

## 2010 Census Race and Hispanic Origin Alternative Questionnaire Experiment Summary<sup>1</sup>

Elizabeth Compton, Michael Bentley, Sonya Rastogi, and Sharon Ennis  
U.S. Census Bureau, 4600 Silver Hill Road, Washington, D.C. 20233

### Abstract

The primary component of the 2010 Census Alternative Questionnaire Experiment was an ambitious series of 15 experimental panels devoted to race and Hispanic origin research. The main goals were to design and test questionnaire strategies that would increase reporting in the major race and ethnic categories and elicit reporting of detailed race and ethnic groups, lower item non-response, and increase accuracy and reliability of the results. The research questions are divided into three sets of panels: (1) examining modified race and Hispanic origin examples; (2) combining the separate race and Hispanic origin questions into one; and (3) testing the use of a spanner and the limiting of the term ‘race.’ The second major component of the study was a phone reinterview conducted a few months after the 2010 Census mailout. The reinterview was designed to probe more extensively into the racial and ethnic background of respondents by asking a series of questions about how they self-identified, as well as collecting more detailed information about their racial and ethnic background. This paper presents the key findings of the research.

**Keywords:** Race, Origin, Decennial

### 1. Study Overview

The Census Bureau is committed to improving the accuracy and reliability of census results by expanding our understanding of how people self-identify their race and Hispanic origin. In Census 2000, the Alternative Questionnaire Experiment (AQE) studied the census questionnaire effects on reporting of race and Hispanic origin, but did not include the testing of a combined question. The focus of that research experiment was to replicate a 1990-style short-form during Census 2000 and compare the results to data from Census 2000 short-form questionnaires in order to evaluate how the questionnaire changes affected reporting of race and Hispanic origin. The questionnaire changes introduced in Census 2000 included allowing the reporting of more than one race and reversing the sequence of the race and Hispanic origin items, as well as other changes in format, categories, and wording.

More recently the 2003 and 2005 National Census Tests looked into the use of examples and other instructions or wording changes to the separate race and Hispanic origin questions. The primary objectives of those tests were to improve the accuracy of race reporting and improve the reporting of detailed Hispanic origins within the Hispanic origin question. Again, the focus was on research within two separate questions, one on race, and the other on Hispanic origin.

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<sup>1</sup> This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed on statistical, methodological, technical, or operational issues are those of the authors and not necessarily those of the U.S. Census Bureau.

The 2010 Census AQE focused on improving the race and Hispanic origin questions by testing a number of different questionnaire design strategies. The primary research objectives were to design and test questionnaire strategies that would increase reporting in the U.S. Office of Management and Budget race and ethnic categories, elicit reporting of detailed race and ethnic groups, lower item nonresponse, and increase accuracy and reliability of the results, and elicit reporting of detailed race and ethnic groups.

The first component of the experiment was a Mailout/Mailback questionnaire that respondents received in lieu of the standard 2010 Census questionnaire. The second component of the experiment was a telephone reinterview of the mail respondents to assess the accuracy and the reliability of both the control and the alternative race and Hispanic origin questions. A third component was a series of focus groups, documented in a separate report (Rastogi et al. 2011), conducted to complement the quantitative analyses.

The 2010 Census AQE survey and reinterview is the largest quantitative effort ever to start off the decennial cycle for race and Hispanic origin research, and this important research is leading our efforts as U.S. Census Bureau looks toward the 2020 Census.

## **2. Methodology**

### **2.1 Panel Design**

The control panel was split as two questionnaires. The first (XA) included an overcount question and mimicked the 2010 Census Mailout/Mailback questionnaire. The second (XB) removed the overcount question to be more comparable to the experimental panels, which could not include the overcount question due to space constraints on the questionnaire. This was done to serve as a bridge between the 2010 Census Mailout/Mailback questionnaire and the race and Hispanic origin panels that also excluded the overcount question.

The first research area (Combined Question panels X2 to X5) focused on several exploratory approaches to combining the race and Hispanic origin questions into one item. Note that panel X5 was designed as the alternative control in order to separate the effects of a combined race and Hispanic origin question from the effects of various layout changes tested in the other three panels in this research area.

The second research area (Example Modification panels X6 to X12) included several features: 1) testing the use of modified examples in the race and Hispanic origin questions; 2) testing the removal of the term “Negro” from the “Black, African Am., or Negro” checkbox response category; and 3) testing the use of a modified Hispanic origin question instruction that permits multiple responses.

