considered as a

substitute for the Census as a count of the population of the United States, any state, any locality, or any census block.

Explanation: Although demographic analysis can provide an alternative estimate of national population counts, it cannot be used to provide data at the subnational levels required by the various uses to which census data are put. Demographic analysis is an estimate of the population principally based on administrative data sources. Although it could be considered a derived count of the population, it remains an alternative to the direct enumeration of the population, not a substitute for it. Thus any adjustment of the population using demographic analysis information must only be a supplement to the enumeration.

Comments received on this proposed guideline supported the guideline for the following reason:

Any required adjustment to the census count should be utilized merely as an informational supplement to the enumeration. Census guidelines should provide that a state, county, municipality or other subnational level of government should not be required to utilize any post-census adjustment in substitute for the actual enumeration. Subnational levels of government which utilize census counts should be free to continue to utilize the actual enumeration of persons rather than a demographic analysis based on administrative data sources.

Comments on this proposed guideline raised the following objection:

See (1a) Objection (2).

Analysis of Comments Received on Proposed Guideline 1b

See the summary analysis of guideline 1 and the individual comments to the objections in 1a.

Proposed Guideline 1c

[1c] Any combination of the post-enumeration survey and demographic analysis of the population is not to be considered as a substitute for the Census as a count of the population of the United States, any state, any locality, or any census block.

Explanation: This guideline affirms that any combination of the techniques referred to in the prior two guidelines remains an inadequate surrogate for the actual enumeration of the population.

Comments received on this proposed guideline supported the guideline for the following reason:

The combination of a post-census adjustment and the post-enumeration survey would be a poor substitute for the census count. Again, these demographic techniques are based on

administrative data sources rather than actual census counts, making their utilization less empirically accurate than actual census counts.

Comments on this proposed guideline raised the following objections:

(1) This guideline is objectionable because it implies that the correction of the Census would be a separate function unrelated to the Census itself.

(2) See (1a), Objection (2).

Analysis of Proposed Guideline 1c

See the summary analysis for proposed guideline 1.

Each substantive objection to proposed guideline 1c will now be addressed in turn:

(1) We did not intend to imply that the correction of the census would be unrelated to the census itself. The post-enumeration survey is designed to examine and evaluate the census enumeration. Second, the post-enumeration survey is a sample of census defined blocks. Third, the correction of the census enumeration, were it to occur, would use the post-enumeration survey results to adjust the census enumeration numbers.

(2) See the discussions of objections (1) and (2) to proposed guideline 1A.

Proposed Guideline 2

[2] The size of any undercount or overcount inferred from demographic analyses of population sub-groups shall be carefully scrutinized and fully described, and the degree to which the overcount or undercount is potentially an artifact of the assumptions underlying the analysis shall be clearly presented.

Explanation: Estimates of the size of certain cohorts of the population are based on assumptions about or studies of the behavior of these population, rather than on administrative or other records. For some cohorts these assumptions alone have led to conclusions of undercounts or overcounts is several different censuses. The extent to which such conclusions result from specific assumptions must be expressly articulated. Moreover, the extent to which these assumptions are warranted, and the sensitivity of the conclusions to changes in these assumptions, must be assessed.

Evaluation of demographic analysis estimates. Demographic analysis of population estimates is susceptible to a variety of sources of error. Numerous techniques will be used to evaluate the quality of the demographic analysis estimates. Among the potential sources of error in the demographic analysis are:

Birth registration completeness.

Net immigration of undocumented aliens.
 White births, 1915-1935.
 Black births, 1915-1935.
 Foreign-born emigrants.
 Population over age 65.
 Models to translate historical birth-record racial classifications into 1990 self-reported census concepts.

The final analysis will discuss how these and other components cumulate into overall levels of error.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) Any adjustment to the census must necessarily be based upon assumptions regarding the behavior of sub-populations on whose behalf an adjustment is being made. It is believed that any adjustment of a sub-population's census count is therefore accurate to the extent the underlying behavioral assumptions are identified and proven true. For these reasons, proposed guideline 2 is supported. Any party seeking to adjust the census count should identify all underlying assumptions with regard to the behavior of sub-populations and the corresponding ability and willingness to be counted in the census. The party advocating an adjustment to the census should be required to identify the degree to which the alleged overcount or undercount is based on such behavioral assumptions. Finally, the party should be required to identify the statistical potential of error of such underlying assumptions and analyze how an error in such assumptions can accumulate into an overall level of error. Under no circumstance should an adjustment be made based on voting records of a given sub-population. The degree to which a sub-population votes or fails to vote is not related to whether the sub-population participates in the census. If an individual decides not to vote, this is no ground to adjust the census.

(2) The fact that this guideline is necessary at all, clearly shows the potential for a wide variance of error in the statistical calculation due to any number of assumptions which may be used in any such analysis. It is submitted that having recognized this, the guideline should establish as a standard a level of confidence necessary for use of such a statistical analysis. The guideline should provide that if the apparent over or undercount can be established to be the result of underlying assumptions above the established degree of confidence, then the process cannot be used.

Comments received on this proposed guideline raised the following objections:

(1) The following be substituted as proposed guideline 2: "No known process could provide a precisely accurate Census; decisions to adjust or not adjust can only reduce error, not eliminate it. We can only ever reduce error in an average sense, hopefully making many errors smaller but a few larger."

(2) The Guideline is misleading because it implies a demographic analysis will be used for adjustment.

(3) This guideline places unwarranted emphasis on demographic analysis. This is not consistent with the Stipulation and Order which requires the use of the PES, and not the use of demographic analysis, in correcting the census.

(4) The following be substituted for proposed guideline 2: "All valid means shall be used to evaluate the undercount which occurs in an unadjusted census. The degree of undercount which is determined to exist will directly affect the decision to proceed with a statistical correction process. Any degree of undercount which can be positively corrected by a statistical adjustment will be undertaken."

Analysis of Comments Received on Proposed Guideline 2

The technical grounds underlying the evaluation of the census enumeration, cited in the supporting materials for final GUIDELINE 1, incorporate all operations implied by proposed guideline 2.

Comments in support of this proposed guideline correctly noted the critical role played by demographic analysis in conducting whether a net overcount or net undercount occurs in the census enumeration. Comments in opposition to this proposed guideline also correctly noted that error can only be reduced, not totally eliminated, from any statistical activity as large as the census enumeration. In addition these comments alleged that the guideline was misleading. These critics suggested that the guideline could be interpreted to imply that demographic analysis would be used for adjustment—a possible outcome clearly at odds with the stipulation agreement. Although we do not agree with this last assertion, nevertheless we have eliminate any misunderstanding on this point by incorporating this proposed guideline's intended role in the adjustment decision within the technical operations connected with GUIDELINE 1. For these reasons, this proposed guideline is dropped as a separate and free-standing criterion.

Each substantive objection to proposed guideline 2 will now be addressed in turn:

(1) Proposed guideline 2 was a statement of a specific analysis routinely carried out to assure that the substantive results of demographic analysis are not simply an artifact of the method of analysis. The explanation of these analyses are now contained in the explanation of final GUIDELINE 1. We prefer final GUIDELINE 1 to the proposed alternative, because it explicitly states that an adjustment must make the census more accurate at the national, state, and local levels. This GUIDELINE recognizes that the post-enumeration survey and other adjustment related activities could reduce any error in the census enumeration.

(2) Demographic analysis alone will not be used for adjustment.

(3) See (2) above.

(4) We prefer the final GUIDELINE 1 to the proposed alternative. GUIDELINE 1 states that an adjustment may occur only if an adjusted census count is shown to be more accurate than the census enumeration. The proposed wording is unacceptable because it seems to imply that one might correct a local undercount independently of an overall census undercount correction or one might partially adjust the census. If adjustment were to be undertaken, all counts would be adjusted.

Proposed Guideline 3

[3] The sources of any undercount or overcount of population subgroups inferred from the analysis of the post-enumeration survey conducted subsequent to the 1990 census shall be carefully scrutinized and fully described, and the degree to which the overcount or undercount is potentially an artifact of the assumptions underlying the analysis or the methods inherent in the analysis shall be clearly presented.

Explanation: The capture-recapture method which lies at the heart of the Post-enumeration-survey models for estimating population coverage deficiencies is not, as used in the decennial census, completely analogous to more conventional uses of the method in estimating populations of, say, fish or land-based fauna in a natural setting. Thus, it is imperative that the influence of this methodology on the undercount or overcount estimates be clearly explained. Moreover, the post-enumeration-survey adjustment mechanism relies on numerous assumptions. The extent to which these assumptions are warranted, and the sensitivity of the conclusions to changes in these assumptions, must be assessed.

Evaluations for post-enumeration-survey estimates. Numerous techniques will be used to evaluate the quality of the post-enumeration-survey estimates. Among the possible sources of error for the dual system estimate of population size based on the post-enumeration survey and the census are:

- Missing data.
- Quality of the reported census day address.
- Fabrication in the P sample.
- Matching error.
- Measurement of erroneous enumerations.
- Balancing the estimates of gross overcount and gross undercount.
- Correlation bias.
- Variance.

An analysis of how these and other component errors combine to produce an overall level of error will be discussed. Implicit in all evaluations is that all analyses examine data for the population as a whole and within race, sex, Hispanic origin, and geographical detail.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) If an adjustment is to be made it must be consistent and complete across all jurisdictional levels. It must be totally consistent and meet the full requirements of the Constitution for an "actual enumeration."

(2) The influence of the capture-recapture method in post-enumeration survey models on the undercount or overcount estimates must be explained by any party advocating an adjustment. Any assumption upon which the post-enumeration survey is based must be identified and explained. The possibility of error of each assumption must be assessed and the effect on the accuracy of the post-enumeration survey in the case of error must be detailed. In particular, the balancing of estimates of gross overcount and gross undercount presents a grave possibility of error.

Comments received on this proposed guideline raised the following objections:

(1) The last part of the proposed guideline is subject to varied interpretations which are not clarified in the explanation. Also the word "assumptions" has an inappropriate emphasis.

(2) The following should be substituted as proposed guideline 3: "Since constitutional use, as well as almost every other use, of the Census results is based upon ratios of reported populations (e.g. the ratios of state populations determine congressional apportionment), errors by a constant percent (which leave ratios unchanged) are much more tolerable than errors of varying percentage for different

geographic regions or demographic groups."

