Appendix C

The Bridge Report: Tabulation Options for Trend Analysis

I. Scope and Organization of the Report

To permit meaningful comparisons of data collected under the 1977 standards with data that will be collected under the 1997 standards, some agencies may need procedures for bridging to the past. Because Federal data are used to measure change over time, these kinds of data comparisons are critical to disentangle real changes in economic, social, and health conditions from methodological changes resulting from using the 1997 standards for collecting data on race and ethnicity. The purpose of this report is to discuss different options for tabulating racial data in order to create bridges from data collected under the 1997 standards, which have five racial categories and permit the reporting of more than one race, back to the previous four racial categories with instructions for respondents to select only one category. An "Other" category appears in much of the analysis, because it is used in the decennial census.

The contents of this report represent the work of a group of statistical and policy analysts drawn from Federal statistical agencies that use and produce data on race and ethnicity. They have identified tabulation issues and conducted research to develop tabulation guidelines for constructing "bridges" between racial data collected under the 1997 standards and racial data collected under the 1977 standards. This report sets forth criteria by which different bridging methods should be evaluated and describes the different methods that have been considered thus far. The results of the research conducted on several methods for creating bridges are also presented. All of these methods (and the research on them reported here) involve the use of individual-level records, because altering aggregate data would not allow for the cross-tabulation of race with variables measuring social, economic, and health outcomes. Analyses are performed on data collected using separate questions for race and Hispanic origin. Under the 1997 standards, when reporting is based on self-identification, the two-question format is to be used; even in the case of observer identification, this is the preferred format. It is likely that some users will want to bridge to a distribution created using a combined race and ethnicity question. Thus, bridging both to the old racial distribution resulting from the use of two questions and one based on a combined question are analyzed. The latter analyses required the creation of a combined distribution from data collected using the two-question format. It should be clearly understood that this is a "manufactured" distribution and may be different from one obtained when actually using a combined question format. Based on the research, the strengths and weaknesses of each bridging method are discussed.

The report is organized as follows:

- Section II describes the nine criteria used to evaluate the different tabulation procedures considered for possible use in bridging to racial data collected under the 1977 standards.
- Section III describes the different bridging methods considered.

- Section IV provides an overview of the methodologies used in data analysis.
- Section V provides details on the results of research on this topic conducted prior to the release of the 1997 standards.
- Section VI presents results from new statistical analyses conducted since 1997 to evaluate the different methods.
- Section VII evaluates the different tabulation procedures using the criteria, in conjunction with the results from both old and new research.
- Section VIII discusses the problem of weighting the racial distribution using the new question format to the 1990-based census population controls.

II. Criteria for Evaluation

The interagency expert group on tabulations generated criteria that could be used both to evaluate the technical merits of different bridging procedures (see Chapter 5 and Appendix C) and to display data under the 1997 standards. The relative importance of each criterion will depend on the purpose for which the data are to be used. For example, in the case of bridging to the past, the most important criterion is "measuring change over time," while "congruence with respect to respondent's choice" will be more critical for presenting data under the 1997 standards.

The criteria set forth below are designed only to assess the technical adequacy of the various statistical procedures. The first two criteria listed below are central to consideration of bridging methods. The next six criteria apply both to bridging and long-term tabulation decisions. The last criterion is of primary importance for future tabulations of data collected under the 1997 standards.

Bridging:

Measure change over time. This is the most important criterion for bridging, because the major purpose of any historical bridge will be to measure true change over time as distinct from methodologically induced change. The ideal bridging method, under this criterion, would be one that matches how the respondent would have responded under the 1977 standards had that been possible. In this ideal situation, differences between the new distribution and the old distribution would reflect true change in the distribution itself.

Minimize disruptions to the single race distribution. This criterion applies only to methods for bridging. Its purpose is to consider how different the resulting bridge distribution is from the single-race distribution for detailed race under the 1997 standards. To the extent that a bridging method can meet the other criteria and still not differ substantially from the single-race proportion in the ongoing distribution, it will facilitate looking both forward and backward in time.

Bridging and future tabulations:

Range of applicability. Because the purpose of the guidelines is to foster consistency across agencies in tabulating racial and ethnic data, tabulation procedures that can be used in a wide range of programs and varied contexts are usually preferable to those that have more limited applicability.

Meet confidentiality and reliability standards. It is essential that the tabulations maintain the confidentiality standards of the statistical organization while producing reliable estimates.

Statistically defensible. Because tabulations may be published by statistical agencies and/or provided in public use data, the recommended tabulation procedures should follow recognized statistical practices.

Ease of use. Because the tabulation procedures are likely to be used in a wide variety of situations by many different people, it is important that they can be implemented with a minimum of operational difficulty. Thus, the tabulation procedures must be capable of being easily replicated by others.

Skill required. Similarly, it is important that the tabulation procedures can be implemented by individuals with relatively little statistical knowledge.

Understandability and communicability. Again, because the tabulation procedures will likely be used, as well as presented, in a wide variety of situations by many different people, it is important that they be easily explainable to the public.

Future tabulations:

Congruence with respondent's choice. Because of changes in the categories and the respondent instructions accompanying the question on race (allowing more than one category to be selected), the underlying logic of the tabulation procedures must reflect to the greatest extent possible the full detail of racial reporting. The bridging methods are meant to simulate how respondents would have identified under the 1977 standards using as much of the new information as possible.

III. Methods for Bridging

The goal of developing bridging methodology for data on race is to identify a statistical model that will take individuals' responses to the new questions on race and classify those responses as closely as possible to the responses that it is hypothesized they would have given using the old single race categories. Such a task will be relatively easy or be more difficult depending on how an individual identifies himself or herself under the 1997 standards. For bridging purposes, individuals with only a single racial background are likely to identify as they did

before, and no statistical model is needed for bridging. Those with a mixed racial heritage who were previously required to identify only one part of their background may, under the 1997 standards, choose to identify all of their racial heritages. When a person identifies with more than one racial group, some model for bridging purposes will be necessary to translate those multiple responses into the one, single response that it is hypothesized the individual most likely would have reported under the 1977 standards.

A. Framework

Several different methods have been identified for creating a single race distribution from data including multiple race responses. These methods vary in both the assumptions that are made and the procedures that are followed. Before describing the particular methods examined in this report, it is useful to describe some of their major underlying characteristics.

One major distinction among the bridging methods is whether an individual's responses are assigned to a single racial category (termed whole assignment in Table 1) or to multiple categories (termed fractional assignment). Whole assignment can be based on a set of deterministic rules or based on some probabilistic distribution. For example, a deterministic rule might assign all White *and* American Indian multiple responses into the American Indian category, while a probabilistic rule might randomly assign 60 percent White and American Indian responses into the American Indian category, and 40 percent into the White category. In the above example, it is unlikely that all individuals identifying as White and American Indian under the 1997 standards would have previously identified as American Indian, so the deterministic rule will result in misclassifications for all those people who had previously identified as White. With a probabilistic rule, an individual's responses are randomly assigned to either the American Indian category or the White category (such as with 60 percent and 40 percent probabilities, respectively, based on previously collected data). Even if the overall probabilities matched exactly the aggregate distribution under the 1977 standards, there is no guarantee that the 40 percent who were categorized as White would have classified themselves that way. In fact, in the worst case, all 40 percent who were classified as White would actually have identified as American Indian under the 1977 standards, and a corresponding percentage of those categorized as American Indian would have identified as White.

When fractional assignment is used, multiple race responses are categorized into more than one category where each category receives a fraction of a count, and the sum of the fractions equals one. In the above examples of whole assignment, a person's responses were placed into one and only one category, in an attempt to resemble the past. An alternative is to use a deterministic rule to assign some fraction of the multiple race response to each of the racial categories identified. For example, a multiple response of White and American Indian might count as "one-half" in the tabulations for American Indians and "one-half" in the tabulations for Whites. These fractions, like the probabilities in the earlier example, could be varied for different combinations of multiple races to attempt to reflect how often people might identify with one group compared to another.

In summary, these methods differ in terms of whether they are deterministic or probabilistic, and whether multiple race responses are assigned wholly to one category or fractionally to all the categories identified. Table 1 provides an overview of this framework. Specific methods will be considered within each of the cells except the Probabilistic/Fractional Assignment method because the alternatives are unnecessarily complex and do not improve upon the alternatives in the other cells.

There are inherent strengths and weaknesses in each of these tabulation approaches. Furthermore, it is important to note that all of these methods are simplistic compared with the human behavior they are seeking to emulate, and at best, any method will only be able to reflect roughly an historical bridge.

B. Bridge Tabulation Methods

All of the bridge tabulation methods focus on the assignment of the responses from individuals who identify with more than one racial group. Responses from individuals who identify with only a single racial group under the 1997 standards are assumed to have been the same under the 1977 standards. The response "Native Hawaiian or Pacific Islander" is assigned to the old racial category of "Asian or Pacific Islander." The specific methods for assigning multiple race responses into single race categories are Deterministic Whole Assignment, Deterministic Fractional Assignment, and Probabilistic Whole Assignment.

Two sets of results from each of the following tabulation methods are produced. The first set ignores the use of any auxiliary information other than that needed to carry out the particular tabulation method. The other set of results for each method uses the one piece of information that is certain to be common to all data collections done following the 1997 standards, that is, ethnicity. Thus, whether or not an individual is Hispanic is taken into account when a tabulation method is used.

Deterministic whole assignment. These methods use fixed, deterministic rules for assigning multiple responses back to one and only one of the racial categories from the 1977 standards. Four alternatives are examined. The first (Smallest Group) assigns responses that include White and another group to the other group, but responses with two or more racial groups other than White are assigned into the group with the fewest number of individuals identifying that group as a single race. The second alternative (Largest Group Other Than White) assigns responses that include White with some other racial group, to the other group, but responses with two or more racial groups other than White are assigned into the group with the highest single-race count. The third alternative (Largest Group) assigns responses with two or more racial groups into the group with the largest number of individuals as a single race. In this latter case, any combination with White is assigned to the White category, and combinations that do not include White are assigned to the group with the largest single-race count. The fourth alternative (Plurality) assigns responses based on data from the National Health Interview Survey (NHIS). The NHIS has permitted respondents to select more than one race for a number of years, with only the first two responses captured. NHIS respondents reporting

more than one race were given a follow-up question asking them for the one race with which they most closely identify (see section VI.A.1 for a detailed description of the NHIS data). For these respondents, the proportion choosing each of the two possibilities as their main race was calculated. All responses in a particular multiple-race category using the Plurality method are assigned to the race group with the highest proportion of responses on the follow-up question about main race.

Deterministic fractional assignment. These methods use fixed, deterministic rules for fractional weighting of multiple-race responses, that is, assigning a fraction to each one of the individual racial categories that are identified. These fractions must sum to 1. Two alternatives are examined. The first (Deterministic Equal Fractions) assigns each of the multiple responses in equal fractions to each racial group identified. Thus, responses with two racial groups are assigned half to each group; those with three groups are assigned one-third to each, etc. The second alternative (Deterministic NHIS Fractions) assigns responses by fractions to each racial group identified, with the fractions drawn from empirical results from the NHIS (as described above).

Probabilistic whole assignment. These methods use probabilistic rules for assigning multiple race responses back to one and only one of the previous racial categories. Two alternatives are examined. These parallel the two alternatives discussed under Deterministic Fractional Assignment, except that, for a given set of fractions, the response is assigned to only one racial category. The fractions specify the probabilities used to select a particular category. The first alternative uses equal selection probabilities. The second uses the NHIS fractions where possible, and equal fractions when no information is available from NHIS. Probabilistic Whole Assignment will yield nearly, on average, the same population counts as Deterministic Fractional Assignment. **Only the results from Deterministic Fractional Assignment are presented in this report**. In practice, there would be a difference between Deterministic Fractional Assignment and Probabilistic Whole Assignment when computing variances for tabulated estimates, and the two methods will yield relatively small differences in distributions for respondent characteristics. In general, Probabilistic Whole Assignment would yield a higher estimated variance than the Deterministic Fractional approach, with the variances for both methods underestimating the true variance. Probabilistic methods which incorporate a “Multiple Imputation” statistical technique would result in an unbiased estimate of variance, but at the price of being more difficult to implement (See Rubin 1987.).

Another probabilistic whole assignment method that is not examined but could be considered is a hot deck imputation method. This procedure is often used in surveys to provide data on responses to survey items where responses are missing. For purposes of bridging, a hot deck procedure would find the “nearest neighbor” on a number of demographic dimensions for a person who identified more than one racial group. The person would then be assigned into one of the racial categories that he or she had reported based on the single racial group reported by the nearest neighbor.

C. Detailed Race Distributions

In addition to the results from applying the historical bridge tabulation methods, the "detailed" race distributions are presented. This information gives the percentage of individuals identifying with a single race or with specific multiple-race combinations. Excluding the "other" category, there are 31 categories in the detailed distribution, including 5 single race groups, 10 two-race combinations, 10 three-race combinations, 5 four-race combinations, and 1 five-race combination. The percentage of respondents identifying with a single race represents the lower bound for the counts in the separate race categories.

The percentages of the total number of respondents who identified with each racial group also are presented regardless of whether they also identified with any other group. Thus, those who selected more than one race group are included in each group they selected, and each percentage represents the percent of the population who marked that given racial group. The sum of these percentages, in the presence of multiple race reporting, totals more than 100 percent. This distribution serves both as a point of comparison to the bridge methods and as an alternative to the complete distribution described above, and it gives an upper bound on the percentage of individuals who might have identified with any one of the racial groups under the 1977 standards. This distribution is referred to as the "All Inclusive" distribution.

IV. Methods of Evaluation

A. Review of Previous Research

A significant amount of research was completed during 1995 and 1996 to inform decisions concerning proposed changes to the standards for Federal data on race and ethnicity. The May 1995 Current Population Survey (CPS) Supplement on Race and Ethnicity provided detailed information concerning alternative ways of collecting data about racial and ethnic background. The results from the National Content Survey (NCS) conducted by the Bureau of the Census in 1996 yielded similar information. The CPS, however, also included racial information from the same respondents gathered in a previous data collection using the racial categories from the 1977 standards. In addition, data available from the Racial and Ethnic Targeted Test (RAETT) reported by the Census Bureau in 1997 provides distributions from the reporting of race and ethnicity under the 1997 standards for selected population groups. The National Health Interview Survey (NHIS) also contains information about multiple race reporting. As described above, the NHIS asks respondents to select all racial groups with which they identify, and those individuals reporting more than one race are asked to indicate their primary race. A re-examination of these data sets will provide a good background for the additional research needed on bridging. See OMB (1997) for a description of these surveys and their results.

B. Data Sources for Additional Research

Only a limited number of data sources are available for evaluating methods of creating bridges. None of the currently available, nationally-representative data sets duplicate exactly the way the question on race will be asked under the 1997 standards. Some current data can offer insights into the relationship between how individuals will actually respond to the new question on race and how they responded to the question under the 1977 standards.

Both the NHIS and the CPS Supplement data sets are useful for this purpose. Actually, the CPS Supplement can be used to evaluate the effects of the different tabulation methods for both the two-question format and a combined race and ethnicity question. Data recently collected by the State of Washington will serve as an example for evaluating the tabulation methods at the sub-national level, and its race question most closely resembles that which will be used under the 1997 standards. Simulations using 1990 census data also were conducted, but the results differed little from those for the other data sets.

C. Description of New Analysis

The analyses concentrated on the bridge tabulation methods. These analyses can be divided into three broad areas: (1) descriptions of racial distributions under the tabulation methods; (2) rates of racial misclassification for the tabulation methods; and (3) sensitivity of outcome measures to tabulation alternatives.