The third research area (Spanner/Race Limitation panels X14 to X17) focused on: 1) ways to clarify that the detailed Asian checkbox groups and the detailed Native Hawaiian and Other Pacific Islander checkbox groups are part of two broader Office of Management and Budget race categories; and 2) ways to limit use of the term “race” in the race question. Additionally, two features from the first research area – testing removal of the term “Negro” and testing modified examples in the race question – were also tested in this research area.

**Table 1. Experimental Panels and Their Associated Treatments.**

Treatments	Control		Combined Questions				Separate Questions						Separate Questions				
	XA	XB	X2	X3	X4	X5	Example Modification						Spanner/Race Limitation				
			X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X14	X15	X16	X17
2010 Census Mailback Questionnaire	x																
Without Overcount Question	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Include examples for White, Black, and American Indian							x			x	x	x					
Modified Asian and Pacific Islander examples							x			x	x	x					
Modified Hispanic examples								x		x	x		x				
Deleting “Negro” from Black category								x		x	x		x				x
Alphabetize Asian examples									x				x	x			x
Allows multiple Hispanic responses									x	x			x	x			
Combined Race/Hispanic origin question			x	x	x	x											
Removes “race” from question stem																x	x
Removes “race” from Asian and Pacific Islander														x		x	x
Include spanner for Asian and Pacific Islander														x	x		x

(For more information on the panel and sampling designs, see Compton et. al. 2010.)

## 2.2 Sample Design

The complex sample design was developed to oversample race and ethnic groups of particular interest. Each census tract was assigned to one of four sampling strata: 1) Asian or Native Hawaiian and Other Pacific Islander; 2) Black or African American; 3) Hispanic or Latino; and 4) All other. The sample selection included a substantial oversampling of the first three strata, allowing for finer-scale analysis with these specific race and ethnic groups, and to ensure adequate sample sizes within each stratum. Almost 29,000 housing units were selected for the experiment in each panel, for a total mailout sample size of 488,604 housing units.

### 2.3 Mailing Strategy

The mailing strategy consisted of up to five separate mailings for each panel: 1) advance letter; 2) initial questionnaire package; 3) language assistance postcard providing the production Telephone Questionnaire Assistance number (only for housing units in some zip codes); 4) reminder postcard; and 5) a (targeted) replacement questionnaire for housing units whose response had not been received by a specified date. This strategy was the same as the 2010 Census production design except that all experimental housing units were automatically eligible for a targeted replacement mailing. In the production 2010 Census, housing units were placed into one of three strata for replacement mailings (targeted, blanket, or none) depending on the response propensity of their geographic area.

### 2.4 Reinterview

One in five of the experimental households that responded by mail were selected for the 2010 census AQE Reinterview, which was conducted by telephone in June and July 2010 (about three months after the 2010 Census mailout). The purpose of the reinterview questions was to ascertain the respondents' "true" self-identified race and ethnicity<sup>2</sup>. The reinterview was designed to probe more extensively than the AQE questionnaires by asking a series of questions about how people self-identify, as well as to collect more detailed information about their racial and ethnic background. The reinterview included questions about the census respondent and one other randomly selected person in the household. After data processing, the reinterview data were then name-matched to the mail response data using a computerized matching program, followed by a two-stage clerical review operation.

## 3. Results

The next sections provide high-level results for each of the analyses. These include: mail return rates, item nonresponse rates, race and Hispanic origin distributions, detailed race and origin reporting, treatment-level analyses, and reinterview analysis. To help ensure the validity of statistical inference when making multiple panel comparisons, when applicable, multiple comparison corrections were used to maintain the familywise error rate at  $\alpha = 0.10$ .

### 3.1 Mail Return Rates

The overall mail return rates by panel ranged from a low of 78.2 percent to a high of 80.5 percent. The only significant difference for the overall mail return rates was between two similar panels in the Example Modification family, though investigators have no reason to have expected a difference in unit-level mail return rates and believe the result to be spurious.

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<sup>2</sup> The authors at times use the term "ethnicity" to refer to Hispanic origin and at other times use the term as a larger, umbrella term referring to write-ins from respondents, such as "Lebanese," "African," or "Fijian."

### 3.2 Item Nonresponse Rates

The combined race and Hispanic origin question panels had considerably lower item nonresponse rates compared to the separate race and Hispanic origin questions. This was a major finding of the AQE research. Item nonresponse for the combined question panels was about 1 percent. On the other hand, item nonresponse for the separate Hispanic origin and race question panels were much higher, ranging from 4.1 percent to 5.4 percent and 3.5 percent to 5.7 percent, respectively. By combining the race and Hispanic origin questions into one item, people of Hispanic origin have less difficulty reporting their identity thus reducing item nonresponse. This finding was also echoed in the discussions of self-identification in the AQE focus groups (Rastogi, et al. 2011).

