RACHSING and PRED* variables

What they are, why they are needed, and how to use them.

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Zoom Logistics

- Webinar is being recorded and will be posted
- Real-time closed captions are being auto-generated
  - Turn off/on by clicking “CC” button in Zoom controls
- Send questions about Zoom directly to host (IPUMS)
- Submit content questions with Q&A tool
- Will post written Q&A document following webinar

Outline

- Brief introduction of IPUMS USA
- Background on race variables in IPUMS USA
- What problem is RACHSING trying to solve?
- Solutions to the problem: Bad ideas, RACESING, RACHSING
- How RACHSING was made
- Using RACHSING or the PRED variables
- How to find RACHSING and the PRED* variables on the IPUMS USA website

Intro to IPUMS USA

- Harmonizes U.S. decennial census and American Community Survey (ACS) microdata across time and space
- Provides the data and accompanying documentation on the IPUMS USA website to access free of charge

Data Available on IPUMS USA

- Datasets:
  - U.S. decennial censuses
    - Household- and county-level (1790-1840)
    - Full count (1850-1940)
    - Samples (1950-2010)
  - American Community Surveys (2000-2020)
  - Supplemental Datasets/Resources

- Topics of Interest:
  - Levels of geography, household composition, family interrelationships, income/poverty, industry/occupation, SES, health insurance, and more!

How to Access the Data

- Create a custom data extract through the website
- Utilize the online analysis tools
  - Online analysis system
  - IPUMS Abacus
- New! IPUMS Microdata Extract API
  - Email ipums+api@umn.edu to become a Beta tester

- Data and documentation freely available to everyone at usa.ipums.org

RACHSING & PRED*

Simplified race/ethnicity variable, in two formats

- Use for consistent denominators for rates
- Show trends over time that begin before 2000
- Five interpretable categories include all people

You can still use the details in RACE and HISPAN to understand the people you're studying.

Background on RACE variables

- 1977 OMB: groups for federal purposes
  - Four single race groups
    - White,
    - Black,
    - American Indian or Alaska Native (AIAN),
    - Asian or Pacific Islander (API)
  - Two “ethnicities”
    - Hispanic and non-Hispanic

Background on RACE variables

- 1997 OMB: groups for federal purposes
  - Five race groups
    - White, Black, AIAN, Asian, Pacific Islander
  - Multiple races now allowed to be reported!
  - Same two “ethnicities”: Hispanic and non-Hispanic
    - but multiple ethnicities are still not acknowledged

What's the problem?

1. States were slow to change from single-race
   - Birth certificates
   - Death certificates
   - Cancer registries

Birth, death, and cancer rates have state data numerator and federal data denominator. ☹

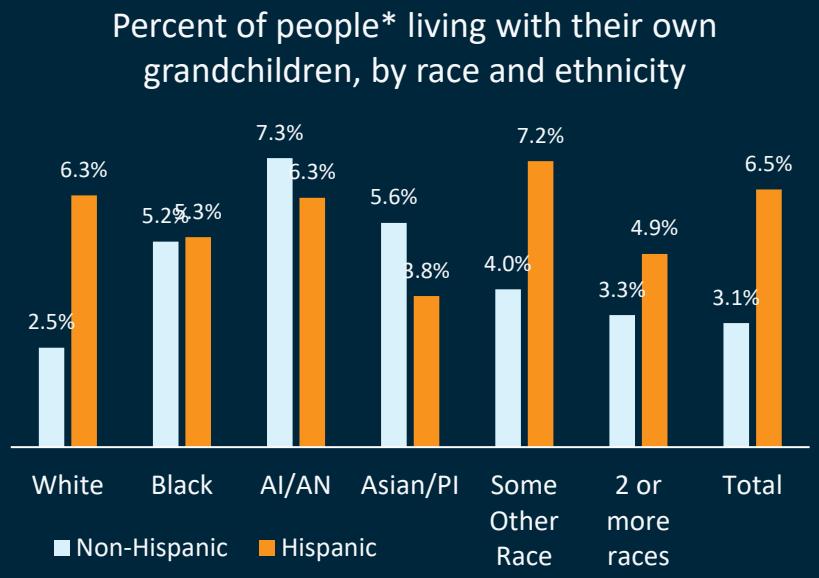
What's the problem?