(3) Objections to explanation of the "capture-recapture method" as the heart of post-enumeration survey population coverage deficiencies were raised.

(4) This proposed guideline is not clear when it says "the sources of undercount or overcount must be fully described." If the size of the undercount or overcount of the population can be measured with sufficient accuracy, the errors should be corrected whether or not one knows their sources.

(5) If there are more than eight possible sources of error, the Department should list them.

(6) The fundamental question is not whether a correction based on the PES approaches perfection, but only whether it is more likely to improve on an uncorrected enumeration.

(7) Proposed guidelines 2 and 3 must be balanced with a guideline which sets forth the sources of error in the raw enumeration count at an equal level of detail.

(8) The proper standard for this proposed guideline is that the evidence should only have to show that statistical adjustment improves the count's traditional failure to enumerate traditionally undercounted groups.

(9) This proposed guideline is ambiguous as there can be no question that the sources of error in post-enumeration survey have already been carefully evaluated by the Census Bureau.

(10) The following new guideline should be substituted: "Both raw enumeration and the results of post-enumeration survey should be evaluated for possible sources of error, including a careful review of all the underlying assumption of all the models used. The adjustment decision should be made after a study and comparison of raw enumeration and the results of post-enumeration survey."

Analysis of Comments Received on Proposed Guideline 3

The technical analysis underlying the evaluation of the census enumeration, cited in the supporting materials for **GUIDELINE 1** incorporates all operations implied by proposed guideline 3.

Comments received in support of this proposed guideline correctly note the need for an explanation of, and documentation of, the role of errors of various kinds, and assumptions of various kinds, in connection with the post-enumeration survey—particularly as these affect the determination of net overcount and net undercount in the census enumeration. Comments

objecting to this proposed guideline in two instances propose substitutes. Because we have retained the operations implied by this proposed guideline, and because we have determined that this proposed guideline relates to considerations subsumed under **GUIDELINE 1**, we see no need for a separate guideline incorporating the operations implied by this proposed guideline, and have dealt with it accordingly.

With respect to other comments objecting to the proposed guideline: We disagree that the word "assumptions" as originally used has an inappropriate emphasis. In statistical analysis of any kind one must be continually alert to the possibility that one is *creating* that which one thinks one has found by virtue of the analysis one is conducting. Thus, the role of assumptions is critical. We agree that a correction based on a post-enumeration survey need not be perfect to be desirable. We intend to examine all sources of error. We cannot anticipate all sources at this point. The proposed guideline was not meant to imply that only sources of error listed were to be considered. The point of the evaluation is to determine whether the error present is sufficient to negate any improvements in the count adjustment factors could produce.

The proposed guideline is dropped as a separate and free standing criterion, and the operations which underlay it have been incorporated in the technical grounds for **GUIDELINE 1**.

Each substantive objection to proposed guideline 3 will now be addressed in turn:

(1) The substance of the proposed guideline is now incorporated in final **GUIDELINE 1**.

(2) The accuracy of the enumeration and the proposed adjustment must consider all uses to which the census data are put. For some uses, small errors in level are important. For example, in the 1970 apportionment, the allocation of the 435th seat hinged on a difference of less than 500 people. If the census enumeration is made more accurate by adjustment, the ratios will be more accurate as well. We do not reject the notion that the accuracy of ratios is important, but as specified in final **GUIDELINE 1** we will rely on the Census Bureau to develop appropriate measures of accuracy using accepted statistical practice and to exercise the highest standards of professional judgment.

(3) The objectionable explanation has been deleted. Capture-recapture methodology is fundamental to post-

enumeration survey methods as used by the Census Bureau.

(4) Criteria for correcting for the net overcount or net undercount of the census enumeration depends, among other things on the accuracy of the census enumeration itself and on the adequacy of the proposed correction methodology. To correct errors, the behavioral source of the errors does not need to be known, but the characteristics of the people do. Errors can be corrected only if one knows the source of the error so that one can appropriately correct the count.

(5) The Department and the Census Bureau cannot anticipate all sources of error. Work continues, and will continue throughout all census-related operations, to identify and quantify sources of error.

(6) We agree. See final **GUIDELINE 1**.

(7) The incorporation of proposed guidelines 2 and 3 into **GUIDELINE 1** strikes this balance.

(8) We prefer the standard set out in final **GUIDELINE 1**. It correctly asserts that the census enumeration must be improved—not portions of it.

(9) The Census Bureau will evaluate the error structure of the post-enumeration survey that occurs after the 1990 census, as it has evaluated the error structure of post-enumeration surveys in the past. The evaluation of past surveys does not mean that one can simply apply those results to subsequent surveys.

(10) Final **GUIDELINES 1 and 3** assure that the activities suggested by the proposed substitute guideline will be carried out.

Proposed Guideline 4

(4) The 1990 Census may be adjusted only if the adjusted counts are consistent and complete across all jurisdictional levels: national, state, local, and census block. Thus, for example, counts could not be adjusted at the state level and left unadjusted at the census block level. If any census block within a stratum is adjusted, then all census blocks within that same stratum must be adjusted. Any adjusted count must be arithmetically consistent across all levels of geography and with respect to age, race, Hispanic origin, and sex. This requirement does not apply when incorporating counts of military overseas into national totals for reapportionment purposes.

Explanation: If any adjusted count is to be used, it must be adjusted at every level at which census counts are used. Some strata, for which there is no conclusive evidence of an undercount, may not be adjusted. It must be arithmetically consistent to avoid

unnecessary confusion and to avoid any efforts to choose among alternative sets of numbers to suit a particular purpose. It is unacceptable to conclude, for example, that one set of numbers at the level of individual states can be used for redistricting purposes, while another set could be used for apportionment purposes.

Evaluations of small area estimation. A synthetic estimation procedure might be used for adjustment. A synthetic adjustment assumes that the probability of being missed by the census is constant for each person within an age, race, Hispanic origin, and sex category in a geographical area. A synthetic adjustment is performed in two steps. First, the preferred adjustment factors are estimated for each age, race, Hispanic origin, and sex category for a post-enumeration-survey stratum. The same age, race, Hispanic origin, and sex categories may not be appropriate for every post-enumeration-survey stratum, in which case the categories will be combined as necessary. Then the adjusted estimate in each category for the census block is obtained by multiplying the unadjusted census estimate in that category by the adjustment factor. The adjusted census estimate for the census block is computed by adding the estimated adjustments for the age, race, Hispanic origin, and sex categories. Put simply, under adjustment each individual enumerated would receive a different relative weight in the adjusted population count according to his or her race, age, sex, ethnic background, and place of residence.

The coverage error may vary substantially within the post-enumeration-survey stratum, although the strata were drawn so as to be homogeneous with respect to expected coverage error. The goal of this analysis is to determine whether or not the assumptions underlying a synthetic adjustment of the census are valid and produce counts which are more accurate at all geographic levels at which census data are used.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) This proposed guideline reflects the important principle that there must be one set of census numbers, and one alone, for all applications and uses. The principle followed in adjustment is that certain kinds of people may not be represented fairly in a Census in a predictable way, which can be arithmetically calculated and corrected. If this principle fails under examination, adjustment cannot be defended.

(2) The proponents of any adjustment, have the burden of proving the overwhelming accuracy of any statistical model and that such model will yield the most accurate counts. Statistical or mathematical model should not be based upon any post enumeration survey since such survey is not required to meet the Constitutional mandate of a "actual enumeration." The post enumeration surveys are solely for the purpose of evaluating the original enumeration and not to make any adjustments to it.

(3) This proposed guideline seems to be incomplete in the part beginning: "Evaluations of small area estimation." Something appears to be missing which perhaps would pull the proposed guideline together. When referring to "synthetic adjustment," is this a product of or based upon the post-enumeration survey? Is the Department saying that to get to block level adjustments synthetic adjustment must be made? Are synthetic adjustments based upon purely theoretical estimations which from the explanation would seem to have no particular correlation at the block level to post-enumeration survey data? This methodology appears to be designed solely as a method to justify adjustments to the block level to make the mathematics of any adjustments at higher levels appear coordinated and applied uniformly to all levels. If submitted, this proposed guideline should be changed to specify the statistically acceptable level of reliability for adjustment for census blocks.

(4) Proposed guideline 4 allows for consistent application of adjusted counts across all hierarchical levels of census geography. While adjusting all units down to block level may be technically challenging, it must be done. Otherwise the application of adjusted data may be unfair and, possibly, could marginally disenfranchise the very population subgroups whose interests are traditionally damaged by under or over count.

Comments received on this guideline raised the following objections:

(1) It is assumed that the words "same structures must be adjusted" does not require that if adjustment changes one block, it must change every block.

(2) Improvement at larger areas implies improvement at smaller areas, provided that percent corrections are carried down from larger to smaller areas.

(3) The following should be substituted for this proposed guideline: "Preserving the reputation of the Bureau of the Census for even-handed apolitical

behavior is important for the effective conduct of future Censuses. Thus it is important to avoid charges that decisions about adjustment—other than the Secretary's final decision to adjust or not to adjust—were made with a knowledge of the detailed consequences of such decisions for reported populations. To this end, the Bureau of the Census, with the concurrence of the Department of Commerce, will determine, and publish a single procedure of possible adjustment in advance of the tabulation of results of the Post-Enumeration Survey. This procedure shall be chosen to give the best adjustment that pre-Census knowledge and judgment can provide. Doing this well is almost certain to require the use of various numbers (some technically called regression constants) calculated from the results of the classical enumeration and the Post-Enumeration Survey. Procedures for the calculation of these numbers, and the exact way in which they are to be used, must, therefore, be part of the published specification of the process."

(4) While this proposed guideline is likely to have no impact upon the ultimate decision whether to certify corrected counts because of the methodology contemplated by the Bureau, it does preclude certain outcomes that might be preferable to an uncorrected census. Further, if the corrected population of a state did not equal the sum of its constituent parts, this proposed guideline would preclude using the corrected figures, even though they would yield a more accurate apportionment of Congressional seats to the state than would the uncorrected one.

(5) "Consistency" and "completeness" should be defined.

(6) This proposed guideline is objectionable because it places a requirement on the adjusted census that is not currently placed on the unadjusted data.