**Table 2. Item Nonresponse for the Separate Race and Hispanic Origin Questions and the Combined Question.**

	Separate Questions			Combined Question
	Hispanic Origin Question	Race Question	Nonresponse to Both Questions	
XA	4.3 (0.32)	3.5 (0.28)	0.8 (0.12)	-
XB	4.9 (0.31)	4.0 (0.30)	1.1 (0.11)	-
X2	-	-	-	0.7 (0.11)
X3	-	-	-	0.8 (0.15)
X4	-	-	-	0.6 (0.13)
X5	-	-	-	1.2 (0.14)
X6	5.1 (0.30)	5.2 (0.34)	1.5 (0.15)	-
X7	4.9 (0.33)	4.0 (0.27)	1.0 (0.10)	-
X8	5.2 (0.35)	3.7 (0.25)	1.1 (0.13)	-
X9	4.5 (0.29)	4.5 (0.27)	1.3 (0.12)	-
X10	4.7 (0.30)	4.5 (0.28)	1.2 (0.12)	-
X11	4.9 (0.33)	4.5 (0.26)	1.2 (0.10)	-
X12	4.7 (0.28)	4.1 (0.29)	1.4 (0.10)	-
X14	5.4 (0.33)	4.3 (0.30)	1.4 (0.10)	-
X15	5.0 (0.32)	4.4 (0.30)	1.1 (0.08)	-
X16	4.1 (0.29)	4.4 (0.27)	0.9 (0.08)	-
X17	4.1 (0.29)	5.7 (0.34)	1.0 (0.12)	-

Source: 2010 AQE Auxiliary Data Files. Note: Estimates are weighted with standard errors in parentheses. Responses on X4 represent people who responded to either the checkbox question or the write-in question.

Table 2 shows item nonresponse for the separate race and Hispanic origin questions and the combined question for all AQE questionnaires. Panel X17, which removed “race” from the separate race question and includes the Asian and Native Hawaiian and Other Pacific Islander spanners, had significantly higher race nonresponse among Hispanics (32.8 percent) than all panels within the spanner and “race” term removal family. The instruction that “Hispanic origin is not a race” may have led Hispanic respondents to feel that they did not need to answer the race question and, further, the presence of the spanners may have made it more difficult to find their “race.”

### 3.3 Race and Hispanic Origin Distributions

The results in Table 3 show weighted distributions for all questionnaires after pre-edits were applied. Categories include the five OMB race categories, Some Other Race, Two or More Responses, and Hispanic alone (for the combined question).

