IMPACTS OF MULTIPLE RACE REPORTING ON RURAL HEALTH POLICY AND DATA ANALYSIS

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EXECUTIVE SUMMARY

On October 30, 1997, the U.S. Office of Management and Budget (OMB) announced the first revised federal standards for collecting data on race and ethnicity since 1977. The new policy requires that respondents be allowed to choose one or more race categories, as well as changing the content and naming of racial and ethnic categories. This policy change could alter the depiction of race in rural areas and subsequently affect race-specific rural health indicators and implementation of health programs important to rural areas, such as Health Professional Shortage Area designation and the Medicare Rural Hospital Flexibility Program.

Data presented in the new format were first seen in the 2000 Census. The implementation of the new rule in Census 2000—allowing the choice of one or all of the required race categories plus "Some Other Race"—yields 63 possible combinations of race classifications, as compared with the previous system, which had four races plus the optional "Other Race" category. Only 2.43 percent of the American population reported more than one race (6,826,228 of 281,421,906 respondents). Of the 6,826,228 multiracial respondents, only 824,151 (12.07 percent) were from nonmetropolitan areas. Further, among the 54,539,232 total nonmetropolitan residents, only 1.51 percent selected more than one race. The nonmetropolitan residents of Hawaii, Alaska, and Oklahoma were the most likely to identify with more than one race and nonmetropolitan residents of Mississippi, Pennsylvania, and South Carolina were the least likely to choose more than one race.

Many readers of government documents written under the regulation of Directive 15 and of many other publications will find tables with new headings such as: "multiracial," "multiple races," "more than one race," or explicitly defined race combinations. Understanding the different methods of presenting multiple race data is important for both authors and readers of demographic data. The presentation of the race data should: be easily understood; be statistically defensible; meet confidentiality standards; and be easily calculated. Individual goals from this list can be in conflict with others, so some projects may need to give one goal priority over others.

Caution will be important when analyzing trends over time in the racial composition of communities. For many years these trends will bridge the change from the single race system to the new multiple race system. Identified trends will be influenced by both demographic changes in the community and the analyst's choice of data bridging methods. There have been models of varying purpose and complexity designed to bridge the change in systems. Comparison of four different methods of bridging the 2000 data back to the 1990 Census system reveal that in aggregate, metropolitan and nonmetropolitan areas show little difference in the results from the different bridging models. When the effects of model choice are examined at the county level, the models are less stable and the differences between metropolitan and nonmetropolitan areas are greater. While nonmetropolitan and metropolitan areas both show a strong majority of counties with a growing share of their population reporting races other than White, in 14.4 percent of nonmetropolitan counties some models estimated increases in nonwhite population but others estimated decreases, a rate that is significantly higher than the 6.2 percent rate for metropolitan areas. Analysts should evaluate the consequences of choosing bridging methods and should also consider presenting results from more than one of these data bridging methods.

Caution will be important when analyzing trends over time in the racial composition of communities.

INTRODUCTION

In the 1990s the policy goal of improving the rural minority population's health status and access to health care gained prominence. The President's Initiative on Race, announced in 1998, established goals for improvements in health indicators and declared 2010 as the target year for achieving these goals. In *A National Agenda for Rural Minority Health*, the National Rural Health Association outlined strategies to realize the President's goals in rural America. The plan identified three priority areas associated with these goals: Information and Data, Health Policy and Practices, and Health Delivery Systems. All three of these areas require a consistent stream of data describing the racial composition of rural areas and rural residents' health status. The information and data section recommends that "Data collection systems will incorporate core data sets and employ uniform definitions for relevant terms to facilitate information sharing and comparisons among and across minority populations and nonminority populations as well" (NRHA, 1999).

Recent changes in federal policy will complicate achieving NRHA's stated goal and measuring the rural success of the Initiative on Race. On October 30, 1997, the U.S. Office of Management and Budget (OMB) announced the first revised federal standards for collecting data on race and ethnicity since 1977. The revisions are to be adopted by all federal agencies working with race-based information. The modifications to Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting (the existing policy) contained changes in both content and naming of racial and ethnic categories requiring that respondents be allowed to choose one or more of five race categories: "American Indian or Alaska Native," "Asian," "Black or African American," "Native Hawaiian or Other Pacific Islander," and "White"; an optional "Other Race" is allowed, but not encouraged, under the rule. Two categories for data on ethnicity—"Hispanic or Latino" and "Not Hispanic or Latino" are offered in a separate question. The separate ethnicity choice is only a change in category naming with the addition of Latino to the category—the option of also including Spanish Origin is permitted. Some of the new race categories defined by the revision to Directive 15 were changes from the 1977 rule. The most obvious change was disaggregating the "Asian or Pacific Islander" category to distinct "Asian" and "Native Hawaiian or Other Pacific Islander" categories. The population covered by the "American Indian or Alaskan Native" category has been expanded from the 1977 classification—which included the indigenous peoples of the United States and Canada—to also include those indigenous to Central America and South America.

Previous Federal Minimum Data Collecting and Reporting Standard	1997 Federal Minimum Data Collecting and Reporting Standard
Choose One	*Choose All That Apply*
• American Indian or Alaskan Native	• American Indian or Alaska Native
• Asian or Pacific Islander	• Asian
• Black	• Black or African American
• White	• Native Hawaiian or Other Pacific Islander
• Other	• White
	• Other

The OMB began policy review in 1993 when parents of mixed race school children took exception to the identifying students as a single race. In 1994, OMB formed the Interagency Committee for the Review of the Racial and Ethnic Standards, which included representatives of over thirty federal agencies. The committee studied many race identity issues and sponsored several pilot projects resulting in a report to OMB, which was the basis for the new rule (OMB, 1997b).

In recommendations for implementing the rule, OMB strongly encouraged race to be a self-reported field (OMB, 1997). This is a sound social and scientific policy, because race has been demonstrated to be a more fluid, social framework rather than an externally verifiable trait. Research has shown that genetic diversity varies little more between races than it does within races (Wright, 1994). Self-identification of race can be an obstacle to analysis in some cases, however. Studies have shown that individuals of mixed racial backgrounds can change the racial groups with which they identify themselves over time. As respondents mature from being a household member that is included on a parent's Census form to an adult completing their own surveys, racial identity can also change. Though there are health conditions that appear to be correlated with race, respondents whose racial self-identity differs from the race chosen by a clinician can lead to cases in which the patient's health status contributes to the aggregate profile of another race (Hahn, 1992b).

The implementation of the new rule in Census 2000 yields 63 possible combinations of race classifications.

The new race typology required by the revisions to Directive 15 complicates exploring trends from data gathered under the previous system and will demand reevaluating approaches to collecting and analyzing race data. The implementation of the new rule in Census 2000—with its disaggregating racial identity, allowing the choice of "Some Other Race", and allowing the choice of one or all of the categories—yields 63 possible combinations of race classifications, as compared with the previous system, which had four races plus the optional "Other Race" category. In the 1997 directive, OMB declined to identify any race or group of races as being a racial minority, leaving responsibility with those who use the data. Although the1977 single-race system did not identify a racial minority, it is now even less clear what constitutes a minority race (Wallman, 2000). For example, should the respondent that chose White and another (or more than one other) category always be considered a racial minority?

In addition to its importance to tracking improvement in minority health over time, race classification of populations is significant both in decisions to implement various federal programs and for research that supports important policy decisions (OMB, 1999). Of particular interest to researchers in the field of rural health is how multiple race reporting will affect rural health programs and policy. Revising the definition of race changes the definition of racial minority status. The challenge of working under the revised rule is to try to isolate the appreciable change in the racial composition of rural America from the ascribed data effects of revising the rule. Whether rural health funding and focus will change as a result of these new data is an important research question, as a significant shift in the data created by these new race reporting measures could affect a number of key rural health programs. Pilot tests of the new Census race reporting measures in 1996 revealed that only two percent of respondents overall opted to select more than one racial category (OMB, 1995). However, until the 2000 Census it was unknown whether rural areas would mirror this general trend.

BACKGROUND

Since the first Census was administered in 1790 under Thomas Jefferson, nearly every Census has changed the categories for race. In the 18th Century, Americans were classified as "Free White Males," "Free White Females," or "Other," where "other" represented slaves, free Blacks, and Indians living in or near white settlements. Throughout most of the 1800s, race was defined differently in almost every Census, first with categories of black and mulatto, and later with categories such as "quadroons" and "octoroons". The mulatto classification was adopted, in large part, to allow Southern slaveholders to enlarge their slave populations. By 1920, when the vast majority of blacks in the US were estimated to be of mixed race, the Census Bureau began counting anyone with black heritage as "black". This was the time of Jim Crow laws when the "one-drop rule" was instituted, whereby anyone with any black ancestry—even one drop of black blood—was considered black (Nobles, 2000).

US Census Race Categories as Listed on Survey Forms, 1790-2000

- 1790-Free White Males; Free White Females; All Other Free Persons; Slaves
- 1800-Free White Males; Free White Females; All Other Free Persons, except Indians Not Taxed; Slaves
- 1810-Free White Males; Free White Females; All Other Free Persons; except Indians Not Taxed; Slaves
- 1820-Free White Males; Free White Females; Free Colored Persons, All other persons, except Indians Not Taxed; Slaves
- 1830-Free White Persons; Free Colored Persons; Slaves
- 1840-Free White Persons; Free Colored Persons; Slaves
- 1850-Black; Mulatto (a)
- 1860-Black; Mulatto; (Indian) (b)
- 1870-White; Black; Mulatto; Chinese; Indian
- 1880-White; Black; Mulatto; Chinese; Indian
- 1890-White; Black; Mulatto; Quadroon; Octoroon; Chinese; Japanese; Indian
- 1900-White: Black; Chinese; Japanese; Indian
- 1910-White; Black; Mulatto; Chinese; Japanese; Indian; Other
- 1920-White; Black; Mulatto; Indian; Chinese; Japanese; Filipino; Hindu; Korean; Other
- 1930-White; Negro; Mexican; Indian; Chinese; Japanese; Filipino; Hindu; Korean; (Other races, spell out in full)
- 1940-White; Negro; Indian; Chinese; Japanese; Filipino; Hindu; Korean; (Other races, spell out in full)
- 1950-White; Negro; Indian; Japanese; Chinese; Filipino; (Other race-spell out)
- 1960-White; Negro; American Indian; Japanese; Chinese; Filipino; Hawaiian; Part-Hawaiian; Aleut Eskimo, etc.
- 1970-White; Negro or Black; American Indian; Japanese; Chinese; Filipino; Hawaiian; Korean; Other (print race)
- 1980-White; Negro or Black; Japanese; Chinese; Filipino; Korean; Vietnamese; American Indian; Asian Indian; Hawaiian; Guamanian; Samoan; Eskimo; Aleut; Other (specify)
- 1990-White; Black or Negro; American Indian; Eskimo; Aleut; Chinese; Filipino; Hawaiian; Korean; Vietnamese; Japanese; Asian Indian; Samoan; Guamanian; Other API (Asian or Pacific Islander); Other race
- 2000-White; Black, African American, or Negro; American Indian or Alaska Native; Asian Indian; Chinese; Filipino; Japanese; Korean; Vietnamese; Native Hawaiian; Guamanian or Chamorro; Samoan; Other Asian (Print Race); Other Pacific Islander (Print Race); Some other race (Print Race)

Note. Categories are presented in the order in which they appeared on schedules.