(7) This proposed guideline sets up a standard of consistency which is not even followed by the Census.

(8) This proposed guideline may preclude an adjustment even though corrected figures could yield a more accurate apportionment of congressional seats to each state even though such figures are not arithmetically consistent across all levels of geography.

(9) The following alternative language is suggested for proposed guideline 4: "An adjustment should take place if it would yield a corrected count which assists the census in its constitutional duty of a fair and accurate congressional reapportionment."

Analysis of Comments Received on Proposed Guidelines 4 and 7

Proposed guideline 4 and proposed guideline 7 have been combined into **GUIDELINE 2**. These guidelines reinforce the principle that there should be only one set of official census enumeration population counts, and that those counts—whether or not they are adjusted counts—must be consistent throughout the census enumeration, and must be usable for all purposes to which the census enumeration is put. The guideline notes the fact that census numbers have a multiplicity of uses. Particularly when numbers are to be adjusted, the possible existence of duplicate series raises the specter of political pressure dictating which numbers are to be used for which purposes, independent of the quality of those numbers. This guideline enables the Secretary to be assured that adjusted numbers, or unadjusted numbers, are consistent, and can be used to fulfill their Constitutional and statutory purposes. Contrary to comments received, this guideline places no requirement on potential adjusted figures that are not traditionally placed on unadjusted figures.

The point has been raised that, by including overseas Americans in the census count for reapportionment, but not for redistricting, we will have already violated this **GUIDELINE**. All tabulations of census numbers will be consistent, except for the single instance of the inclusion of military personnel in the apportionment counts. This **GUIDELINE** is not intended to apply more rigorous standards to adjusted numbers than to unadjusted numbers: It is intended to assure that equally rigorous standards be applied to both.

Each objection to proposed guideline 4 will now be addressed in turn:

(1) The assumption is correct. If adjustment changes one block, it is not required that adjustment must change every block.

(2) The objection is correct only if one assumes that carrying down percent corrections is an accepted practice according to statistical standards of professional behavior. As an axiom the assertion is not true.

(3) Final **GUIDELINE 3** notes, in its explanatory material, that the Census Bureau will choose a single procedure for adjustment prior to tabulation of results of the post-enumeration survey. That **GUIDELINE** also describes in detail the process of evaluating the adjustment proposal adopted in terms of alternate models. Thus, the "charges" noted in the proposed substitute guideline will, in fact, be avoided as the

proposed substitute guideline suggests. Detailed technical materials, as noted in the introductory overview to these **GUIDELINES** will be available for public review. We believe the points covered in this proposed substitute guideline are dealt with as we have indicated. We will not accept the proposed substitute guideline, but we do acknowledge, and have dealt with, the principal issues it raises, in the **GUIDELINES** and supporting materials.

(4) We believe consistency is an important consideration. The lack of consistency, and the inability of the numbers to "add up" all the way from the lowest to the highest geographical levels, has the potential to create enormous practical difficulties for the uses to which census figures are put. Final **GUIDELINE 2** is intended to forestall difficulties of that kind.

(5) These are defined in the explanation. Consistency means that official numbers always yield the same total for any population, geographical, or demographically defined characteristics; completeness means the extent of census coverage for populations and sub-populations.

(6) Final **GUIDELINE 2** requirements would apply to either unadjusted or adjusted official figures.

(7) The standards of consistency implied by final **GUIDELINE 2** are followed by the census enumeration.

(8) Final **GUIDELINE 2** requires consistency across all levels of geography. It is our position that any adjusted figures must be consistent as well as more accurate.

(9) The criteria for adjustment laid out in the final **GUIDELINES** are those which would "assist the census in its [C]onstitutional duty of a fair and accurate congressional reapportionment." In particular, they require that figures produced as the official census enumeration be consistent, and usable for all legitimate purposes for which census enumeration data are required. This view is affirmed by various supporting comments, notably (1) and (4).

Proposed Guideline 5

(5) The 1990 Census may be adjusted only if statistical models of the adjustment process of comparable reliability lead to essentially similar conclusions or if a particular model is shown unequivocally to provide the best estimate. Ultimately, one statistical model must be chosen if adjustment is to be undertaken. It must be clear that this unique model yields the most accurate counts and that its selection should be based on the available information

about relative accuracy of competing methods.

Explanation: This guideline is intended to deal with the ambiguous outcomes resulting from the application of different statistical models to the Census, post-enumeration survey, and the demographic analysis. It acknowledges that individual judgment cannot be eliminated entirely from the reasoning leading to a conclusion related to the application of an adjustment. It would suggest, for example, that if all statistical models led to consistent statistical results that are all significant in one direction, the decision on adjustment would depend on the direction and the strength of the conclusions based on those results. If any one model were to be overwhelming in its accuracy, the results from this model could be accepted. In the latter instance, this guideline would require the strongest possible factual evidence to support such a conclusion. Whatever the case, however, statistical adjustment must ultimately use only one model that is shown to yield the most accurate counts.

Comparison of evaluations of the original enumeration. The demographic analysis and the post-enumeration-survey estimates provide evaluations of the original enumeration. The census coverage error rates from the demographic analysis and the post-enumeration survey will be compared to assess the consistency of the evaluations.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) Proposed guideline 5 is supported with the exception that "substantially all" should be inserted after the word "if" in the first sentence, and "beyond a reasonable doubt" should be substituted for the word "unequivocally" in the first sentence. It is believed that the danger of ambiguous outcomes resulting from the application of statistical models to the census is so great that the standards which statistical models must satisfy should be very high. The advocates of adjustment should have to prove that their statistical models are accurate beyond a reasonable doubt in addition to proving that the census count is wrong.

(2) Census information is used for the allocation not only of political representation, but for almost every type of federal funding. Any more casual attitude toward accuracy would amount to a gift to some unforeseen favored regions at the expense of the remainder of the nation.

Comments received on this proposed guideline raised the following objections:

(1) Proposed guideline 5 is very dangerous and guarantees that no adjustment will be made; because no procedure, whether dual-system adjustment or classical enumeration, can ever be clear that it "yields the most accurate counts".

(2) The following new guideline should be substituted: "The Bureau will be prepared to assess the various components of error, both of the results of the classical enumeration and of the results of adjusting the classical enumeration in the light of the Post-Enumeration Survey, carefully and expeditiously, and to combine these components into assessments of the total errors of both the classical enumeration and its adjustment with the aid of the Post-Enumeration Survey."

(3) This proposed guideline fails to specify what is meant by such key terms as "comparable reliability" and "essentially similar conclusions," thereby providing no grounds for the ultimate decision.

(4) This proposed guideline is objectionable because if there are two or more models for an adjustment, each of which would result in census data more accurate than the uncorrected data, but as to which there is no basis for choosing one "unequivocally" over the other, the Secretary should reject any adjustment. This shows an anti-adjustment bias.

(5) The explanation states that the adjustment decision "would depend on the direction" of the correction. The direction of an adjustment that improves accuracy should be utterly irrelevant to a legitimate decision.

(6) This proposed guideline virtually guarantees that no adjustment will be made. This proposed guideline can be read to take the position that because more than one model for an adjustment may result in more accurate Census data, each model can be rejected if it is not "unequivocally" better than the others.

(7) The following new guideline is suggested: "If any one or combination of methods can produce a more accurate count, the Department of Commerce will proceed with an adjustment."

(8) Proposed guideline 5 is an unrealistic requirement. Where there are several adjustment procedures, the Secretary should choose one if it has substantial advantages over making no adjustment.

(9) The following new guideline is suggested: "In assessing these components of error, careful even-handed attention will be paid to two

sets of circumstances, sometimes call "assumptions"—both (a) those circumstances under which the classical enumeration would give better results than any other process, and (b) those circumstances under which the adjustment described in *Guideline 4* [proposed by the commentator] would give better results than any other process. Attention will also be given to the magnitude of errors associated with deviations of the actual circumstances by various amounts from such ideal circumstances, especially since it is to be expected that the actual circumstances will not coincide with either set of ideal circumstances."

Analysis of Comments Received on Proposed Guideline 5

Proposed Guideline 5 has been substantially revised, and is final **GUIDELINE 3**. This **GUIDELINE 3** is intended to describe the following process which will be used to judge whether adjusted or unadjusted counts are better: The post-enumeration survey will assess the coverage adequacy of the census enumeration. Evaluation of error in the post-enumeration survey will assess the adequacy of the post-enumeration survey as a basis for the weights which will adjust the census enumeration for coverage deficiencies. Different error models will be applied to the results of the post-enumeration survey to assess its accuracy, robustness, and general adequacy as an adjustment-weight generating tool.

Each substantive objection to proposed guideline 5 will now be addressed in turn:

(1) Final **GUIDELINE 3** is a modification of proposed guideline 5. It takes into account this criticism by stating that adjustment estimates need be only more accurate than the census enumeration.

(2) Final **GUIDELINES 1** and **3** provide for the Census Bureau to assess various components of error as this proposed substitute suggests, and to combine these assessments into total error estimates. The substance of the proposed substitute guideline will, therefore, be taken into account.

(3) These terms are no longer used in the description of the operations underlying final **GUIDELINE 3**.

(4) As mentioned in (1) above, proposed guideline 5 has been extensively rewritten to clarify this point, and to remove any perceived anti-adjustment bias. This criticism is no longer pertinent as the validity of a single adjustment procedure will be assessed.

(5) The wording of the final **GUIDELINE** has been changed to get rid of any misunderstanding. We did not intend to make the direction of adjustment a criterion.

(6) See the discussion in (4) immediately above. The word "unequivocally" has been deleted.

(7) The decision to adjust will be made applying the **GUIDELINES** as a group. Final **GUIDELINE 1** describes the relationship among demographic analysis, the post-enumeration survey, the census enumeration, and accuracy. We prefer the current wording over that of the proposed substitute, because all factors embodied in the **GUIDELINES** must be considered in the decision whether to adjust the census.

(8) There is only *one* procedure for creating potential adjusted counts. The **GUIDELINES** are intended to enable the Secretary to determine if the census enumeration should be adjusted. There are, however, numerous tests to determine the relative accuracy of the census enumeration and the proposed adjustment.

(9) Final **GUIDELINES 1, 2, and 3**, together, define the role of accuracy, error, and the procedures to deal with them. These **GUIDELINES** perform the function of the proposed substitute guideline.