Distribution of Race. For the first part of the analysis (using the NHIS, the CPS Supplement, and data from Washington State), the distributions of race under the allocation alternatives described previously were calculated: All Inclusive, Deterministic Whole Allocation (Smallest Group, Largest Group Other Than White, Largest Group, and Plurality) and Fractional Allocation (Equal Fractions and NHIS Fractions). At this time, it is unknown what percentage of people in the United States will identify with more than one racial group when given the opportunity to do so in Census 2000 and subsequent surveys. For purposes of illustrating the effects of a greater proportion of individuals identifying multiple racial backgrounds, analyses were conducted increasing the proportion of multiple race responses two-, four-, six- and eight-fold using the NHIS, the CPS Supplement, and the Washington State micro data sources. The racial distributions were compared using each of the tabulation methods to see effects with increasing levels of multiple race reporting. Of necessity, these tabulations assume that the increases are the same across the different combinations of more than one race. The accuracy of this assumption cannot be tested. The purpose of these analyses is not to attempt to make accurate predictions about the extent of multiple race reporting or its composition, but rather to see more clearly possible differences among tabulation methods that may only become apparent with a greater percentage of multiple race reporting.

In all three data sets, overall goodness-of-fit statistics were calculated to compare the match between the distribution from each bridge tabulation method and the appropriate reference

distribution in each data set (representing the distribution under the 1977 standards). The goodness-of-fit measure was a multiple of the standard Likelihood Ratio G^2 statistic used in categorical analysis (Agresti 1990), with the "true" or reference distribution playing the role of the "Expected" and the distribution of each of the tabulation methods playing the role of the "Observed." Small values of the goodness-of-fit measure indicate that the distributions are close, and large values indicate that the distributions are not close. Significance tests at the .10 level also were calculated for all pair-wise comparisons of the percentage in a particular racial category from the reference distribution to the percentage falling in the same category under each of the tabulation methods. These tests take into account both the fact that multiple comparisons are being made and the effects of complex sampling designs.

Misclassification of Race. Besides evaluating the overall racial distributions produced by the tabulation methods, the misclassification of individuals also needs to be examined. For the NHIS, the CPS Supplement, and the Washington State survey, these misclassification rates were formed by comparing an individual's answer to the race question under the 1977 standards to the assigned category of the individual's response(s) to the race question under the 1997 standards using each of the tabulation methods. For the purpose of estimating these rates for the whole population, those selecting a single race with the new question were included. The misclassification rate and its standard error for each race by tabulation method were produced.

Preliminary Outcomes Assessment. In the last part of the analysis, the impact of multiple-race reporting on outcome measures is assessed. This is important because users in many of the Federal agencies are not typically examining race distributions, but rather trends and indicators for the Nation (e.g., health outcomes, economic well-being, educational attainment) across racial groups. This is where the majority of work will need to be done within individual agencies as the 1997 standards are implemented. An initial examination of how common statistics could be affected by multiple race reporting is presented here. Five outcome measures were examined, three from the NHIS and two from the CPS Supplement. From the NHIS, three routine health outcomes were calculated: percent of respondents in poor or fair health, percent of children living with a single mother, and percent of respondents with no health insurance. From the CPS Supplement, the proportion of respondents who were unemployed and the labor force participation rates for different racial groups were calculated. These measures are not meant to be precise estimates of these factors, but are used to demonstrate the possible impact multiple-race reporting and the tabulation methods may have on these and similar estimates.

V. Findings from Previous Research

In order to evaluate tabulation methodologies for bridging to the past, the magnitude of the problem first must be considered. Currently the proportion of the population reporting more than one race is estimated to be quite small. Between 1 and 2 percent of the total population identified with multiple races in both the Current Population Survey (CPS) Supplement and the National Content Survey (NCS). These numbers coincide with recent data from the

longitudinal series collected in the NHIS. These estimates, however, may not match the results from using the 1997 standards for two reasons. In light of the publicity this issue has received, a heightened awareness of multiple heritages and the opportunity to report them could lead a higher proportion of the population to select more than one race. Moreover, some of the estimates were based on question formats that differ from what the 1997 standards require. Both in the CPS Supplement and in the NCS, respondents were asked to select only one category from a list including a "multiracial" category and did not have the option of choosing one or more races from a list of single races. The results from the Race and Ethnic Targeted Test (RAETT), in which the multiple response option was compared to the use of a multiracial category in targeted populations, indicated that the "multiracial" category (when "select one or more" was the instruction) had a greater effect among Asians and Pacific Islanders than did the multiple response option. Unfortunately, the multiple response option was not tested with the Alaska Native targeted sample, where the proportion selecting the "multiracial" category was the largest compared to the other samples.

Even if the portion of the total population marking more than one race is small, the proportions of some population groups doing so can be quite large and variable. Table 2 shows the racial distribution and the percentage of respondents who selected more than one race for each of the targeted samples in the RAETT. The percentages for the groups other than Whites and Blacks are fairly large, especially in the Asian and Pacific Islander targeted sample. Those classified as American Indian or Alaskan Native (AIAN) under the 1977 standards were the respondents most likely to choose the multiracial category when it was offered in the CPS Supplement. Those in the AIAN category selecting a single race varied from one time to the next (in both the CPS Supplement and the NCS reinterview) in their choice of the particular single race. This inconsistency in the reporting of racial group by American Indians and Alaskan Natives has been noted elsewhere (Passel and Berman 1986; Snipp 1986; McKenney and Cresce 1992; McKenney et al. 1993).

Thus, the difficulty of forming a bridge to the past will differ depending on the particular racial group as reported under the 1977 standards. Other racial groups also may be more or less likely to report multiple races in certain cases. For instance, the size of the population reporting more than one race no doubt will differ by state, size of place, and also by some individual demographic characteristics such as the levels of income, education, and, especially, age. The various methods for creating the bridge could have different effects on the statistics for groups defined by these and other variables.

VI. Results of Statistical Analysis Comparing Different Methods

A. Comparison of distributions from different methods using the reported proportions of multiple race responses

1. National Health Interview Survey

The National Health Interview Survey (NHIS) is a continuing nationwide sample survey designed to measure the health status of residents of the United States (Benson and Marano, 1995; Massey et al., 1989). Information on demographic and health characteristics for an entire household is collected through a personal interview with a single respondent. All information for children under 18 years of age is obtained by proxy. The sample design follows a multistage probability design that allows a continuous sampling of the civilian noninstitutionalized population of the United States. The survey is designed so that the samples for each week are nationally representative and can be combined over time. The response rate of the ongoing portion (the core) of the questionnaire is between 94 and 98 percent. To obtain population estimates from the NHIS, survey weights are assigned to each observation. These weights are derived from census estimates of the U.S. population, household non-response, and the sampling frame.

The analysis for this report uses data from an analytic file that contains three years of NHIS data (1993, 1994, and 1995). For each of these years there were about 45,000 households interviewed, resulting in a little over 100,000 individuals per year. The total sample for the bridge analysis is 323,080 (5,237 respondents are missing racial data).

Racial Variables from the NHIS. Since 1976, the NHIS has allowed respondents to choose more than one racial category. As the respondent is handed a card with numbered racial categories, the interviewer asks, "What is the number of the group or groups that represents your race". If a respondent selects more than one category, the interviewer then asks, "Which of those groups would you say best describes your race?"

Although the listed racial groups have changed over time, for 1993 to 1995, the card shown to respondents included 16 separate racial categories (White, Black, American Indian, Aleut, Eskimo, Chinese, Filipino, Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, Samoan, Guamanian, and other Asian and Pacific Islander. In addition, although not on the flashcard, respondents were allowed to give an "other race" response.) To be consistent, the 16 groups were collapsed to the four previous racial categories: White, Black, American Indian or Alaskan Native (AIAN), and Asian or Pacific Islander (API), plus Other.

For this analysis, a variable called Detailed Race was created from responses to the first question, which allowed identification with more than one racial group. This information is not included on public use data files of the NHIS. On internal files, the first two racial groups mentioned are recorded for each observation. Even if a respondent selected more than two groups, only two were recorded on the intermediate file. From the two recorded racial

responses, Detailed Race was coded into five single race groups (White, Black, AIAN, API, Other) and 11 multiple race groups (White/Black, White/AIAN, White/API, White/Other, Black/AIAN, Black/API, Black/Other, AIAN/API, AIAN/Other, and API/Other. For most analyses, multiple racial groups that had insufficient numbers were combined into the category "Other Combinations.") Individuals who had two racial groups recorded for Detailed Race but a third group recorded for the "group that best describes race" were coded into "Other Combinations."

The Main Race variable, used as a reference point representing the racial distribution under the 1977 standards, is primarily derived from Detailed Race and the responses to the second question, which asks the respondent for the group that best describes his/her race (Benson and Marano, 1995). For respondents who selected one Detailed Race group, Main Race is the same as Detailed Race. For respondents who selected more than one racial group, Main Race is the one group reported as best describing their race. Some respondents who had chosen more than one race for the Detailed Race question responded as "Multiple race" or "Other" for the Main Race question. For this analysis, these responses were combined into the "Other" category. Categories for Main Race were White, Black, AIAN, API, and Other.

The combined race and ethnicity variable, referred to here as "Combined Main Race," uses the respondent's answer to an Hispanic origin question to reassign the respondent to the Hispanic category. The Hispanic origin question used is the following: Are any of these groups (the respondent's) National origin or ancestry? At the same time, the interviewer hands the respondent a card listing Hispanic groups as categories: Puerto Rican, Mexican, Cuban, Mexican American, Chicano, Other Latin American, and Other Spanish. For this report, Whites, Blacks, Others, and those reporting more than one race who identified with any of the Hispanic groups were categorized as Hispanic and not according to their race. Asians, American Indians, and Alaska Natives were not reclassified. If a respondent did not answer the Hispanic origin question, he or she was assumed to be non-Hispanic.

Several tabulations of the NHIS were done for this report. Unless otherwise stated, the survey weights are used to provide national estimates.

NHIS Analysis. Information about how respondents who selected two racial groups might identify if there were only the option to select a single racial group can be obtained from the NHIS by looking at a comparison of Detailed Race and Main Race classifications. For individuals in multiple-race combinations that had sufficient sample size, the Main Race designation was compared to the Detailed Race response. As can be seen in Table 3, there is considerable variation in the racial groups selected as Main Race, that is, the one group that best describes the respondent's race. For example, 12 percent or less of those who reported as Black and AIAN or White and AIAN choose AIAN as their Main Race group, whereas about 35 percent of individuals identifying as White and API identify as API and about 50 percent of respondents identifying as Black and White identify as Black. However, 27 percent of White and Black and nearly 20 percent of White and API respondents do not select a Main Race, compared with about 7 percent of those who are White and AIAN or Black and AIAN.

Because the NHIS is the only nationally representative data set available with large enough numbers of individuals with specific combinations of racial groups, it is the best source for estimating how respondents who selected multiple racial groups would identify with a single race group.

The distribution of race was calculated using the Detailed Race variable, the Main Race variable, and the different tabulation alternatives where responses from individuals of more than one race are allocated to a single racial group (described above in detail). For the most part, the distribution from the Main Race variable was used as a reference in comparisons with the distributions produced by the different tabulation methods.

As Table 4A shows, less than 2 percent of the respondents reported more than one race during 1993, 1994, and 1995 in the NHIS. With less than 2 percent reporting more than one race, the race distributions appeared very similar under different tabulation methods (Table 4B). The estimated distribution from the NHIS Fractional Assignment method was closest to the reference distribution for all race groups. Largest Group Whole Assignment and the Plurality method also led to distributions close to the reference distribution. Smallest Group Whole Allocation and Largest Group Other Than White Whole Allocation produced distributions similar to one another. These two Whole Allocation methods greatly overestimated the number of AIAN respondents, relative to the reference distribution. Equal Fractional Assignment overestimated the numbers in the AIAN group, but not nearly as much as the Smallest Group and Largest Group Other Than White Whole Allocation methods. The All Inclusive Allocation method, by definition, leads to a higher proportion of respondents in each racial group, relative to the reference distribution; however, the increase for the AIAN group is considerably larger than for the other racial groups. The sum total for the All Inclusive method is greater than 100 percent, reflecting the duplicate assignment of the multiple race respondents. The same conclusions hold when looking at the distributions from the tabulation methods controlling for ethnicity (Table 4C).

The goodness of fit measures lead to similar conclusions; the NHIS Fractional Allocation method had the smallest (i.e., the best) goodness-of-fit value, followed by the Largest Group Whole Allocation method. Smallest Group Whole Allocation and Largest Group Other Than White Whole Allocation had the largest goodness-of-fit values, indicating a poorer overall fit than the other methods.

Because of their larger population size, the White and Black categories were less affected by the choice of allocation method than were the API and the AIAN categories. Compared to the reference distribution, the various allocation methods led to estimates approximately 10 percent lower to 200 percent higher for the AIAN group, 3 percent lower to 6 percent higher for the API group, and estimates within 1.5 percent for both the Black and White groups.

When bridging to the combined question format (“Combined Main Race”), by definition all the methods shown predict Hispanic origin well due to Hispanic origin being deterministically assigned for all Hispanics (Table 4D). Otherwise, the NHIS Fractional Allocation and the

Plurality methods had the closest correspondence to the reference distribution as measured by the goodness-of-fit statistic.

2. May 1995 Supplement on Race and Ethnicity to the Current Population Survey

The May 1995 Current Population Survey (CPS) Supplement was one of the studies conducted by the Federal agencies as part of the review of the standards for data on race and ethnicity. The Supplement was designed to address the following issues: (1) the effect of having a "multiracial" race category among the list of races; (2) the effect of adding "Hispanic" to the list of racial categories; and (3) the preferences for alternative names for racial and ethnic categories (e.g., African-American for Black, and Latino for Hispanic). The Supplement was organized into four panels representing a two-by-two experimental design for studying the first and second issues outlined above. Each panel was one-fourth of the sample, or about 15,000 households (30,000 individuals). All respondents in a household received the same set of questions; household members 15 years and older were asked to respond for themselves, and parents answered for children under 15 years of age. The panels were defined as follows:

Panel 1: Separate race and Hispanic origin questions, no multiracial category;

Panel 2: Separate race and Hispanic origin questions, with a multiracial category;

Panel 3: A combined race and Hispanic origin question, no multiracial category; and

Panel 4: A combined race and Hispanic origin question, with a multiracial category.

In panels 1 and 2, the Hispanic origin question preceded the race question. This question simply asked whether or not the respondent was Hispanic. Detailed information concerning the results of the CPS Supplement can be found in Tucker et al., (1996).

Data from the May 1995 CPS Supplement. Only two of the panels in the CPS Supplement allowed respondents to report in a "multiracial" category (panels 2 and 4), and only panel 2 had separate race and Hispanic origin questions as ultimately recommended in the 1997 standards. Thus, panel 2 data were used to analyze the effects of the different tabulation methods. The smaller sample (about 30,000 observations) hampers analysis and generalizations when the focus is on the small portion of the sample (about 1 percent) who identified as "multiracial."

There are additional limitations to these data for evaluating the bridging methods. The option that respondents were given to identify multiple races in the CPS Supplement was a "multiracial" category with a follow-up question asking respondents to indicate all of the racial groups with which they identify. The 1997 standards allow people to identify directly with all the racial groups they choose and do not include a "multiracial" category. Furthermore, a large percentage of individuals who chose the multiracial category in panel 2 of the Supplement did not specify more than one racial group (see Tucker et al., 1996). For

purposes of this evaluation, individuals' responses were classified as belonging to the specific racial categories they identified. Those who identified as being multiracial but then did not give two or more specific racial groups were reclassified as single race respondents in the one racial category they gave. *Thus, the distribution of the CPS Supplement data reported here differs from that which was published in earlier reports, which classified as multiracial any person who identified with the multiracial category even if they only specified one racial group.* This new distribution is referred to here as the "Edited Distribution."

The edited distribution was used with the various tabulation methods. As in the NHIS, the resulting distributions were compared to a reference distribution, in this case based on the respondents' original answers (in the first CPS interview) to the race question that followed the 1977 standards.

The combined race and ethnicity format, still referred to as the reference distribution in the relevant tables, uses the respondent's answer to the Hispanic origin question to reassign the respondent to the Hispanic category. For this report, Whites, Blacks, Others, and those reporting more than one race who identified with any of the Hispanic groups were categorized as Hispanic and not according to their race. Asians, American Indians, and Alaska Natives were not reclassified. If a respondent did not answer the Hispanic origin question, he or she was assumed to be non-Hispanic.

