

# When Race and Hispanic Origin Reporting are Discrepant Across Administrative Records Sources: Exploring Methods to Assign Responses

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This presentation is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.

# Overview

- Goals of the research
- Background
- Business rules used to assign administrative records (AR) race and Hispanic origin responses
- Multinomial logistic regression analysis
- Conclusion and next steps

# Goals of Research

- Utilize business rules to assign one Hispanic origin and one race response when this information differs across AR sources
- Evaluate characteristics of people whose Hispanic origin and race responses match Census data, do not match Census data, or are missing in AR

# Background

- Research on data quality comparing race and Hispanic origin responses in AR to Census responses
  - Previous research – low quality race and Hispanic AR for minorities
- Research on racial fluidity
  - Previous research – race response change is common among the American Indian and Alaska Native (AIAN), Native Hawaiian and Other Pacific Islander (NHPI), multiracial, and Hispanic populations

# Data

- 2010 Census data (as reported)

## AR Race

- Three different files from Housing and Urban Development (HUD)
- Indian Health Service (IHS)
- Medicare (MEDB)
- Numerical Identification System (Numident)
- Previous Census Records
- Temporary Assistance for Needy Families (TANF)

## AR Hispanic

- All files used for AR race
- Medicaid Statistical Information System (MSIS)
- Texas Supplemental Nutrition Assistance Program (SNAP)
- 4 Commercial Files

# Methodology

- Record Linkage - Unique identifiers called Protected Identification Keys (PIKs) were used to link persons in AR and the 2010 Census
- Response Match Rates calculated as:

$$\frac{\text{Individuals with matching AR and 2010 Census demographic response}}{\text{Individuals in 2010 Census for whom AR provides demographic data}}$$

# Method to Assign AR Hispanic Origin Response

Case #	AR Source 1	AR Source 2	AR Source 3	AR Source 4	AR Hispanic
1	Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic
2	Missing	Non-Hispanic	Missing	Missing	Non-Hispanic
3	Hispanic	Hispanic	Missing	Hispanic	Hispanic
4	Missing	Hispanic	Missing	Missing	Hispanic
5	Hispanic	Non-Hispanic	Missing	Hispanic	Hispanic
6	Non-Hispanic	Non-Hispanic	Non-Hispanic	Hispanic	Hispanic
7	Missing	Missing	Missing	Missing	Missing

# Method to Assign AR Race Response

Case #	AR Source 1	AR Source 2	AR Source 3	AR Source 4	AR Race
1	Missing	White alone	White alone	White alone	White alone
2	Black alone	Missing	Black alone	Black alone	Black alone
3	NHPI alone	White alone	Missing	NHPI alone	NHPI alone
4	NHPI alone	AIAN alone	White alone	Missing	NHPI alone
5	AIAN alone	White alone	Missing	AIAN alone	AIAN alone
6	Asian alone	AIAN alone	Missing	AIAN alone	AIAN alone
7	Asian alone	Missing	Black alone	Asian alone	Asian alone
8	Missing	Missing	Missing	Missing	Missing



# Other Method Used to Assign AR Hispanic Origin

- AR Hispanic method 2: If a Hispanic origin response was found in Previous Census Records, then that response was assigned to the AR record. If a response was missing in Previous Census Records, then a Hispanic response was assigned if present in any other AR source.