Proposed Guideline 6

(6) The 1990 Census may be adjusted only if the general rationale for the adjustment can be clearly and simply stated in a way that is understandable to the general public.

Explanation: The decennial Census is a public ceremony in which all usual residents of the United States are required to participate. If, for the first time in the history of the Census the count were statistically adjusted, and the adjustment was done in a way that is perceived to be out of the ordinary, the rationale for that action must be clearly and simply stated and understandable to the general public.

Documentation and reproducibility. The methods, assumptions, computer programs, and data used to prepare population estimates and adjustment factors will be fully documented. The documentation will be sufficiently complete for outside reviewers to reproduce the estimates. These standards apply to the post-enumeration survey estimates, the demographic analysis estimates, and the small area estimates.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) Firmly supports proposed guideline 6 which calls for a general rationale for

adjustment which is understandable to the public. The decennial census is not an academic, statistical exercise, sponsored by the Federal Government, upon which statisticians may impose their own social agendas. It is the very core upon which our whole republican system of government rests. If the basic rules of the game by which we allocate political power are to be changed, it is absolutely mandatory that the reasons be understandable. If the rationale for such a change is so convoluted and technical that it cannot be generally understood, then one of the two possibilities should be suspected. First, that the issue is not basic enough to rise to a level which supports such a change or, second, that the true rationale is being clouded in a technical haze to avoid a clear statement of the real issues involved.

(2) The goal of universal enumeration requires trust and cooperation from the public. Should the adjustment not seem warranted to the public, this will result in lack of public confidence for the fairness of distribution of political representation and federal funds, and may result in an unwillingness to participate in a future Census.

(3) Understanding and acceptance of the census count is currently widespread. Persons generally believe the Department of Commerce operates the census in an unbiased and fair manner. If any post-census count adjustment technique is utilized, the danger exists that persons will lose faith in the accuracy of census results. When the public learns that their participation in the census might be undermined by an adjustment based on behavioral assumptions, participation may decline. Although any adjustment to the census is opposed, if an adjustment is required, it must be clearly understandable to the general public.

(4) It is evident by the issuance of proposed guideline 6 that the Department has realized that there are no plausible or logical answers to the most basic questions the American Public is bound to ask. Curiously, what would be the general rationale, "stated clearly and simply", for counting people we cannot see, cannot find and don't even know if they exist. Similarly, what would be the general rationale, "understandable to the general public", for disregarding ten years of planning, hundreds of millions of dollars spent obtaining the latest technologically advanced equipment and millions of man hours in the field and in its place consult a crystal ball? This proposed guideline should be formally adopted and become one of those common sense

roadblocks a bad idea just can't seem to detour around.

(5) Proposed guideline 6 makes an important point. Though complex in its details, the census enumeration is straightforward and comprehensible in its basic character. Census enumeration has been carried out in recognizably similar form for 200 years. Statistical adjustment is inherently more arcane. Many Americans do fear "technocrats". They do fear tampering. This is not to cast aspersions on the Census Bureau. There is international and historical experience which makes people justly cautious. If an adjustment of the census enumeration is to be carried out, it needs to be possible to do it in a way that does not give credibility to those fears. The proposed guideline is right to acknowledge this challenge.

(6) Adjustments to the "actual enumeration" as mandated by the Constitution at the State level alone would be totally useless for reapportionment and redistricting of legislative districts and political subdivisions as may be required in the several states.

(7) This proposed guideline calls for a thorough policy debate that is understandable to the public. Any attempt to change without this debate could be viewed as an attempt by the Census Bureau to accomplish a political goal.

(8) These proposed guidelines are essential to a careful and complete consideration of whether to adjust. There has been unprecedented effort, and expense devoted to the design, planning of procedures and execution of the 1990 U.S. Census, especially for the procedures which should assure the most accurate census in the history of the U.S. Census. Even without the factor of possible artificial counts by way of statistical adjustments there can be some confusion on the part of the public. Once the census becomes subjected to statistical adjustments, there will be mounting pressures for increasingly larger sized samples. Future censuses will be compromised and the census effort will come to be seen by the public as just a big sample. Public confidence will be eroded and the public will come to believe that response to census questionnaires is unnecessary since "it will all be taken care of in the adjustment." Couldn't there then be a new "official census" each year? Could adjustments, as well, be made by statistical analysis for other than minorities, e.g. illegal aliens, nonresident military, nonresident students?

(9) Proposed guideline 6 is an important addition. Public confidence in

the census process and products is essential. By allowing for the public's understanding of the rationale for adjustment, that confidence is safeguarded. The concept of actual enumeration is simple for even the lesser-educated segments of the public to grasp. Should a statistical adjustment be desired, it must first be justified, then explained to the public. That is more challenging but necessary.

Comments received on this guideline raised the following objections:

(1) Objections were raised to the "general rationale" of this proposed guideline that all adjustment procedures "can be clearly and simply stated in a way that is understandable to the general public."

(2) This proposed guideline is unverifiable as we cannot test whether the "general rationale" for adjustment has been understood by the general public and it is biased against adjustment.

(3) It is not true that an adjustment of the 1990 Census would be "the first time in the history of the census" that the count was statistically adjusted. Examples of previous adjustments in 1970 are the Post Enumeration Post Office Check and the National Vacancy Check. Never before has the Bureau viewed understanding of the census operations by the Bureau or the Department as a *sine qua non* for adjustment.

(4) The proposed guideline should only say adjustment brings the data closer to the truth and should explain the adjustment as clearly as possible.

(5) This proposed guideline abrogates the right to equal representation in Congress if the Commerce Department thinks the general public will not understand.

(6) The following new guideline should be substituted: "The Census Bureau should proceed with an adjustment if it would lead to a more accurate population count. If an adjustment is used the Census Bureau should make every effort to make the public aware that similar adjustments have occurred in the past and will continue to occur in the future in an effort to ensure a fair and accurate count of each, segment of our nation's population, as required by the United States Constitution."

(7) This proposed guideline is objectionable because it requires more understandability than is required of other census procedures (e.g. imputation, etc).

(8) This proposed guideline is objectionable because it requires adjustment to be understandable to the general public. The real issue is will

adjustment make a more equitable final count.

Analysis of Comments Received on Proposed Guideline 6

Proposed guideline 6 has been substantially modified and is **GUIDELINE 8**. This proposed guideline was stated in a way that led to considerable misunderstanding. Many criticisms suggested that this proposed guideline was simply an excuse to disallow adjustment on the grounds that the process was too complicated. It was also alleged to set up a standard of understandability not applied to other Department of Commerce decisions.

The intent of the original proposed guideline was to give the government the responsibility of clearly explaining the adjustment decision, whether that decision were to adjust for net overcount or net undercount in the census enumeration, or not to adjust. In addition the guideline was supposed to make the ability to articulate the decision a factor in the decision itself.

GUIDELINE 8 is intended to state those requirements clearly. Thus, when the adjustment decision is made, it must then be explained in straightforward language, as non-technically as possible. This requirement maintains the responsibility of a democracy to have its critical decisions understood by its citizens.

Each substantive objection to proposed guideline 6 will now be addressed in turn:

(1) Final **GUIDELINE 8**, which embodies proposed guideline 6, maintains that the ability to articulate the basis and implications of the adjustment decision should be a factor in the decision. The explanation of the **GUIDELINE** makes it clear that this factor alone cannot dictate the decision. This view is affirmed by many supportive comments, notably (1), (3), (4), (5), (8), and (9).

(2) See (1) above. Final **GUIDELINE 8** is not biased against adjustment. It simply attaches importance to the public's understanding of the decision to adjust or not adjust the 1990 census count.

(3) See the response to comment (10) under proposed guideline 1. In addition, understandability is not the *sine qua non* for adjustment. See (1) above.

(4) We disagree for the reasons stated in (1) above. Final **GUIDELINE 8** states what we believe is appropriate with respect to understanding the adjustment decision. Final **GUIDELINE 1** deals with accuracy.

(5) We disagree for the reasons stated in (1) above.

(6) The proposed substitute guideline is covered in our final **GUIDELINES 1 and 8**. As in the 1990 census, future census efforts will aim to produce the most accurate counts practicable.

(7) Because some other procedure is not well understood is not a reason for not clearly articulating the adjustment decision.

(8) See (4) above.

Proposed Guideline 7

[7] The 1990 Census may be adjusted only if the resulting counts are of sufficient quality and level of detail to be usable for Congressional and legislative reapportionment, redistricting, and for all other purposes and at all levels, for which the Census Bureau publishes decennial Census data.

Explanation: The guideline recognizes that the population counts must be usable for all purposes for which the Census Bureau publishes data. Thus, the level of detail must be adequate to produce counts for all such purposes. The guideline also reinforces the fact that there can be, for the population at any one point in time, only *one* set of official government population figures. The guideline does not speak in any way to the issue of the timing of the release of adjusted figures, nor is it meant to preclude any adjustment solely on the basis of timing.

Evaluations of small area estimation. See the discussion under guideline (4), above.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) Only one set of population data should be utilized by the Census Department for all purposes. The Department must not be allowed to utilize one census count of the population for one purpose and another census count for another purpose. Parties advocating an adjustment to the census count must not be allowed to pick and choose from a variety of census counts for different purposes. Proposed guideline 7 is therefore supported.

(2) The proposal relative to consistency at all levels appears to be one of the most important considerations. Due to the "extensive use" of the Census, to adjust only partially would wreak constant havoc on the choice of data, published or not, to utilize.

(3) Proposed guideline 7 properly notes that the resulting adjusted counts must be of "sufficient quality and level of detail to be usable for Congressional and legislative reapportionment,

redistricting, and for all other purposes and at all levels. * * * The adjustment methodologies most frequently discussed will be unable to provide block and tract-level data which are sufficiently detailed for redistricting at currently mandated standards of population equality and minority voting rights protection.

Comments received on this guideline raised the following objections:

(1) This guideline is too restrictive. If improved accuracy can be achieved for any of the constitutionally mandated purposes, it must be achieved for those purposes, irrespective of what is possible for those purposes. This view is affirmed by all three supporting comments.

(2) While the Census Bureau publishes census data for a wide variety of purposes, the overriding mandate of the census is to produce the most accurate counts for congressional and legislative reapportionment. This Constitutional duty should receive priority.