**Table 3. Weighted Distributions for All Panels.**

Panel	White Alone	Black Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Responses	Hispanic Alone	Invalid Response Alone
XA	72.8 (0.67)	10.8 (0.41)	0.6 (0.11)	4.9 (0.29)	0.1 (0.02)	5.7 (0.34)	3.8 (0.26)	NA	0.4 (0.12)
XB	70.7 (0.62)	11.3 (0.38)	0.5 (0.11)	5.3 (0.36)	0.1 (0.02)	5.8 (0.32)	4.5 (0.30)	NA	0.6 (0.16)
X2	64.7 (0.66)	10.5 (0.38)	0.5 (0.12)	4.8 (0.28)	0.1 (0.02)	0.1 (0.05)	6.8 (0.38)	11.3 (0.42)	0.5 (0.13)
X3	64.5 (0.77)	10.9 (0.42)	0.3 (0.07)	5.1 (0.32)	0.1 (0.01)	0.2 (0.05)	5.8 (0.32)	11.8 (0.46)	0.6 (0.16)
X4	64.8 (0.76)	10.8 (0.41)	0.3 (0.10)	4.7 (0.30)	0.1 (0.02)	0.2 (0.06)	6.3 (0.37)	11.6 (0.49)	0.6 (0.18)
X5	66.3 (0.73)	10.9 (0.39)	0.3 (0.10)	5.2 (0.32)	0.1 (0.09)	0.1 (0.02)	3.9 (0.26)	11.5 (0.43)	0.5 (0.14)
X6	70.2 (0.72)	11.0 (0.42)	0.5 (0.07)	5.1 (0.32)	0.1 (0.02)	7.1 (0.37)	4.3 (0.32)	NA	0.3 (0.07)
X7	71.1 (0.70)	11.3 (0.42)	0.6 (0.13)	5.2 (0.34)	0.1 (0.05)	6.2 (0.34)	4.2 (0.29)	NA	0.4 (0.11)
X8	71.6 (0.67)	11.1 (0.42)	0.4 (0.11)	5.2 (0.34)	0.1 (0.04)	5.7 (0.31)	4.6 (0.30)	NA	0.3 (0.10)
X9	70.3 (0.74)	11.1 (0.44)	0.4 (0.08)	4.8 (0.29)	0.2 (0.08)	6.8 (0.35)	4.8 (0.35)	NA	0.4 (0.12)
X10	70.6 (0.71)	11.0 (0.40)	0.6 (0.10)	5.3 (0.34)	0.1 (0.02)	6.8 (0.36)	3.8 (0.24)	NA	0.6 (0.15)
X11	70.0 (0.69)	11.4 (0.43)	0.8 (0.15)	5.1 (0.32)	0.2 (0.06)	7.1 (0.34)	3.8 (0.27)	NA	0.5 (0.12)
X12	71.6 (0.68)	11.4 (0.41)	0.6 (0.12)	4.8 (0.29)	0.1 (0.02)	5.8 (0.35)	4.0 (0.26)	NA	0.4 (0.10)
X14	70.9 (0.70)	10.8 (0.39)	0.8 (0.15)	5.4 (0.33)	0.1 (0.03)	5.7 (0.33)	4.7 (0.35)	NA	0.3 (0.12)
X15	71.3 (0.71)	11.2 (0.43)	0.6 (0.14)	5.2 (0.33)	0.1 (0.02)	6.3 (0.37)	4.1 (0.26)	NA	0.2 (0.04)
X16	70.4 (0.74)	11.5 (0.45)	0.4 (0.09)	5.9 (0.37)	0.2 (0.09)	6.6 (0.34)	3.8 (0.26)	NA	0.3 (0.08)
X17	70.4 (0.67)	11.6 (0.43)	0.6 (0.12)	4.7 (0.28)	0.1 (0.02)	7.0 (0.37)	4.3 (0.28)	NA	0.4 (0.10)

Source: 2010 AQE Auxiliary Data Files. Note: Estimates are weighted with standard errors in parentheses. Responses come from both the race and Hispanic origin questions. The sample included only a small proportion of Native Hawaiian and Pacific Islanders making inferences on these groups difficult. The no response column has been removed so percentages in table are not 100 percent.

The results in Table 3 show weighted distributions for all questionnaires after pre-edits were applied. The removal of the term “Negro” did not change the distribution of the Black population across the experimental questionnaires. Focus group results support this

finding. Many participants across focus groups felt the use of the term ‘Negro’ was offensive and some participants said they would go so far as to not answer the Census because the term was on the form (Rastogi et al. 2011). Participants recommended that the term be removed from the Census form.

For panels with a separate race question, the population reporting Some Other Race alone ranged from 5.6 percent to 7.1 percent, making it the third largest race group, after White alone and Black alone. However, when Hispanics have an option to choose Hispanic in a combined question format, the population reporting Some Other Race alone is reduced dramatically to about 0.2 percent across combined question panels. This was a major finding of the AQE research and is consistent with results from previous studies.

The proportion of the population reporting White alone is lower for the combined question panels compared to the separate question panels (a drop of about 4 to 8 percentage points. Based on focus group research, this is a direct result of Hispanic respondents finding their identity in the combined questions.

The population reporting Two or More Responses was significantly larger for three of the combined question panels compared to the separate question panels. Focus group research suggests that the combined question respondents may have been interpreting the question as asking for race *and* origin. It is possible that respondents were able to more clearly understand the opportunity to report more than one response in the combined format, thus increasing multiple-race reporting. Future research on this will help to illuminate the results.

The non-Hispanic population reporting Two or More Responses is larger for the three combined question formats (3.5 percent to 3.6 percent) compared with the alternative control (X5) panel that more closely resembles the separate question approach (1.6 percent). Cognitive testing has shown that the Other Hispanic write-in boxes segment the question, making it difficult for some respondents to find the American Indian or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Some Other Race checkbox categories, potentially reducing the number of responses that respondents mark on the questionnaire.

The proportion of the Hispanic population to the total population was similar across all questionnaires, with no significant differences, ranging from 13.0 percent to 14.5 percent. Further, multiple Hispanic reporting (e.g., reporting “Mexican American” *and* “Salvadoran”) is largely consistent across questionnaires despite the addition of the instruction to “Mark one or more” to the Hispanic origin question on some of the experimental treatments. The lack of impact from the inclusion of this instruction is also a major finding of the AQE research.