(a) ln 1850 and 1860, free persons were enumerated on schedules for "free inhabitants"; slaves were enumerated on schedules designated for "slave inhabitants." On the free- inhabitants schedule, instructions to enumerators read, in part: "In all cases where the person is white leave the space blank in the column marked 'Color.' "

(b) Although "Indian" was not listed on the Census schedule, the instructions read: " 'Indians'-lndians not taxed are not to be enumerated. The families of Indians who have renounced tribal rule, and who under State or Territorial laws exercise the rights of citizens, are to be enumerated. In all such cases write 'Ind.' opposite their names, in column 6, under heading 'Color.' "

Sources: M. Nobles. History counts: a comparative analysis of racial/color categorization in US and Brazilian Censuses. Am J Public Health. 2000;90:1738-45. University of Virginia. United States Historical Census Data Browser. http://fisher.lib.virginia.edu/Census.

Many consider the one-drop rule to be a racist way to categorize people because it was originally implemented as a way to expand the slave population. The first attempt to remove the race question from the US Census altogether came in 1960 by the American Civil Liberties Union. As the scientific evidence disproving prevailing assumptions of strong genetic distinctions among racial groups mounted, criticism of the race classification increased. Indeed, the landmark 1972 article published in *Science* found that genetic variation among members of different racial groups was only marginally different from the variation among members of the same racial group (Nei, 1972). Further, anthropologist Stanley Garn reported that these minor genetic differences were due to geographic and cultural differences that created clusters of genes (Wright, 1994).

As the civil rights movement intensified, new laws, such as the Voting Rights Act of 1965, required information about minority participation. Eventually, race data became critical to monitoring desegregation and racial parity, giving the Census new political importance (Wright, 1994). As the 1990s progressed, acknowledgement of America's racial diversity was growing. According to various estimates, 75 to 90 percent of people who would have checked the "Black" box on the 1990 Census would have genealogical precedent to claim a mixed racial background if the option was offered (Wright, 1994; Nobles, 2000). Given the political and economic importance of classifying social progress by race, policymakers have tried to create new ways to meaningfully classify Americans. In 1973, the federal government created an ad-hoc committee charged with creating a system of classifying Americans into five meaningful race categories, with the following categories resulting: (1) American Indian or Alaska Native, (2) Asian or Pacific Islander, (3) Black, (4) White, and (5) Hispanic. These classifications were implemented in 1977—with Hispanic Ethnicity being addressed in a question separate from race—and have remained mostly unchanged until the 2000 Census. This classification system was still flawed, however, as many of the categories grouped peoples that have little or nothing in common. Also troubling was how, exactly, to define "Hispanic" so that only those Latin Americans who are meant to be protected by law were covered under that definition.

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The question continued to be asked: should the race question be kept on the Census form to monitor racial parity, or should it be eliminated altogether since it is complex and, many argue, a racist way to divide the population and ultimately meaningless for data purposes? Numerous ideas have been raised as ways to more appropriately address this problem. In 1996, the Office of Management and Budget proposed instituting Directive No. 15, a policy that would have offered a "multiracial" box on the most recent Census form to allow people to identify their racial heritage. However, opponents thought this would destroy monitoring affirmative action and defy the purpose of having racial classification. Opponents also argue that there is no scientific evidence to support that race is a biologically meaningful way to stratify a population, and that race is purely a socially constructed concept and a policy tool (Goodman, 2000).

Currently, the main argument in support of collecting more accurate racial data on the US Census is that studies of minorities in the US—mainly black and Hispanic populations—repeatedly show racial differences in health status and use of healthcare services, even after adjusting for differences in family income, health insurance, need, and other factors (Lieu, 1993; Weinick, 2000). In addition, the Census Bureau has come under increasing criticism that their current race reporting measures do not accurately represent the population. For example: according to 1990 Census instructions, children should take the race of their

mother. For such reasons, the 2000 Census offered people the opportunity to define their race by selecting multiple race categories on the Census form.

SOCIOECONOMIC INDICATORS AND RURAL HEALTH PROGRAMS AFTER THE NEW RULE

The impact of the changes to Directive 15 on surveys and other data used by rural health researchers is important. The health policy system needs to prepare for the changes in race data that are mandated by the new OMB rule and portended by Census 2000. No race or group of races is identified as being a racial minority under the 1997 OMB rule—nor were any in the previous rule—leaving interpretation up to those using the data.

The Census Bureau is implementing the first broad use of the new system. The Bureau is charged with determining race in the decennial Census as well as in its ongoing surveys, including the Current Population Survey (CPS), Survey of Income and Program Participation, and the new American Community Survey. Changes in these data dictate the evolution of the population-based denominators to public health and healthcare utilization measures, as well as that of other secondary data used in health policy analysis. The oversampling of metropolitan areas for the March supplement to the CPS currently complicates analysis of the health insurance status for rural residents; the further impact of new race classifications on this sampling frame could be significant (OMB, 2000b).

The transition to the new data system will continue over the next few years. Though the new standards became effective on the date of their announcement in 1997, the deadline for federal government compliance in record keeping is January 1, 2003. (OMB, 2000b) During this transition period some information will continue to be presented according to the 1977 standards and others will comply with the 1997 guidelines. Therefore, indicators and statistics produced could be a hybrid of source data with a rate calculated by using a numerator from the old system and a denominator from the new.

Data presented in the new format was first seen in the 2000 Census. This is a logical start because all other federal data collection efforts are anchored in the Census either by using it as a denominator for rates, as the population context for events, or the basis for sampling frames. Annual estimates of population will also be presented in compliance with the new format. Different Census products will comply with the new rule in different ways. The Census 2000 Redistricting Data Summary File reports all of 63 of the race combinations for four different universes: total population, population not Hispanic or Latino, population 18 years of age and over, population not Hispanic or Latino and 18 years and over. Some subsequent Census products also report the full 63 combinations of the race categories, but more often will report data as single races and a multiple race category or the format of the OMB Bulletin No. 00-02 with counts of the five single-race responses (excluding the “Other Race” category), the counts of the four most common two-race responses, and a remainder category. The single races and multiple race category format will be used for cross-tabulations of data where other variables are presented by race category (Census, 2001c).

Though the precision of race categories in the Census data is impressive, care should be taken in interpreting the published data for small geographic areas. The Census has implemented several common data edits to fill missing data items or to protect confidentiality. The effects of these edits are more pronounced as the geographic unit of analysis is reduced to subcounty areas and especially

areas smaller than Census tracts. For individuals that left race and/or Hispanic ethnicity blank in data fields values were imputed when possible with information from the following sources (most preferred listed first): the write-in portion of an "Other" selection, other individuals in the household, or nearby households with other similar demographic characteristics. In order to prevent revealing information about specific individuals or households, confidentiality edits were also required for small areas. For a subset of households their demographic data were exchanged with that of identically-sized households in other geographic units (OMB, 2000b).

Vital statistics data will be evolving over a period ending in 2003. The National Center for Health Statistics (NCHS) produces annual public-use summaries of births and deaths by race, as well as a custom, county-based dataset of births and deaths by age, race, sex, and Hispanic origin to the Census Bureau for use in intercensal estimates. The source data for these estimates are gathered through systems maintained by individual states. The NCHS standardizes the states' submissions by creating uniform data handling practices including standard forms for collecting data on individuals. These forms are typically completed by hospital staff or—in the case of death certificates—funeral directors. Coordinating the roles of federal, state, and local government in this process requires a several year transition to multiple-race reporting. Most states will wait until 2003 to implement the new rule; by 2000 only one state had birth and death certificates with race questions conforming to the 1997 standard (OMB, 2000b).

Reporting of disease incidence rates will also change in the context of the new rule changes. The National Center for Health Statistics has a tradition of allowing multiple races to be recorded for respondents. The National Health Interview Survey (NHIS), for example, has allowed the selection of more than one race since 1977. Many of the data collecting and reporting mechanisms, however, do not yet fully comply with the 1997 standards for classification of race. Current reports present a single category for all multiple race responses. The multiple race options found in the NHIS allow the selection of up to three races, rather than the six offered by the new rule (OMB, 2000b). The NCHS recognizes the new race reporting standard and the 2003 deadline for compliance, but acknowledges that few of its data systems currently comply (CDC, 2001).

Hospital discharge data will possibly also change over the next few years. Currently race is not on the UB-92 standard form that is used for submitting hospital admission/discharge data for Medicare reimbursement (HCFA, 2001). Many states do collect some race information on patients, but missing data is common. In fact, some hospitals do not identify patient race in any of their patients' records.

A general issue with data from the healthcare system—as represented by the NCHS and hospital data—is that it is collected by institutions with less experience than institutions concerned with demography or social science. Guidance from CDC/NCHS on submitting race data emphasizes that individuals should be allowed to specify their own race when possible (CDC, 2001). But many state hospital discharge registries warn about the reliability of their race data, because they acknowledge that race of a patient is often chosen and specified by the admitting nurse or other staff. Health department analysts often address race as a scientific, hereditary construct for dealing with race-specific conditions such as Sickle Cell Anemia. Classification strictly based on parentage may differ from an individual's self-perception and may complicate calculating incidence/prevalence rates or analyzing clinical trials.

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Health programs affecting rural health may also be affected by the transition to multiple race reporting. Many programs designed to reduce rural health service shortages target areas with a high proportion of racial minority residents. Changes in how race of residents and providers are reported may change the geographic emphasis of some rural health programs. The nature of how rural health programs identify and target racial minorities could also change under a multiple race system. The Medicare Rural Hospital Flexibility Program, Rural Health Clinics, and Interdisciplinary Rural Training Grants all use race as a component in targeting programs. The changes in race reporting will require changes in data presentation and analysis performed by rural programs such as the National Health Resource Center, Rural Information Center Health Service, and Operation Rural Health Works. The changes in the categorization of race could also influence nonmetropolitan area's roles in federal health programs. The changes could alter the rural/urban balance and the rural priorities of programs such as the National Health Service Corps, Federally Qualified Health Center, Area Health Education Centers, State Children's Health Insurance Program, Health Professional Shortage Areas, and the programs of the Division of Health Professions Diversity.

Race will continue to be an important component in research and data analysis performed in industry, government, and education. Data collected by institutions not governed by Directive 15 will likely still need to conform with the rule in order to be combined with data from the Census or other federal sources. Understanding the new rule and the research behind its implementation will be important in collecting race data appropriate to the new system. Appendix B of this document briefly summarizes recommendations for designing surveys collecting multiple race data and the research that led to those guidelines.

MULTIPLE RACE REPORTING AND RURAL AMERICA: A FIRST LOOK

The introduction of multiple race identification associated with the implementation of the revisions to Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting, offers an opportunity to more closely examine American life. In the 1990s the popular media offered conflicting opinion and analysis regarding the racial integration of the country. There were features describing the mixed race households of ordinary citizens. These described the obstacles to socializing with any of the racial communities represented in the household and resentment over being required to choose a single race identity. Elsewhere, the melting pot metaphor of American society was being disputed, with some commentators substituting a "tossed salad" analogy where the races are combined in American communities without really integrating. Allowing all citizens to declare their full racial profile in the 2000 Census allows us to begin to explore the degree of this integration.

Prior to the 2000 Census, estimates of what share of Americans would claim mixed-race identity ranged from two to five percent.

Anticipating the degree of racial integration of the races in nonmetropolitan households in America was difficult. Prior to the 2000 Census, estimates of what share of Americans would claim mixed-race identity ranged from two to five percent (OMB, 1995). The rural United States is often portrayed as being too conservative to host a significant number of mixed race households, yet study of multiple race identification indicates that mixed race households are quite possible in nonmetropolitan areas. The Indian Health Service has acknowledged the likelihood of mixed race households in its eligibility for services (IHS, 2001). An individual can qualify with official tribe membership or demonstration of half American Indian heritage. Testing of multiracial categories has shown that the

single-race American Indian or Alaskan Native category is one of the strongest contributors to a multiracial category when it is offered and is also a sizeable demographic category in the rural west and south (OMB, 1997b). The American Hispanic community often identifies "Other Race" when given the option (Census, 1996b). This is believed to often be a substitute for choosing multiple races.