Several tabulations of the CPS Supplement were done for this report. Because weighting to the race controls developed under the 1977 standards would confound analysis, the survey weights that are used for tabulations are *not* designed to provide national estimates. The weights reflect the probability of selection and an adjustment for nonresponse, but do not reflect post-stratification to known population totals by age, race, and sex groups. Thus, these results cannot be directly compared to other sources.

CPS Supplement Analysis. Table 5A provides the detailed distribution for the racial categories reported in the CPS Supplement. A smaller proportion reported more than one race in this survey compared to the NHIS. This is largely the result of recoding in the Supplement two race responses involving "Other" to the single race category of the other race mentioned. As can be seen in Table 5B, the All Inclusive Allocation method, the Smallest Group Whole Allocation method, and the Largest Group Other Than White Whole Allocation method have the poorest fits to the reference distribution, based on the race question in the initial CPS questionnaire. The NHIS fractional method provides a relatively close fit. The Largest Group Whole Allocation method and the Plurality method give the closest fits. These observations are largely confirmed by the goodness-of-fit measures. Table 5C shows essentially the same results when controlling for ethnicity. Table 5D gives the bridging results for the combined format that includes Hispanic as a race. Again, the Largest Group Whole Allocation method and the Plurality method perform the best. The NHIS fractional method also provides a reasonable fit. Notice that the "Other" category has been substantially reduced in size as a result of reclassifying Hispanics who had chosen that category. Given the way the "Hispanic" category was created, all bridging methods produce the same percentage for that category.

Table 6A offers a picture of how responses in the initial CPS questionnaire racial categories were assigned to these same categories using the different bridging methods along with answers to the race question in the CPS Supplement in Panel 2, including respondents who simply switched single-race categories from one time to the other. Over 96 percent of Whites and 95 percent of Blacks in the original survey were assigned back to this same category for all methods. Well over 90 percent of those in the API category originally ended up in that category using each bridge method. On the other hand, far fewer respondents in the original AIAN category (only a little more than 60 percent) were assigned to that category with every bridging method. The same was true for those in the "Other" category. Using ethnicity does not alter these results (Table 6B). Neither does the use of the combined format; however, Table 6C does give some additional information about Hispanics. Most, but not all, individuals who identified as Hispanic in the initial CPS also identified as Hispanic in the supplement. An even larger percentage of those selecting Hispanic in the supplement did not do so in the initial CPS. This is particularly true for respondents classified as "Other" in the initial CPS. These inconsistencies may be attributed to the great difference in the question format used to identify Hispanics in the two surveys. The initial CPS uses responses to a "Country of Origin" question to determine Hispanic ethnicity.

3. 1998 Washington State Population Survey

The 1998 Washington State Population Survey (WSPS) was designed to provide information on Washington residents between decennial censuses. The survey collected data on employment, income, education, health, along with basic demographic information. The WSPS was done by telephone and included 7,279 households with telephones. Blacks, Asians, Hispanics, and American Indians were oversampled. The designated respondent was the individual with the greatest knowledge about the household. The respondent weights reflect this oversampling and, thus, results are representative of the Washington population as a whole. The response rate for the entire sample was between 50 and 60 percent.

Data from the WSPS. Information about the race of the respondent was collected twice during the course of the interview. At the beginning of the survey, the respondent was asked, "Are you of Hispanic origin?" Following that question, the respondent was asked, "What is your race?" The categories were the ones appearing under the 1977 standards, but the order was as follows: Black; American Indian, Aleut, or Eskimo; Asian or Pacific Islander; and White. An "Other" category also was allowed, and the interviewer recorded the verbatim response on a "specify" line. Near the end of the survey, the respondent was asked race questions conforming to the 1997 standards. Besides the same Hispanic origin question, the respondent was asked to specify country of origin. For race, the respondent was asked to select one or more categories. This time the ordering of the categories was White; Black or African American (Or Haitian or Negro); American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander; Asian. Again, an "Other" category was provided. There also was a follow-up question for Asian respondents to specify country of origin.

The results from the race question at the end of the survey were used with the tabulation methods. The reference distribution came from the answers to the original race question. A combined race/ethnicity format was not created from the WSPS data, because an unedited information from the race question using the 1977 format was unavailable.

WSPS Analysis. The analysis includes only data from the household respondent. Thus, children are not likely to be represented. Because the racial characteristics of the population in Washington State differ substantially from those of the Nation as a whole, the results of the analysis of the WSPS data offer a contrast to those for both the NHIS and the CPS Supplement (Table 7A). Only 2 to 3 percent of the state's population is Black. Although Whites reporting a single race make up more than 86 percent of the population, API is still about 3 percent of the population (as in the Nation as a whole) and AIAN (alone or in combination with White) is about 3 percent of the population. In the reference distribution (Table 7B), AIAN is 1.3 percent of the population. Those reporting more than one race comprise more than 4 percent of the state's population.

When the WSPS responses were assigned to the old categories using the various tabulation methods, the national racial distributions used in CPS were applied. Table 7B shows that the All Inclusive method, the Smallest Group method, and the Largest Group Other Than White method provide the poorest fits to the reference distribution, especially for the AIAN category. The Largest Group method and the Plurality method understate the proportion in the AIAN category, and the Equal Fraction method overstates it. Their goodness-of-fit measures, however, are approximately equivalent. The NHIS Fractions method clearly provides the closest fit. Again, the conclusions are similar when ethnicity is taken into account (Table 7C).

Table 8A presents a somewhat different picture. As in the CPS Supplement, a very large percentage of those classified as White, Black, or API using the 1977 standards would remain in the same category under the 1997 standards using any of the methods. Those originally classified as AIAN or "Other" are more likely to remain in the same category using the All Inclusive, Smallest Group, and Largest Group Other Than White methods than when using the other methods. The same conclusions hold when controlling for ethnicity (Table 8B).

B. Misclassification Rates

1. NHIS Analysis

Tables 9A and 9B present the misclassification rates for race by tabulation method in the NHIS. The two tables are essentially the same. The misclassification rates for the "Other" category are relatively large (and significantly different from zero) no matter the tabulation method. The Smallest Group method and the Largest Group Other Than White method perform the best for both the AIAN and API categories. Note, however, that these two methods have the highest overall misclassification rates because of the weight given to the White category, which is large relative to the other categories. The Largest Group method, the

Plurality method, and the NHIS Fractions method produce substantial misclassification rates for the AIAN category.

Similarly, for methods bridging to the combined format, the "Other" category had the highest misclassification rates (Table 9C). The size of this category, however, is much smaller now that the Hispanics have been removed. By definition, there was no misclassification of Hispanics since they were automatically placed in the Hispanic group for both the reference distribution and all the bridging methods.

2. CPS Supplement Analysis

Tables 10A and 10B show the misclassification rates for the CPS Supplement. Again, the conclusions are the same whether or not ethnicity is taken into account. Misclassification is much greater in the CPS Supplement compared to the NHIS. The rates for the AIAN and "Other" categories are extremely large, and the results differ little from one tabulation method to another. Again, in Table 10C, where the combined format was used, the conclusions are the same. Both the AIAN and "Other" categories have high misclassification rates, but the "Other" category is much smaller now that the Hispanics have been removed. In this analysis, as opposed to the NHIS, there is some misclassification of Hispanics, because two different questions were used for classifying the Hispanics from one time to the other. The NHIS only collected Hispanic ethnicity at one point in time.

3. WSPS Analysis

The results from the WSPS fall in between those for NHIS and the CPS Supplement (Tables 11A and 11B), and controlling for ethnicity has little effect. Although the Smallest Group method and the Largest Group Other Than White method have substantial misclassification rates for both the AIAN and "Other" categories, these rates are not nearly as large as the ones for the other tabulation methods. Misclassification in the API category is much the same for all methods. Given the size of the White category and the somewhat greater misclassification rates for this category using the Smallest Group and Largest Group Other Than White methods, these two methods again have the highest overall misclassification rates.

C. Comparisons of the Race Distributions if Multiple Race Responses Increase

This section does not include analyses controlling for ethnicity, because this control had little effect in the previous analyses. No significance testing is done given the hypothetical nature of these simulations. For example, increases in the numbers reporting more than one race would not likely be uniform across all racial categories.

1. NHIS Analysis

Table 12A shows that if the percentage of multiple race responses increases for all groups at the same rate and the distribution on the Main Race variable remains the same, the tabulated

counts for AIAN increase dramatically under several tabulation methods. The Fractional Allocation method that uses the proportions derived from the NHIS remains close to the reference distributions. Largest Group Whole Allocation, while having a relatively small goodness-of-fit value, underestimates the Main Race proportions within all groups, including AIAN, except White. Smallest Group Whole Allocation shows the greatest proportionate change to all of the groups, increasing all the groups except White. The change is greatest for the smaller groups, AIAN and API, and is less so for Black. As with the results from previous comparisons, the Equal Fractions Allocation method more closely resembles the reference distribution than does Smallest Group or Largest Group Other Than White Whole Allocation methods, but does not come as close as the Largest Group Whole Allocation and NHIS Fractions methods. Again, the Plurality method produces the results *closest* to the reference distribution. The All Inclusive method increasingly deviates from the reference distribution. For example, when the multiple responses are increased by a factor of eight, the percent AIAN under the All Inclusive method is over five times the percent AIAN in the reference distribution. In contrast, the percent White is only 16 percent higher than the reference distribution.

Goodness-of-fit statistics grow increasingly as the number of multiple-race respondents increases, suggesting that the allocation methods to approximate the 1977 standards may be of decreasing utility over time, especially in certain areas of the country. Nonetheless, the relative ranks of the goodness-of-fit statistics are consistent: the Plurality method has the lowest value, followed by the NHIS Fractions and Largest Group Whole Allocation methods, while Smallest Group and Largest Group Other Than White Whole Allocation methods have the largest values, indicating poorer fits.

Overall, the results for the AIAN group are the most sensitive to the choice of a bridge allocation method. Results for the API group are also sensitive to the choice of allocation methods. As for the AIAN group, Smallest Group and Largest Group Other Than White Whole Allocation methods overstate the percent API, Largest Group Allocation slightly understates the percent API, Equal Fractions slightly overstates the percent API, and, the Plurality method and NHIS Fractions are the most similar. Because of their relatively larger size, Black and White groups are less affected than the smaller groups; however, even those estimates increasingly differ as the numbers of multiple-race respondents increase. The methods controlling for Hispanic ethnicity were not evaluated for the increases in the proportion of respondents reporting multiple races, because the earlier analysis showed this control had little effect. Increasing the multiple race groups had little effect on the Hispanic group in the combined race/ethnicity format (Table 12B); the percent Hispanic respondents increased very little even when the multiple race respondents increased eight-fold. Otherwise, the results are much the same as in Table 12A.

2. CPS Supplement Analysis

As can be seen in Table 13A, the pattern of findings for the different methods in the CPS Supplement looks very similar to that using the NHIS. Again, the greatest effects are seen on

the smaller racial groups, with the largest increases occurring when the All Inclusive method and the Smallest Group and Largest Group Other Than White Whole Allocation methods are used. The Plurality method, followed by the Largest Group method and the NHIS Fractional method, most closely resemble the racial distribution under the 1977 standards. Again, the analyses controlling for ethnicity were not done. The conclusions from Table 13A hold when using the combined race/ethnicity format (Table 13B), and increasing the number of multiple race respondents has little effect on the size of the "Hispanic" category.

3. WSPS Analysis

Table 14 provides the results when increasing the percentage of individuals reporting more than one race. Given that the number reporting more than one race in Washington State was already relatively large (over 4 percent), increasing that number up to a factor of 8 gives rather dramatic results. It is unlikely that such a large portion of the state's population would report more than one race in the foreseeable future. In any case, the proportion of responses assigned to the AIAN category grows very large with the All Inclusive method, the Smallest Group method, and the Largest Group Other Than White method. The proportions assigned to the White category also become erratic. The Largest Group and Plurality methods underestimate the proportion. The NHIS Fractional method performs the best throughout.

D. Effects of Methods on Outcome Measures

1. Sensitivity of Three Health Indices to Multiple-Race Reporting

As can be seen in both Table 15A and Table 15B, the health indices for single race groups did not appear to change much under any of the tabulation methods. In particular, the largest single race groups (White and Black) are mostly unaffected by additions or subtractions of multiple race respondents, primarily due to their size relative to the proportion multiple race, even when estimates for the multiple race groups are distinctly different than their single race counterparts. For example, Table 15A shows that the percent uninsured among the Black respondents is the same under all the allocation methods even though the percent uninsured is much lower among Black/White respondents. This difference is due to the fact that the Black/White respondents are a very small group relative to the entire Black group. In some cases (All Inclusive, Smallest Group, Largest Group Other Than White, and Equal Fractions), the AIAN group has a smaller percent uninsured. These differences are due to the large difference in percent uninsured between the single race AIAN and the multiple-race AIAN/White group, accompanied by the fact that a relatively large proportion of AIAN/White respondents is included as AIAN under the allocation methods.

Despite the lower percent of AIAN/White respondents compared to single-race AIAN respondents reporting poor or fair health, all of the allocation methods led to similar estimates for the AIAN group. Once again, this indicates that both the difference in estimates between the multiple race groups and the single race groups needs to be large and the proportion of multiple race respondents also needs to be large to have measurable impact.

As another example, the percent of children living with a single mother is different for the single race and the multiple race groups, yet the differences are not evident in the allocation methods. Only in the case of the AIAN group is there a possible effect.

The sensitivity of these health measures is similar using the combined race/ethnicity format (Table 15C). For Hispanics, the choice of allocation method has little effect on the health measures. Among the other race groups, the differences are as described above for the Main Race Analysis (Table 15A and Table 15B).

2. Sensitivity of Economic Indicators to Multiple-Race Reporting

Tables 16A and 16B show the impact of the different bridging methods on the unemployment rate and the labor force participation rate. On the surface, all of the methods produce a large increase in the unemployment rate for the AIAN category, and the Largest Group, Plurality, and NHIS Fractional methods produce the largest changes. These increases, however, are not statistically significant. Only in the case of labor force participation rates for some tabulation methods are there statistically significant differences compared to the reference distribution.

Table 16C contains the results using the combined race/ethnicity format, and they are much the same as those found in Tables 16A and 16B. The only significant differences involve the AIAN labor force participation rates. Hispanics are unaffected by allocation method, and the "Other" category is so small now that the Hispanics have been removed that the large differences shown are not significant.

VII. Examining the Tabulation Methods According to the Criteria

Bridging to the past will be needed for measuring change in a variety of circumstances. Besides measuring population growth, any number of economic, social, and health outcomes must be monitored. This work will involve different population groups at different levels of geography. As a first step toward providing the information that users will need to make informed decisions about the methods, the strengths and weaknesses of these methods with respect to the evaluation criteria will be discussed based on the findings in this report and other relevant information.

Measure Change Over Time. As indicated earlier, measuring change over time is the criterion that is of greatest importance in evaluating the bridging methods. Much of this report has been devoted to analyses that shed light on the performance of the various methods in this area. In essence, an ideal bridging method in this case is one that not only accurately recreates the population distribution under the 1977 standards such that the only difference remaining is a function of true change over time, but also assigns an individual's response to the old category that would have been chosen. The methodology used in these studies allows users, within limits, to see how well the bridging methods using racial data collected under the 1997 standards can match data from the same respondents collected (at the same time) under the 1977 standards. To the extent that there is a match, any change that would occur from this

point forward would indicate true change. If the match is poor, it is not possible to isolate the true change.