### **3.4 Detailed Race and Origin Reporting**

One of the research objectives of the AQE is to elicit reporting of detailed race and ethnic groups. For example, a general or nonspecific response would be to mark the “Other Asian” checkbox but not to provide a more detailed origin in the write-in field. A specific, or detailed, response would be to check one of the national origin checkboxes (e.g., “Japanese”) or check the “Other Asian” checkbox and then write a specific group such as “Cambodian” in the write-in field. Table 11 shows the percentage of detailed responses of the total responses for each group.

**Table 4. Detailed Reporting for Select Race Groups and Hispanic Origin.**

	White	Black/ African American	Hispanic, Latino, or Spanish	American Indian/ Alaska Native	Asian	Native Hawaiian/ Pacific Islander	Some Other Race
XA	1.4 (0.25)	4.2 (0.42)	94.0 (0.74)	65.8 (7.16)	99.0 (0.17)	69.3 (10.47)	86.4 (4.56)
XB	1.4 (0.23)	5.1 (0.70)	93.8 (0.82)	54.1 (6.81)	98.0 (0.57)	81.5 (4.75)	80.0 (6.67)
X2	48.3 (1.03)	76.8 (1.34)	88.9 (1.02)	70.3 (4.93)	96.6 (1.38)	85.8 (6.45)	92.7 (6.07)
X3	50.4 (1.13)	76.6 (1.59)	77.7 (1.64)	64.5 (5.21)	94.5 (1.08)	81.9 (5.25)	95.9 (1.84)
X4	29.4 (1.00)	87.6 (1.27)	80.0 (1.30)	60.3 (4.91)	92.6 (1.31)	48.1 (6.01)	74.5 (8.37)
X5	1.8 (0.26)	2.9 (0.50)	86.4 (1.28)	73.3 (6.13)	97.4 (0.75)	46.6 (22.39)	98.0 (1.09)
X6	1.3 (0.22)	4.0 (0.55)	93.8 (0.81)	66.6 (5.93)	98.5 (0.39)	76.6 (9.66)	86.2 (4.58)
X7	1.7 (0.23)	3.4 (0.35)	94.0 (0.72)	63.4 (7.68)	97.2 (1.21)	67.4 (13.36)	83.5 (6.26)
X8	1.5 (0.19)	5.0 (0.93)	92.6 (0.95)	68.6 (5.29)	97.4 (0.70)	83.7 (5.93)	75.0 (7.65)
X9	1.9 (0.31)	4.6 (0.57)	92.5 (0.82)	64.0 (6.44)	97.2 (1.25)	70.7 (15.85)	88.5 (4.47)
X10	1.5 (0.22)	5.7 (0.78)	93.2 (1.09)	58.1 (6.34)	97.4 (0.64)	77.4 (7.05)	83.4 (6.86)
X11	1.4 (0.19)	4.2 (0.61)	92.9 (0.89)	75.1 (4.58)	98.6 (0.38)	76.7 (10.73)	86.6 (6.05)
X12	2.0 (0.31)	4.1 (0.61)	92.7 (0.76)	68.7 (5.65)	96.6 (0.77)	82.6 (4.66)	80.7 (11.21)
X14	1.5 (0.24)	4.7 (0.80)	92.3 (1.09)	69.2 (6.16)	98.6 (0.36)	87.7 (4.87)	80.0 (8.35)
X15	1.3 (0.17)	3.5 (0.46)	94.7 (0.52)	65.7 (5.82)	97.5 (1.02)	84.7 (5.30)	83.4 (8.46)
X16	1.8 (0.30)	4.5 (0.57)	92.0 (1.04)	63.6 (6.34)	97.5 (1.06)	51.2 (19.16)	85.3 (7.81)
X17	1.7 (0.25)	3.8 (0.50)	93.8 (0.85)	74.2 (5.68)	97.0 (0.83)	89.0 (4.25)	85.3 (5.88)

Source: 2010 AQE Auxiliary Data Files. Note: Estimates are weighted with standard errors in parenthesis.

Table 4 shows the percentage of detailed responses out of the total responses for each group. Within both families of separate race and Hispanic origin question panels, there were no significant differences in the amount of detailed reporting for any of the race and origin groups when examples were added or modified.