(3) The following new guideline was suggested: "If an improved count can be achieved for congressional and legislative apportionment the Census count should be corrected by an adjustment irrespective of other uses of Census data."

A general analysis of comments on proposed guideline 7 can be found after the comments on proposed guideline 4.

Each substantive objection to proposed guideline 7 will now be addressed in turn:

(1) The discussion of objections to proposed guideline 4, above, details the necessity of consistency. The census, whether adjusted or unadjusted, must be usable for all statutory and Constitutional purposes. This view is affirmed by all three supporting comments.

(2) The official census counts, whether adjusted or not, must be usable for any and all purposes. See responses to the objections in proposed guideline 4. Our position is embodied in final **GUIDELINE 2**. See (1) above.

(3) The suggested change is rejected for the reasons set out in (2) above.

Proposed Guideline 8

[8] The 1990 Census may be adjusted only if the adjustment is fair and reasonable, and is not excessively disruptive to the orderly transfer of political representation.

Explanation: Any adjustment of the 1990 census should be fair and reasonable in its impact on the political process and on any allocation of economic resources that is based on the decennial population counts. This guideline is intended to ensure that the

factor of disruption is explicitly taken into account as the decision whether or not to adjust the 1990 census is reached. It requires an explicit statement of the degree to which adjustment would be disruptive of the orderly transfer of political representation. It is not sufficient to simply state that disruption would or would not occur. Based on the empirical evidence and the recommended courses of action, the extent of disruption must be weighed against any benefits that might accrue from adjustment.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) Another strength of the proposed guidelines is their recognition of possible consequences flowing from a decision about adjustment. These include effects on participation in future census and possibly disruptive effects on the apportionment process. These are matters of concern to many citizens, and they deserve the attention in the proposed guidelines that they receive. Similarly, the proposed guidelines give appropriate weight to the central statistical issue, how likely it is that adjusted counts will be more accurate in relevant senses than counts from the original enumeration.

(2) Clearly, an adjustment to Census numbers must leave the data in at least as usable a form as the unadjusted condition of the data. An adjustment should not interfere with the reapportionment of the nation's Congressional seats, the redistricting of Congressional and legislative seats within states, or cause confusion as to the "real" population or demographic character is a state, county, city, census tract or other region.

(3) Due to the additional burden which might be placed on any state legislative body by virtue of any adjustment, it seems quite appropriate for the federal government to consider both the timeliness of the process and the potential disruption to the political process in more substantive terms.

(4) Political disruption is unacceptable to the public, and to elected bodies and governmental departments who must continue to deliver services under this uncertainty.

(5) Any adjustment to the 1990 census must be based upon a criteria sufficient to derogate the Constitutional mandate of a "actual enumeration". Before any adjustment can be considered there must be compelling statistical and policy reasons to do so. An "actual enumeration" of the population is not based upon some statistical formula based upon a theory that it is more probable than not that the population is

a certain number at a given point in time. The decennial census must be based upon the Federal government's best effort to make an actual enumeration of the population. The "actual enumeration" must not be diluted by adjustments which have their own plus or minus error factor. Every effort must be made to make the "actual enumeration" as accurate as possible. Adjustments to the best possible count will only undermine the "actual enumeration" as mandated by the Constitution.

(6) The proposed guidelines would also favor an adjustment only if it is "not excessively disruptive to the orderly transfer of political representation." The delay of release of any counts, beyond July 15, 1991, will cause severe disruption of the redistricting process, and adjustment should not take place if it adds excessive disruption.

(7) This proposed guideline addresses the possibility that adjustment might disrupt either the redistricting or reapportionment processes. There is a need for as orderly a redistricting process as possible. If adjustment is going to add excessive disruption to an already difficult process—even to the point of delaying it beyond the 1992 election cycle—it should not take place.

(8) The extent of disruption in the transfer of political representation must be weighted against any benefit that might accrue from an adjustment of census counts. For this reason, proposed guideline 8 is supported. In Illinois, there are state constitutional deadlines for completing redistricting activities. Any delay in obtaining census count figures could severely disrupt legislative redistricting in Illinois. For example, Article IV, section 3 of the Illinois Constitution allows the Illinois Legislature to enact a redistricting plan by June 30, 1991. If no redistricting plan becomes effective by that date, then a legislative redistricting commission is constituted. In order for the Legislature to have the opportunity to enact a redistricting plan, census count data must be available several months in advance of that date. A delay in receiving such census count information until July 15, 1991 (as provided in proposed guideline 12 will make passage of a redistricting plan by June 30 impossible. The effect of this delay would therefore deprive Illinois citizens of their rights under the Illinois Constitution, a result which could hardly have been favored by the framers of our federal system of government. In addition, if a legislative redistricting commission is constituted pursuant to

the Illinois Constitution, such commission must file its own redistricting plan with the Illinois Secretary of State not later than August 10, 1991. The members of the commission would have to have the census count information immediately upon the commission being constituted on June 30, 1991 to have any chance of meeting the Constitutional August 10 deadline. If an adjustment of census count information were to delay the receipt of census count information by Illinois officials until July 15 of 1991, neither the Illinois General Assembly nor the legislative redistricting commission would be [un]able [sic] to perform their duties as specified in Article IV, section 3 of the Illinois Constitution. It is reasonable to assume that any decision to adjust census counts will result in litigation intended to overturn such decision. It is therefore reasonable to assume that adjusted figures might not be delivered by July 15, 1991 in any case. The potential disruption to the orderly transfer of political representation within the state of Illinois is highly likely if the Department decides to adjust census counts. This disruption would include elimination of the ability of the Illinois General Assembly to enact a redistricting plan, and delay of the ability of its legislative redistricting commission to perform its duties. For these reasons, proposed guideline 8 is supported.

(9) Proposed guideline 8 seems to provide the necessary flexibility, fairness, and reasonableness for the Secretary to avoid an unnecessary adjustment of the census counts. I understand that the Bureau of the Census has consistently lowered the undercount in each successive national census, and that significant improvement is again expected for the 1990 census. The margins of error are becoming so small that the justification for adjustment are becoming weaker each census.

Comments received on this guideline raised the following objections:

(1) This proposed guideline should be dropped because it makes the adjustment decision a political one.

(2) This proposed guideline should be modified to note that if the adjusted census is more accurate, using it will have a stabilizing rather than a disruptive effect.

(3) Proposed guideline 8 is inconsistent with proposed guideline 7 because it is unrealistic to assume adjustment can be made without disrupting the redistricting process in some states.

(4) This proposed guideline does not define fairness or reasonableness, and implies that there are considerations apart from accuracy.

(5) "Disruption" as used in this proposed guideline is not relevant to accuracy and should have no part in the Department's decision-making. It is not the Secretary's role to make this determination. The assignment of the Secretary is to produce the most accurate count practicable and to let political chips fall where they may. Such an action by the Secretary is *ultra vires*.

(6) This proposed guideline creates the anomalous situation that the larger the problem, the less likely it is to be corrected.

(7) The following new guideline should be substituted: "The Constitutional rights of Hispanics, minorities and undocumented to fair and equal political representation should be vindicated at any price. In order to avoid any undue disruption the Secretary of Commerce will make every effort to make an adjustment decision as early as possible."

Analysis of Comments Received on Proposed Guideline 8

Proposed guideline 8 has been substantially clarified and retained as **GUIDELINE 7**. Comments received on this proposed guideline agreed that potential disruption was an appropriate standard for the Secretary to apply when making a decision whether or not to adjust the census enumeration for a net overcount or net undercount. However, the point was raised that not adjusting in and of itself was potentially as serious a cause of disruption as adjusting, given certain circumstances. The proposed guideline and its explanation were modified to reflect this correct assertion.

Each substantive objection to proposed guideline 8 will now be addressed in turn:

(1) Final **GUIDELINE 7**, which is proposed guideline 8 as modified, does not make the adjustment decision political. It rightly requires the Secretary to weigh the consequences of his decision, whether it is to adjust or not. Specifically, he must take into account the extent to which his decision will be disruptive to the orderly transfer of political representation. This view is affirmed by supporting comments, notably (2), (3), (7) and (8).

(2) The proposed guideline has been reworded to note that disruption may result from a decision not to adjust as well as from a decision to adjust. Thus, if an adjusted census were to have a stabilizing effect, this would be a factor in the decision whether or not to adjust.

(3) See comments in (1) and (2) above.

(4) "Fairness and reasonableness" are no longer a part of final **GUIDELINE 7**.

(5) The Secretary must weigh the consequences of his action. Whether deciding to use adjusted or unadjusted census counts, the factor of potential disruption must be taken into account. The **GUIDELINE** will be weighed collectively, and final **GUIDELINE 1** and final **GUIDELINE 7** both have roles to play. See (1) above.

(6) See (1), (2) and (5) above. This final **GUIDELINE** is only one of the factors that will be considered in making the adjustment decision.

(7) The Secretary must weigh the many consequences of his decision. In addition, the Secretary will make an adjustment decision as early as practicable.

Proposed Guideline 9

[9] The 1990 Census may be adjusted even though the differential overcount or undercount compares favorably with the results of the differential overcount and undercount in the 1980 census only if there are compelling statistical and policy reasons to do so.

Explanation: This guideline requires an examination of the results of the analysis of the adequacy of the 1990 count in terms of its comparison with the 1980 count. One fact of history is that, although there was an acknowledged undercount and overcount of population subgroups and of the entire population in 1980, the quality of the estimates of those deficiencies was not adequate to allow an adjustment of those figures. Should coverage deficiencies be no greater than they were in 1980, substantial documentation of the advantages of an adjustment in increasing the utility and accuracy of the Census count would be required to warrant a decision to adjust.

Comments received on this proposed guideline supported the guideline for the following reason:

Because the figures on overcount and undercount for 1980 were not sufficient to warrant adjustment of the Census results, similar numbers from the 1990 demographic and post-enumeration surveys must be held to the same standard. The Census must proceed with a commitment to consistency, fairness and thoroughness. The alternative is a Census which is open to criticism, suspicion, and legal challenge.

Comments received on this guideline raised the following objections:

(1) This proposed guideline is objectionable because it relates adjustment to the 1980 differential

overcount or undercount in the 1980 Census.