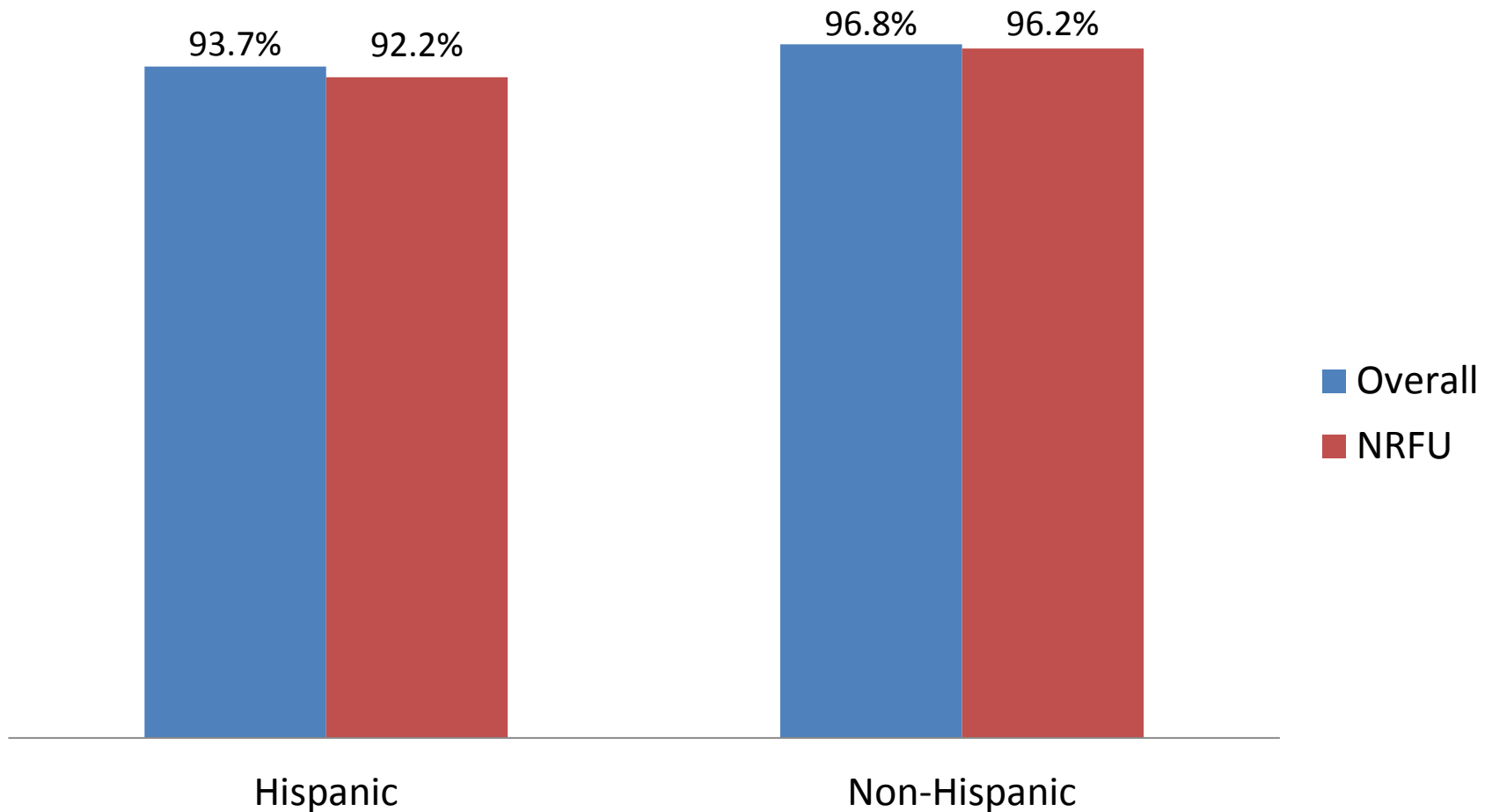
# Other Methods Used to Assign AR Race

- AR race method 2: A method similar to method 1 was used but preference was given to Two or more races first, followed by NHPI alone, AIAN alone, Asian alone, SOR alone, Black alone, and then White alone.
- AR race method 3: A race was assigned based on the most frequently reported race among the AR sources. If there was no most frequent race, then race was assigned with preference given to smaller race groups using the same order as in method 1.