The three experimental, combined-question panels (excluding the alternative combined control panel) provided respondents the opportunity to report specific ethnicities for each of the seven race and origin groups (including Some Other Race). Of all respondents who provided a response within the White response category, about 50 percent reported detail on the two streamlined panels (X2 and X3), and about 29 percent did so on the two-part combined question (X4) For all other questionnaires, only 1 percent to 2 percent of the White population reported a detailed origin. Similarly, of Black respondents, more than 76 percent reported detail on each of the experimental combined questionnaires. For all other questionnaires, only 3 percent to 6 percent of the Black population reported a detailed origin.

As expected, since combined question panels X3 and X4 only had checkboxes for the major groups (and not for each of the national origins<sup>3</sup>, as on the other questionnaires) there were some differences in the detailed reporting for these panels. There were small, but significant, decreases in both detailed Asian and Hispanic origin reporting. Detailed Asian reporting is 97 percent or higher on all other panels, but just 94.5 percent and 92.6 percent in panels X3 and X4, respectively. Similarly, detailed Hispanic origin reporting is 92 percent or higher on all other panels, but was significantly lower on the combined panels. AQE focus group research has shown us that a respondent's literacy level and ability to read and understand English may affect how a respondent reports on questionnaires. More research on this pattern will be useful as we test new strategies of the questionnaire design.

### 3.5 Treatment-Level Analysis

The B1 Example Modification family of panels was designed with three treatment groups (B1b, B1c, and B1d), each of which contained elements that should have had no interaction being paired with other treatment groups on questionnaires. This allowed comparison of treatment results utilizing effects from all panels where a specific treatment was included using linear contrasts.

Within the separate race and Hispanic origin question panels, there were a number of subtle changes made to the questionnaires including: different example groups, changing the order of examples, deleting "Negro" from the Black category, and allowing multiple Hispanic origin responses. Panels with a particular treatment were compared together against panels that did not have that treatment to determine if it was effective.

There were no differences in White or Black checkbox only reporting when examples were added. This suggests that examples do not reorient groups who usually report within the Some Other Race write-in line with White and Black specific origins. Although the intention of these examples was to reduce the need for editing of some groups, these results showed this method was not successful.

Significant increase in overall American Indian or Alaska Native reporting, as well as increased reporting by Hispanic respondents, demonstrates that examples reorient many who identify with South and Central American Indian groups to report those identities. This follows the Office of Management and Budget conceptual definition of "American Indian and Alaska Native" as inclusive of all indigenous groups in the Americas.

Reporting within Other Asian groups that were used as examples on the 2010 Census control panel was reduced when these examples were not used. Reporting of multiple Hispanic origins was not changed when respondents were given an instruction to "Mark one or more boxes." Panels without the term "Negro" had no reduction in respondents reporting "Black or African American." Additionally, removing the term showed a significant decrease in write-in responses of "Negro."

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<sup>3</sup> The authors use the term "national origins" primarily to refer to the national origin checkbox categories used on the control and other questionnaires. For example, "Mexican, Mexican Am., Chicano," "Puerto Rican," and "Cuban" are the national origin checkbox categories included in the Hispanic origin question and "Japanese," "Korean," and "Samoan" are some of the national origin checkbox categories used in the race question.

### 3.6 Reinterview Analysis

The purpose of the AQE reinterview questions was to ascertain the respondents' "true" self-identified racial and ethnic identities. We recognize that race and ethnicity are not quantifiable values. Rather, identity is a complex mix of one's family and social environment, historical or socio-political constructs, personal experience, context, and many other immeasurable factors.

Because this idea of "truth" is inherently difficult to define for self-identified race and Hispanic origin, we cannot expect to evaluate it with two questions (as done on the 2010 Census questionnaire). However, we were able to employ an extensive series of detailed questions and probes to aid in determining our "truth" measure for the reinterview. This was a tremendous addition to the AQE research, and yielded important results to help understand the data that were collected in the mail survey, as well as connections to the findings in the focus group research.

While there were some statistically significant differences in the gross difference rates (used as a proxy for response variance) across the different panels and race groups, in general, responses between the 2010 Census mail returns and the reinterview "truth" were very consistent overall. In fact, all panels had at least 84 percent consistent race and origin reporting between the two measurements.

The combined race and Hispanic origin question family of panels tended to have significantly lower gross difference rates for White responses than the separate question panels. For instance, three of the combined panels (excluding the alternative control panel) each had a gross difference rate for White of less than 4 percent, whereas the control panel had a gross difference rate of 6.6 percent. This means that respondents to the combined-question mail questionnaires were less likely to have a different response for the White category (i.e., White or not) in the reinterview. This is another major finding of the AQE research. There were no other significant differences within the combined question family.