2. So many categories!
   - 127 possible race/Hispanic categories in the census

Common "solution" is to combine all "Two or more races."

- This is an uninterpretable category ☹
- Half+ of AIAN and Pacific Islanders report two or more races. AIAN & PI single-race are non-random subsets. ☹

What's the problem? Example 1

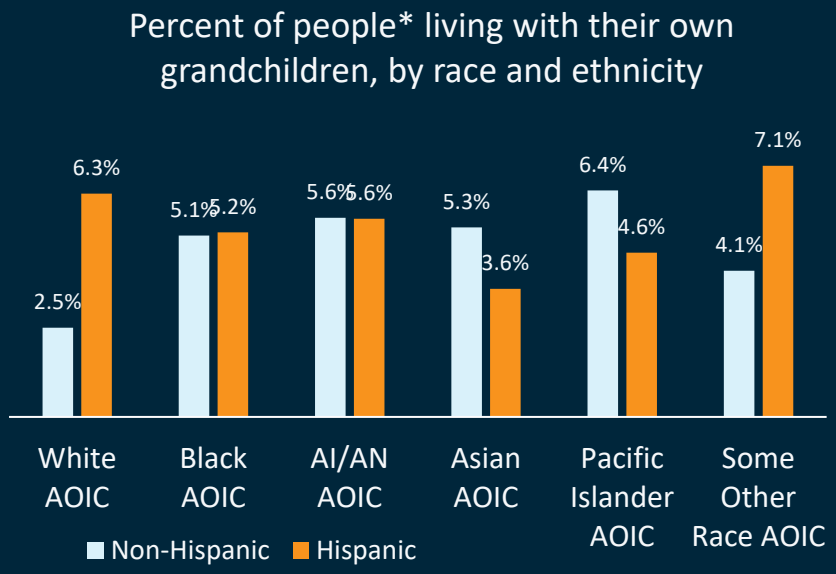


* Includes only people ages 30 and older living in households.
2019 5-year ACS from IPUMS.org.

Some issues:

- 12 categories is a lot
- Who is "2 or more races"?
- Group all Hispanic/Latinx?
- Non-Hispanic SOR is tiny
- Half of AI/AN are in 2+

What's the problem? Example 2



Some issues:

- 10 categories
- Sum of N is more than total population because multiple-race people in multiple categories
- Group all Hispanic/Latinx?
- Non-Hispanic SOR is tiny

AOIC = Alone or In Combination, meaning that single-race and multiple-race people who marked this race group are included.
* Includes only people ages 30 and older living in households.
2019 5-year ACS from IPUMS.org.

First ideas by research community…

1. For all 2-race responses, assign ½ the case to each of the races, etc.

2. For all multi-race responses, assign the whole case to the smallest race group

NCHS to the rescue!

National Center for Health Statistics researchers (Ingram et al. 2003) used the 1997-2000 National Health Interview Survey:

- Individual-level prediction of the single race given by multi-race people who were asked to pick one
- Results can be used for "whole allocation" or "partial allocation" of cases to race groups.

Whole vs partial allocation

- Example prediction equation results for AIAN-White:
  - AIAN = 0.35
  - White = 0.65
- Whole allocation assigns the case to White group.
- Partial allocation assigns 0.35 of the case to the AIAN group and 0.65 to the White group.
  - Similar to a weight or probability

IPUMS USA made RACESING & PROB*

- RACESING & PROB* applied NCHS equations to IPUMS USA data
  - RACESING = whole allocation
  - PROBASIAN, PROBBLK, etc = partial allocation
  - See Liebler & Halpern-Manners (2008) *Demography*
- Continued to 2014

RACESING issues

- RACESING was based on 1997-2000 NHIS data.
- RACESING stopped in 2014 but the need remained
  - Denominators for cancer rates (National Cancer Institute)
- RACESING did not deal with non-Hispanic SOR cases
- RACESING did not match state data (no Hispanic)
  - 5 groups needed: White, Black, AIAN, Asian/PI, Hispanic.