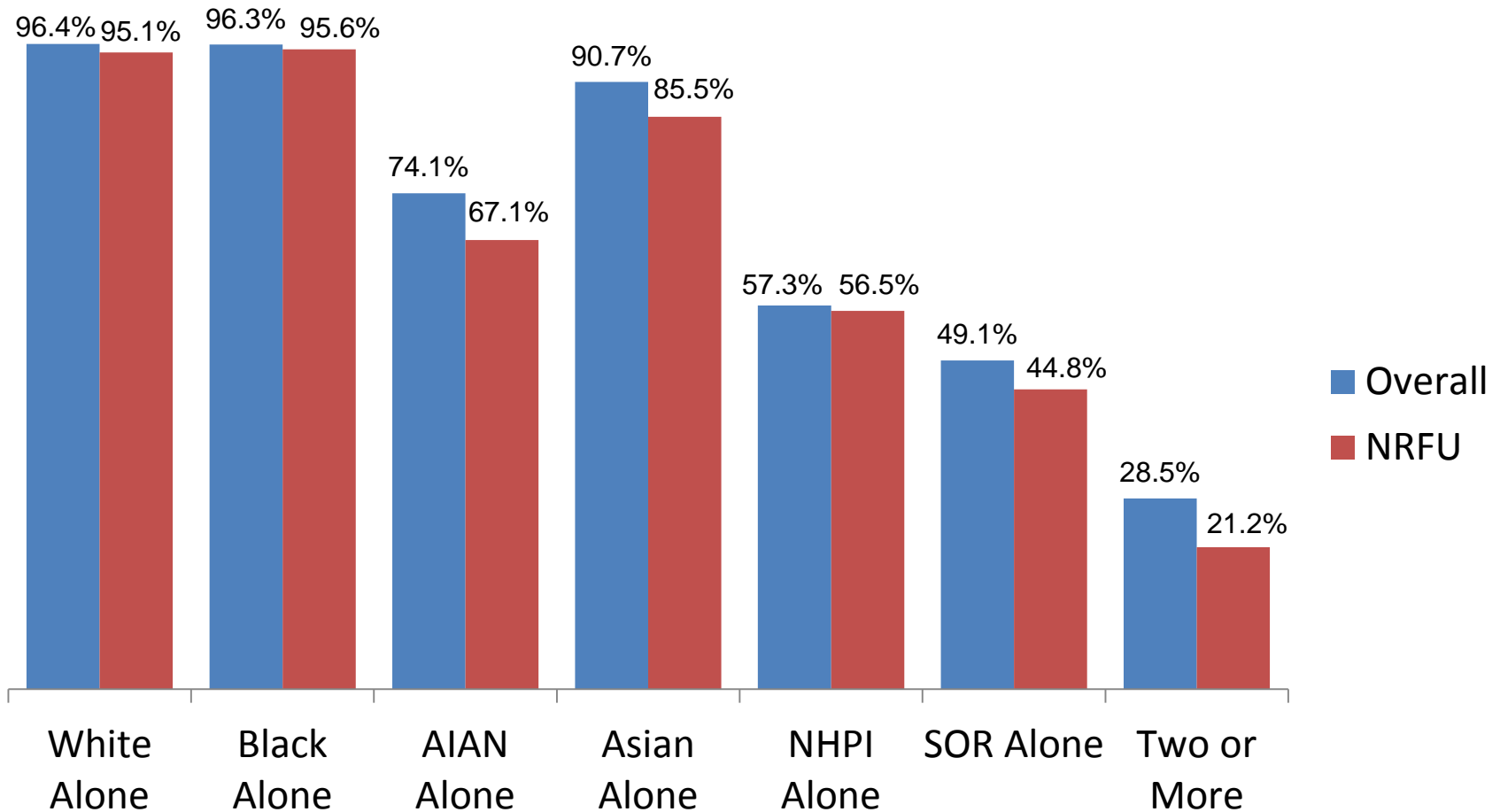
# Other Methods Used to Assign AR Race

- AR race method 4: Again, race was first assigned based on the most frequently reported race. If there was no most frequent race, then race was assigned using the same order as in method 2.
- AR race method 5: If a race response was found in Previous Census Records, then that response was assigned to the AR record. If a response was missing in Previous Census Records, then a race response was assigned according to method 1.