Another portion of analysis from the reinterview was the evaluation of the net difference rates. The net difference rate measures the overall differences between the number reported within a specific group and the actual number of people within the group, as determined by the reinterview truth variable. Net difference rate shows tendency for populations to under- (negative values) or over-report (positive values) in the reinterview. Values close to 0 for a given race group suggest that a panel is an accurate measurement of the 2010 Census distribution. Table 5. shows the net difference rates between the AQE initial questionnaire and reinterview. Indeed, the results indicate that the net difference rates for the combined race and Hispanic origin question panels were much closer to 0 than for the other panels. Each of the combined question panels had an absolute net difference rate for the White category of less than 1 percent, whereas the control panel had a net difference rate of -3.8 percent.

**Table 5. Net Difference Rate Between the Mailout/Mailback Questionnaires and Telephone Reinterview.**

Panel	White	Black	American Indian or Alaska Native	General, Multiple or Other Hispanic	Mexican	Puerto Rican	Cuban	General, Multiple or Other Asian	Asian Indian	Chinese	Japanese	Filipino	Korean	Vietnamese	General, Multiple or Other Pacific Islander	Native Hawaiian	Guamanian or Chamorro	Samoan	Some Other Race
XA	-3.0	-0.3	1.8	3.2	-2.4	-0.2	-0.6	0.9	-0.1	-0.6	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	Ø	0.0
XB	-3.8	-0.2	1.6	2.7	-2.7	-0.3	-0.1	1.1	-0.4	-0.6	0.0	-0.2	-0.1	-0.1	0.0	0.0	Ø	Ø	0.5
X2	0.7	0.0	0.8	2.3	-2.1	-0.5	-0.3	1.5	-0.2	-1.0	0.0	-0.1	-0.2	-0.1	0.0	0.0	0.0	Ø	-1.1
X3	0.0	-0.2	1.4	1.5	-1.1	-0.2	-0.1	0.8	-0.1	-0.3	-0.1	0.0	0.0	-0.2	-0.1	0.0	0.0	Ø	-0.2
X4	-0.6	-0.2	0.5	0.9	-1.0	-0.1	-0.2	0.8	-0.3	-0.3	-0.2	-0.1	0.0	0.0	0.1	0.0	Ø	Ø	-0.2
X5	0.0	0.1	1.4	2.3	-1.8	-0.2	0.1	0.9	-0.2	-0.3	0.0	-0.2	-0.1	0.0	0.0	0.0	0.0	Ø	0.2
X6	-2.4	0.0	2.4	3.4	-2.8	-0.7	-0.2	0.8	-0.4	-0.3	0.3	-0.1	-0.3	-0.2	0.0	0.0	0.0	Ø	0.3
X7	-5.7	-0.5	1.2	3.4	-2.2	-1.0	-0.1	0.6	-0.1	-0.1	-0.2	-0.5	-0.1	-0.3	0.2	0.0	0.0	Ø	-0.1
X8	-3.0	-0.2	1.9	1.9	-1.3	-0.3	0.0	0.6	-0.3	0.0	0.0	-0.2	-0.2	-0.2	0.0	0.0	Ø	Ø	-0.2
X9	-3.4	-0.1	1.3	2.2	-1.4	-0.1	-0.2	0.6	-0.4	-0.2	-0.1	-0.1	0.0	0.0	-0.3	-0.1	Ø	Ø	-0.2
X10	-2.5	-0.3	1.1	2.2	-1.7	-0.3	-0.1	0.5	0.1	-0.3	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	Ø	-0.4
X11	-2.5	-0.5	1.4	1.6	-1.4	-0.2	-0.2	0.8	0.0	-0.2	0.0	-0.5	-0.2	0.0	-0.2	0.0	Ø	Ø	0.1
X12	-3.7	-0.5	1.2	2.8	-2.2	-0.1	-0.5	0.7	-0.2	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	Ø	Ø	-0.4
X14	-1.4	-0.3	1.8	2.3	-2.5	-0.2	-0.2	0.9	-0.1	-0.4	0.0	-0.3	-0.1	-0.1	0.1	0.0	Ø	Ø	-0.2
X15	-2.9	-0.5	1.0	1.3	-1.1	-0.2	-0.6	0.4	-0.1	-0.2	0.0	0.3	-0.1	0.0	0.0	0.0	Ø	Ø	0.1
X16	-2.5	0.0	1.8	2.1	-1.8	-0.2	-0.3	1.0	-0.1	-0.2	0.0	-0.3	0.0	-0.4	0.0	0.0	Ø	Ø	0.3
X17	-1.8	-0.4	2.2	2.1	-1.9	-0.1	-0.1	0.6	0.0	-0.2	-0.1	0.1	-0.1	0.0	0.0	0.0	Ø	Ø	0.4