When comparing the different methods to their reference distributions, the racial categories that are most sensitive to which method is chosen are the numerically small ones, particularly the AIAN category. While different data sets were used in each study and the racial questions were not the same, the studies indicate that the Largest Group Deterministic Whole Assignment method, the Plurality method, and the two Deterministic Fractional Assignment methods produce distributions closer to the reference distributions than are the other Deterministic Whole Assignment methods and the All Inclusive method. Controlling for ethnicity had no effect on these results. One reason the Largest Group Assignment method results are so close is that it has little effect on the smaller races, because most assignments are made to Black or White, and the percentages for these two races are so large that the relatively small increase they receive is not noticeable. The Plurality method produces a close fit, because it makes assignments at the level of specific racial combinations. The performance of the NHIS Fractional Assignment method can be discounted to a degree in the NHIS study because the analysis is somewhat circular; however, the results from the CPS Supplement and the Washington State Population Survey (WSPS) show this method yields a relatively close match. The Equal Fractional Assignment method produces a reasonable match in these studies. The primary reason that the other two Whole Assignment methods and the All Inclusive method do not perform as well is that they alter the White percentage to some extent and substantially increase the percentage in the AIAN category. The results from using a combined race/ethnicity format do not alter these conclusions.

In the case of misclassification rates, some contradictory results emerge. While the AIAN and "Other" categories have high misclassification rates across all tabulation methods in the CPS Supplement, the same is not true for the other two surveys. The Smallest Group Whole Assignment and the Largest Group Other Than White Whole Assignment methods produce the most comparable results for the AIAN category in both surveys and for the "Other" category in the WSPS; however, these methods have higher overall misclassification rates. Both the CPS Supplement and the WSPS have large misclassification rates for these two categories when using many of the tabulation methods. These same misclassification rates are large when using the combined race/ethnicity format in the CPS.

When the distributions of the outcome variables are examined, all methods produce comparable, and relatively close, matches for all health outcomes. For the AIAN unemployment rate, the Largest Group Whole Assignment method, the Plurality method, and the NHIS Fractional Assignment method appear to produce the least comparable numbers, but none of the differences are significant. There are significant differences in the AIAN labor force participation rates for several of the tabulation methods. It is likely that which method is best at matching a reference distribution for outcome measures will depend on the outcome being examined. Unfortunately, the data to assess the best tabulation method for each outcome may never be readily available.

All of these conclusions should be viewed with caution. Many assumptions had to be made in these studies. It is unclear how people will respond to the new racial question in the future, and these responses could differ by mode of data collection and with the subject of the survey. Furthermore, most of this work on developing bridging methods relied on sample data, and small samples at that.

Congruence with Respondent's Choice. This criterion concerns how well the full range of the respondent's choices is represented in the racial distribution. It is more important for evaluating ongoing tabulations under the 1997 standards, but the bridging methods can be differentiated with respect to this criterion, too. None of the Deterministic Whole Assignment methods take into account the full range of the respondent's selections, but the Plurality method at least controls for the particular racial combination chosen by the respondent under the 1997 standards. The All Inclusive method accurately reflects all selections by tabulating actual responses. The Equal Fraction Assignment method tabulates a total of one response per person, but, like the All Inclusive method, treats all responses equally by assigning equal fractions to the races selected. The NHIS Fractional Assignment method takes all responses into account, but assignment is based on attempting to estimate in which single-race category the respondent would prefer to be counted.

Range of Applicability. This criterion refers to how well the bridging method can be applied in different contexts. The All Inclusive method provides the same results in every context, because assignment does not depend on the particular detailed racial distribution. This method is not suitable for users who need a distribution that adds to 100 percent. Of the Deterministic Whole Assignment methods, the Largest Group Assignment method is the least sensitive to context and can be used in a wide variety of applications. The other Deterministic Whole Assignment methods are as easy to use as the Largest Group Whole Assignment method, but the results for the small racial categories will vary to a greater extent with the context, particularly according to level of geography. The Equal Fraction Assignment method is as generalizable as the All Inclusive method, but it is not quite as easy to use. The NHIS Fractional Assignment method and the Plurality method may be the most problematic, because they currently only represent a national preference distribution based on data from 1993 to 1995. The use of this distribution at the local level would be likely to produce inaccurate results in a number of cases. That is not to say that the other methods do not face the same problem.

Meet Confidentiality and Reliability Standards. Because these methods all attempt to reproduce the racial categories under the 1977 standards, the same confidentiality problems that have existed for more than 20 years will continue to exist. No increase in problems is anticipated. In the case of reliability, however, the situation is different. The All Inclusive method will not produce less reliable data than under the 1977 standards. The Equal Fraction Assignment method may have reliability problems as a result of only adding fractional counts to some of the smaller categories if these categories have a high probability of being chosen as the preferred single race. The same would be true if equal fractions were used to make whole assignments. In sample surveys, the Deterministic Whole Assignment methods will have

reliability problems to the extent that there is a large variance on the individual race proportions. This is likely to occur when small samples are involved. The Largest Group Whole assignment method should have the fewest problems with respect to reliability, and the Smallest Group Whole Assignment method will likely have the most. These methods have another problem, however, in that an individual's response may be assigned to different categories at different levels of geography. The NHIS Fractional Assignment method, as well as methods where fractions are used for whole assignment (i.e., the Plurality method), is based upon a sample distribution with its own variance properties. Reliability for the very small combinations will be quite bad unless many years of data are combined, and this presents its own problems.

Minimize Disruptions to the Single Race Distributions. This criterion is only for evaluating the bridging methods. Its purpose is to see how different the resulting bridge distribution is from the single-race distribution for detailed race under the 1997 standards. To the extent that a bridging method can meet the other bridging criteria and still not differ substantially from the single-race proportions in the ongoing distribution, it will have value for looking both forward and backward in time. An evaluation of the different methods according to this criterion involves the comparison of the bridge distributions to the detailed race distribution under the 1997 standards in each case.

For the CPS Supplement, the Plurality method is marginally closer than the Largest Group Whole Assignment method and the Fractional methods. While the All Inclusive method and the other Deterministic Whole Assignment methods match for the White category, they differ substantially from the single-race AIAN category in the detailed distribution and are marginally worse for the API category. The NHIS Fractional method is the closest in both the NHIS and WSPS. These comparisons were not made for the combined race/ethnicity format.

Statistically Defensible. To be statistically defensible, the bridging method must conform to acceptable statistical conventions. The All Inclusive method makes no assumption about how respondents would assign themselves in the single race situation. The NHIS Fractional Assignment method and the Plurality method are based on an observed distribution, and, to that extent, involve less judgment than the other methods. While the Equal Fractional Assignment method is based on judgment, it does not make assumptions about the relative importance of any given race. The Largest Group Whole Assignment method does assign greater importance to one of the races, but it also follows common, but different, statistical practice than the equal fraction approach. Both attempt to minimize the error in assignment. The Smallest Group Whole Assignment method and the Largest Group Other Than White Whole Assignment method do not follow statistical practice, but, instead, rely on the historical record of discrimination. Even in these cases, however, the assigned category is based on an observed distribution.

Ease of Use. "Ease of use" refers to how complicated it is to produce the bridge results. The Equal Fractional Assignment method makes assignments that do not depend on the particular detailed racial distribution at hand. It and the NHIS Fractional Assignment method do require

the duplication of individual records or the creation, on every record, of a variable for each racial category under the 1977 standards in order to be able to assign fractions for any combination of categories. If the fractional methods are used to assign a respondent to a single category (whole probabilistic methods), this cumbersome process can be avoided. The All Inclusive method, like the Equal Fractional method, does not depend on the particular distribution, but it does produce proportions that add to more than 100 percent unless they are raked or repercentaged to a base of 100 percent each time. The Deterministic Whole Assignment methods and the NHIS Fractional method would require an extra step unless only national figures are used, because the relative size of the groups must be determined for each detailed distribution. Otherwise, they are as easy to use as the whole probabilistic methods.

Skill Required. This criterion refers to the skills required to carry out the bridge operations. The amount of computer expertise to perform the operations associated with each of these methods is fairly trivial. The Deterministic Whole Assignment methods require almost no statistical knowledge. Some familiarity with the statistical adjustment literature would be useful for understanding the Deterministic Fractional Assignment procedures. If the All Inclusive method were used, users might need to understand statistical raking.

Understandability and Communicability. This criterion concerns how easily the methods can be explained and understood by the average user. The Deterministic Whole Assignment methods are both easy to explain and easy to understand. The fractional assignment of individuals to a single category also is not difficult to follow. In cases of multiple race responses, assigning fractions to all racial categories selected may be easy to explain, but the average user may find it difficult to accept the idea. The All Inclusive method also is easily explained, but, unless the percentages are raked to 100 percent, users may have a problem understanding how to use the results.

VIII. Weighting When Appropriate Population Controls Are Not Available

For those using the new racial categories in surveys prior to the release of new population controls from the 2000 census (expected in 2003), a method is needed to allow the use of the updated 1990 controls. The following advice is provided for researchers who find themselves in this situation:

1. Choose a whole-allocation bridging method.

2. Create a bridged distribution using the chosen method.

3. Rake this bridged distribution to the 1990-based controls.

4. Use the final weight from this process when reporting distributions for the new racial categories, including the multiple-race combinations.

5. Provide the following caveats to data users: (a) weighting was not done using controls based on the new definitions, and (b) the bridged distribution is not necessarily the same as would have been obtained using the old race question.

Choosing a whole-allocation bridging method will simplify the task. Data producers should select the bridging method that they judge to be the most appropriate for their data users. Provide any available information to evaluate the likely discrepancies between the bridged distribution and the distribution that would have been obtained using the old question. Reweighting to the new controls, once they become available, is strongly recommended.

References

Agresti, A. (1990), *Categorical Data Analysis*, New York: Wiley.

Benson, V. and Marano, M. (1995), "Current Estimates from the National Health Interview Survey, 1994," National Center for Health Statistics, *Vital Health Statistics*, 10(193).

Massey, J. T., Moore, T. F., Parsons, V. L., and Tadros W. (1989), "Design and Estimation for the National Health Interview Survey, 1985-1994," National Center for Health Statistics, *Vital Health Statistics*, 2(110).

McKenney, N. R. and Cresce, A. R. (1993), "Measurement of Ethnicity in the United States: Experience of the U.S. Census Bureau, in Challenges of Measuring an Ethnic World: Science, Politics and Reality," *Proceedings of the Joint Canada-United States Conference on the Measurement of Ethnicity*, April 1-3, U.S. Government printing Office, Washington, DC, pp. 163-182.

McKenney, N. R., Bennett, C., Harrison, R., and del Pinal, J. (1993), "Evaluating Racial and Ethnic Reporting in the 1990 Census," *Proceedings of the Section on Survey Methods Research*, pp. 66-74.

Office of Management and Budget (1997), "Recommendations from the Interagency Committee for the Review of the Racial and Ethnic Standards to the Office of Management and Budget Concerning Changes to the Standards for the Classification of Federal Data on Race and Ethnicity, Notice," *Federal Register*, July 9, 1997, Vol. 62, No. 131, 36844-36946.

Passel, J. F. and Berman, P. A. (1986), "Quality of 1980 Census Data for American Indians," *Social Biology*, 33, 163-182.

Rubin, D. R. (1987), *Multiple Imputation for Nonresponse in Surveys*, New York: Wiley, 1987.

Snipp, M. C. (1986), "Who Are American Indians? Some Observations About the Perils and Pitfalls of Data for Race and Ethnicity," *Population Research and Policy Review*, 5, 237- 252.

Tucker, C., McKay, R., Kojetin, B., Harrison, R., de la Puente, M., Stinson, L., and Robison, E. (1996), "Testing Methods of Collecting Racial and Ethnic Information: Results of the Current Population Survey Supplement on Race and Ethnicity," *Bureau of Labor Statistics Statistical Notes*, No. 40.

Table 1. Overview of Framework for Historical Bridge Tabulation Methods

	Is a person assigned to a category by a fixed rule or by a probability method?	
Is a person assigned to one or more than one category?	Deterministic: A person is assigned to a category following a set of predetermined rules.	Probabilistic: A person is assigned to a category based on a probability distribution.
Whole assignment: Person is assigned completely to one category.	*Smallest GroupSmallest Group* *Largest Group Other Than White* *Largest Group* *Plurality*	*Equal Fractions* *NHIS Fractions*
Fractional assignment: A person is assigned partially to each selected category.	*Equal Fractions* *NHIS Fractions*	*Not Applicable*

NHIS = National Health Interview Survey

Table 2. Percent Distribution of Race, by Targeted Sample. Racial and Ethnic Targeted Test (RAETT)

Race Response	Targeted Sample				
	White N = 2,222	Black N = 2,395	American Indian N = 1,634	API N = 2,982	Hispanic N = 2,127
White	96.04	22.63	50.67	16.90	64.55
Black	1.08	72.73	4.41	4.06	13.59
American Indian or Alaska Native (AIAN)	.14	.29	37.21	.13	.80
Asian or Pacific Islander (API)	1.08	.58	1.47	64.76	1.60
Other	.32	1.96	2.02	4.12	15.89
Multiracial / Multiple Race	1.35	1.80	4.22	10.03	3.57

SOURCE: Racial and Ethnic Targeted Test (RAETT), Panel C. Excerpted from Population Division Working Paper No. 18 : "Results of the 1996 Race and Ethnic Targeted Test", U.S. Department of Commerce, Bureau of the Census, Population Division and Decennial Statistical Studies Division, May 1997.

Table 3. Percent Distribution (Standard Error)[1] of Main Race[2] for Selected Detailed Race[2] Groups. National Health Interview Survey 1993-1995.

Main Race	Detailed Race			
	White/Black N = 849	White/AIAN N = 2618	White/API N = 842	Black/AIAN N = 375
White	25.2 (2.4)	80.9 (1.3)	46.9 (2.9)	---
Black	48.2 (2.6)	---	---	85.4 (2.4)
American Indian or Alaska Native (AIAN)	---	12.4 (1.1)	---	7.0 (1.8)
Asian or Pacific Islander (API)	---	---	34.6 (3.5)	---
Other[3]	26.6 (2.3)	6.7 (.8)	18.4 (2.2)	7.6 (1.7)
Total	100.0	100.0	100.0	100.0

--- Not applicable.
[1]All percents weighted to be nationally representative.
[2] Main Race = Race when asked best single race group; Detailed Race = Race when asked which group or groups describes race.
[3] Includes response "Multiracial".

SOURCE: Centers for Disease Control, National Center for Health Statistics.
Unpublished data from the National Health Interview Survey 1993-1995.

Table 4A. Sample Size, Percent Distribution[1], Standard Error, and Relative Standard Error of Detailed Race[2]. National Health Interview Survey 1993-1995.

Detailed Race Groups	Sample Size	%	Standard Error	RSE
White	250,054	79.39	.71	.89
Black	45,259	12.50	.61	4.89
American Indian or Alaska Native (AIAN)	2,616	.81	.07	8.64
Asian or Pacific Islander (API)	10,042	3.42	.35	10.25
Other	9,734	2.25	.27	12.10
White/Black	849	.23	.02	6.83
White/AIAN	2,618	.83	.07	8.22
White/API	842	.28	.03	10.12
White/Other	277	.08	.01	13.16
Black/AIAN	375	.11	.01	10.61
Black/API	88	.03	.00	16.54
Black/Other	127	.03	.01	16.29
AIAN/API	25	.01	.00	36.90
AIAN/Other	70	.02	.00	20.81
API/Other	52	.01	.00	22.05
Other Combinations	52	.02	.00	22.54
Total	323,080	100.00	---	---
(Multiple Race Groups Total)	5,375	1.64	.09	5.22

[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2] Detailed Race = Race when asked which group or groups describes race.
RSE = Relative Standard Error. Estimates and standard errors calculated using SUDAAN.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 4B. Percent Distribution[1] of Race for Bridge Tabulation Methods. National Health Interview Survey 1993-1995.

Race Groups	Reference Distribution[2] (Standard Error)	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	80.29 (.71)	80.82	79.39	79.39	80.82	80.57	80.10	80.29
Black	12.74 (.62)	12.91	12.74	12.91	12.67	12.90	12.70	12.74
American Indian or Alaska Native	.93 (.07)	1.78	1.77	1.63	0.81	0.82	1.29	.93
Asian or Pacific Islander	3.54 (.36)	3.76	3.73	3.72	3.44	3.44	3.58	3.54
Other	2.50 (.27)	2.39	2.38	2.35	2.27	2.27	2.32	2.50
Total	100.00	101.65	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	---	.00255	.00194	.00025	.00022	.00062	.00001

--- Not applicable.