# Percentage of Census-AR Linked Data Matching on Hispanic Origin



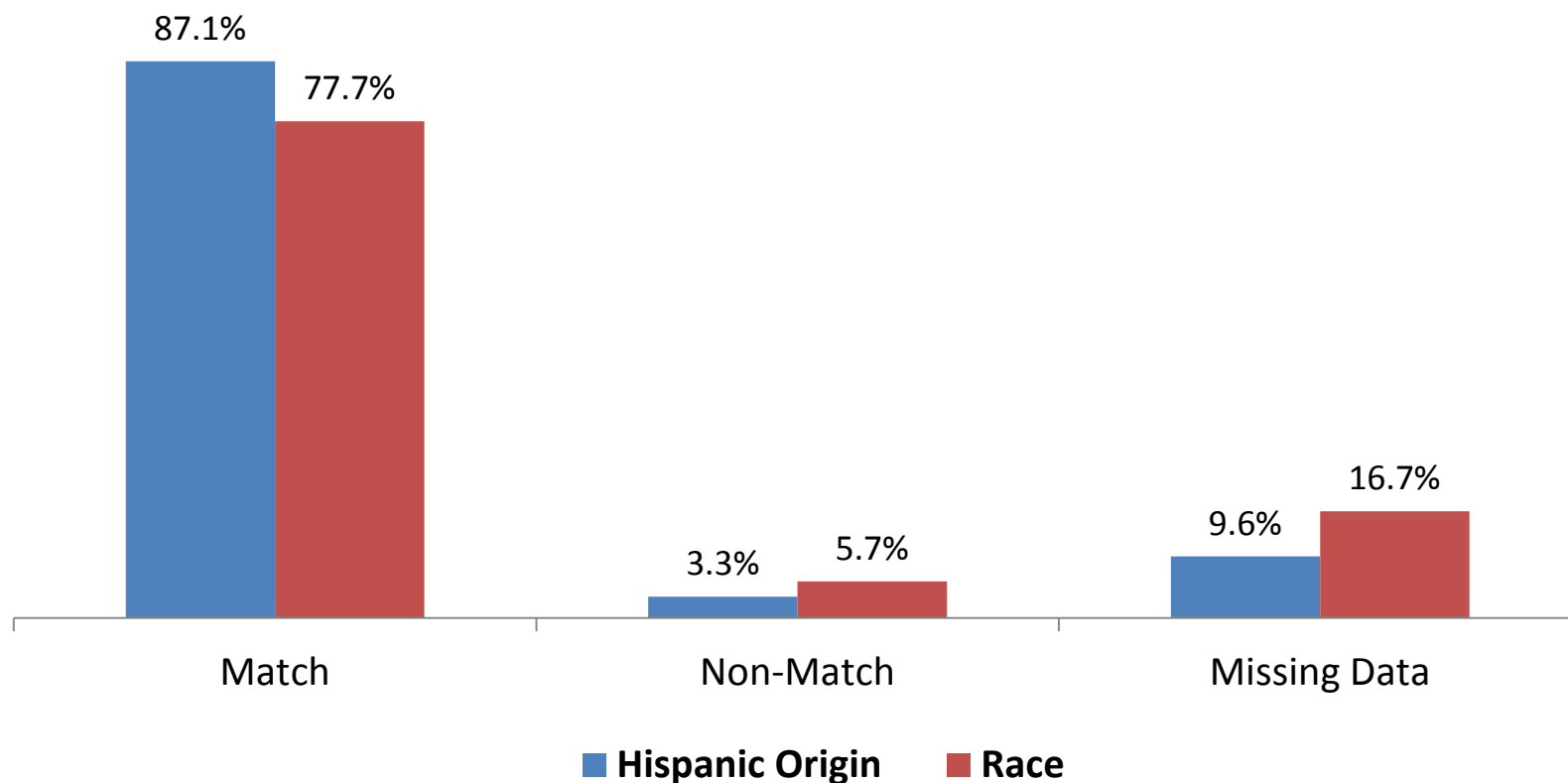
# Percentage of Census-AR Linked Data Matching on Race



# Methodology

- Multinomial logistic regression
  - Dependent variable has 3 categories
    - Matching response (Reference)
    - Non-matching response
    - Missing AR response
  - Separate regressions for Hispanic origin and race

# Distribution of Dependent Variables, Census-AR Linked Data



Source: 2010 Census and Administrative Records

# Select Multinomial Logistic Regression Results, Odds Ratios

	Hispanic Origin Model		Race Model	
	Non-matching responses	Missing in AR	Non-matching responses	Missing in AR
Ethnicity in Census (Not Hispanic omitted)				
Hispanic	1.56***	0.64***	43.31***	11.13***
Race in Census (Non-Hispanic White alone omitted)				
Non-Hispanic Black alone	0.68***	0.93***	1.70***	0.73***
Non-Hispanic AIAN alone	2.21***	0.96***	13.63***	0.42***
Non-Hispanic Asian alone	2.47***	2.95***	6.48***	10.79***
Non-Hispanic NHPI alone	3.56***	2.03***	37.23***	9.17***
Age (18-44 years old omitted)				
0-17 years old	1.20***	12.58***	1.86***	15.53***
45-64 years old	0.96***	0.41***	0.99***	0.49***
65+ years old	0.84***	0.25***	0.90***	0.26***

Regressions include variables for gender, region, household type, household size, tenure, rural, census mode, median income in tract, and percent tract non-Hispanic White.

Hispanic Model n: 263,431,172

Race Model n: 266,370,733

\*\*\*p<.001

Source: 2010 Census and Administrative Records



# Conclusion and Next Steps

- Similar findings relative to work in 2000, AR responses for minority groups lower relative to non-Hispanic whites
- Pursue additional federal, state, commercial data to fill gaps where AR race and Hispanic origin agreement is low relative to the 2010 Census
- Research additional business rules
- Tease out racial and Hispanic origin fluidity from data quality issues

# Thank You!

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