The Census 2000 Redistricting (Public Law 94-171) Summary File is the first national data file that reports the extent of multiple race identity for all residents of the United States. The file is published as a resource for state governments to establish legislative districts. The file reports all 63 of the race combinations that are possible from the six race choices (including the "Other Race" category). The populations for these groups were reported for the total population and for residents not of Hispanic ethnicity, as well as the voting-age members of those populations.

Only 2.43 percent of the American population reported more than one race (only 6,826,228 of 281,421,906 respondents), a number approaching the lowest rate predicted by researchers. Map 1 shows the national distribution of multiple race responses. The self-identified race most likely to be selected in conjunction with at least one additional race was "Native Hawaiian or Other Pacific Islander" or "American Indian or Alaska Native". Among the 874,414 respondents that marked the box next to "Native Hawaiian or Other Pacific Islander," 475,579 (54.39%) also marked another box, as shown in Table 2. Those choosing "American Indian or Alaska Native" also chose at least one more box at a rate of 39.89% (1,643,345 out of 4,119,301 respondents). Of the 216,930,975 respondents choosing White as one of their races, 5,470,349 also chose another race. This makes "White" the category that is a part of the highest number of multiple-race responses, but also the race with the lowest percent (2.52) that is associated with an additional race or races.

In the 2000 Census, fewer residents of the nonmetropolitan regions of the United States claimed a multiracial heritage than did those in the nation as a whole. Even after indexing the count of multiracial responses to the relatively small rural population base, people residing in nonmetropolitan areas still report mixed-race ancestry less frequently than residents of the metropolitan US. Table 1 shows that of the 6,826,228 multiracial respondents, only 824,151 were from nonmetropolitan areas; 12.07 percent of multiracial respondents came from nonmetropolitan areas and, among the 54,539,232 nonmetropolitan residents, only 1.51 percent selected more than one race. Map 2 shows the inclination of rural residents to choose more than one race by county.

Of the 6,826,228 multiracial respondents, only 824,151 were from nonmetropolitan areas; 12.07 percent of multiracial respondents came from nonmetropolitan areas and, among the 54,539,232 nonmetropolitan residents, only 1.51 percent selected more than one race.

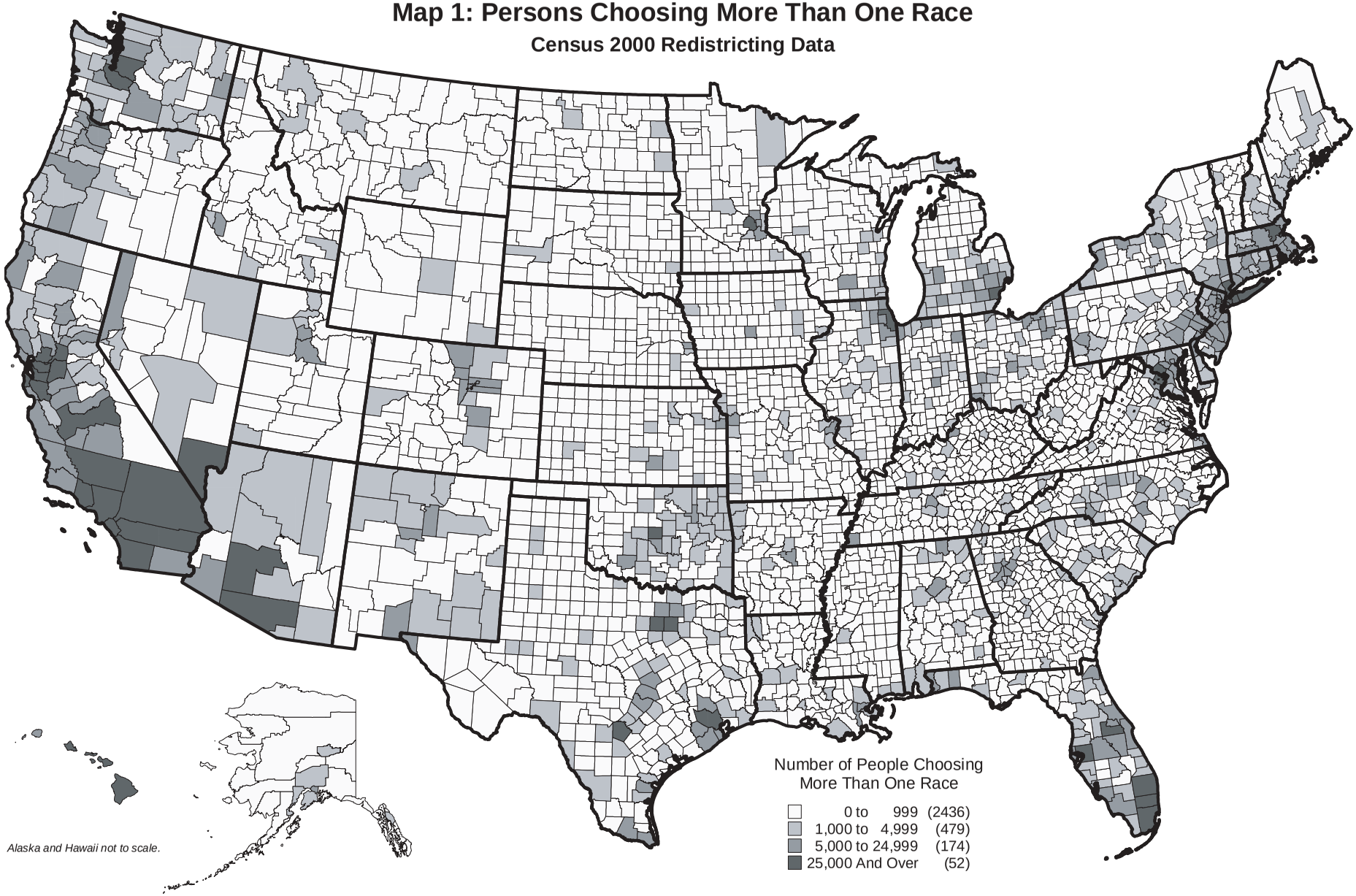
Table 1: Multiple Race Identity in Rural America in Census 2000

	United States	Metropolitan United States	Nonmetropolitan United States
Total population	281,421,906	226,882,674	54,539,232
Number that chose more than one race	6,826,228	6,002,077	824,151
Percent that chose more than one race	2.43	2.65	1.51

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

Map 1: Persons Choosing More Than One Race

Census 2000 Redistricting Data



Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

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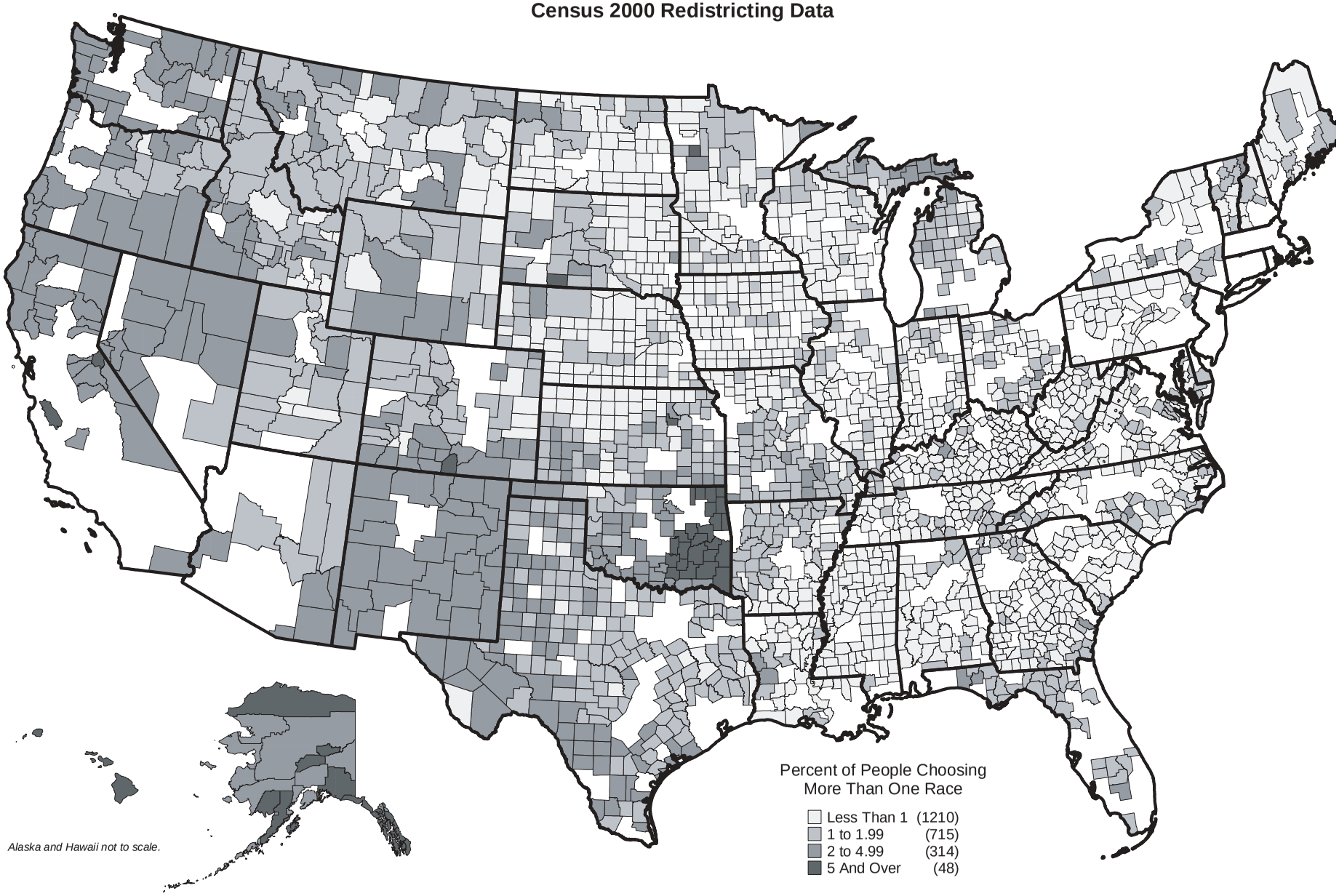
Map 2: Percent of Population Choosing More Than One Race, Nonmetropolitan Counties

Census 2000 Redistricting Data



Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

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Table 2: Inclination to Choose More Than One Race in Census 2000

	United States	Metropolitan United States	Nonmetropolitan United States
Percent of those choosing White that also chose another race	2.52	2.79	1.54
Percent of those choosing Black that also chose another race	4.84	5.10	3.15
Percent of those choosing American Indian or Alaska Native that also chose another race	39.89	47.38	25.55
Percent of those choosing Asian that also chose another race	13.92	13.15	28.91
Percent of those choosing Native Hawaiian or Other Pacific Islander that also chose another race	54.39	53.48	58.95
Percent of those choosing Other that also chose another race	17.07	17.26	15.07