[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2]Reference distribution is Main Race.
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 4C. Percent Distribution[1] of Race for Bridge Tabulation Methods. National Health Interview Survey 1993-1995. Adjusted for Hispanic Origin #.

Race Groups	Reference Distribution[2] (Standard Error)	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other Than White	Largest Group	Plurality	NHIS Fractions
White	80.29 (.71)	79.39	79.39	80.82	80.53	80.23
Black	12.74 (.62)	12.75	12.90	12.65	12.90	12.72
American Indian or Alaska Native	.93 (.07)	1.77	1.63	.81	.82	.92
Asian or Pacific Islander	3.54 (.36)	3.74	3.72	3.43	3.48	3.53
Other	2.50 (.27)	2.36	2.37	2.29	2.27	2.61
Total	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of fit	---	.00245	.00181	.00026	.00024	.00002

--- Not applicable.

[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2]Reference distribution is Main Race.
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

Table 4D. Percent Distribution[1] of Race for Bridge Tabulation Methods with Combined Race and Ethnicity Format. National Health Interview Survey 1993-1995.

Race Group	Reference Distribution[2] (SE)	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	73.20 (1.22)	73.84	72.41	72.41	73.63	73.43	73.02	73.18
Black	12.46 (.61)	12.66	12.44	12.60	12.40	12.59	12.42	12.46
AIAN	.93 (.07)	1.77	1.67	1.55	.81	.82	1.24	.91
API	3.54 (.36)	3.75	3.68	3.67	3.43	3.43	3.56	3.51
Other	.62 (.05)	.57	.49	.47	.44	.44	.46	.69
Hispanic [4]	9.25 (.96)	9.50	9.30	9.30	9.30	9.30	9.30	9.25
Total	100.00	111.00	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of fit[3]	---	---	0.002286	0.001742	0.000344	0.003916	0.000680	0.000040

--- Not applicable.

[1]All percents weighted to be nationally representative; 1.6% of observations were missing race and are not tabulated.
[2]Reference distribution is Combined Main Race (see text).
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. Categorical Data Analysis. John Wiley & Sons. 1990, page 48).

[4]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 5A. Unweighted Counts and Weighted[1] Percentages under the New OMB Categories. Current Population Survey , Race and Ethnicity Supplement.

Race Category	Unweighted Counts	Weighted[1] Percentages	Standard Errors
White (W)	24,870	80.384	0.556
Black (B)	3,204	10.836	0.377
American Indian or Alaska Native (AIAN)	337	0.797	0.101
Asian or Pacific Islander (API)	966	3.285	0.232
Other	1,088	4.021	0.261
W & B	47	0.148	0.025
W & AIAN	74	0.228	0.038
W & API	24	0.075	0.022
W & Other	12	0.040	0.010
B & AIAN	9	0.032	0.016
B & API	6	0.017	0.015
B & Other	7	0.027	0.012
AIAN & API	4	0.007	0.004
API & Other	2	0.013	0.009
W & B & AIAN	18	0.060	0.017
W & B & API	1	0.004	0.004
W & B & Other	1	0.005	0.005
W & AIAN & API	2	0.009	0.007
W & AIAN & Other	2	0.004	0.003
B & AIAN & API	2	0.003	0.003
B & AIAN & Other	1	0.002	0.002
W & B & AIAN & API	1	0.002	0.002
Total	30,678	100.00	
(Multiple Race Group Total)	213	0.677	0.065

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 5B. Percent Distribution[1] of Race for Bridge Tabulation Methods. Current Population Survey Supplement on Race and Ethnicity, May 1995.

Race Groups	Reference Distribution (SE)[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	82.35 (0.51)	80.96	80.42	80.42	80.96	80.74	80.68	80.72
Black	11.11 (0.37)	11.14	11.02	11.14	10.92	11.13	10.99	11.00
American Indian or Alaska Native	.68 (0.10)	1.15	1.15	1.03	0.80	0.80	0.96	0.86
Asian or Pacific Islander	3.29 (0.23)	3.41	3.39	3.39	3.33	3.30	3.35	3.34
Other	2.58 (0.22)	4.11	4.02	4.02	4.02	4.03	4.02	4.09
Total	100.00	100.77	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00451	0.00431	0.00387	0.00320	0.00323	0.00359	0.00355

--- Not applicable.

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 5C. Percent Distribution[1] of Race for Bridge Tabulation Methods. Current Population Survey Supplement on Race and Ethnicity, May 1995. Adjusted for Hispanic Origin #

Race Groups	Reference Distribution[2] (SE)	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White	82.35 (0.51)	80.38	80.34	80.96	80.72	80.71
Black	11.11 (0.37)	11.01	11.11	10.90	11.13	11.00
American Indian or Alaska Native	0.68 (0.10)	1.14	1.03	0.80	0.80	0.86
Asian or Pacific Islander	3.29 (0.23)	3.39	3.38	3.30	3.32	3.34
Other	2.58 (0.22)	4.08	4.10	4.05	4.04	4.09
Total	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00452	0.00414	0.00327	0.00326	0.00358

--- Not applicable.

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 5D. Percent Distribution[1] of Race for Bridge Tabulation Methods with Combined Race and Ethnicity Format. Current Population Survey Supplement on Race and Ethnicity, May 1995.

Race Groups	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White/Non Hispanic	75.32	74.16	73.69	73.69	74.15	73.98	73.91	73.95
Black/Non Hispanic	11.03	10.90	10.80	10.90	10.72	10.90	10.78	10.79
American Indian or Alaska Native	0.68	1.10	1.10	1.02	0.80	0.80	0.94	0.85
Asian or Pacific Islander	3.28	3.38	3.37	3.36	3.29	3.29	3.33	3.32
Hispanic[4]	9.17	10.13	10.13	10.13	10.13	10.13	10.13	10.13
Other	0.51	0.92	0.90	0.90	0.90	0.90	0.90	0.95
Total	100.00	100.59	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00259	0.00262	0.00231	0.00170	0.00170	0.00204	0.00204

--- Not applicable.

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

[4]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 6A. Percent Distribution[1] of Race Classification by Bridging Methods and Reported Race in the Basic Current Population Survey (CPS). CPS Supplement on Race and Ethnicity.

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment					Deterministic Fractional Assignment	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	White	96.74	96.38	96.38	96.74	96.68	96.56	96.62
(N= 25,401)	Black	0.25	0.24	0.25	0.19	0.25	0.22	0.22
	AIAN	0.62	0.62	0.61	0.37	0.37	0.49	0.40
	API	0.21	0.20	0.21	0.15	0.15	0.18	0.17
	Other	2.59	2.55	2.55	2.55	2.56	2.55	2.59
	Total	100.41	100.00	100.00	100.00	100.00	100.00	100.00
Black	White	2.17	1.32	1.32	2.15	1.36	1.69	1.59
(N = 3,285)	Black	96.14	95.62	96.14	95.33	96.14	95.57	95.66
	AIAN	0.73	0.73	0.25	0.21	0.21	0.42	0.31
	API	0.12	0.10	0.06	0.06	0.06	0.08	0.08
	Other	2.45	2.23	2.23	2.23	2.23	2.23	2.36
	Total	101.61	100.00	100.00	100.00	100.00	100.00	100.00
American Indian or	White	24.53	22.15	22.15	24.53	24.53	23.34	24.08
Alaska Native (AIAN)	Black	10.29	10.19	10.29	10.29	10.29	10.24	10.28
(N = 292)	AIAN	62.89	62.89	62.80	60.42	60.42	61.66	60.72
	API	1.95	1.95	1.95	1.95	1.95	1.95	1.95
	Other	2.81	2.81	2.81	2.81	2.81	2.81	2.98
	Total	102.47	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 6A. (continued)

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment					Deterministic Fractional Assignment	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
Asian or Pacific Islander (API) (N = 984)	White	1.98	1.22	1.22	1.98	1.98	1.60	1.63
	Black	0.40	0.08	0.40	0.40	0.40	0.22	0.29
	AIAN	0.97	0.97	0.52	0.40	0.55	0.67	0.54
	API	94.35	94.10	94.22	93.59	93.44	93.88	93.79
	Other	3.87	3.63	3.63	3.63	3.63	3.63	3.76
	Total	101.57	100.00	100.00	100.00	100.00	100.00	100.00
Other (N = 716)	White	31.88	27.96	27.96	31.88	28.81	29.74	29.38
	Black	6.56	4.88	6.56	3.50	6.56	4.51	4.52
	AIAN	3.52	3.52	2.30	1.85	1.93	2.51	2.37
	API	4.45	4.29	3.82	3.42	3.34	3.88	3.83
	Other	60.47	59.36	59.36	59.36	59.36	59.36	59.91
	Total	106.88	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 6B. Percent Distribution[1] of Race Classification by Bridging Methods and Reported Race in the Basic Current Population Survey (CPS). CPS Supplement on Race and Ethnicity. Adjusted for Hispanic Origin #

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White (N= 25,401)	White	96.35	96.35	96.74	96.66	96.62
	Black	0.24	0.25	0.19	0.25	0.22
	AIAN	0.62	0.61	0.37	0.37	0.40
	API	0.20	0.21	0.15	0.17	0.17
	Other	2.59	2.59	2.55	2.56	2.59
	Total	100.00	100.00	100.00	100.00	100.00
Black (N = 3,285)	White	1.32	1.32	2.17	1.36	1.58
	Black	95.54	96.01	95.20	96.14	95.64
	AIAN	0.73	0.25	0.21	0.21	0.31
	API	0.10	0.06	0.06	0.06	0.08
	Other	2.31	2.36	2.36	2.23	2.39
	Total	100.00	100.00	100.00	100.00	100.00
American Indian or Alaska Native (AIAN) (N = 292)	White	22.15	22.15	24.53	24.53	24.07
	Black	10.19	10.29	10.29	10.29	10.28
	AIAN	62.89	62.80	60.42	60.42	60.72
	API	1.95	1.95	1.95	1.95	1.95
	Other	2.81	2.81	2.81	2.81	2.98
	Total	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 6B. (continued)

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than	Largest Group	Plurality	NHIS Fractions
Asian or Pacific Islander (API) (N = 984)	White	1.17	1.17	1.98	1.88	1.62
	Black	0.08	0.40	0.40	0.30	0.29
	AIAN	0.97	0.52	0.40	0.40	0.54
	API	94.10	94.03	93.40	93.80	93.78
	Other	3.68	3.87	3.83	3.63	3.77
	Total	100.00	100.00	100.00	100.00	100.00
Other (N = 716)	White	27.37	27.37	31.88	28.75	29.32
	Black	4.88	6.34	3.28	6.47	4.47
	AIAN	3.52	2.24	1.85	1.93	2.37
	API	4.05	3.82	3.42	3.10	3.83
	Other	60.19	60.23	59.57	59.75	60.01
	Total	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 6C. Percent Distribution[1] of Race Classification with Combined Race and Ethnicity Format by Bridging Methods and Reported Race in the Basic Current Population Survey (CPS). CPS Supplement on Race and Ethnicity.

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method		Deterministic Whole Assignment				Deterministic Fractional Assignemnt	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White/Non Hispanic (N= 23,551)	White/Non H	97.46	97.13	97.13	97.46	97.42	97.29	97.36
	Black/Non H	0.17	0.17	0.17	0.14	0.17	0.15	0.15
	AIAN	0.57	0.57	0.56	0.31	0.31	0.44	0.35
	API	0.17	0.16	0.17	0.12	0.12	0.14	0.13
	Hispanic	1.56	1.56	1.56	1.56	1.56	1.56	1.56
	Other	0.43	0.42	0.42	0.42	0.42	0.42	0.45
	Total	100.36	100.00	100.00	100.00	100.00	100.00	100.00
Black/Non Hispanic (N = 3,262)	White/Non H	2.04	1.32	1.32	2.02	1.35	1.63	1.55
	Black/Non H	95.61	95.15	95.61	94.93	95.61	95.13	95.20
	AIAN	0.67	0.67	0.25	0.21	0.21	0.40	0.30
	API	0.12	0.10	0.06	0.06	0.06	0.08	0.08
	Hispanic	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	Other	1.68	1.60	1.60	1.60	1.60	1.60	1.71
	Total	101.28	100.00	100.00	100.00	100.00	100.00	100.00
American Indian or Alaska Native (AIAN) (N = 292)	White/Non H	17.95	15.81	15.81	17.95	17.95	16.88	17.55
	Black/Non H	10.29	10.19	10.29	10.29	10.29	10.24	10.28
	AIAN	62.66	62.66	62.56	60.42	60.42	61.54	60.69
	API	1.95	1.95	1.95	1.95	1.95	1.95	1.95
	Hispanic	9.07	9.07	9.07	9.07	9.07	9.07	9.07
	Other	0.31	0.31	0.31	0.31	0.31	0.31	0.46
	Total	102.23	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 6C. (continued)

Race Reported in the Basic CPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment					Deterministic Fractional Assignemnt	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
Asian or Pacific Islander (API) (N = 984)	White/Non H	1.88	1.22	1.22	1.88	1.88	1.55	1.58
	Black/Non H	0.22	0.00	0.22	0.22	0.22	0.11	0.18
	AIAN	0.72	0.72	0.52	0.40	0.40	0.56	0.42
	API	93.80	93.80	93.77	93.25	93.25	93.52	93.45
	Hispanic	1.22	1.22	1.22	1.22	1.22	1.22	1.22
	Other	3.09	3.04	3.04	3.04	3.04	3.04	3.15
	Total	100.93	100.00	100.00	100.00	100.00	100.00	100.00
Hispanic (N = 2,424)	White/Non H	2.30	2.25	2.25	2.30	2.26	2.28	2.27
	Black/Non H	0.19	0.19	0.19	0.15	0.19	0.17	0.17
	AIAN	1.19	1.19	1.19	1.18	1.18	1.19	1.18
	API	0.53	0.53	0.53	0.53	0.53	0.53	0.53
	Hispanic	94.08	94.08	94.08	94.08	94.08	94.08	94.08
	Other	1.76	1.76	1.76	1.76	1.76	1.76	1.77
	Total	100.05	100.00	100.00	100.00	100.00	100.00	100.00
Other (N = 165)	White/Non H	25.46	7.91	7.91	25.46	11.55	15.86	14.17
	Black/Non H	24.20	16.52	24.20	10.29	24.20	14.91	14.95
	AIAN	8.47	8.47	3.14	1.53	1.93	4.18	3.57
	API	19.53	18.73	16.39	14.36	13.96	16.68	16.44
	Hispanic	20.51	20.51	20.51	20.51	20.51	20.51	20.51
	Other	29.06	27.86	27.86	27.86	27.86	27.86	30.35
	Total	127.23	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 7A. Unweighted Counts and Weighted[1] Percentages under the New OMB Categories. Washington State Population Survey (WSPS).

Race Category	Unweighted Counts	Weighted[1] Percentages	Standard Errors
White (W)	5339	86.187	0.384
Black (B)	308	2.180	0.192
American Indian or Alaska Native (AIAN)	343	0.875	0.074
Asian or Pacific Islander (API)	258	2.937	0.196
Other	351	3.666	0.277
W & B	20	0.256	0.080
W & AIAN	174	1.965	0.212
W & API	19	0.198	0.071
W & Other	70	1.225	0.200
B & AIAN	14	0.196	0.066
B & API	1	0.003	0.003
B & Other	7	0.062	0.019
AIAN & API	3	0.004	0.003
AIAN & Other	7	0.012	0.006
API & Other	3	0.005	0.003
W & B & AIAN	6	0.070	0.028
W & B & API	3	0.042	0.037
W & B & Other	2	0.026	0.016
W & AIAN & API	2	0.007	0.007
W & AIAN & Other	6	0.076	0.043
W & API & Other	1	0.001	0.001
B & AIAN & API	1	0.001	0.001
W & B & AIAN & API	2	0.005	0.004
Total	6940	100.00	
(Multiple Race Group Total)	341	4.155	0.334

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE: Washington State Population Survey

Table 7B. Percent Distribution[1] of Race for Bridge Tabulation Methods. Washington State Population Survey (WSPS)

Race Groups	Reference Distribution[2] (SE)	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	88.97 (0.31)	90.06	86.19	86.19	90.06	89.66	88.08	88.63
Black	2.27 (0.17)	2.84	2.44	2.84	2.44	2.82	2.49	2.56
American Indian or Alaska Native	1.29 (0.08)	3.21	3.21	2.84	0.88	0.88	2.02	1.19
Asian or Pacific Islander	3.04 (0.16)	3.20	3.19	3.15	2.94	2.94	3.06	3.03
Other	4.44 (0.31)	5.07	4.98	4.99	3.68	3.71	4.35	4.59
Total	100.00	104.38	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]		0.00770	0.00833	0.00676	0.00170	0.00211	0.00167	0.00024

--- Not applicable.