Source: 2010 Census AQE Reinterview File. Note: Estimates are weighted with standard errors in parentheses. Positive values show a tendency toward reporting on the reinterview while negative values show a tendency toward reporting on paper. Ø represents columns with no respondents

In summary, the main finding from the reinterview analysis is that the experimental combined race and Hispanic origin question panels had lower gross difference rates and net difference rates for the White response category. This appears to suggest that those combined question panels yielded better representations of the “true” identity for the White race group. The differences for other groups within the combined question family were within sampling error.

Thus, the AQE research demonstrates that a combined question on race and Hispanic origin has the overall impact of gaining success in both Hispanics and non-Hispanics alike finding a place to identify and report their race and/or origin. The validity of these responses was further confirmed through the AQE reinterview results, which showed that when asked a series of follow-up questions about respondent identification with any of the possible response categories, overall consistency between combined question responses and reinterview “truth” were much greater than separate question responses and reinterview “truth.” The greater illustration of this pattern was that “Hispanics” who reported they were “White” in the separate race question did not identify as “White” (only “Hispanic”) in the reinterview; while “Hispanics” who identified as “White” and “Hispanic” in the combined question also confirmed this identity in the reinterview.

### 3.7 Final Conclusions

In conclusion, the 2010 Census AQE showed great results in meeting the main questionnaire design strategies to improve race and Hispanic origin reporting. The primary research objectives for lowering overall item nonresponse, increasing reporting in OMB race and ethnic categories, and increasing the accuracy and reliability of results were all met. The research objective to elicit reporting of detailed race and ethnic groups was met for most groups, with more research to be done to develop strategies that will raise the level of detailed reporting among Asians and Hispanics.

The findings from the 2010 Census AQE research provide promising strategies to address the challenges and complexities of race and Hispanic origin measurement and reporting issues in our rapidly diversifying society. These research results provide important information for further consideration and discussion as we develop testing strategies to explore race and Hispanic origin reporting in preparation for the 2020 Census.

## 4 Recommendations

Based on the results of the 2010 Census Race and Hispanic Origin Alternative Questionnaire Experiment research, we recommend implementation of the following:

- **Further test combined race and Hispanic origin question refinements**, paying special attention to research in improving detailed Asian and detailed Hispanic reporting. This supports all four objectives by increasing reporting within standard Office of Management and Budget categories, decreasing item nonresponse, improving accuracy and reliability, and increasing detailed reporting for a number of groups. Some groups saw a decrease in detailed reporting, but the authors believe this can be remedied with additional design strategies that can be explored during the 2020 Census testing cycle.
- **Continue researching the optimal use of examples for each race and origin response categories.** There are mixed results that inclusion of examples aid in

accuracy and detailed reporting for some groups, there was also evidence that this was decreased for other groups.

- If the Hispanic origin question is kept separate, **allow multiple responses to the Hispanic origin question by explicitly including the “mark one or more” instruction**, which would make it consistent with the race question. This supports the objective of improving accuracy and reliability by giving respondents the option to report their full self-identified origin.
- **Remove the term “Negro” from the “Black, African Am., or Negro” response category.** Though this study did not show that the term “Negro” negatively impacted any of the study objectives, there was also no benefit to retaining the term on the questionnaire. Due to the tremendous concern over this archaic term remaining on the questionnaire, there is no reason to continue to use it.
- **Do not include spanners for Asian and Native Hawaiian and Other Pacific Islander checkboxes.** This modification had a negative impact on the objective to improve item nonresponse.

The 2010 Census AQE research has yielded promising strategies for the collection of data on race and ethnicity in the future. The results provide important information on how and why people from varied and diverse backgrounds respond to questions on race and ethnicity.

As evidenced by the 2010 Census AQE results, the collection of race and ethnic data has become even more challenging and complex. This is exemplified by the issues many respondents have with self-identifying within the current OMB categories. It is clear that the implementation of the OMB standards in censuses and surveys is not well understood and the categories are considered unacceptable by increasing numbers of respondents, which has resulted in an inability or unwillingness for some respondents to self-identify as the OMB standards intended. As the U.S. Census Bureau prepares for the 2020 Census, additional research and discussion should be undertaken to explore how successful strategies from the 2010 Census AQE can be employed to provide accurate and relevant data about our changing and diversifying nation.

## 5 References

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