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

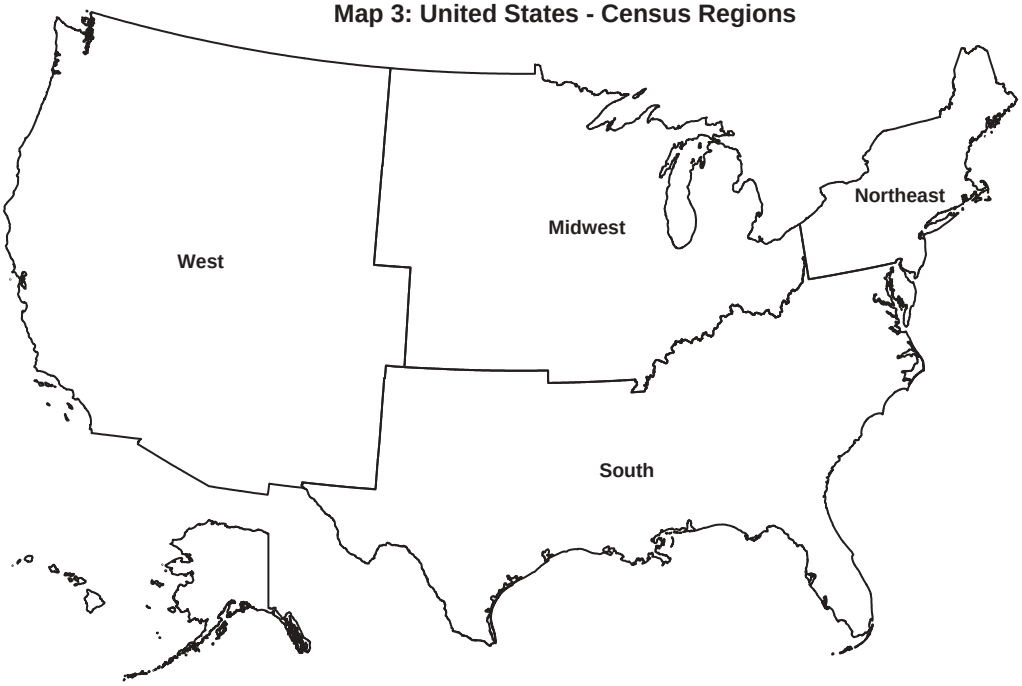
Rural residents choosing "Asian" and "Native Hawaiian or Other Pacific Islander" are the only racial groups that were more likely to have chosen an additional race than were their counterparts in metropolitan areas, as shown in Table 2. The nonmetropolitan rates for these groups were based on relatively small denominators. There were 576,435 rural Asian residents (166,626 of which chose additional races) and 145,115 rural Native Hawaiian or Other Pacific Islander residents (with 85,549 also choosing additional races). The "American Indian or Alaska Native" group was just over half as likely to have specified a multiracial profile as had those in metropolitan areas, with 25.55 percent of rural American Indians or Alaska Natives choosing more than one race and 47.38 percent of their peers choosing so in metropolitan areas. Nonmetropolitan White respondents only have a 1.54 percent likelihood of having chosen any additional race(s) with 722,753 nonmetropolitan residents that chose white and another race or races (out of 46,849,022 nonmetropolitan residents that identified White background).

The low rate of respondents reporting mixed race heritage in nonmetropolitan areas indicates that there are relatively few rural Americans for whom racial minority status is difficult to categorize.

The low rate of respondents reporting mixed race heritage in nonmetropolitan areas indicates that there are relatively few rural Americans for whom racial minority status is difficult to categorize. When using all nonwhite respondents as the measure, the only group that is disputable is those that chose White and one or more other races. In nonmetropolitan areas these 722,753 respondents represent only 1.33 percent of the total nonmetropolitan population. Hispanic ethnicity was reported by 3,119,492 nonmetropolitan residents (8.84% of the nation's 35,305,818 Hispanic residents). Hispanic respondents chose more than one race 5.94 percent of the time. Of these 185,204 multiple race Hispanic respondents, 157,139 had White as one of their chosen races. Therefore, if the definition of racial minority status is expanded to include nonwhite or Hispanic respondents, the share of rural respondents with uncertain minority status is reduced to 1.04 percent of nonmetropolitan nonhispanic residents claiming a racial makeup including White and one or more other races.

Of the four Census regions, the West has the highest probability that a respondent will choose a multiracial profile. Regional distribution of multiple race responses is summarized in Table 3. In the west region—which is approximately the Mountain and Western time zones and is identified in Map 3—3.49 percent of nonmetropolitan residents chose more than one race. This percentage is

Map 3: United States - Census Regions



Source: Census 2000 State Boundary File, 2001.

significantly more than the 1.25% for the Nonmetropolitan South, 1.06% for the Nonmetropolitan Midwest, and 0.99% for the Nonmetropolitan East. The South Census region actually has the highest number of multiracial respondents of any region in the country, 307,923. This is several thousand more than the West, but is drawn from a total population nearly triple that of the nonmetropolitan west, resulting in a much lower rate. Metropolitan America also found its highest percentage of the population to choose more than one race in the West, with both the highest number of multiracial respondents and the highest rate of choosing more than one race: 2,437,454 and 4.44 percent, respectively.

Table 3: Multiple Race Distribution by Metropolitan Status and Census Region

	Metropolitan United States			Nonmetropolitan United States		
	Multiple Race Residents	Total Population	Percent Multiple Race	Multiple Race Residents	Total Population	Percent Multiple Race
Northeast	1,182,099	48,900,304	2.42	46,362	4,694,074	0.99
Midwest	843,432	47,505,299	1.78	179,036	16,887,477	1.06
South	1,539,092	75,601,214	2.04	307,923	24,635,606	1.25
West	2,437,454	54,875,857	4.44	290,830	8,322,075	3.49

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

The regional distribution of multiple race responses in nonmetropolitan America corresponds strongly with the races that are likely to be one of the responses in a multiple race profile. The races that were found to most often be one of those in a nonmetropolitan multiple race profile—the “Native Hawaiian or Other Pacific Islander” and the “American Indian or Alaska Native” residents, as well as those of Hispanic Ethnicity—are much more prevalent in the west. The Midwest region is the region with the highest share of its multiracial residents living in nonmetropolitan areas, 17.51 percent.

The races that were found to most often be one of those in a nonmetropolitan multiple race profile are much more prevalent in the west.

Texas and Oklahoma reported the second and third highest rural multiracial responses in the country (behind Hawaii) and contributed strongly toward the

South's totals. If the country is split into East and West of the Mississippi River, the nation's residents that report more than one race are nearly evenly split with 3,777,495 in the West and 3,048,733 in the East, but the nonmetropolitan areas have 523,160 multiracial residents in the West and 300,991 in the East. In other words 63.48% of all nonmetropolitan residents live in the West. But with the nonmetropolitan East's greater population, the West's rate of multiple race response is 2.27 percent as compared with the East's 0.95% rate.

When measuring states' nonmetropolitan residents identified as being of two or more races, Hawaii is an outlier with the highest number of nonmetropolitan multiracial responses (84,719) and the highest rate of choosing more than one race, 25.26 percent. As shown in Table 4, there were only four other states that had nonmetropolitan multiracial responses at a rate higher than three percent: Alaska (5.07%), Oklahoma (4.79%), California (3.73%), and New Mexico (3.16%). Mississippi residents reported the lowest tendency to choose more than one race. Of the 1,820,996 nonmetropolitan Mississippi residents, 10,513 (0.58 percent) chose more than one race. Only one of the 73 nonmetropolitan Mississippi counties reported more than one percent multiracial residents.

HANDLING AND PRESENTING MULTIPLE RACE DATA FOR RURAL AMERICA

Allowing individuals the option to choose more than one race is certainly changing the collection of racial data, but it is not known to what extent it will change the presentation of race data in the near future. Many readers of government documents written under the regulation of Directive 15 and of many other publications will find tables with new entries with headings such as: "multiracial," "multiple races," "more than one race," or explicitly defined race combinations. Elsewhere, the changes mandated by Directive 15 will not be as evident. Authors not governed by these policy changes may present tables that do not acknowledge the multiple race categories, due to omission or reclassification of categories. Other publications may include counts and percentages of the population that are of racial minority status or of a given race, leaving it unclear how mixed race individuals are included in these totals. Indeed, when the rule was revised in 1997, some data were still being presented in the three-category system of "White," "Black," and "Other" which falls short of the 1977 standard (OMB, 2000b).

Understanding the different methods of presenting multiple race data is important for both authors and readers of demographic data. The insight needed to responsibly present the multiracial composition of the population also informs critical reading of data presented by others.

Understanding the different methods of presenting multiple race data is important for both authors and readers of demographic data. The insight needed to responsibly present the multiracial composition of the population also informs critical reading of data presented by others. The racial profile of a community can be presented as a static view of recent data or as a trend, with a dynamic view of the change in racial composition over time. The two approaches present different challenges. The static view requires an understanding of the current system as well as a sense of the aggregation of categories necessary to protect the confidentiality and ensure the legibility of the data. Expressing a trend in racial composition requires additional sensibilities, especially during these transitional years while the trend begins under the previous system and ends in the current. For these presentations, data under the current system will need to be modeled to predict how respondents would have answered under the previous system, therefore the analyst needs to focus on understanding the relationship between the two systems more than fine-tuning the current one.