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Washington State Population Survey

CONTINUED

Table 7C. Percent Distribution[1] of Race for Bridge Tabulation Methods. Washington State Population Survey (WSPS). Adjusted for Hispanic Origin #.

Race Groups	Reference Distribution[2] (SE)	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White	88.97 (0.31)	86.19	86.19	90.06	89.64	88.63
Black	2.27 (0.17)	2.45	2.82	2.42	2.81	2.56
American Indian or Alaska Native	1.29 (0.08)	3.21	2.84	0.88	0.88	1.19
Asian or Pacific Islander	3.04 (0.16)	3.19	3.15	2.94	2.95	3.03
Other	4.44 (0.31)	4.96	5.00	3.70	3.73	4.59
Total	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]		0.00833	0.00674	0.00166	0.00206	0.00024

--- Not applicable.

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: Washington State Population Survey

Table 8A. Percent Distribution[1] of Race Classification by Bridging Methods and Reported Race in the Washington State Population Survey (WSPS).

Race Reported in the Basic WSPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment					Deterministic Fractional Assignment	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	White	99.41	96.81	96.81	99.41	99.21	98.10	98.56
(N= 5490)	Black	0.29	0.25	0.29	0.10	0.29	0.19	0.19
	AIAN	1.67	1.67	1.63	0.01	0.01	0.83	0.22
	API	0.26	0.26	0.21	0.10	0.10	0.17	0.16
	Other	1.06	1.01	1.06	0.39	0.39	0.71	0.87
	Total	102.69	100.00	100.00	100.00	100.00	100.00	100.00
Black	White	2.16	0.20	0.20	2.16	0.54	0.97	0.99
(N = 326)	Black	99.29	90.61	99.29	97.68	98.15	94.56	97.26
	AIAN	7.79	7.79	0.35	0.00	0.00	3.90	0.57
	API	0.11	0.11	0.00	0.00	0.00	0.04	0.04
	Other	1.41	1.30	0.17	0.17	1.31	0.55	1.15
	Total	110.76	100.00	100.00	100.00	100.00	100.00	100.00
American Indian or	White	24.13	0.79	0.79	24.13	20.44	12.28	17.13
Alaska Native (AIAN)	Black	8.00	7.37	8.00	4.32	8.00	5.85	6.09
(N = 422)	AIAN	88.51	88.51	85.80	67.48	67.77	77.81	70.62
	API	2.12	1.80	2.12	2.01	1.72	1.92	1.90
	Other	3.29	1.52	3.29	2.07	2.07	2.15	4.26
	Total	126.05	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE:. Washington State Population Survey

Table 8A. (continued)

Race Reported in the Basic WSPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment					Deterministic Fractional Assignment	
		All Inclusive	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
Asian or Pacific Islander (API) (N = 273)	White	5.07	1.11	1.11	5.07	3.15	3.09	3.03
	Black	1.92	1.92	1.92	0.00	1.92	0.96	0.97
	AIAN	1.28	1.28	1.28	0.00	0.00	0.64	0.16
	API	93.83	93.83	93.75	92.99	93.07	93.41	93.30
	Other	1.94	1.86	1.94	1.94	1.86	1.90	2.55
	Total	104.04	100.00	100.00	100.00	100.00	100.00	100.00
Other (N = 429)	White	24.76	0.00	0.00	24.76	22.86	11.97	13.61
	Black	3.81	0.14	3.81	1.93	3.81	1.60	1.78
	AIAN	8.30	8.30	5.48	0.00	0.01	3.75	1.47
	API	2.23	1.94	1.86	0.01	0.07	1.04	0.79
	Other	90.21	89.63	88.85	73.30	73.26	81.63	82.34
	Total	129.31	100.00	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

SOURCE:. Washington State Population Survey

Table 8B. Percent Distribution[1] of Race Classification by Bridging Methods and Reported Race in the Washington State Population Survey (WSPS).

Adjusted for Hispanic Origin #.

Race Reported in the Basic WSPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White (N= 5490)	White	96.81	96.81	99.41	99.21	98.56
	Black	0.25	0.29	0.10	0.29	0.19
	AIAN	1.67	1.63	0.01	0.01	0.22
	API	0.26	0.21	0.10	0.10	0.16
	Other	1.01	1.06	0.39	0.39	0.87
	Total	100.00	100.00	100.00	100.00	100.00
Black (N = 326)	White	0.20	0.20	2.16	0.54	0.99
	Black	90.61	99.29	97.68	98.15	97.26
	AIAN	7.79	0.35	0.00	0.00	0.57
	API	0.11	0.00	0.00	0.00	0.04
	Other	1.30	0.17	0.17	1.31	1.15
	Total	100.00	100.00	100.00	100.00	100.00
American Indian or Alaska Native (AIAN) (N = 422)	White	0.79	0.79	24.13	20.32	17.06
	Black	7.37	8.00	4.32	8.00	6.09
	AIAN	88.51	85.80	67.48	67.77	70.68
	API	1.80	2.12	2.01	1.72	1.90
	Other	1.52	3.29	2.07	2.19	4.27
	Total	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE:. Washington State Population Survey

Table 8B. (continued)

Race Reported in the Basic WSPS (Sample Counts)	Race Classification Under the Bridging Method	Deterministic Whole Assignment				Deterministic Fractional Assignment
		Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
Asian or Pacific Islander (API) (N = 273)	White	1.11	1.11	5.07	3.15	3.03
	Black	1.92	1.92	0.00	1.92	0.97
	AIAN	1.28	1.28	0.00	0.00	0.16
	API	93.83	93.75	92.99	93.07	93.30
	Other	1.86	1.94	1.94	1.86	2.55
	Total	100.00	100.00	100.00	100.00	100.00
Other (N = 429)	White	0.00	0.00	24.76	22.44	13.61
	Black	0.54	3.41	1.53	3.72	1.78
	AIAN	8.30	5.48	0.00	0.01	1.47
	API	1.94	1.86	0.01	0.16	0.79
	Other	89.23	89.26	73.70	73.68	82.34
	Total	100.00	100.00	100.00	100.00	100.00

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.
Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE:. Washington State Population Survey

Table 9A. Percent (standard error) of Multiple Race Respondents Misclassified by Bridge Tabulation Methods. National Health Interview Survey 1993-1995.

Main Race Reported	Deterministic Whole Assignment				Deterministic Fractional Assignment	
	Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	1.12 (.08)	1.12 (.08)	0.00 (.00)	.07 (.01)	.56 (.04)	.32 (.02)
Black	1.00 (.10)	0.00 (.00)	.89 (.08)	0.00 (.00)	.94 (.08)	1.24 (.10)
American Indian or Alaska Native	0.00 (.00)	2.26 (.46)	13.25 (1.26)	12.27 (1.19)	6.62 (.63)	11.39 (1.09)
Asian or Pacific Islander	.44 (.10)	.24 (.07)	3.12 (.47)	2.95 (.44)	1.71 (.24)	2.31 (.32)
Other	7.89 (1.01)	8.25 (1.07)	9.67 (1.45)	9.67 (1.15)	5.08 (.60)	8.17 (.98)
Total	1.24 (.07)	1.14 (.07)	.59 (.03)	.52 (.03)	.82 (.04)	.81 (.04)

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 9B Percent (standard error) of Multiple Race Respondents Misclassified by Bridge Tabulation Methods, Adjusted for Hispanic Origin #. National Health Interview Survey 1993-1995.

	Deterministic Whole Assignment				Deterministic Fractional Assignment
Main Race Reported	Smallest Group	Largest Group Other Than White	Largest Group	Plurality	NHIS Fractions
White	1.12 (.08)	1.12 (.08)	0.00 (.00)	.09 (.01)	.33 (.02)
Black	.94 (.09)	0.06 (.01)	.95 (.08)	0.00 (.00)	1.24 (.10)
American Indian or Alaska Native	0.00 (.00)	2.26 (.46)	13.25 (1.26)	12.27 (1.19)	11.19 (1.07)
Asian or Pacific Islander	.22 (.06)	.42 (.08)	3.30 (.48)	2.42 (.35)	2.31 (.32)
Other	8.29 (1.06)	7.85 (1.01)	9.27 (1.09)	9.67 (1.15)	8.07 (.96)
Total	1.24 (.07)	1.14 (.07)	.59 (.03)	.52 (.03)	.81 (.04)

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 9C. Percent (standard error) of Multiple Race Respondents Misclassified [1] by Bridge Tabulation Methods with Combined Race and Ethnicity Format. National Health Interview Survey 1993-1995.

	Deterministic Whole Assignment				Deterministic Fractional Assignment	
Race Group	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	1.08 (.08)	1.08 (.08)	0.00 (---)	0.06 (.01)	.54 (.04)	.30 (.02)
Black	.93 .10)	0.00 (---)	.74 (.07)	0.00 (---)	.83 (.07)	1.10 (.09)
AIAN	2.69 (.51)	4.38 (.66)	13.25 (1.26)	12.42 (1.19)	5.28 (.57)	9.08 (.98)
API	.97 (.19)	.94 (.17)	3.30 (.48)	3.15 (.44)	1.33 (.19)	1.79 (.26)
Other	26.92 (2.46)	27.83 (2.52)	30.12 (2.44)	30.12 (2.44)	15.53 (1.25)	25.19 (2.06)
Hispanic [1]	0.00 (---)	0.00 (---)	0.00 (---)	0.00 (---)	0.00 (---)	0.00 (---)
Total	1.14 (.07)	1.04 (.06)	.52 (.03)	.46 (.03)	.69 (.04)	.66 (.03)

--- Not applicable.

[1]Hispanic - Reference group Combined Main Race (see text). For all methods respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 10A. Percent of ALL Respondents Misclassified by Bridge Tabulation Methods. Current Population Survey

Main Race Reported	Deterministic Whole Assignment				Deterministic Fractional Assignment	
	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	3.62 (0.23)	3.62 (0.23)	3.26 (0.22)	3.32 (0.22)	3.44 (0.23)	3.38 (0.23)
Black	4.38 (0.70)	3.86 (0.63)	4.67 (0.65)	3.86 (0.63)	4.43 (0.66)	4.34 (0.65)
American Indian or Alaska Native	37.11 (6.32)	37.20 (6.34)	39.58 (6.31)	39.58 (6.31)	38.34 (6.28)	39.28 (6.30)
Asian or Pacific Islander	5.90 (1.32)	5.78 (1.28)	6.41 (1.37)	6.56 (1.41)	6.12 (1.33)	6.21 (1.34)
Other	40.64 (4.06)	40.64 (4.06)	40.64 (4.06)	40.64 (4.06)	40.64 (4.06)	40.09 (4.06)
TOTAL	4.97 (0.26)	4.90 (0.25)	4.73 (0.25)	4.70 (0.25)	4.84 (0.25)	4.77 (0.25)

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity

CONTINUED

Table 10B. Percent of ALL Respondents Misclassified by Bridge Tabulation Methods. Current Population Survey.

Adjusted for Hispanic Origin #.

	Deterministic Whole Assignment				Deterministic Fractional Assignment
Main Race Reported	Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White	3.65 (0.23)	3.65 (0.23)	3.26 (0.22)	3.34 (0.23)	3.38 (0.23)
Black	4.46 (0.70)	3.99 (0.64)	4.80 (0.66)	3.86 (0.63)	4.36 (0.65)
American Indian or Alaska Native	37.11 (6.32)	37.20 (6.34)	39.58 (6.31)	39.58 (6.31)	39.28 (6.30)
Asian or Pacific Islander	5.90 (1.32)	5.97 (1.33)	6.60 (1.41)	6.20 (1.32)	6.22 (1.34)
Other	39.82 (4.10)	39.77 (4.05)	40.43 (4.05)	40.25 (4.10)	39.99 (4.06)
TOTAL	4.98 (0.25)	4.93 (0.25)	4.75 (0.25)	4.69 (0.25)	4.77 (0.25)

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity

Table 10C. Percent of ALL Respondents Misclassified by Bridge Tabulation Methods with Combined Race and Ethnicity Format. Current Population Survey

Main Race Reported	Deterministic Whole Assignment				Deterministic Fractional Assignment	
	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White/Non Hispanic	2.87	2.87	2.54	2.58	2.71	2.64
Black/Non Hispanic	4.85	4.39	5.05	4.39	4.87	4.80
American Indian or Alaska Native	37.34	37.43	39.58	39.58	38.46	39.31
Asian or Pacific Islander	6.20	6.23	6.75	6.75	6.48	6.55
Hispanic[1]	5.92	5.92	5.92	5.92	5.92	5.92
Other	72.14	72.14	72.14	72.14	72.14	69.65
TOTAL	4.07	4.02	3.87	3.83	3.97	3.90

[1]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity

Table 11A. Percent of ALL Respondents Misclassified by Bridge Tabulation Methods. Washington State Population Survey (WSPS)

	Deterministic Whole Assignment				Deterministic Fractional Assignment	
Main Race Reported	Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
White	3.19 (0.29)	3.19 (0.29)	0.59 (0.13)	0.79 (0.15)	1.90 (0.18)	1.44 (0.16)
Black	9.39 (2.84)	0.71 (0.24)	2.32 (0.74)	1.85 (0.70)	5.44 (1.48)	2.74 (0.62)
American Indian or Alaska Native	11.49 (2.46)	14.20 (2.47)	32.52 (3.80)	32.23 (3.83)	22.19 (2.77)	29.39 (3.55)
Asian or Pacific Islander	6.17 (2.96)	6.26 (2.96)	7.01 (2.94)	6.93 (2.94)	6.59 (2.95)	6.70 (2.94)
Other	10.37 (1.77)	11.15 (1.75)	26.70 (3.26)	26.74 (3.26)	18.37 (2.09)	17.66 (1.99)
TOTAL	3.84 (0.28)	3.72 (0.26)	2.40 (0.26)	2.55 (0.24)	3.12 (0.23)	2.71 (0.20)

SOURCE: Washington State Population Survey

Table 11B. Percent of ALL Respondents Misclassified by Bridge Tabulation Methods. Washington State Population Survey (WSPS). Adjusted for Hispanic Origin #

	Deterministic Whole Assignment				Deterministic Fractional Assignment
Main Race Reported	Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
White	3.19 (0.29)	3.19 (0.29)	0.59 (0.13)	0.79 (0.15)	1.44 (0.16)
Black	9.39 (2.84)	0.71 (0.24)	2.32 (0.74)	1.85 (0.70)	2.74 (0.62)
American Indian or Alaska Native	11.49 (2.46)	14.20 (2.47)	32.52 (3.80)	32.23 (3.83)	29.32 (3.55)
Asian or Pacific Islander	6.17 (2.96)	6.26 (2.96)	7.01 (2.94)	6.93 (2.94)	6.70 (2.94)
Other	10.77 (1.78)	10.74 (1.77)	26.30 (3.22)	26.32 (3.30)	17.66 (1.99)
TOTAL	3.86 (0.28)	3.70 (0.26)	2.38 (0.26)	2.54 (0.24)	2.71 (0.20)

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: Washington State Population Survey

Table 12A . Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. National Health Interview Survey 1993-1995.