(2) Rather than assuming the superiority of the census and demanding overwhelming evidence to the contrary, this proposed guideline should simply state that the Secretary will judge the end rate of adjusted counts against unadjusted counts and will require the use of those that he deems most accurate. Overwhelming evidence, however defined, should not be necessary.

(3) This proposed guideline is based on a misconception of the history and purpose of adjustment research and the record of differential undercount to which it is a response. The proposed guideline would promote an unconstitutional decision to reject an accurate census and accept a differentially, undercounted flawed alternative.

(4) The following new guideline is substituted: "If an adjustment can vindicate the constitutional rights of Hispanics, minorities and undocumented persons by eliminating an undercount in 1990 it should be utilized."

Analysis of Comments Received on Proposed Guideline 9

Proposed guideline 9 has been dropped. Critical comments included assertions that this proposed guideline could be perceived as being an excuse to accept an inferior count simply because it was marginally better—overall—than the 1980 census enumeration in terms of differential net overcount or net undercount.

Each substantive objection to proposed guideline 9 will now be addressed in turn:

(1) The point is well taken. The proposed guideline has been dropped.

(2) The proposed guideline has been dropped. The objection to it is now moot.

(3) The proposed guideline has been dropped. The objection to it is now moot.

(4) The purpose of considering an adjustment is to increase the accuracy of the census enumeration. That purpose is embodied in **GUIDELINE 1**. The Secretary must weigh the many consequences of his decision.

Proposed Guideline 10

[10] Any decision whether or not to adjust the 1990 census must take into account the effects such a decision might have on future census efforts.

Explanation: The decennial census is an integral part of our democratic process. Participation in the Census must not be discouraged. Respect for the

objectivity, accuracy, and confidentiality of the census process must be maintained. If an adjustment were to erode public confidence in the census or call into question the necessity of the population participating in future censuses, then that would weigh against adjustment. The extent to which adjustment or non-adjustment would be perceived as a politically motivated act, and thus would undermine the integrity of the census, should also be weighed in making any adjustment decision.

Comments received on this proposed guideline supported the guideline for the following reasons:

(1) The 1980 Census resulted in an enumeration of over 98% of the population. This result depended, to an overwhelming extent, upon the voluntary participation of most American households. In 1990, the proponents of adjustment seek to take the results of this enumeration and manipulate the results of substitute aggregate totals of their liking at the possible expense of accuracy at the local level. This involves the wholesale addition of synthetic persons and the deletion of actual individuals. It also involves adjustments to tallies, even at the municipal level, which even the proponents of adjustment know may not represent a higher degree of accuracy than the actual enumeration. You must fully examine the possibility that, by adjustment, you might be sacrificing a greater accuracy in one aspect of the tallies, for an unknown possible improvement in the level of accuracy in another. It is fully possible that a proadjustment decision might be more a result of pressure for a well-meaning political adjustment, than an unbiased search for increased accuracy. If the American public loses confidence in the integrity and motivations of those who are adding up the 1990 Census numbers, they might be less inclined to participate in the 1990 Census and future censuses. We should consider carefully before involving the Census Bureau in such a policy decision.

(2) If an adjustment is approved for 1990, the potential impact for future census activities is overwhelming. There is no question that public confidence would be severely shaken, if the accuracy of the census is undermined by some artificial adjustment. Millions of dollars are expended under the present system with the current level of confidence. Certainly efforts would be negatively impacted by a mathematical adjustment.

(3) Due to the wide acceptance of the Census by government and citizens alike, it seems highly appropriate to

consider the potential negative short and long term impact of any adjustment to the integrity of the Census and all of its ongoing Census programs, e.g., Current Population Studies.

(4) The decennial census neither evokes suspicion or threatens anyone. The public perception of the Bureau of the Census is universally positive. The Census Bureau has earned this good will because of its evenhanded and purely objective approach to the charge of enumerating all Americans. Over 200 years, the U.S. Census Bureau built a reputation for accuracy that is the envy of the rest of the world. Obviously, the Bureau must move very cautiously when considering any action which might undermine that reputation. Any after-the-fact statistical adjustment to the completed 1990 census has the real possibility of being perceived by the American Public as political tampering to the advantage of some and the disadvantage of others—a suspicion which could, in turn, have a chilling effect on future public participation and confidence.

(5) Adjustment of census counts may have negative effects on the willingness of the public to participate fully in the 1990 census as well as future decennial census efforts. It is believed that if the integrity of the census is diminished in the eyes of the public, the accuracy of census counts will be diminished. Advocates of an adjustment to the census count must prove that an adjustment to the census will not undermine the accuracy of future census counts.

Comments received on this guideline raised the following objection:

This proposed guideline is based on mere surmise. It would encourage a decision against correction based on speculation alone. There is no evidence that suggests a decision to adjust will have any effect of future census participation. The United Kingdom and Australia have already corrected their censuses and there is no evidence that their countries have been harmed by correction.

Analysis of Comments Received on Proposed Guideline 10.

Proposed Guideline 10 has been retained as **GUIDELINE 4**. The explanation of the logic underlying the proposed guideline has been modified to note explicitly that the effect of not adjusting as well as the effect of adjusting the census enumeration for a net overcount or net undercount plays a role in considerations of the effect of current census activities on future censuses. Comments on this proposed

guideline were most supportive of its use as a criterion for the Secretary's consideration.

The substantive objection to proposed guideline 10 will now be addressed:

(1) The proposed guideline, which is now final **GUIDELINE 4**, does not encourage a decision against adjustment. It simply does not want to discourage people from cooperating with the census. The adjustment decision must take into account potential adverse effects on future censuses. It may be the case that not adjusting the census, in the context of all the **GUIDELINES**, will have an adverse effect, or *vice versa*. This **GUIDELINE** requires that these potential effects receive explicit consideration as factors in the adjustment decision. This view is affirmed by all five of the supporting comments.

Proposed Guideline 11

[11] Any adjustment of the 1990 Census may not violate the United States Constitution or Federal statutes.

This guideline requires no explanation.

Comments received on this proposed guideline supported the guideline for the following reason:

There is a good question, under the United States Constitution, whether or not an adjusted enumeration is even legal. This would certainly be an issue for the courts.

Comments received on this guideline raised the following objection:

The Department has never asserted that adjustment is illegal. This proposed guideline should state the Department's concerns about illegality if it has any.

Analysis of the Comments Received on Proposed Guideline 11

This proposed guideline—which is now final **GUIDELINE 5**—simply states that the Secretary may not violate the law in order to adjust the census enumeration. In response to this comment, the modified explanation makes specific the meaning of this guideline.

Proposed Guideline 12

[12] There will be a determination whether or not to adjust the 1990 census only when sufficient data are available and analysis of the data is complete enough to make such a determination. If sufficient data and analysis of the data are not available in time to publish adjusted counts by July 15, 1991, a determination will be made not to adjust.

Explanation: It is inappropriate to decide to adjust without sufficient data and analysis. The Bureau will make

every effort to ensure such data are available and analysis is complete in time for the Secretary to decide and publish adjusted data by July 15, 1991. If, however, sufficient data and analysis of the data are not available in time, a determination will be made not to adjust.

Comments received on this guideline raised the following objections:

(1) This proposed guideline should allow adjustment after July 15 if statistical data indicate need for adjustment.

(2) The date of July 15, 1991 does not create a date by which the Department is "liberated" from its obligations to report the most accurate count practicable. This proposed guideline is an invitation to foot-dragging.

(3) The language "only when sufficient data are available and analysis of the data is complete enough to make such a determination", would strike some people as giving too much leeway to potentially partisan decisionmakers.

(4) Rather than requiring decisionmakers to exercise scientific judgment about what is sufficient and what is not sufficient, it would be better to have officials make a decision based on what analyses they have.

(5) The following new guideline should be substituted: "There will be a determination whether to adjust the 1990 census by July 15, 1991. If adjusted counts are not available at that time, a determination will be made not to adjust."

Analysis of Comments Received on Proposed Guideline 12

Proposed Guideline 12 has been retained as **GUIDELINE 6**. The relationship between this proposed guideline and the stipulation agreement requiring that these guidelines be produced has been elaborated in the discussion of **GUIDELINE 6**. The July 15, 1991, date is court imposed. We reject the allegation that this proposed guideline is an invitation to foot-dragging, gives to potentially partisan decisionmakers too much leeway, or should be replaced by a weaker guideline allowing a decision on adjustment to be made based on whatever data are available on July 15, 1991. The explanation of **GUIDELINE 6**, and the text of the stipulation agreement, provide the legal grounds for this date, and the professional basis for the likelihood of its being successfully met.

Each substantive objection to proposed guideline 12 will now be addressed in turn:

(1) This is outside the scope of the stipulation.

(2) Final **GUIDELINE 6**, which incorporates proposed guideline 12, does not invite foot-dragging. The date was agreed to by plaintiffs in the lawsuit which stipulated these **GUIDELINES** as a mechanism to resolve the adjustment controversy. The Department intends to conduct a full, fair, and accurate census as possible and to make the adjustment decision at the earliest practicable date.

(3) The **GUIDELINE** is intended to mean that the Secretary have sufficient information to make a responsible decision. The issue is not partisan. It is a matter of accurate data.

(4) Sufficient data are necessary to make an informed decision. If available analyses were *de minimis*, the information would very likely be insufficient for a responsible decision. The Secretary must be assured that, should he decide to adjust the census enumeration, the counts would hold up under professional, technical, and legal scrutiny.

(5) The proposed wording does not fully meet the requirements of the stipulation, and, therefore, must be rejected.

General Substantive Comments

General comments received in favor of the proposed guidelines

(1) The dual use of the Post Enumeration Survey (PES), both as an evaluation technique and a means of correction of deficiencies, is a significant new step in the census process. In the past we have always depended upon the initial enumeration and its follow-up enhancements as the basis for development of the "official" figures. Departure from this policy is not to be taken lightly—as the language in the Constitution specifically calls for an "enumeration." Since the only constitutional reason for the development of census tallies is to apportion representation, and representation is gained through real votes, coming from districts with real populations, the proposed use of statistically adjusted populations in redistricting boils down to statistically weighing votes. It is precisely because of this implication that any decision to adjust must be lifted above the level of a statistical debate and become a major public policy concern. Taking all these considerations into mind, the guidelines developed out of the advisory process address both the technical and public policy issues involved in making an adjustment decision. The proposed guidelines which address the areas of general public understanding and

assured accuracy are especially important. If we end up adjusting the enumeration results, it should be done on the basis of overwhelmingly convincing evidence that such changes represent a movement toward "reality" at all levels of geography used for redistricting. Since this change in public policy will also involve a change in voting, the change, and the general reasons behind it should be understandable to the voters.