Table 4: Multiple Race Distribution by Metropolitan Status and State

	Total			Metropolitan Counties			Nonmetropolitan Counties		
	Multiple Race Residents	Total Population	Percent Multiple Race	Multiple Race Residents	Total Population	Percent Multiple Race	Multiple Race Residents	Total Population	Percent Multiple Race
Alabama	44,179	4,447,100	0.99	32,586	3,108,959	1.05	11,593	1,338,141	0.87
Alaska	34,146	626,932	5.45	15,575	260,283	5.98	18,571	366,649	5.07
Arizona	146,526	5,130,632	2.86	132,528	4,527,000	2.93	13,998	603,632	2.32
Arkansas	35,744	2,673,400	1.34	20,417	1,321,019	1.55	15,327	1,352,381	1.13
California	1,607,646	33,871,648	4.75	1,565,826	32,750,394	4.78	41,820	1,121,254	3.73
Colorado	122,187	4,301,261	2.84	107,643	3,607,656	2.98	14,544	693,605	2.10
Connecticut	74,848	3,405,565	2.20	74,848	3,405,565	2.20	-	-	-
Delaware	13,033	783,600	1.66	10,914	626,962	1.74	2,119	156,638	1.35
District of Columbia	13,446	572,059	2.35	13,446	572,059	2.35	-	-	-
Florida	376,315	15,982,378	2.35	359,530	14,837,497	2.42	16,785	1,144,881	1.47
Georgia	114,188	8,186,453	1.39	89,094	5,666,664	1.57	25,094	2,519,789	1.00
Hawaii	259,343	1,211,537	21.41	174,624	876,156	19.93	84,719	335,381	25.26
Idaho	25,609	1,293,953	1.98	11,696	507,910	2.30	13,913	786,043	1.77
Illinois	235,016	12,419,293	1.89	218,389	10,541,708	2.07	16,627	1,877,585	0.89
Indiana	75,672	6,080,485	1.24	60,627	4,389,903	1.38	15,045	1,690,582	0.89
Iowa	31,778	2,926,324	1.09	19,782	1,326,133	1.49	11,996	1,600,191	0.75
Kansas	56,496	2,688,418	2.10	35,205	1,521,063	2.31	21,291	1,167,355	1.82
Kentucky	42,443	4,041,769	1.05	24,263	1,973,102	1.23	18,180	2,068,667	0.88
Louisiana	48,265	4,468,976	1.08	37,956	3,370,210	1.13	10,309	1,098,766	0.94
Maine	12,647	1,274,923	0.99	7,660	737,346	1.04	4,987	537,577	0.93
Maryland	103,587	5,296,486	1.96	98,986	4,911,040	2.02	4,601	385,446	1.19
Massachusetts	146,005	6,349,097	2.30	145,377	6,324,590	2.30	628	24,507	2.56
Michigan	192,416	9,938,444	1.94	167,037	8,169,466	2.04	25,379	1,768,978	1.43
Minnesota	82,742	4,919,479	1.68	68,807	3,463,360	1.99	13,935	1,456,119	0.96
Mississippi	20,021	2,844,658	0.70	9,508	1,023,662	0.93	10,513	1,820,996	0.58
Missouri	82,061	5,595,211	1.47	59,608	3,794,801	1.57	22,453	1,800,410	1.25
Montana	15,730	902,195	1.74	6,105	305,511	2.00	9,625	596,684	1.61
Nebraska	23,953	1,711,263	1.40	16,417	899,838	1.82	7,536	811,425	0.93
Nevada	76,428	1,998,257	3.82	69,920	1,747,736	4.00	6,508	250,521	2.60
New Hampshire	13,214	1,235,786	1.07	9,892	906,658	1.09	3,322	329,128	1.01
New Jersey	213,755	8,414,350	2.54	213,755	8,414,350	2.54	-	-	-
New Mexico	66,327	1,819,046	3.65	41,540	1,035,055	4.01	24,787	783,991	3.16
New York	590,182	18,976,457	3.11	571,284	17,473,058	3.27	18,898	1,503,399	1.26
North Carolina	103,260	8,049,313	1.28	77,677	5,437,056	1.43	25,583	2,612,257	0.98
North Dakota	7,398	642,200	1.15	3,506	283,966	1.23	3,892	358,234	1.09
Ohio	157,885	11,353,140	1.39	135,724	9,213,776	1.47	22,161	2,139,364	1.04
Oklahoma	155,985	3,450,654	4.52	91,248	2,098,362	4.35	64,737	1,352,292	4.79
Oregon	104,745	3,421,399	3.06	81,719	2,502,366	3.27	23,026	919,033	2.51
Pennsylvania	142,224	12,281,054	1.16	128,250	10,391,529	1.23	13,974	1,889,525	0.74
Rhode Island	28,251	1,048,319	2.69	28,251	1,048,319	2.69	-	-	-
South Carolina	39,950	4,012,012	1.00	30,929	2,806,962	1.10	9,021	1,205,050	0.75
South Dakota	10,156	754,844	1.35	4,861	260,977	1.86	5,295	493,867	1.07
Tennessee	63,109	5,689,283	1.11	46,776	3,862,144	1.21	16,333	1,827,139	0.89
Texas	514,633	20,851,820	2.47	459,074	17,691,880	2.59	55,559	3,159,940	1.76
Utah	47,195	2,233,169	2.11	38,895	1,708,496	2.28	8,300	524,673	1.58
Vermont	7,335	608,827	1.20	2,782	198,889	1.40	4,553	409,938	1.11
Virginia	143,069	7,078,515	2.02	128,991	5,528,068	2.33	14,078	1,550,447	0.91
Washington	213,519	5,894,121	3.62	188,168	4,899,154	3.84	25,351	994,967	2.55
West Virginia	15,788	1,808,344	0.87	7,697	765,568	1.01	8,091	1,042,776	0.78
Wisconsin	66,895	5,363,675	1.25	53,469	3,640,308	1.47	13,426	1,723,367	0.78
Wyoming	8,883	493,782	1.80	3,215	148,140	2.17	5,668	345,642	1.64

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

The analyst needs to balance several goals when summarizing complex race data, such as those under the new system. Aggregation of race data should:

- Be Easily Understood: The audience for most data tables and summaries are typically broader than the author can imagine. The presentation should be organized, logical, and well documented, allowing wide use of the data.
- Be Statistically Defensible: The presentation method chosen should follow logically from the goals of the publication and be respected by the intended audience.
- Meet Confidentiality Standards: The presentation method should meet the confidentiality standards of the sponsoring organization. One provision for confidentiality concerns is to substitute a symbol for values below a certain threshold, e.g.: * = Twenty or fewer persons or X = Five or fewer households. More than one category may need to be suppressed in order to avoid a single, easily calculated remainder category that is derived by subtracting from the total population.
- Be Easily Calculated: The methods used to aggregate and manipulate data should be easily understood and implemented so that results may be reproduced and confirmed by others.

Different projects will vary the priorities for these goals, possibly to the extent that some must be overlooked; for example the legibility of the results will likely need to yield to confidentiality standards. Time series analysis must measure the change of racial composition over time while minimizing distortions caused by the change from single race to multiple race reporting (OMB, 2000b).

To demonstrate the variety of presentation formats available to analysts working with multiple race data, the 2000 Census data for the United States, the nonmetropolitan United States and the metropolitan United States will be presented in some of these styles. With 63 combinations of the race categories (when an "Other" option is allowed), the number of formats for aggregating and presenting these categories is considerable. Since offering an exhaustive inventory of these data templates is not practical, the methods of presentation shown will be limited to a few representative models.

Choosing not to aggregate any of the data and presenting all race combinations is a viable strategy for some situations. The geographic units presented must be large enough to obviate any confidentiality concerns for even the least common race combinations or symbols must be substituted for small counts. This type of presentation should be reserved for data-driven publications intended for audiences with the patience to study detailed information. Because of the size of the tables this style of presentation may need to be presented as an appendix to a report. Data from the Census Redistricting file for the nonmetropolitan US, metropolitan US, and the whole country are presented in this report as Appendix A.

The minimum presentation under the new, multiple race system is to present all of the single race selections and report all of the multiple race responses under a single category. This method has the advantages of its compact size and familiarity to readers who have only previously seen single race data. It can be argued that this arrangement does not offer the insight intended by the multiple race system, but for instances where the sample size is small or when the data was collected using a single "Multiracial" category, this style is satisfactory. The Census redistricting data is presented in the minimum format in Tables 5 and 6.

There are many ways to compromise between the maximum and minimum displays described in the preceding paragraphs; the most versatile of these is recom-

Table 5: Minimum Presentation by Number

	United States	Metropolitan United States	Nonmetro-politan United States
White	211,460,626	165,334,357	46,126,269
Black or African American	34,658,190	29,902,857	4,755,333
American Indian or Alaska Native	2,475,956	1,424,226	1,051,730
Asian	10,242,998	9,833,189	409,809
Native Hawaiian or Other Pacific Islander	398,835	339,269	59,566
Some Other Race	15,359,073	14,046,699	1,312,374
More Than One Race	6,826,228	6,002,077	824,151
Total	281,421,906	226,882,674	54,539,232

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

Table 6: Minimum Presentation by Percent

	United States	Metropolitan United States	Nonmetro-politan United States
White	75.14	72.87	84.57
Black or African American	12.32	13.18	8.72
American Indian or Alaska Native	0.88	0.63	1.93
Asian	3.64	4.33	0.75
Native Hawaiian or Other Pacific Islander	0.14	0.15	0.11
Some Other Race	5.46	6.19	2.41
More Than One Race	2.43	2.65	1.51
Total	100.00	100.00	100.00

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

mended by the "Guidance on Aggregation and Allocation of Data on Race for Use in Civil Rights Monitoring and Enforcement" from the Office of Management and Budget (OMB, 2000a). The policy memo issued in March 2000 recommends reporting the following: five single-race categories, four common double-race combinations (American Indian or Alaska Native and White; Asian and White; Black or African American and White; American Indian or Alaska Native and Black or African American), locally significant multiple race combinations (those constituting at least one percent of the area), and an aggregate category for the remaining categories. This method has the advantage of addressing the race combinations of most interest to activists and social scientists, but still may require suppression of some categories in nonmetropolitan areas (OMB, 2000a). The Census data is presented in the OMB recommended style below, without incorporating Hispanic Ethnicity in Tables 7 and 8 and incorporating Hispanic Ethnicity in Tables 9 and 10.

Table 7: OMB Presentation

	United States	Metropolitan United States	Nonmetro-politan United States
White	211,460,626	165,334,357	46,126,269
Black or African American	34,658,190	29,902,857	4,755,333
American Indian or Alaska Native	2,475,956	1,424,226	1,051,730
Asian	10,242,998	9,833,189	409,809
Native Hawaiian or Other Pacific Islander	398,835	339,269	59,566
Some Other Race	15,359,073	14,046,699	1,312,374
American Indian or Alaska Native and White	1,082,683	784,534	298,149
Asian and White	868,395	789,194	79,201
Black or African American and White	784,764	693,523	91,241
American Indian or Alaska Native and Black or African American	182,494	164,638	17,856
Balance of individuals reporting more than one race	3,907,892	3,570,188	337,704
Total	281,421,906	226,882,674	54,539,232

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

Table 8: OMB Presentation by Percent

	United States	Metropolitan United States	Nonmetro-politan United States
White	75.14	72.87	84.57
Black or African American	12.32	13.18	8.72
American Indian or Alaska Native	0.88	0.63	1.93
Asian	3.64	4.33	0.75
Native Hawaiian or Other Pacific Islander	0.14	0.15	0.11
Some Other Race	5.46	6.19	2.41
American Indian or Alaska Native and White	0.39	0.35	0.55
Asian and White	0.31	0.35	0.15
Black or African American and White	0.28	0.31	0.17
American Indian or Alaska Native and Black or African American	0.07	0.07	0.03
Balance of individuals reporting more than one race	1.39	1.57	0.62
Total	100.00	100.00	100.00

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

Table 9: OMB Presentation with Hispanic Ethnicity

	United States	Metropolitan United States	Nonmetro-politan United States
Hispanic Ethnicity	35,305,818	32,186,326	3,119,492
Not Hispanic Ethnicity			
White	194,552,774	149,973,604	44,579,170
Black or African American	33,947,837	29,236,595	4,711,242
American Indian or Alaska Native	2,068,883	1,068,354	1,000,529
Asian	10,123,169	9,722,871	400,298
Native Hawaiian or Other Pacific Islander	353,509	300,208	53,301
Some Other Race	467,770	431,517	36,253
American Indian or Alaska Native and White	969,238	686,005	283,233
Asian and White	811,240	737,010	74,230
Black or African American and White	697,077	610,706	86,371
American Indian or Alaska Native and Black or African American	168,022	151,080	16,942
Balance of individuals reporting more than one race	1,956,569	1,778,398	178,171
Total	281,421,906	226,882,674	54,539,232

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

Table 10: OMB Presentation with Hispanic Ethnicity by Percent

	United States	Metropolitan United States	Nonmetro-politan United States
Hispanic Ethnicity	12.55	14.19	5.72
Not Hispanic Ethnicity			
White	69.13	66.10	81.74
Black or African American	12.06	12.89	8.64
American Indian or Alaska Native	0.74	0.47	1.83
Asian	3.60	4.29	0.73
Native Hawaiian or Other Pacific Islander	0.13	0.13	0.10
Some Other Race	0.17	0.19	0.07
American Indian or Alaska Native and White	0.34	0.30	0.52
Asian and White	0.29	0.32	0.14
Black or African American and White	0.25	0.27	0.16
American Indian or Alaska Native and Black or African American	0.06	0.07	0.03
Balance of individuals reporting more than one race	0.70	0.78	0.33
Total	100.00	100.00	100.00

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

All of the presentation formats presented above are exhaustive counts that do not double count any of the population. Some presentation styles give a better understanding of the data through presenting multiple race selections under each race chosen. These all-inclusive counts portray some of the multiracial characteristics of the population without breaking it down into small categories that are more likely to cause confidentiality problems. An example using the redistricting data is found in Table 11.