RACHSING categories

1. NH White
2. NH Black or African American
3. NH American Indian or Alaska Native
4. NH Asian or Pacific Islander
5. Hispanic or Latino

(NH = Non-Hispanic)

RACHSING is whole allocation

PRED* variables

1. PREDWHT
2. PREDBLK
3. PREDAI
4. PREDAPI
5. PREDHISP

PRED* are partial allocation

Steps to make RACHSING

1. In the FSRDC, use restricted-use data on multi-race people in NHIS
   - Restricted-use NHIS data allow location-based variables
   - 4-year pooled samples, e.g.: 1997-2000, …, 2015-2018

Steps to make RACHSING

2. Compress to 11 types of multiple-races.
   - This involves simplification ☹
     - Hispanic
     - Asian & Pacific Islander
     - “Some other race”
   - This allows separate prediction eqns. ☺

1. AIAN & A/PI
2. AIAN & Black
3. AIAN & White
4. A/PI & Black
5. A/PI & White
6. Black & White
7. AIAN & A/PI & B
8. AIAN & A/PI & W
9. AIAN & B & W
10. A/PI & B & W
11. AIAN & A/PI & B & W

Steps to make RACHSING

3. For each non-Hispanic multiple-race group and each 4 years of data, use individual and county-level characteristics to predict which single race they would have chosen.
   - Get prediction equation results released from FSRDC.
   - These will be released in an MPC working paper soon
   - Available on request

Steps to make RACHSING

4. Apply prediction eqns to IPUMS Census & ACS data
   a. Compress Census & ACS multiple-race answers to 11 groups
   b. Create PUMA-level measures (to substitute for county)
   c. Apply new prediction equations to multiple-race folks
      - Results are PRED* variables
   d. Do "whole allocation" to create RACHSING
   e. Classify everyone else for RACHSING & PRED*(Hispanic; non-Hispanic single-race; non-Hispanic Some Other Race)

RACHSING categories

1. NH White
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PRED* variables

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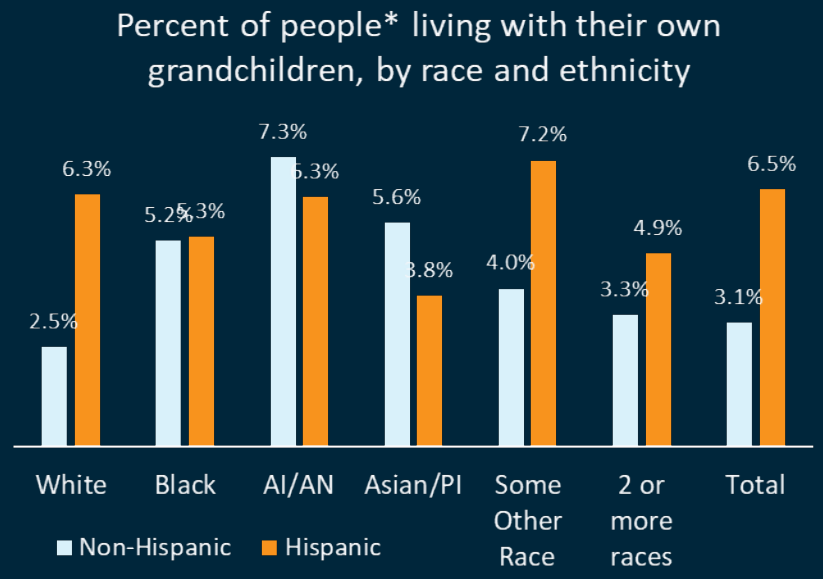
RACE	HISPAN	RACHSING	PREDAI	PREDAPI	PREDBLK	PREDHISP	PREDWHT
Black	No	NH Black	0	0	1	0	0
White & SOR	Cuban	Hispanic	0	0	0	1	0
Chinese & White	No	NH API	0	0.6327	0	0	0.3673
Navajo & Black	No	NH Black	0.4265	0	0.5735	0	0
Some Other Race	No	NH White	0.0136	0.2378	0.036	0	0.7126