(2) The tools we use to estimate the quantity of overcount and undercount will be subject to bias, which will be difficult to measure given the necessarily imprecise character of these methods. Full description and study is essential to judge the applicability and reliability of the resulting numbers.

(3) On balance, the proposed guidelines are sufficient to appropriately frame the discussion which will be before the Secretary shortly. They indicate an awareness of the many issues and problems confronting the decision maker and objectively address the scope of inquiry and the heavy burden of proof before any adjustment can be considered.

(4) The use of accurate data as the basis for allocating legislative representation in this country cannot be understated. For over 200 years, our government has relied on enumeration, and kept with the spirit of the U.S. Supreme Court one person, one vote decisions during the 1960's. The proponents of adjustment would have us manipulate enumeration totals from a statewide level to a block level. We must not change the procedures of the census unless there is clear evidence that the adjustment would improve the accuracy of the census.

(5) These proposed guidelines are obviously the result of careful consideration of all aspects of the adjustment process. They cover both the basic technical and policy issues involving census adjustment. The Secretary's careful consideration of all these issues, when he makes his adjustment decision in 1991, will result in not only a fair decision, but a decision which will protect the integrity of the Census process in all its aspects. It will also achieve a result which will have the support of the people who have placed their public trust in us to administer their democratic system.

(6) The question as to whether there will be any adjustment of the 1990 U.S. Census is indeed very important, a question which easily conjures up concerns about the role of statisticians in our democratic society. Perhaps not so obviously, however, it provokes policy discussions about the role of our

federal government and its three branches. The proposed guidelines are an excellent effort at addressing many of these, and other aspects of the very difficult problem presented by the question of whether any adjustment could be, and should be, made to the federal Census.

(7) The proposed guidelines address many of the relevant inquiries which must be a part of the overall decision process before the Secretary as a result of the New York litigation.

(8) It is a given fact that political suspicions will pervade any attempt to make adjustments to a census. Kansas has experience in this area. The Kansas Constitution calls for state legislative redistricting to be based upon the latest federal decennial census adjusted by removing nonresident military and nonresident college and university students from the census counts and allocating the resident military and student counts to the place of their Kansas residence. The adjustment responsibility has been assigned to the Secretary of State. Political suspicions, cutting across political party lines, were prominent in the legislative discussions on the proposed constitutional provision. They continued on into the discussions the following year regarding the adjustment enabling legislation. These suspicions and arguments continue today as the constitution and the enabling legislation are implemented. Because of these political suspicions, the task of the Secretary of State has been made more difficult. Much time and precious resources have to be devoted to countering and disabling these suspicions. If adjustment of the U.S. Census becomes the norm, the Bureau of the Census will become more and more preoccupied with combating political suspicions with the consequent diversion of resources from the census effort itself.

By definition, the issue of adjustment of the census is entirely political. It is really a battle over raw political power. Once adjustments commence, the battle will surely become then one of how to dictate the methodology of the adjustments to grab even more political power and fiscal advantage.

Perhaps of equal importance is the very real potential for the census to become in the eyes of the public just another part of unfair and unresponsive government that doesn't recognize individuals, but simply processes faceless numbers. Being viewed with political cynicism is not a burden that the census needs while it struggles to insure maximum participation.

(9) The proposed guidelines are correct in recognizing that adjustments

to the census can be excessively disruptive to the democratic process. It is terribly unfair to the voters for elections to be delayed, campaigns shortened and redistricting done twice, because of debates and litigation over census adjustment. Even if elections are not delayed, the confusion generated by census adjustment makes it impossible to provide voters with the accurate election information.

(10) These are a reasonable and prudent set of proposed guidelines for deciding whether or not to adjust 1990 census results for undercount.

(11) As is appropriate, the proposed guidelines focus first on whether or not a statistical adjustment is justified and should be authorized. The constitutionality of the basic issue has not been firmly established, nor have all the likely significant effects of statistical adjustment been determined. The initial presumption of the guidelines should not be that an adjustment is automatically justified and the only concern is "how" the adjustment will be manipulated.

(12) The census is widely regarded among our citizenry as the most accurate and rational basis for determining the population of the United States. Virtually every aspect of our society is impacted by census data. Any statistical alterations to the enumeration would be based on a premise which serves to favor or disfavor a particular category of persons. The census should not be used as a tool to support and perpetuate such biases. The most fundamentally sound census is one which is based on evidence that a physical person is in a particular location at a particular time. The Secretary is correct in pursuing the matter of adjustment from a viewpoint which protects the status quo. No statistical adjustment should be made unless it can be documented to be a more accurate count and overwhelmingly shown to produce a more objective process. The burden has been aptly placed on the plaintiffs to substitute reasons why a policy shift as major as a statistical adjustment to the census should occur.

(13) The twelve proposed guidelines appropriately focus first on the question, "should an adjustment be done?" rather than "Which methodology is most useful?" The proposed guidelines are flexible enough to avoid forcing the Secretary of Commerce into any particular decision, yet are sufficiently well-defined to address a significant over or undercount.

The United States Constitution calls for an actual enumeration which, until recently, had always been interpreted as

an actual, physical count. The nation's founders did not want to leave to vital a process at the mercy of statistical manipulation by the politically self-interested. Very few institutions of our government have remained inviolate; among these are the decennial census process. The continuing legitimacy of our Constitutional republic is based on the fair reapportionment and redistricting which follows the decennial census.

In addition, adjusted data may have practical technical limitations. These limitations are recognized in proposed guideline 4 which requires adjusted counts to be consistently and completely applied across all jurisdictional levels.

(14) For its first 200 years of its existence, this government has used the decennial enumeration as a basis for the allocation of legislative representation. This has been especially true since the U.S. Supreme Court issued its series of one person, one vote decisions in the 1960's. In the congressional redistricting process, that same Court has emphasized the need for accurate data in mandating that congressional districts be as nearly equal in population as practicable. In drafting district lines, the use of accurate data down to the smallest possible geographic levels has become mandatory. Many districts are deemed acceptable or unacceptable based on the placement of one city block. It is only by use of block-level data that plan drafters are able to meet the Court's stringent standards.

(15) These proposed guidelines appear to force careful consideration of public policy as well as technical aspects of an adjustment. Given the importance and gravity of a decision that could be construed as "tinkering" with the decennial population count. The decision regarding adjustment fully warrants the detailed evaluation and procedures specified in the proposed guidelines.

Before any adjustment is considered, it is important to determine that the methods used to assess the accuracy of the count are consistent and unbiased and that any changes in the original data will lead to improved accuracy at both the aggregate as well as local and sub-local units. The proposed guidelines require this. The decision whether or not to adjust census enumeration results in not just an academic exercise of scholarly interest; it is a public policy concern. Any change from the two century old system of allocation of seats and political power should be understandable to the public and the benefits of such adjustments must be significant, real and fair to all segments of the population. Any perception that

the government is "cooking" the Census figures must be avoided. The proposed guidelines would accomplish this goal.

(16) Any scientific method of statistical adjustment of data requires assumptions. It is not clear how anyone can verify these assumptions in all cases. So it seems to be unreasonable to burden the Bureau to be responsible for the assumptions on which the assumptions depend.

(17) Public confidence and cooperation in the census process would certainly be undermined if the Department undertakes to add nonexistent persons to census blocks or removes people who are actually there. Such a shift in public policy needs careful scrutiny and coordination. Implementation of the proposed guidelines will act as a valuable tool in the decision making on this very important issue.

(18) Since the census now counts every block in the United States, the census count itself is the standard for accuracy. Prior to any adjustment, it should be proven that the census is wrong, and the adjustment is more accurate in real terms.

(19) The proposal emphasizes that there is no reason to adjust the census unless the adjusted count is shown to improve the uses of which the census is put. Before ordering adjustment, the Secretary should have to justify the advantages of adding persons who do not exist to census blocks, removing persons who were actually counted from the count, and giving each person counted "a different relative weight in the adjusted population count according to his or her race, age, sex, ethnic background and place of residence."

(20) The proposed guidelines properly shift the underlying question on adjustment from a purely technical "can it be done?" to a policy-oriented "should it be done?" This is the correct focus for an inquiry that has vast public policy ramifications; more than a statistician's belief should control this decision.

(21) The procedures of the census should not be changed unless there is evidence that adjustment would very clearly improve the accuracy and fairness of the census.

(22) It would seem most irresponsible to allow any adjustment of the census until there is universal agreement that undercounting exists and that the Department has identified the one best method of addressing the "problem."

(23) There is no consensus among the experts, including statisticians, that the proposed capture-recapture technique will yield a more accurate national count. The data could actually introduce more errors into the census. The

proposed statistical adjustment technique does not recognize vast differences from district to district across the country. The manipulated numbers assigned to each district would certainly be based on conflicting statistical estimates. Indeed, in the 1980 post-enumeration survey, all twelve statistical models produced different results.

(24) There is no question that the actual enumeration is the foundation of the census. Every process which adds to that count should be carefully examined both in terms of its technical and public policy implications. Just because such processes have not been subject to public scrutiny in the past, does not justify the position that new proposals should be exempt. It also follows that the more radical the change, the more important public scrutiny becomes.

(25) The Commerce Department has struck a delicate and proper balance between the needs of the Department and the Country for a timely, accurate census, and the views of those who claim undercounting of some portions of Society.

General comments received critical of the proposed guidelines

(1) The stipulation and order requires that technical guidelines be published.

(2) Proposed guidelines 5, 7, 8 and 12 all present nearly impossible and clearly unreasonable conditions for adjustment.

(3) Proposed guidelines 1, 4, 6, and 7 should include technical or statistical standards.

(4) Substantial changes must be made before final guidelines are issued to ensure that the spirit and intent of the Stipulation and Order are upheld. The final guidelines should (1) replace the current bias against statistical adjustment with a framework for a more objective, reasoned evaluation of adjustment procedures; (2) eliminate those proposed guidelines that do not bear on the fundamental issue of census accuracy; and (3) set forth quantifiable, objective criteria as required by the Stipulation and Order.