Table 11: OMB Presentation with All Inclusive Counts

	United States	Metropolitan United States	Nonmetro-politan United States
Total	281,421,906	226,882,674	54,539,232
White	211,460,626	165,334,357	46,126,269
Black or African American	34,658,190	29,902,857	4,755,333
American Indian or Alaska Native	2,475,956	1,424,226	1,051,730
Asian	10,242,998	9,833,189	409,809
Native Hawaiian or Other Pacific Islander	398,835	339,269	59,566
Some Other Race	15,359,073	14,046,699	1,312,374
American Indian or Alaska Native and White	1,082,683	784,534	298,149
Asian and White	868,395	789,194	79,201
Black or African American and White	784,764	693,523	91,241
American Indian or Alaska Native and Black or African American	182,494	164,638	17,856
Balance of individuals reporting more than one race	3,907,892	3,570,188	337,704
White all inclusive	216,930,975	170,081,953	46,849,022
White and other race(s)	5,470,349	4,747,596	722,753
Black or African American all inclusive	36,419,434	31,509,389	4,910,045
Black or African American and other race(s)	1,761,244	1,606,532	154,712
American Indian or Alaska Native all inclusive	4,119,301	2,706,616	1,412,685
American Indian or Alaska Native and other race(s)	1,643,345	1,282,390	360,955
Asian all inclusive	11,898,828	11,322,393	576,435
Asian and other race(s)	1,655,830	1,489,204	166,626
Native Hawaiian or Other Pacific Islander all inclusive	874,414	729,299	145,115
Native Hawaiian or Other Pacific Islander and other race(s)	475,579	390,030	85,549
Other Race all inclusive	18,521,486	16,976,286	1,545,200
Other Race and other race(s)	3,162,413	2,929,587	232,826

Source: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.

PRESENTING TRENDS IN POPULATION RACE USING MULTIPLE RACE DATA

The transition to multiple race reporting complicates presenting trend data on the racial characteristics of a population. An effective presentation would isolate the change in the population from the change in the reporting system. There have been models of varying purpose and complexity designed to bridge the change in systems. These methods have been assembled and presented by the Office of Management and Budget. The approaches begin with data from surveys meeting the 1997 criteria and use various methods to allocate the current multiple race responses to the previous single-race system. The systems can be grouped into three types:

- Deterministic Fractional Assignment: The population of a multiple race combination is distributed across the single race categories that it is composed of. This assignment can be allocated as an equal allocation across race represented in the multiple race combination or as an allocation based on external empirical data that indicates the distribution of single-race identification chosen by typical respondents in the category
- Deterministic Whole Assignment: All of the population of a multiple race combination is assigned to one single race category based on the distribution of data in the same dataset. There are three rules that are commonly applied to decide which of the single race groups receive the population of multiple race category: Largest Group; Largest Group Other Than White; or the Smallest Group Other Than White.
- Probabilistic Whole Assignment: All of the population of a multiple race combination is assigned to one single race category based on randomized allocations with probabilities weighted by the distribution of external empirical data. The results of individual runs may vary, but—with multiple calculations—the results converge to those deterministic fractional assignments based

on the same empirical data.

None of these methods are clearly superior for all applications. The Fractional Assignment methods have an intuitive appeal to many users. Since the population is distributed across all of the associated races, abrupt shifts in single-race composition are reduced. The Whole Assignment methods—especially those only allocating a multiple race category to nonwhite races—are useful for civil rights applications where all of the potential minority population needs to be recorded. Probabilistic models embrace the uncertainty of multiple race selection, but are random to the extent that subsequent runs could present different results. Because of this instability no demonstrations of those methods were included below (OMB, 2000b).

The Whole Assignment methods—especially those only allocating a multiple race category to nonwhite races—are useful for civil rights applications where all of the potential minority population needs to be recorded.

The results within any model are also determined by the unit of analysis that is chosen. A national analysis of the Census 2000 redistricting data, for example, could be calculated in any number of ways, including the following:

- Sum the 63 race categories from the 2000 Census and the 5 categories from the 1990 Census to the national level, then bridge between the systems.
- Sum the 63 race categories from the 2000 Census and the 5 categories from the 1990 Census to the state level, then bridge between the systems, and aggregate the results to the national level.
- Sum the 63 race categories from the 2000 Census and the 5 categories from the 1990 Census to the county level, then bridge between the systems, and aggregate the results to the national level.

By bridging at a small level of geography and aggregating the results, a few advantages can be gained. If the data are to be presented at the finer resolution and the aggregated level, the two resolutions will have the same total (this would be unlikely when comparing data for the same area bridged at different resolutions). Another advantage is that aggregating at smaller geography allows incorporation of more regional variation into the results. There also may be cases where the analyst wants to quiet the local data variations and bridging at the national level would be more appropriate, as would be cases where limited data computing capacity would encourage using a method requiring fewer calculations.

Because of the change in how racial and ethnic identity is reported in the 2000 Census, estimates of the change over time in the percent of rural population that are minority will vary, depending on the method used to bridge the 1990 and 2000 Census data. In this paper, four different methods of bridging the 2000 data back to the 1990 Census system are explored, to illustrate the variations in identified change that will result. The trends identified by all of these bridging methods are influenced by both the demographic changes in the community and the analyst's choice data methods. Although there is no "pure" method that totally removes the editorial effect of the researcher, the researcher also cannot totally manipulate the resulting trend.

To identify nonmetropolitan counties where trends in minority representation change, depending on the bridging method chosen by the researcher, four different methods of bridging the 2000 data back to the 1990 Census system were explored. The four methods (the available methods that used no statistical modeling or external empirical data) were:

- Deterministic Fractional Assignment
- Deterministic Whole Assignment - Smallest Group Other Than White
- Deterministic Whole Assignment - Largest Group Other Than White
- Deterministic Whole Assignment - Largest Group

The bridging was performed on population counts, but for comparison with 1990 data were normalized to percent of population constituted of each race. The bridging was performed for individual counties before aggregating counts to national level and metropolitan/nonmetropolitan status. The effects of small-area race distribution are, therefore, included in the calculations, though they are presented in summary form.

In aggregate, there is little difference in the impacts of bridging model choice between metropolitan and nonmetropolitan areas. Tables 12, 13, and 14 show that for both types of county the relative differences between models are similar. Predictably, the Whole Allocation methods cause systematic swings of allocation to different races: the Largest Group method tended to increase the White population counts; the Largest Group Other Than White method supplemented the allocation to the Black category; the Smallest Group Other Than White method increased the numbers allocated to the American Indian or Alaskan Native, Asian or Pacific Islander, and Other categories. The Deterministic Fractional Assignment method produced results that fell within the extremes of the Deterministic Whole Assignment choices.

In aggregate, there is little difference in the impacts of bridging model choice between metropolitan and nonmetropolitan areas.

When the effects of model choice are examined at the county level, the models are less stable and the differences between metropolitan and nonmetropolitan areas are greater. Individual counties were analyzed to learn how often the four models were in agreement as to whether the percent minority population of a county was increasing or decreasing. Nonmetropolitan and metropolitan areas both show a strong majority of counties with a growing share of their population reporting races other than White. As Map 4 shows, 76.7 percent of nonmetropolitan counties have all three models in agreement that races other than White became more prevalent as the 1990s progressed; the rate was 87.4 percent for metropolitan areas.

When the effects of model choice are examined at the county level, the models are less stable and the differences between metropolitan and nonmetropolitan areas are greater.

Table 12: Comparison of Bridging Methods - Population Results

	1990 Census	2000 Deterministic Fractional Assignment	2000 Deterministic Whole Assignment - Smallest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group
United States					
White	199,827,064	214,122,332	211,460,626	211,460,626	216,724,990
Black	29,930,524	35,495,728	35,608,635	36,238,368	35,319,282
American Indian or Alaskan Native	2,015,143	3,256,832	4,077,546	3,597,970	2,506,053
Asian or Pacific Islander	7,226,986	11,635,404	12,184,990	12,145,596	11,163,615
Other	9,710,156	16,911,611	18,090,109	17,979,346	15,707,966
Metropolitan United States					
White	156,694,146	167,645,530	165,334,357	165,334,357	169,937,794
Black	25,636,624	30,667,159	30,743,666	31,347,611	30,530,454
American Indian or Alaskan Native	1,121,072	2,029,649	2,688,576	2,225,445	1,433,788
Asian or Pacific Islander	6,832,853	11,053,838	11,541,752	11,508,576	10,606,421
Other	8,956,877	15,486,498	16,574,323	16,466,685	14,374,217
Nonmetropolitan United States					
White	43,132,918	46,476,802	46,126,269	46,126,269	46,787,196
Black	4,293,900	4,828,569	4,864,969	4,890,757	4,788,828
American Indian or Alaskan Native	894,071	1,227,182	1,388,970	1,372,525	1,072,265
Asian or Pacific Islander	394,133	581,566	643,238	637,020	557,194
Other	753,279	1,425,114	1,515,786	1,512,661	1,333,749

Sources: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001. Census 1990 Summary Tape File 3; U.S.Census Bureau, 1992.

Table 13: Comparison of Bridging Methods - Percent Composition of Population

	1990 Census	2000 Deterministic Fractional Assignment	2000 Deterministic Whole Assignment - Smallest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group
United States					
White	78.65	73.89	72.87	72.87	74.90
Black	12.87	13.52	13.55	13.82	13.46
American Indian or Alaskan Native	0.56	0.89	1.19	0.98	0.63
Asian or Pacific Islander	3.43	4.87	5.09	5.07	4.67
Other	4.50	6.83	7.31	7.26	6.34
Metropolitan United States					
White	87.19	85.22	84.57	84.57	85.79
Black	8.68	8.85	8.92	8.97	8.78
American Indian or Alaskan Native	1.81	2.25	2.55	2.52	1.97
Asian or Pacific Islander	0.80	1.07	1.18	1.17	1.02
Other	1.52	2.61	2.78	2.77	2.45
Nonmetropolitan United States					
White	80.35	76.09	75.14	75.14	77.01
Black	12.03	12.61	12.65	12.88	12.55
American Indian or Alaskan Native	0.81	1.16	1.45	1.28	0.89
Asian or Pacific Islander	2.91	4.13	4.33	4.32	3.97
Other	3.90	6.01	6.43	6.39	5.58