RACE x HISPAN



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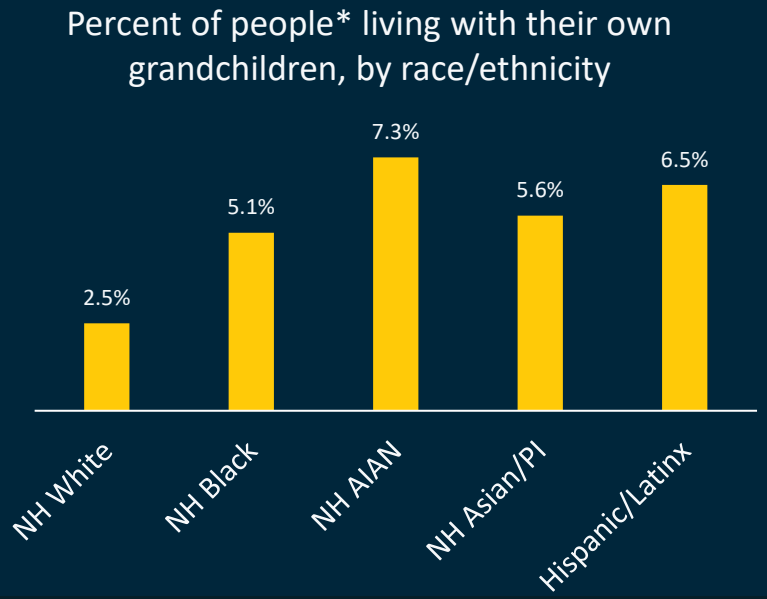
RACHSING

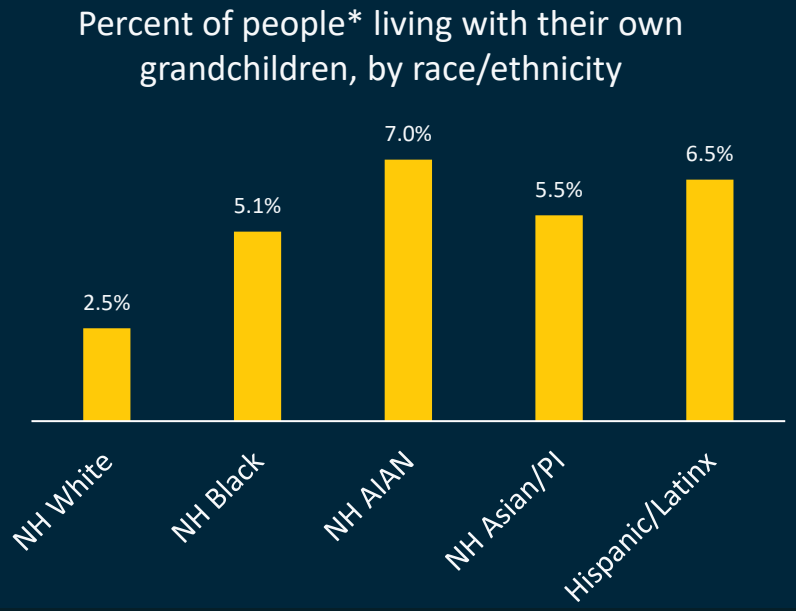


RACHSING, via IPUMS.org: Non-Hispanic multiple-race respondent are included in the category predicted to be their choice if asked to choose one race.
* Includes only people ages 30 and older living in households.
2019 5-year ACS from IPUMS.org.

PRED variables

PREDWHT, PREDBLK, PREDAI, PREDAPI, PREDHISP

- "Partial allocation"
- Each ranges from 0 to 1
- For each person, sum to 1.0
- Multiple-race people are treated as multiple-race



PRED* variables, via IPUMS.org: Non-Hispanic multiple-race respondents are included in each relevant category, as predicted to be their choice if asked to choose one race.

* Includes only people ages 30 and older living in households. 2019 5-year ACS from IPUMS.org.

How to find RACHSING and the PRED* variables on the website

What samples are the RACHSING and PRED* variables available for?

- Currently available:
  - 2000 and 2010 decennial census samples
  - 2000-2019 ACS samples
- Upcoming!
  - Integration of RACHSING and PRED* variables for 1990-prior samples is currently underway

Acknowledgments

- Funding for Carolyn Liebler and IPUMS staff is from the National Cancer Institute

- IPUMS Staff
  - Danika Brockman
  - Stephanie Richards
  - Megan Schouweiler

MPC

Questions?

PREDBLK = 1

- Black or African American
- Black & SOR

0 < PREDBLK < 1

- Black + AIAN + White
- Asian + PI + Black + AIAN
- Asian + PI + SOR + Black
- Etc.

Value of PREDBLK is based on the individual's personal and location characteristics