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Response by a Factor of 2)					
White	79.90	82.25	78.11	78.11	80.93	80.44	79.51	79.88
Black	12.76	13.32	12.76	13.11	12.63	13.09	12.70	12.77
American Indian or Alaska Native	1.03	2.75	2.70	2.42	0.79	0.82	1.74	1.03
Asian or Pacific Islander	3.60	4.15	3.98	3.97	3.40	3.41	3.69	3.60
Other	2.71	2.54	2.46	2.40	2.25	2.25	2.36	2.71
Total	100.00	104.96	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	---	.00727	.00570	.00090	.00080	.00198	.00003

--- Not applicable.

[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.

[2]Reference distribution is Main Race.

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12A (continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Response by a Factor of 4)					
White	79.15	85.12	75.66	75.66	81.13	80.19	78.39	79.10
Black	12.82	14.14	12.80	13.48	12.55	13.44	12.69	12.83
American Indian or Alaska Native	1.22	4.69	4.46	3.92	.77	0.82	2.61	1.24
Asian or Pacific Islander	3.71	4.78	4.45	4.43	3.21	3.34	3.90	3.72
Other	3.10	2.83	2.63	2.51	2.20	2.20	2.42	3.11
Total	100.00	111.56	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	---	.01843	.01499	.00320	.00287	.00557	.000045

--- Not applicable.
[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2]Reference distribution is Main Race.
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12A (continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Response by a Factor of 6)					
White	78.45	87.99	73.37	73.37	81.32	79.95	77.33	78.37
Black	12.86	14.97	12.84	13.78	12.48	12.86	12.68	12.88
American Indian or Alaska Native	1.40	6.64	6.11	5.33	.74	1.40	3.42	1.42
Asian or Pacific Islander	3.81	5.46	4.89	4.87	3.28	3.81	4.09	3.83
Other	3.47	3.11	2.78	2.60	2.17	3.47	2.48	3.49
Total	100.00	118.16	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	---	.030339	.02520	.00654	.00585	.00967	.00007

--- Not applicable.
[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2]Reference distribution is Main Race.
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12A (continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
	(Increase Multiple Race Response by a Factor of 8)							
White	77.79	90.85	71.21	71.21	81.50	79.72	76.34	77.68
Black	12.91	15.79	12.88	14.16	12.42	14.09	12.67	12.93
American Indian or Alaska Native	1.57	8.58	7.67	6.65	.72	.82	4.18	1.60
Asian or Pacific Islander	3.91	6.14	5.30	5.27	3.22	3.23	4.27	3.93
Other	3.42	3.40	2.93	2.70	2.14	2.14	2.53	3.84
Total	100.00	124.76	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	---	.042400	.03570	.01068	.00950	.013932	.00009

--- Not applicable.
[1]All percents weighted to be nationally representative; 5,237 observations were missing race and are not tabulated.
[2]Reference distribution is Main Race.
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48).

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12B. Percent Distribution[1] of Race for Bridge Tabulation Methods with Combined Race and Ethnicity Format. National Health Interview Survey 1993-1995.

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Respondents by 2)					
White	72.80	80.93	71.24	71.24	73.24	73.64	72.44	72.76
Black	12.46	13.11	12.73	12.43	12.72	12.34	12.39	12.46
American Indian or Alaska Native	1.03	2.69	2.26	2.50	0.81	0.79	1.64	1.01
Asian or Pacific Islander	3.60	4.01	3.86	3.88	3.39	3.39	3.64	3.55
Other	0.80	2.50	0.50	0.54	0.44	0.44	0.49	0.93
Hispanic[4]	9.30	9.60	9.40	9.40	9.40	9.40	9.40	9.30
Total	100.00	112.80	100.00	99.99	99.99	100.00	100.00	100.00
Goodness of fit[3]			0.001467	0.006390	0.005260	0.001538	0.002049	0.000

--- Not applicable.

[1]All percents weighted to be nationally representative; 1.6% of observations were missing race and are not tabulated.

[2]Reference distribution is Combined Main Race (see text).

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. Categorical Data Analysis. John Wiley & Sons. 1990, page 48).

[4]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12B. (Continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Respondents by 4)					
White	72.04	81.13	69.01	69.01	72.89	73.66	71.33	71.95
Black	12.47	13.48	12.99	12.41	12.97	12.24	12.33	12.45
American Indian or Alaska Native	1.24	4.44	3.61	4.08	0.81	0.77	2.42	1.18
Asian or Pacific Islander	3.72	4.52	4.23	4.27	3.31	3.31	3.79	3.63
Other	1.15	2.69	0.56	0.63	0.43	0.43	0.53	1.39
Hispanic[4]	9.40	9.78	9.60	9.60	9.60	9.60	9.60	9.40
Total	100.00	116.00	100.00	100.00	100.00	100.01	100.00	100.00
Goodness of fit[3]			0.005606	0.016601	0.014127	0.005887	0.006488	0.000447

--- Not applicable.

[1]All percents weighted to be nationally representative; 1.6% of observations were missing race and are not tabulated.

[2]Reference distribution is Combined Main Race (see text).

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. Categorical Data Analysis. John Wiley & Sons. 1990, page 48).

[4]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12B. (Continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Respondents by 6)					
White	71.32	81.31	66.92	66.92	72.56	73.68	70.29	71.19
Black	12.47	13.83	13.24	12.38	13.20	12.14	12.27	12.45
American Indian or Alaska Native	1.43	6.08	4.88	5.56	0.80	0.74	3.15	1.34
Asian or Pacific Islander	3.83	4.99	4.57	4.63	3.23	3.23	3.94	3.70
Other	1.47	2.88	0.61	0.72	0.43	0.43	0.58	1.82
Hispanic[4]	9.49	9.96	9.78	9.78	9.78	9.78	9.78	9.49
Total	100.00	119.10	100.00	99.99	100.00	100.00	100.00	100.00
Goodness of fit[3]			0.010657	0.027271	0.023699	0.011286	0.010828	0.000614

--- Not applicable.

[1]All percents weighted to be nationally representative; 1.6% of observations were missing race and are not tabulated.

[2]Reference distribution is Combined Main Race (see text).

[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. Categorical Data Analysis. John Wiley & Sons. 1990, page 48).

[4]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 12B. (Continued)

Race Group	Reference Distribution[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple Race Respondents by 8)					
White	70.64	81.49	64.95	64.95	72.56	73.70	69.31	70.48
Black	12.48	14.15	13.47	12.36	13.20	12.04	12.22	12.45
American Indian or Alaska Native	1.61	7.63	6.08	6.96	0.80	0.72	3.83	1.50
Asian or Pacific Islander	3.93	5.44	4.89	4.97	3.23	3.16	4.07	3.77
Other	1.77	3.05	0.66	0.81	0.43	0.43	0.62	2.23
Hispanic[4]	9.57	10.12	9.94	9.94	9.78	9.94	9.94	9.57
Total	100.00	121.90	100.00	99.99	99.99	99.99	99.99	100.00
Goodness of fit[3]			0.015993	0.037938	0.033644	0.017464	0.015663	0.000586

--- Not applicable.

[1]All percents weighted to be nationally representative; 1.6% of observations were missing race and are not tabulated.
[2]Reference distribution is Combined Main Race (see text).
[3]Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. Categorical Data Analysis. John Wiley & Sons. 1990, page 48).
[4]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 13A. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 2)					
White	82.11	80.99	79.92	79.92	80.98	80.55	80.43	80.51
Black	11.17	11.36	11.12	11.36	10.93	11.35	11.07	11.09
American Indian or Alaska Native	0.69	1.48	1.48	1.25	0.79	0.81	1.11	0.91
Asian or Pacific Islander	3.31	3.52	3.48	3.47	3.30	3.29	3.40	3.38
Other	2.71	4.18	3.99	3.99	3.99	4.00	3.99	4.12
Total	100.00	101.53	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00562	0.00530	0.00418	0.00254	0.00261	0.00344	0.00321

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13A. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 4)					
White	81.66	81.04	78.94	78.94	81.03	80.18	79.94	80.08
Black	11.31	11.80	11.33	11.80	10.94	11.78	11.22	11.27
American Indian or Alaska Native	0.72	2.15	2.15	1.69	0.78	0.81	1.42	1.02
Asian or Pacific Islander	3.36	3.73	3.64	3.62	3.30	3.27	3.49	3.44
Other	2.96	4.30	3.94	3.94	3.94	3.96	3.94	4.19
Total	100.00	103.02	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00866	0.00835	0.00561	0.00153	0.00168	0.00365	0.00268

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13A. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 6)					
White	81.21	81.09	77.99	77.99	81.08	79.82	79.47	79.67
Black	11.43	12.23	11.53	12.23	10.96	12.20	11.37	11.44
American Indian or Alaska Native	0.74	2.79	2.79	2.12	0.77	0.81	1.71	1.13
Asian or Pacific Islander	3.41	3.93	3.81	3.78	3.29	3.25	3.57	3.51
Other	3.21	4.42	3.89	3.89	3.89	3.92	3.89	4.26
Total	100.00	104.46	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.01221	0.01221	0.00778	0.00089	0.00113	0.00437	0.00234

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13A. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 8)					
White	80.78	81.14	77.06	77.06	81.12	79.47	79.00	79.28
Black	11.56	12.64	11.72	12.64	10.97	12.60	11.51	11.60
American Indian or Alaska Native	0.76	3.42	3.42	2.54	0.76	0.82	2.00	1.23
Asian or Pacific Islander	3.46	4.13	3.96	3.92	3.29	3.23	3.66	3.57
Other	3.44	4.54	3.84	3.84	3.84	3.88	3.84	4.32
Total	100.00	105.87	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.01599	0.01659	0.01047	0.00057	0.00090	0.00547	0.00215

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.
[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13B. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8 with Combined Race and Ethnicity Format. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 2)					
White/Non Hispanic	75.08	74.12	73.20	73.20	74.12	73.76	73.64	73.71
Black/Non Hispanic	11.09	11.06	10.86	11.06	10.70	11.06	10.82	10.84
American Indian or Alaska Native	0.69	1.40	1.40	1.22	0.79	0.80	1.08	0.89
Asian or Pacific Islander	3.31	3.45	3.43	3.41	3.28	3.27	3.36	3.34
Hispanic[4]	9.19	10.21	10.21	10.21	10.21	10.21	10.21	10.21
Other	0.63	0.94	0.89	0.89	0.89	0.89	0.89	1.00
Total	100.00	101.18	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00335	0.00345	0.00257	0.00115	0.00115	0.00194	0.00172

--- Not applicable
[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.
[2]Reference distribution is from the original CPS race question conforming to the old standard.
[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)
[4]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13B. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8 with Combined Race and Ethnicity Format. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 4)					
White/Non Hispanic	74.62	74.05	72.24	72.24	74.04	73.35	73.10	73.25
Black/Non Hispanic	11.21	11.37	10.99	11.37	10.67	11.37	10.89	10.94
American Indian or Alaska Native	0.72	1.98	1.98	1.64	0.78	0.79	1.34	0.98
Asian or Pacific Islander	3.36	3.60	3.55	3.51	3.25	3.24	3.41	3.38
Hispanic[4]	9.24	10.37	10.37	10.37	10.37	10.37	10.37	10.37
Other	0.85	0.97	0.88	0.88	0.88	0.88	0.88	1.09
Total	100.00	102.34	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00588	0.00642	0.00435	0.00084	0.00082	0.00258	0.00147

--- Not applicable
[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.
[2]Reference distribution is from the original CPS race question conforming to the old standard.
[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)
[4]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13B. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8 with Combined Race and Ethnicity Format. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 6)					
White/Non Hispanic	74.18	73.98	71.30	71.30	73.97	72.94	72.58	72.80
Black/Non Hispanic	11.32	11.67	11.10	11.67	10.63	11.67	10.97	11.03
American Indian or Alaska Native	0.74	2.54	2.54	2.03	0.77	0.78	1.60	1.06
Asian or Pacific Islander	3.41	3.74	3.66	3.60	3.22	3.21	3.46	3.41
Hispanic[4]	9.29	10.52	10.52	10.52	10.52	10.52	10.52	10.52
Other	1.07	1.00	0.87	0.87	0.87	0.87	0.87	1.18
Total	100.00	103.45	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.00927	0.01052	0.00707	0.00125	0.00119	0.00409	0.00151

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

[4]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 13B. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8 with Combined Race and Ethnicity Format. May 1995 CPS Supplement on Race and Ethnicity.

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 8)					
White/Non Hispanic	73.74	73.92	70.39	70.39	73.90	72.55	72.07	72.36
Black/Non Hispanic	11.42	11.97	11.22	11.97	10.60	11.97	11.04	11.12
American Indian or Alaska Native	0.76	3.09	3.09	2.42	0.76	0.78	1.85	1.14
Asian or Pacific Islander	3.46	3.87	3.77	3.69	3.20	3.18	3.51	3.44
Hispanic[4]	9.33	10.66	10.66	10.66	10.66	10.66	10.66	10.66
Other	1.28	1.03	0.86	0.86	0.86	0.86	0.86	1.27
Total	100.00	104.54	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]	---	0.01314	0.01533	0.01054	0.00217	0.00210	0.00616	0.00176

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

[4]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity, Data from Panel 2 only.

Table 14. Percent Distribution of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. Washington State Population Survey (WSPS).

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 2)					
White	87.64	90.18	82.75	82.75	90.18	89.41	86.39	87.45
Black	2.39	3.36	2.59	3.36	2.60	3.31	2.68	2.82
American Indian or Alaska Native	1.54	5.33	5.33	4.61	0.84	0.85	3.03	1.44
Asian or Pacific Islander	3.03	3.33	3.30	3.22	2.83	2.83	3.06	3.00
Other	5.40	6.22	6.04	6.05	3.55	3.60	4.84	5.29
Total	100.00	108.842	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]								

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: Washington State Population Survey

Table 14. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. Washington State Population Survey (WSPS).

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 4)					
White	85.27	90.40	76.63	76.63	90.40	88.98	83.38	85.33
Black	2.59	4.29	2.85	4.29	2.87	4.20	3.03	3.29
American Indian or Alaska Native	2.00	9.09	9.09	7.77	0.78	0.79	4.84	1.89
Asian or Pacific Islander	3.03	3.56	3.50	3.35	2.63	2.63	3.05	2.95
Other	7.11	8.27	7.93	7.95	3.32	3.40	5.70	6.54
Total	100.00	115.61	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]								

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: Washington State Population Survey

Table 14. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. Washington State Population Survey (WSPS).

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 6)					
White	83.22	90.59	71.36	71.36	90.59	88.60	80.79	83.51
Black	2.77	5.09	3.08	5.09	3.11	4.96	3.33	3.69
American Indian or Alaska Native	2.39	12.33	12.33	10.49	0.73	0.74	6.39	2.28
Asian or Pacific Islander	3.02	3.76	3.67	3.47	2.45	2.46	3.05	2.90
Other	8.59	10.03	9.56	9.59	3.12	3.23	6.45	7.62
Total	100.00	121.80	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]								

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.

[2]Reference distribution is from the original CPS race question conforming to the old standard.

[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE: Washington State Population Survey

Table 14. Percent Distribution[1] of Race for Bridge Tabulation Methods if Multiple Race Responses Increase by Factors of 2, 4, 6 and 8. Washington State Population Survey (WSPS).

Race Groups	Reference Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
			(Increase Multiple race Response by a Factor of 8)					
White	81.44	90.76	66.77	66.77	90.76	88.28	78.53	81.93
Black	2.93	5.79	3.28	5.79	3.32	5.63	3.59	4.04
American Indian or Alaska Native	2.74	15.15	15.15	12.86	0.68	0.70	7.75	2.62
Asian or Pacific Islander	3.02	3.93	3.82	3.57	2.30	2.31	3.04	2.86
Other	9.88	11.57	10.98	11.02	2.95	3.08	7.10	8.56
Total	100.00	127.20	100.00	100.00	100.00	100.00	100.00	100.00
Goodness of Fit[3]								

--- Not applicable

[1]All percents weighted to adjust for sample design and nonresponse, however estimates are not nationally representative.
[2]Reference distribution is from the original CPS race question conforming to the old standard.
[3] Goodness of Fit = Multiple of Likelihood-Ratio Chi-Squared Statistic, G2 (Agresti A. 1990, page 48)

SOURCE:. Washington State Population Survey

Table 15A. Sensitivity of Selected Health Survey Variables to Multiple Race Reporting and Bridge Tabulation Methods.