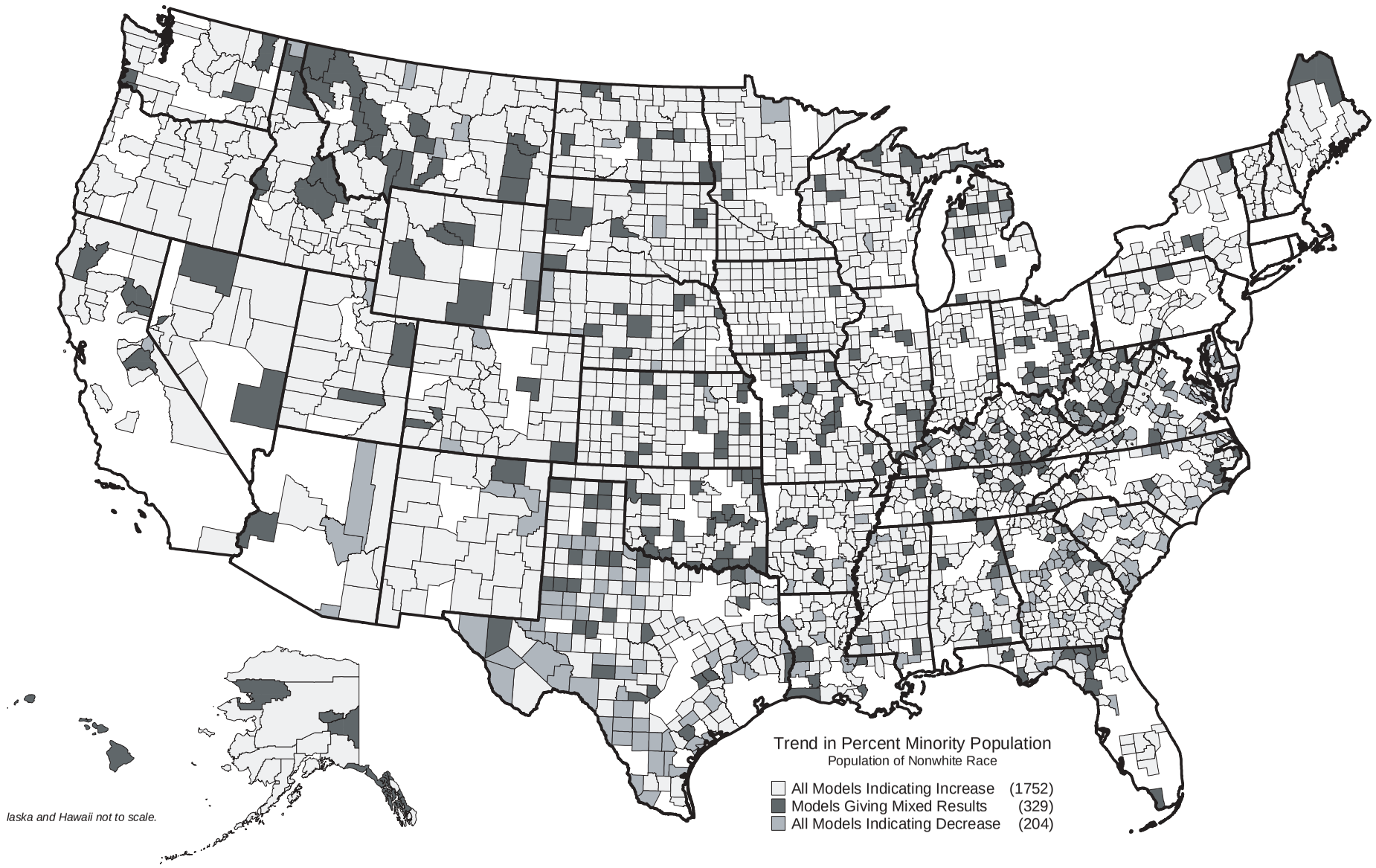
Sources: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001. Census 1990 Summary Tape File 3; U.S.Census Bureau, 1992.

Table 14: Comparison of Bridging Methods - Net Change in Percent Composition of Population

	2000 Deterministic Fractional Assignment	2000 Deterministic Whole Assignment - Smallest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group Other Than White	2000 Deterministic Whole Assignment - Largest Group
United States				
White	-4.75	-5.77	-5.77	-3.74
Black	0.65	0.68	0.95	0.59
American Indian or Alaskan Native	0.33	0.62	0.42	0.07
Asian or Pacific Islander	1.44	1.66	1.64	1.25
Other	2.33	2.81	2.76	1.84
Metropolitan United States				
White	-1.98	-2.62	-2.62	-1.41
Black	0.17	0.24	0.29	0.10
American Indian or Alaskan Native	0.44	0.74	0.71	0.16
Asian or Pacific Islander	0.27	0.38	0.37	0.22
Other	1.09	1.26	1.25	0.92
Nonmetropolitan United States				
White	-4.26	-5.21	-5.21	-3.33
Black	0.58	0.62	0.84	0.52
American Indian or Alaskan Native	0.35	0.64	0.47	0.08
Asian or Pacific Islander	1.23	1.42	1.41	1.06
Other	2.11	2.52	2.48	1.68

Sources: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001. Census 1990 Summary Tape File 3; U.S.Census Bureau, 1992.

Map 4: Results from Four Models to Determine Change in Percent Nonwhite Population in Nonmetropolitan Counties, 1990-2000



Sources: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.
Census 1990 Summary Tape File 3; U.S.Census Bureau, 1992.

Produced By: North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

The number of counties where the some models estimated increases and others estimated decreases in nonwhite population was 329 out of the 2,285 counties.

The number of counties where the some models estimated increases and others estimated decreases in nonwhite population was 329 out of the 2,285 counties. This 14.4 percent rate is significantly higher than the 6.2 percent rate for metropolitan areas. Map 5 shows that the total number of these uncertain counties is reduced when Hispanic ethnicity is incorporated into the modeling, but the disparity between metropolitan and nonmetropolitan areas remains. When modeling change in the population that is of Hispanic ethnicity or a race other than white, 169 of the 2285 counties have disagreement regarding increase versus decrease. The 2.1 percent uncertainty rate in Metropolitan areas shows much more stability than the 7.4 percent rate in rural America.

SUMMARY

In the first opportunity for all Americans to identify themselves as more than one race, rural residents were less inclined to do so than their urban counterparts. Only 1.5 percent of nonmetropolitan residents were identified as having a multiracial profile in Census 2000, with 2.7 percent of metropolitan residents choosing more than one race. The 824,151 multiracial nonmetropolitan residents constitute 12.1 percent of the national total of 6,826,228.

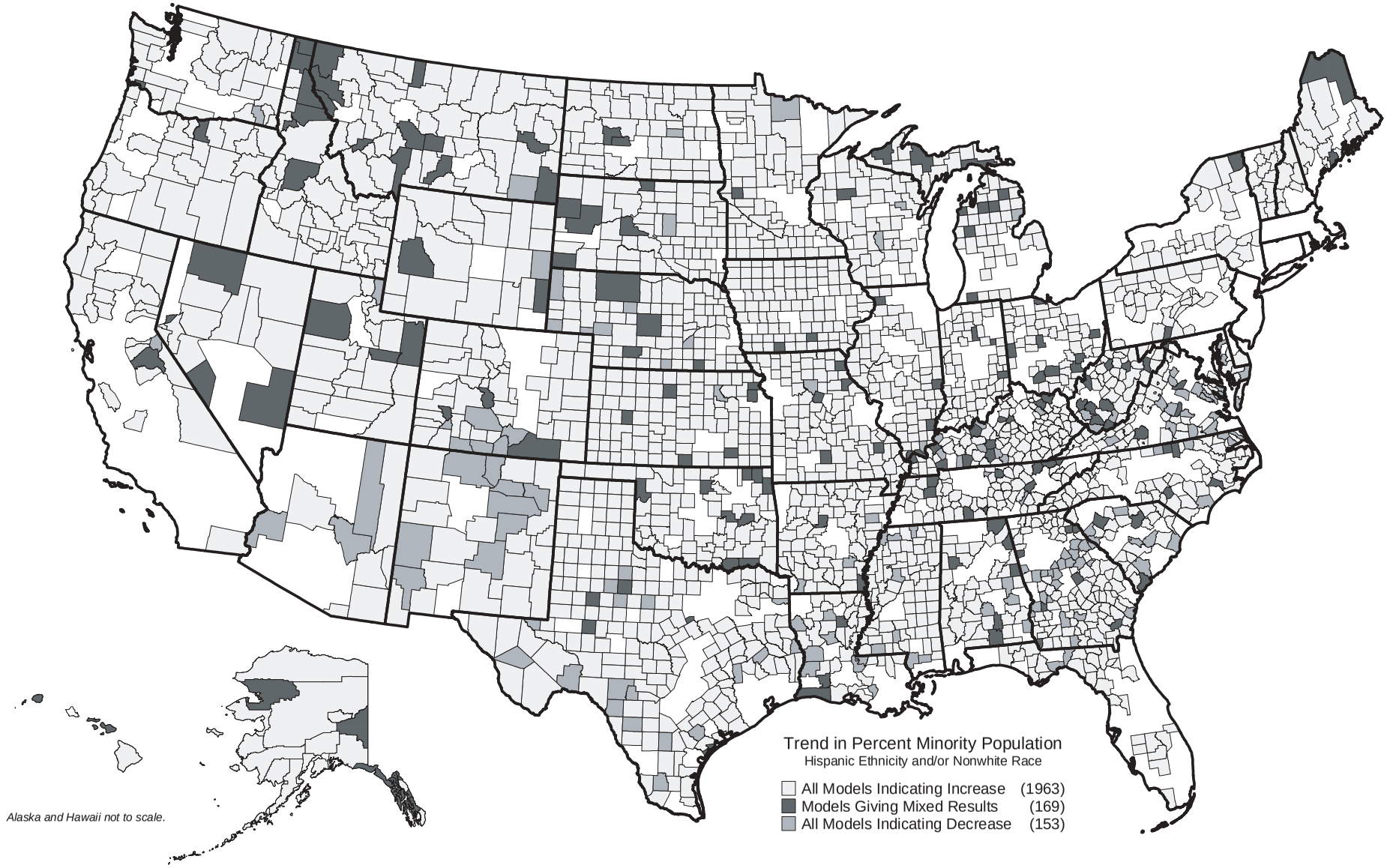
Among regions of the nonmetropolitan United States, Western residents were the only to be more inclined to choose multiple races than the rural average (3.5%). The nonmetropolitan residents of Hawaii, Alaska, and Oklahoma were the most likely to identify with more than one race and nonmetropolitan residents of Mississippi, Pennsylvania, and South Carolina were the least likely to choose more than one race. The race categories most likely to be part of a multiple race profile are those more common in the West: “Native Hawaiian or Other Pacific Islander”; “Asian”; and “American Indian or Alaska Native”.

There are many ways to aggregate and present data under the new system. With the flexibility to choose among these methods comes a responsibility to choose carefully. The categorical precision available in Census data—with all 63 race combinations possible under the six race choices on the Census form—may not be appropriate for all presentations. Such a display is difficult to read and the privacy of residents of small rural areas need to be considered. To protect the confidentiality of residents' portrayal in data, significant aggregation of race categories or geographic units will be necessary in sparsely populated rural areas. As more data are published under the new system, more care should be taken. Race-specific birth, mortality, and disease incidence data should be carefully considered. Rates calculated from the data will need to be aggregated and calculated cautiously, monitoring statistical validity under the more precise multiple race system.

Caution will be important when analyzing trends in the racial composition of communities. For many years these trends will bridge the change from the single race system to the multiple race system. The many models for bridging the data between these systems and the geographic precision at which they are applied can influence the resulting trend. Analysts should evaluate the consequences of choosing methods and should also consider presenting results from more than one of these methods.

Offering the choice of more than one race on the Census 2000 form inspired personal and public exploration of the nature of race in Americans' impressions of themselves. In their homes, millions of Americans completed their Census forms and expressed their self-impression in a new manner. In handling the results of the Census and other data, analysts need to respect the intent and privacy of those Americans.

Map 5: Results from Four Models to Determine Change in Percent Nonwhite and/or Hispanic Population in Nonmetropolitan Counties, 1990-2000



Sources: Census 2000 Redistricting Data (Public Law 94-171) Summary File; U.S.Census Bureau, 2001.
Census 1990 Summary Tape File 3; U.S.Census Bureau, 1992.