(5) The proposed guidelines are fundamentally biased against adjusting the census and the Secretary should base his decision on the weight of the evidence regarding the accuracy of adjusted versus unadjusted counts.

(6) Proposed guidelines 6 and 12 should be directives from the Secretary to the Census Bureau rather than proposed guidelines.

(7) The overwhelming key issue must be the accuracy of 1990 census data. The proposed guidelines must recognize that there will be three fundamental sources

of information regarding the number of Americans:

- (a) The Original census enumeration,
- (b) The post-enumeration survey enumeration,
- (c) the demographic analysis program.

The main issue must be to provide a sound, well-reasoned, balanced evaluation of the original enumeration, the post-enumeration survey enumeration, and the demographic analysis program. It is improper and in violation of the Stipulation and Order to ascribe an overwhelming burden of proof to any one of the three sources, as is done in the proposal.

(8) It is strongly suggested the technical guidelines be given a preeminent position in the final guidelines document. The technical guidelines provide the foundation or the underpinning for evaluating the three sources of information. For communication with the general public, you may wish to shorten the technical guidelines somewhat. On the other hand it is also suggested the Department and the Census Bureau become very specific about what evaluations will be done and when they will be done. Because such specific information would tend to lengthen the guidelines document, some of the information could be placed in an appendix. However, it is strongly urged this material be fixed by March 10, 1990.

(9) The proposal fails to acknowledge the more than forty-year history of this problem, especially the Census Bureau's progress this decade. Through this proposal, Commerce seems to be saying that it has no idea whether the post-enumeration survey methodology and demographic analysis methodology will work or not, and that its information is so incomplete that it cannot make a judgment about this matter. This also violates the Stipulation which states " * * * the parties hereto at this time believe that the Census, including a post-enumeration survey and other adjustment-related operations, can and will be conducted in a manner that will result in the most accurate counts practicable * * * ". The Bureau's own research and testing has demonstrated the strong likelihood that a post-enumeration-survey based correction can move the enumeration closer to the truth both in level and in distribution. Thus, the Department must plan on that eventuality and the final guidelines document must acknowledge the likelihood of that eventuality, while leaving room for a no-adjustment decision should the post enumeration survey enumeration, demographic analysis or census enumeration fail

substantially in ways or to an extent not foreseen in the pre-census tests.

(10) The proposed guidelines reflect a long-standing semantic problem that should be dealt with decisively once and for all. It is inappropriate to speak of "the Census" versus "the adjustment." This sets up some kind of artificial distinction between the two, leading to conflicts. The words create an impression that adjustment is something alien to the census, something sinister and untrustworthy that is added on later. The proposed guidelines should reflect, as does the Stipulation, that the post-enumeration survey is part of the census and that it provides evidence that should be used, as other evidence is used, to generate the most accurate counts.

(11) The various evaluations of the original enumeration, the post-enumeration survey, and demographic analysis should emphasize accuracy both in distribution and in level, with priority given to the former.

(12) The evaluation of the original enumeration and post-enumeration survey will be conducted at aggregate levels of geography, for broad demographic categories, or for some combination of both. The aggregate categories are called evaluation strata. There will be no explicit evaluation at microlevels, e.g., the block, as the proposal improperly suggests. Other results which are already available and of which Census Bureau scientists are aware, demonstrate that if aggregate data is accurate, then so will be the corresponding disaggregated data, not necessarily for each and every block in the country, but broadly on balance (or average). Further, the average improvement will be such that there will be no information in Census Bureau data banks that would permit identification of specific blocks or areas of residual differential undercount or overcount.

(13) The final guidelines should describe a search for improvement, not a search for perfection. Placing an overwhelming burden of proof on the post-enumeration survey, as does the proposal, may lead to a most regrettable situation wherein the search for perfection prevents statistically and substantively meaningful improvements on the original enumeration. The spirit of searching for improvement also has implications for the timing of an adjustment. Today, the Census Bureau seems intent on planning a flawless post-enumeration survey, or as close to flawless as resources and the July 15 date will permit, and an extensive, though as yet not completely specified, post-enumeration survey evaluation.

This planning may or may not be appropriate, given demands for early census data. There should be a careful, well-reasoned approach to further planning and to execution of the post-enumeration survey with a spirit of achieving 90% (approximately) of the maximum possible improvements in accuracy at the earliest possible date before July 15.

(14) It is suggested that the policy guidelines be dropped or, at the very least, ascribe some order of determination to the various final guidelines, with census quality as the number one determinative factor.

(15) The Secretary should delegate the final decision-making authority about adjustment or correction to the Director of the Census Bureau, as was done in 1980.

(16) The technical guidelines are the key to ensuring objectivity and the lack of technical guidelines contributes to the appearance that objectivity is lacking. Work should have continued on the technical guidelines developed by the Bureau in 1987. The proposed guidelines amount to 12 ways to say no to adjustment, a conclusion shared by experts who have no connection to plaintiffs in the suit noted in the Summary. The proposed guidelines include too many policy grounds that go against adjustment. If an adjustment improves the counts, it should be undertaken. The proposed guidelines should not require an "overwhelming" burden of proof before an adjustment can be undertaken. Requiring that level of proof is evidence of hostility to adjustment. Also, the assumption that the basic enumeration is the best possible count is flawed.

Analysis of General Comments

These comments are diverse in nature. Each will be addressed in turn.

(1) The stipulation and order require that guidelines be developed and adopted. These guidelines are to "articulate what the defendants believe are the relevant technical and nontechnical statistical and policy grounds" for the adjustment decision. The technical grounds are contained in this document.

(2) Final GUIDELINES 2, 3, 6, and 7—which correspond roughly to proposed guidelines 5, 7, 8, and 12—do not present impossible and clearly unreasonable conditions for adjustment. The responses to specific objections to those proposed guidelines make that clear. Furthermore, the GUIDELINES are to be weighed collectively. See Supportive comments (2), (3), (5), (8), (11), (13), (14), (18), and (21).

(3) See (1) above.

(4) The **GUIDELINES** are not biased against adjustment. Proposed guidelines not bearing on the fundamental issue of adjustment have been eliminated. The stipulation does *not* require quantifiable, objective criteria—it requires guidelines. See (1) above. It is our view that the changes we have made follow the spirit and intent of the Stipulation and Order.

(5) The Secretary will utilize the **GUIDELINES**, which give a prominent role to the issue of accuracy, in his decision. The **GUIDELINES** will help ensure that there is an objective, balanced approach for the adjustment decision. See (2) and (4) above.

(6) We believe these are more appropriate as **GUIDELINES** than as directives. The Secretary will issue appropriate directives to the Census Bureau, as these are called for, throughout the census process.

(7) The final **GUIDELINES** provide a sound, well-reasoned, and balanced evaluation of the enumeration, post-enumeration survey, and demographic analysis. However, for reasons stated in the introduction, the census enumeration must necessarily be considered more accurate unless shown otherwise. See, especially **GUIDELINES 1 and 3**.

(8) The Department will publish more detailed technical materials in the near future, as noted in the introduction. These cannot all be fixed prior to March 10th, since some are necessarily dependent on the census and the post-enumeration survey process.

(9) The Department is well aware of the 200 year history of the census, as well as the 200 year history of the coverage deficiency problem. The Department is committed to conducting all necessary operations in a manner that will result in the most accurate counts practicable. **GUIDELINES 1 and 3** state the relationship among the census enumeration, the post-enumeration survey, and demographic

analysis and their evaluation. The Department is open to the potential of adjusting the counts, while leaving room for a non-adjustment decision as well.

(10) The post-enumeration survey is separate from the census enumeration. The objection seems to seek to institute a so-called integrated census. The Department rejects that option as a way of carrying out census operations as explained in the introduction and in responses to comments on proposed guideline 1. Adjustment is not viewed as alien or sinister. The post-enumeration survey and demographic analysis should and will be used to evaluate the enumeration and to generate more accurate counts, if possible.

(11) See **GUIDELINE 1**. Accuracy is a paramount concern to the Secretary, but he is also concerned with issues reflected in the other **GUIDELINES**.

(12) To be acceptable the evidence for adjustment must show convincingly that the count can be improved at the national, state and local level. The variation in block-to-block counts will be one determinant of the measures of accuracy. See (2) above.

(13) The **GUIDELINES** focus on accuracy and reliability and improvement, not perfection. The Secretary will make his decision at the earliest practicable date.

(14) In accordance with the stipulation, the **GUIDELINES** articulate the relevant technical and non-technical statistical and policy grounds for the decision. The **GUIDELINES** will be weighed collectively.

(15) The responsibility, under the law, for the conduct of the decennial census of population and housing, belongs to the Secretary of Commerce. He will exercise that responsibility as he deems most appropriate.

(16) The Stipulation obliges the Department of Commerce to develop guidelines that "articulat[e] what defendants believe are the relevant

technical and nontechnical statistical and policy grounds for decision on whether to adjust the 1990 Decennial Census population counts." The **GUIDELINES** satisfy this requirement. For example, **GUIDELINE 1** includes a section entitled "Discussion of Technical Grounds," which explains technical statistical grounds that are relevant to the adjustment decision. Likewise, technical grounds relevant to the adjustment decision are clearly articulated in the section entitled "Evaluations of small area estimation" which follows **GUIDELINE 2**. As stated in the Introduction, a detailed outline of technical operations and procedures will be published. The final **GUIDELINES** are not twelve ways of saying no. The proposed guidelines have been extensively modified to take into account the concerns of commenters that the proposals were not balanced enough. In accordance with the Stipulation, the **GUIDELINES** reflect the policy grounds which the Department of Commerce considers essential to the adjustment decision. One of the proposed guidelines that contained policy grounds has been eliminated, and the language of the remaining ones has been modified to eliminate concerns that they counseled against an adjustment. We have explained why we view enumeration as the basis for the census counts, and require that statistical techniques used to modify the counts in an attempt to improve them be subject to close scrutiny. (See the Introduction.) We have eliminated the requirement that an adjustment yield counts which are proven to be "overwhelmingly" better than unadjusted population counts. Instead, adjusted counts need only be shown to be "convincingly" better. (See the explanation of **GUIDELINE 1**.)

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