				Deterministic Whole Assignment				Deterministic Fractional Assignment	
Race Group	Detailed Race[2] (SE)	Main Race[2]	All Inclusive	Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
% No Health Insurance (N = 251,196)[1]									
White	13.4 (.3)	13.5	13.5	13.4	13.4	13.5	13.5	13.5	13.5
Black	18.1 (.5)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
AIAN	32.2 (2.1)	32.3	26.7	26.7	27.5	32.2	32.1	27.9	31.0
API	18.9 (1.3)	18.5	18.2	18.2	18.3	18.9	18.9	18.6	18.7
Other	32.5 (1.1)	31.1[3]	32.0	32.1	32.1	32.5	32.5	32.3	30.9
White/Black	15.6 (2.3)	---	---	---	---	---	---	---	---
White/AIAN	22.9 (1.4)	---	---	---	---	---	---	---	---
White/API	11.2 (1.9)	---	---	---	---	---	---	---	---
Other Combinations	19.0 (2.1)	---	---	---	---	---	---	---	---
% Poor or Fair Health[1]									
White	9.5 (.1)	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Black	14.5 (.4)	14.6	14.6	14.5	14.5	14.7	14.6	14.6	14.6
AIAN	14.1 (.9)	14.3	13.8	13.8	13.4	14.1	14.2	14.0	14.2
API	8.0 (.4)	8.0	7.8	7.8	7.8	8.0	8.0	7.9	7.9
Other	11.7 (.5)	11.8[3]	11.7	11.8	11.7	11.7	11.8	11.8	11.7
White/Black	6.4 (1.0)	---	---	---	---	---	---	---	---
White/AIAN	12.5 (.7)	---	---	---	---	---	---	---	---
White/API	5.5 (1.0)	---	---	---	---	---	---	---	---
Other Combinations	14.1 (1.7)	---	---	---	---	---	---	---	---

--- Not applicable.

[1] All percents weighted to be nationally representative. 5,237 observations missing data on race and are not tabulated. Health insurance only obtained for half of 1993. Percent living with single mother only relevant for children.
[2] Main Race = Race when asked best single race group; Detailed Race = Race when asked which group or groups describes race.
[3] Includes Multiracial.NHIS = National Health Interview Survey; AIAN = American Indian or Alaskan Native; API= Asian or Pacific Islander.

SOURCE: Centers for Disease Control/National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 15A. (continued)

Race Group	Detailed Race[2]	Main Race[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
				Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
% Children Living with Single Mothers (N = 86,941) [1]									
White	14.6 (.3)	14.7	14.9	14.6	14.6	14.9	14.7	14.7	14.7
Black	54.7 (1.1)	54.4	54.1	54.2	54.1	54.5	54.1	54.3	54.3
AIAN	32.1 (3.6)	31.6	28.0	28.0	26.6	31.2	32.2	30.1	32.2
API	11.7 (1.0)	12.2	12.4	12.4	12.5	11.7	11.7	12.3	11.9
Other	26.3 (1.9)	26.0[3]	26.4	26.3	26.1	26.3	26.3	26.5	27.0
White/Black	40.9 (3.1)	---	---	---	---	---	---	---	---
White/AIAN	21.1 (2.3)	---	---	---	---	---	---	---	---
White/API	16.7 (2.9)	---	---	---	---	---	---	---	---
Other Combinations	34.3 (3.6)	---	---	---	---	---	---	---	---

--- Not applicable.
[1] All percents weighted to be nationally representative. 1.6% missing data on race and are not tabulated. Health insurance only obtained for half of 1993. Percent living with single mother only relevant for children.
[2] Main Race = Race when asked best single race group; Detailed Race = Race when asked which group or groups describes race.
[3] Includes Multiracial.

NHIS = National Health Interview Survey; AIAN = American Indian or Alaskan Native; API = Asian or Pacific Islander.

SOURCE: Centers for Disease Control/National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 15B. Sensitivity of Selected Health Survey Variables to Multiple Race Reporting and Bridge Tabulation Methods, Adjusted for Hispanic Origin #.

Race Group	Detailed Race[2]	Main Race[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
				Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
% No Health Insurance (N = 251,196)[1]									
White	13.4 (.3)	13.5	13.5	13.4	13.4	13.5	13.5	13.5	13.5
Black	18.1 (.5)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
AIAN	32.2 (2.1)	32.3	26.7	26.7	27.5	32.2	32.1	27.9	31.0
API	18.9 (1.3)	18.5	18.2	18.2	18.3	18.9	18.9	18.6	18.7
Other	32.5 (1.1)	31.1[3]	32.0	32.1	32.0	32.4	32.5	32.3	30.7
White/Black	15.6 (2.3)	---	---	---	---	---	---	---	---
White/AIAN	22.9 (1.4)	---	---	---	---	---	---	---	---
White/API	11.2 (1.9)	---	---	---	---	---	---	---	---
Other Combinations	19.0 (2.1)	---	---	---	---	---	---	---	---
% Poor or Fair Health[1]									
White	9.6 (.1)	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Black	14.7 (.4)	14.6	14.6	14.5	14.5	14.7	14.6	14.6	14.6
AIAN	14.1 (.9)	14.3	13.8	13.8	13.4	14.2	14.2	14.0	14.
API	8.0 (.4)	8.0	7.8	7.8	7.8	8.0	8.0	7.9	7.9
Other	11.8 (.5)	11.8[3]	11.7	11.7	11.7	11.8	11.8	11.8	11.6
White/Black	6.5 (1.0)	---	---	---	---	---	---	---	---
White/AIAN	12.7 (.7)	---	---	---	---	---	---	---	---
White/API	5.8 (1.0)	---	---	---	---	---	---	---	---
Other Combinations	14.2 (1.7)	---	---	---	---	---	---	---	---

--- Not applicable. NHIS = National Health Interview Survey; AIAN = American Indian or Alaskan Native; API = Asian or Pacific Islander.

[1] All percents weighted to be nationally representative. 5,237 observations missing data on race and are not tabulated. Health insurance only obtained for half of 1993. Percent living with single mother only relevant for children.

[2] Main Race = Race when asked best single race group; Detailed Race = Race when asked which group or groups describes race. [3] Includes Multiracial.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: Centers for Disease Control/National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 15B. (continued)

Race Group	Detailed Race[2]	Main Race[2]	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
				Smallest Group	Largest Group Other Than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
% Children Living with Single Mothers (N = 86941) [1]									
White	14.6 (.3)	14.7	14.9	14.6	14.6	14.9	14.7	14.7	14.7
Black	54.7 (1.1)	54.4	54.1	54.3	54.0	54.5	54.1	54.3	54.4
AIAN	32.1 (3.6)	31.6	28.0	28.0	26.6	32.1	32.2	30.1	32.2
API	11.7 (1.0)	12.2	12.4	12.4	12.5	11.7	12.1	12.3	11.9
Other	26.3 (1.9)	26.0[3]	26.4	26.2	26.3	26.5	26.3	26.5	26.6
White/Black	40.9 (3.1)	---	---	---	---	---	---	---	---
White/AIAN	21.1 (2.3)	---	---	---	---	---	---	---	---
White/API	16.7 (2.9)	---	---	---	---	---	---	---	---
Other Combinations	34.3 (3.6)	---	---	---	---	---	---	---	---

--- Not applicable.

[1] All percents weighted to be nationally representative. 5,237 observations missing data on race and are not tabulated. Health insurance only obtained for half of 1993. Percent living with single mother only relevant for children.

[2] Main Race = Race when asked best single race group; Detailed Race = Race when asked which group or groups describes race.

[3] Includes Multiracial.

NHIS = National Health Interview Survey; AIAN = American Indian or Alaskan Native; API = Asian or Pacific Islander.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: Centers for Disease Control/National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 15C. Sensitivity of Selected Health Survey Variables to Multiple Race Reporting and Bridge Tabulation Methods with Combined Race and Ethnicity Format.

Race Group	Combined Main Race[2]	All Inclusive	Deterministic Whole Assignment			Deterministic Fractional Assignment		
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
% No Health Insurance[1]								
White	11.8 (.2)	11.9	11.8	11.8	11.9	11.9	11.8	11.9
Black	17.8 (.4)	17.8	17.8	17.8	17.8	17.8	17.8	17.8
AIAN	32.3 (1.9)	26.7	26.7	27.5	27.5	32.2	28.5	31.0
API	18.5 (1.3)	18.2	18.3	18.4	18.4	18.9	18.6	18.7
Other	21.4 (1.7)	23.0	22.5	22.6	22.6	23.2	22.8	21.2
Hispanic[2]	31.2 (1.0)	30.9	31.1	31.1	31.1	31.1	31.1	31.2
% Poor or Fair Health[1]								
White	9.5 (.1)	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Black	14.7 (.4)	14.6	14.6	14.6	14.8	14.6	14.7	14.7
AIAN	14.3 (.8)	13.8	14.2	13.6	14.2	14.2	14.2	14.2
API	8.0 (.4)	7.9	7.9	7.9	8.0	8.0	8.0	8.0
Other	10.4 (.8)	10.2	10.3	10.2	10.2	10.2	10.3	10.3
Hispanic[2]	11.1 (.3)	11.0	11.0	11.0	11.0	11.0	11.0	11.1
% Children Living with Single Mother[1]								
White	13.2 (.3)	13.4	13.0	13.0	13.3	13.2	13.2	13.2
Black	54.5 (1.1)	54.0	54.3	54.1	54.5	54.1	54.4	54.4
AIAN	31.7 (3.3)	28.0	28.2	26.9	32.2	32.0	29.5	31.1
API	12.2 (1.2)	12.4	12.0	12.2	11.7	11.7	11.9	11.8
Other	19.4 (2.1)	21.3	19.6	18.3	18.3	18.3	19.0	22.2
Hispanic[2]	26.8 (1.4)	26.8	26.8	26.8	26.8	26.8	26.8	26.8

[1] All percents weighted to be nationally representative. 5,237 observations missing data on race and are not tabulated. Health insurance only obtained for half of 1993. Percent living with single mother only relevant for children.

[2]Hispanic - For all methods, including Combined Main Race, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic category. AIAN and API respondents remained in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.

SOURCE: Centers for Disease Control, National Center for Health Statistics. Unpublished data from the National Health Interview Survey 1993-1995.

Table 16A. Weighted Estimates[1] of the Unemployment Rate and Labor Force Participation Rate Under the Basic CPS, and the Bridging Methods Computed from the Race and Ethnicity Supplement to CPS.

Labor Measure and Race Category	Basic CPS	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
Unemployment Rate								
White	4.82 (0.24)	4.73	4.71	4.71	4.73	4.71	4.72	4.72
Black	9.29 (0.90)	9.39	9.22	9.39	9.28	9.31	9.31	9.31
AIAN	9.76 (3.66)	11.84	11.84	10.67	12.51	12.71	11.87	12.71
API	4.85 (1.12)	4.39	4.41	4.39	4.40	4.40	4.40	4.40
Other	6.74 (1.62)	7.73	7.88	7.88	7.88	7.83	7.88	7.83
Labor Force Participation Rate								
White	66.30 (0.42)	66.25	66.23	66.23	66.25	66.25	66.24	66.24
Black	62.53 (1.01)	62.78	62.70	62.78	62.68	62.78	62.72	62.72
AIAN	57.66 (3.75)	65.75	65.75	64.49	63.47	63.60	64.57	64.19
API	66.53 (2.22)	65.60	65.45	65.66	65.41	65.38	65.46	65.46
Other	68.73 (2.46)	68.45	68.38	68.38	68.38	68.38	68.39	68.39

[1] Estimates weighted to adjust for nonresponse and survey design but are not nationally representative.
AIAN = American Indian or Alaska Native; API = Asian or Pacific Islander.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 16B. Weighted Estimates[1] of the Unemployment Rate and Labor Force Participation Rate Under the Basic CPS, and the Bridging Methods Computed from the Race and Ethnicity Supplement to CPS. Adjusted for Hispanic Origin #

		Deterministic Whole Assignment				Deterministic Fractional Assignment
Labor Measure and Race Category	Basic CPS Distribution	Smallest Group	Largest Group Other than White	Largest Group	Plurality	NHIS Fractions
Unemployment Rate						
White	4.82 (0.24)	4.71	4.71	4.73	4.71	4.72
Black	9.29 (0.90)	9.22	9.39	9.28	9.39	9.31
AIAN	9.76 (3.66)	11.90	10.67	12.51	12.44	12.79
API	4.85 (1.12)	4.43	4.41	4.41	4.40	4.40
Other	6.74 (1.62)	7.77	7.77	7.84	7.86	7.82
Labor Force Participation Rate						
White	66.30	66.23	66.23	66.25	66.26	66.24
Black	(0.42)	62.75	62.79	62.70	62.78	62.72
AIAN	62.53	65.64	64.64	63.47	63.60	64.17
API	(1.01)	65.37	65.58	65.32	65.15	65.45
Other	57.66	68.47	68.49	68.40	68.40	68.39
	(3.75)					
	66.53					
	(2.22)					
	68.73					
	(2.46)					

[1] Estimates weighted to adjust for nonresponse and survey design but are not nationally representative.
AIAN = American Indian or Alaska Native; API = Asian or Pacific Islander.

Assignment methods applied using separate race distributions for Hispanics and Non-Hispanics.

SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.

Table 16C. Weighted Estimates[1] of the Unemployment Rate and Labor Force Participation Rate Under the Basic CPS, and the Bridging Methods Computed from the Race and Ethnicity Supplement to CPS with Combined Race and Ethnicity Format.

Labor Measure and Race Category	Basic CPS Distribution	All Inclusive	Deterministic Whole Assignment				Deterministic Fractional Assignment	
			Smallest Group	Largest Group Other than White	Largest Group	Plurality	Equal Fractions	NHIS Fractions
Unemployment Rate								
WhiteNon Hispanic	4.45 (0.24)	4.46	4.44	4.44	4.46	4.44	4.45	4.45
Black/Non Hispanic	9.35 (0.90)	9.41	9.32	9.41	9.36	9.41	9.38	9.37
AIAN	9.76 (3.66)	11.34	11.34	10.71	12.50	12.43	11.68	12.48
API	4.85 (1.12)	4.42	4.45	4.43	4.41	4.42	4.43	4.42
Hispanic[2]	8.82 (1.07)	8.62	8.62	8.62	8.62	8.62	8.62	8.62
Other	7.38 (3.65)	3.58	3.69	3.69	3.69	3.69	3.69	3.68
Labor Force Participation Rate								
White/Non Hispanic	66.47 (0.42)	66.52	66.50	66.50	66.52	66.52	66.51	66.51
Black/Non Hispanic	62.59 (1.02)	62.77	62.76	62.77	62.71	62.77	62.73	62.73
AIAN	57.65 (3.75)	65.40	65.40	64.70	63.47	63.60	64.46	64.04
API	66.53 (2.22)	65.65	65.51	65.72	65.32	65.29	65.47	65.43
Hispanic[2]	65.04 (1.35)	64.98	64.98	64.98	64.98	64.98	64.98	64.98
Other	71.57 (5.76)	63.16	63.14	63.14	63.14	63.14	63.14	63.61

[1] Estimates weighted to adjust for nonresponse and survey design but are not nationally representative.
AIAN = American Indian or Alaska Native; API = Asian or Pacific Islander.
[2]Hispanic – For all methods, including the Reference Distribution, respondents of Hispanic origin who were NOT AIAN or API were allocated to the Hispanic Category. AIAN and API respondents remain in their single race groups. Multiple race respondents of Hispanic ethnicity were allocated to Hispanic.
SOURCE: May 1995 Current Populations Survey (CPS) Supplement on Race and Ethnicity.