Produced By: North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Appendix A: Census 2000 Redistricting Data – All Race Categories

	Total Population			Hispanic Population		
	United States	Metropolitan United States	Nonmetropolitan United States	United States	Metropolitan United States	Nonmetropolitan United States
Total	**281,421,906**	**226,882,674**	**54,539,232**	**35,305,818**	**32,186,326**	**3,119,492**
Population of one race	**274,595,678**	**220,880,597**	**53,715,081**	**33,081,736**	**30,147,448**	**2,934,288**
White alone	211,460,626	165,334,357	46,126,269	16,907,852	15,360,753	1,547,099
Black or African American alone	34,658,190	29,902,857	4,755,333	710,353	666,262	44,091
American Indian and Alaska Native alone	2,475,956	1,424,226	1,051,730	407,073	355,872	51,201
Asian alone	10,242,998	9,833,189	409,809	119,829	110,318	9,511
Native Hawaiian and Other Pacific Islander alone	398,835	339,269	59,566	45,326	39,061	6,265
Some other race alone	15,359,073	14,046,699	1,312,374	14,891,303	13,615,182	1,276,121
Population of two or more races	**6,826,228**	**6,002,077**	**824,151**	**2,224,082**	**2,038,878**	**185,204**
Population of two races	**6,368,075**	**5,609,303**	**758,772**	**2,110,965**	**1,939,199**	**171,766**
White; Black or African American	784,764	693,523	91,241	87,687	82,817	4,870
White; American Indian and Alaska Native	1,082,683	784,534	298,149	113,445	98,529	14,916
White; Asian	868,395	789,194	79,201	57,155	52,184	4,971
White; Native Hawaiian and Other Pacific Islander	112,964	92,151	20,813	12,262	10,373	1,889
White; Some other race	2,206,251	2,033,713	172,538	1,474,532	1,355,973	118,559
Black or African American; American Indian and Alaska Native	182,494	164,638	17,856	14,472	13,558	914
Black or African American; Asian	106,782	100,508	6,274	7,269	6,606	663
Black or African American; Native Hawaiian and Other Pacific Islander	29,876	27,829	2,047	2,397	2,166	231
Black or African American; Some other race	417,249	402,495	14,754	161,283	153,905	7,378
American Indian and Alaska Native; Asian	52,429	47,854	4,575	9,377	8,529	848
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	7,328	5,858	1,470	1,875	1,556	319
American Indian and Alaska Native; Some other race	93,842	82,224	11,618	72,365	64,648	7,717
Asian; Native Hawaiian and Other Pacific Islander	138,802	114,675	24,127	9,672	7,425	2,247
Asian; Some other race	249,108	237,878	11,230	63,354	59,118	4,236
Native Hawaiian and Other Pacific Islander; Some other race	35,108	32,229	2,879	23,820	21,812	2,008
Population of three races	**410,285**	**352,863**	**57,422**	**99,256**	**88,134**	**11,122**
White; Black or African American; American Indian and Alaska Native	112,207	100,902	11,305	18,046	16,791	1,255
White; Black or African American; Asian	21,166	19,708	1,458	2,937	2,757	180
White; Black or African American; Native Hawaiian and Other Pacific Islander	2,938	2,691	247	411	367	44
White; Black or African American; Some other race	43,172	39,359	3,813	15,481	14,644	837
White; American Indian and Alaska Native; Asian	23,766	20,128	3,638	5,361	4,680	681
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	4,843	3,826	1,017	959	762	197
White; American Indian and Alaska Native; Some other race	29,095	24,427	4,668	15,299	13,624	1,675
White; Asian; Native Hawaiian and Other Pacific Islander	89,611	67,512	22,099	11,995	8,860	3,135

	Total Population			*Hispanic Population*		
	United States	**Metropolitan United States**	**Nonmetropolitan United States**	**United States**	**Metropolitan United States**	**Nonmetropolitan United States**
White; Asian; Some other race	34,962	31,655	3,307	12,998	11,825	1,173
White; Native Hawaiian and Other Pacific Islander; Some other race	8,364	6,604	1,760	3,623	3,055	568
Black or African American; American Indian and Alaska Native; Asian	5,798	5,406	392	949	887	62
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	998	921	77	245	228	17
Black or African American; American Indian and Alaska Native; Some other race	7,023	6,560	463	2,375	2,239	136
Black or African American; Asian; Native Hawaiian and Other Pacific Islander	5,309	4,547	762	808	679	129
Black or African American; Asian; Some other race	8,069	7,597	472	1,852	1,698	154
Black or African American; Native Hawaiian and Other Pacific Islander; Some other race	2,167	2,029	138	878	812	66
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	3,063	2,343	720	932	720	212
American Indian and Alaska Native; Asian; Some other race	2,544	2,327	217	1,589	1,447	142
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some other race	586	523	63	386	354	32
Asian; Native Hawaiian and Other Pacific Islander; Some other race	4,604	3,798	806	2,132	1,705	427
Population of four races	**38,408**	**32,067**	**6,341**	**11,253**	**9,402**	**1,851**
White; Black or African American; American Indian and Alaska Native; Asian	10,672	9,959	713	1,760	1,656	104
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander	988	887	101	248	219	29
White; Black or African American; American Indian and Alaska Native; Some other race	4,645	4,260	385	2,069	1,932	137
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander	2,128	1,872	256	493	411	82
White; Black or African American; Asian; Some other race	1,376	1,293	83	528	505	23
White; Black or African American; Native Hawaiian and Other Pacific Islander; Some other race	325	284	41	168	143	25
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	6,450	4,884	1,566	2,039	1,543	496
White; American Indian and Alaska Native; Asian; Some other race	1,099	944	155	608	530	78

	Total Population			*Hispanic Population*		
	United States	**Metropolitan United States**	**Nonmetropolitan United States**	**United States**	**Metropolitan United States**	**Nonmetropolitan United States**
White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some other race	309	237	72	149	119	30
White; Asian; Native Hawaiian and Other Pacific Islander; Some other race	7,932	5,367	2,565	2,439	1,695	744
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	750	646	104	220	196	24
Black or African American; American Indian and Alaska Native; Asian; Some other race	334	309	25	111	103	8
Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some other race	111	110	1	66	65	1
Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some other race	1,082	854	228	228	183	45
American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some other race	207	161	46	127	102	25
Population of five races	**8,637**	**7,188**	**1,449**	**2,295**	**1,860**	**435**
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander	6,611	5,494	1,117	1,530	1,245	285
White; Black or African American; American Indian and Alaska Native; Asian; Some other race	724	652	72	241	212	29
White; Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander; Some other race	68	59	9	36	32	4
White; Black or African American; Asian; Native Hawaiian and Other Pacific Islander; Some other race	379	322	57	152	133	19
White; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some other race	639	499	140	259	185	74
Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some other race	216	162	54	77	53	24
Population of six races	**823**	**656**	**167**	**313**	**283**	**30**
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some other race	823	656	167	313	283	30

Appendix B: Designing Surveys in the Era of Multiple Race Reporting

Understanding the patterns of response among survey recipients is important when using data derived from the new system. Also, many rural health researchers will be designing their own survey instruments or will be wanting to link their data with the Census. The publication of the new rule was preceded by a variety of studies exploring the behavior of different populations when presented with a variety of survey designs. Not only were the availability of multiple-race options evaluated, but question phrasing and arrangement were also studied.

In 1996, the Census Bureau administered the Race and Ethnic Targeted Test (RAETT). It tested the issues raised by the Interagency Committee for the Review of Racial and Ethnic Standards established by the OMB. The RAETT tested the effects of the content, arrangement, and wording of race questions on completeness of information received as well as historical continuity in community profiles. The survey contrasted the format of the single-race category (the existing standard in 1996), the multiple-race choice (the standard that eventually was chosen), and offering a category titled "Multiracial" but only allowing the choice of it or the single-race categories (an alternative for allowing a multiple race option which was not chosen). In addition to these configurations, the option of placing the Hispanic ethnicity question first, placing the race question first, or integrating the two into a single question was tested. Eight survey questionnaires (the possible logical combinations of the qualities being tested) were designed for comparison. The test sent one type of survey to each household drawn from six race specific samples. Examples of each survey was sent to all sample groups (Census, 1997b).

The RAETT provided general and race-specific insights to survey completing behavior of Americans. The options for reporting more than one race did not change the rate of choosing only White, Black, or American Indian. Effects were noted in the Alaska Native and the Asian and Pacific Islander samples. It was also noticed that when the race and Hispanic origin questions were integrated, a high share of the respondents chose the Hispanic category in combination with one of the other offered race categories (Census, 1997b).

There has been additional research on how respondents complete surveys where identifying more than race is possible. All of these involved the addition of an aggregate multiracial category and have less to offer for understanding behavior under the current, choose-one-race-or-more system.

The Bureau of Labor Statistics and the Bureau of the Census jointly administer the Current Population Survey. In May 1995 the survey included a Supplement on Race and Ethnicity which offered four configurations of race and Hispanic ethnicity questions: Separate race and Hispanic ethnicity questions with no multiracial category; separate race and Hispanic ethnicity questions with a multiracial category; combined race and Hispanic ethnicity questions with no multiracial category; and combined race and Hispanic ethnicity questions with a multiracial category. It was found that the proportions reporting White, Black, or Asian and Pacific Islander were stable within the margin of error whether or not a multiracial category was offered. But where about one percent of respondents chose the American Indian/Eskimo/Aleut category when there was no multiracial option, only 0.75 percent chose the category when there was a multiracial choice. Offering the multiracial classification significantly reduced the number of "Other Race" choices (BLS, 1995).

The Census Bureau administered the National Content Survey in 1996, which also involved four questionnaires. These were varied by presence of a multiracial category and the order of the race and Hispanic ethnicity questions: No multiracial category with the race question first; multiracial category with the race question first; no multiracial category with the Hispanic ethnicity question first; multiracial category with the Hispanic ethnicity question first. The survey showed that offering the multiracial option yielded no statistically significant change in selecting the single race categories, except for strongly reducing the number of "Other Race" responses. When the Hispanic ethnicity question was asked first, "Other Race" responses were almost completely eliminated (Census, 1996a).

These exploratory surveys and tests from the mid-1990s revealed that the US population is generally well prepared to answer questions disclosing their race and Hispanic ethnicity, but some questionnaire and interview design steps will improve the accuracy of response.

- Provide clear instructions stating that multiple race responses are allowed, but are not required. It has been learned that using a instruction including "...one or more..." was better understood than one with "Mark all that apply." Therefore, including the text "Select one or more," "Mark one or more," or "Choose one or more" is recommended.
- Provide a leading instruction to answer both the Hispanic or Latino origin question and the question(s) on race.
- Ask the Hispanic or Latino origin question before the question(s) on race. This has been shown to reduce the number of respondents choosing the "Other Race" category that the new rule allows, but does not encourage.
- Use the names and terminology stated in the OMB Rule. The race category names were researched through focus groups and sample surveys. The term Native American, for example, should not be substituted for American Indian, because the term created confusion leading respondents to think it meant anyone born in this country. Though many prefer the term Native American, it was learned that the term American Indian is preferred by most tribal organizations. Additional terms such as Native American can be included in supporting text placed after the official description.
- Provide definitions and descriptions for the minimum race categories. This can include descriptions that could reduce user error.

Below are some examples of recommended Hispanic Ethnicity and Race questions:

Sample Hispanic Ethnicity Questions:

Are you Spanish/Hispanic/Latino?

- Yes
- No

Are you Hispanic or Latino?

- Yes
- No

Are you of Hispanic or Latino origin?

- Yes
- No

Are you Spanish/Hispanic/Latino? Mark the "No" box if not Spanish/Hispanic/Latino.

- No, not Spanish/Hispanic/Latino
- Yes, Mexican, Mexican American, Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Spanish/Hispanic/Latino - Print group

Are you Hispanic or Latino?

- No, not Hispanic or Latino.
- Yes, Hispanic or Latino: a person of Cuban, Mexican, Chicano, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Sample Race Questions:

What is your race? Mark one or more races to indicate what you consider yourself to be.

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander

What is your race? You may select one or more races.

- White: a person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
- Black or African American: a person having origins in any of the black racial groups of Africa.
- American Indian or Alaska Native: a person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- Asian: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- Native Hawaiian or Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

The method of administering the survey should also be taken into account. Many of the categories have an "or" within the category name and a telephone survey should be scripted and rehearsed so it is clear that "Black or African American" is a only single choice for a question, not two choices for a question and not a single two-choice question (OMB, 2000b).

As with any survey instrument, it is essential that race questionnaires and interviews be tested before full implementation. Oversampling for racial minorities is recommended in testing surveys with race questions.

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