Estimating Multiple-Race Births for the 2010 Demographic Analysis Estimates

Jennifer M. Ortman

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Overview

• Estimates of the Black alone-or-in-combination population
• Estimating multiple-race births
Estimates of the Black alone-or-in-combination population

• For the 2010 DA, we undertook research to produce an estimate of people who are Black in combination with another race (or races).
• Adding estimates of the Black in combination and Black alone populations yields an estimate of the Black alone-or-in-combination population – a maximum number for the Black population.
Availability of components for the Black in combination population

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Estimating Births

- Data
- Methodology
  - Converting race of the mother and father to multiple-race distribution
  - Assigning race to births
- Results
Birth Data

• Birth registration data collected by the National Center for Health Statistics (NCHS)
• Race data on birth certificates were historically collected as single-race responses
  – The U.S. Standard Certificate of Live Birth was revised in 2003 to allow the reporting of more than one race
  – Multiple-race data are not yet available for all states
• The Census Bureau uses race of the mother and father to assign a race category to each birth
Assigning Race to Each Birth: The Single-Race Approach

• If the race of the mother is the same as the father’s race, the birth can be assumed to be the same single-race category of the parents.

• In all other instances, where the race of the mother is not the same as the father’s race, the birth may be classified as belonging to two race categories.
Limitations to the Single-Race Approach

• Not all parents who report a single race on a birth certificate would report a single race when responding to the multiple-race question in the census.

• Not all parents of different races would identify the child as multiple race.
Assigning Race to Each Birth: The Reverse-Bridged Race Approach

• **Bridge** the race distributions
  – Bridging: Convert multiple-race data to single-race categories
  – Reverse Bridging: Convert single-race data to multiple-race categories

• Use reverse bridging to convert the single-race data for parents to multiple-race categories
Race Bridging Proportions

• Created by NCHS to convert multiple-race data to a single-race distribution
• Developed using data from pooled 1997-2000 National Health Interview Surveys
• Produced using regression models that included personal and county-level covariates
• Represent the probability of selecting each possible primary race by respondents in the multiple-race groups
Multiple Race → Single Race
(Bridged Race Estimates)

White-Black
White-AIAN
White-API
Black-AIAN
Black-API
AIAN-API
White-Black-AIAN
White-Black-API
White-AIAN-API
Black-AIAN-API
White-Black-AIAN-API

White
Black
American Indian or Alaska Native
Asian or Pacific Islander

AIAN = American Indian or Alaska Native
API = Asian or Pacific Islander
Single Race → Multiple Race
*(Reverse-Bridged Race Estimates)*

- White
- Black
- American Indian or Alaska Native
- Asian or Pacific Islander

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- White-Black
- White-AIAN
- White-API
- Black-AIAN
- Black-API
- AIAN-API
- White-Black-AIAN
- White-Black-API
- White-AIAN-API
- Black-AIAN-API
- White-Black-AIAN-API
Producing Reverse-Bridged Race Estimates
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Apply the bridging proportions to the 2000 and 2010 census counts by county, age, sex, and Hispanic origin.
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Cross-classification of the population by the original and bridged-race categories.
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Restrict file to age groups of interest and group counties.
Producing Reverse-Bridged Race Estimates

1. Apply the bridging proportions to the 2000 and 2010 census counts by county, age, sex, and Hispanic origin.
2. Cross-classification of the population by the original and bridged-race categories.
3. Calculate reverse-bridging proportions using the distribution of the original and bridged-race categories.
4. Restrict file to age groups of interest and group counties.
Producing Reverse-Bridged Race Estimates

- Apply the bridging proportions to the 2000 and 2010 census counts by county, age, sex, and Hispanic origin.
- Cross-classification of the population by the original and bridged-race categories.
- The proportion of males and females in each bridged-race category that will be assigned to each of the single and multiple-race groups.
- Restrict file to age groups of interest and group counties.
- Calculate reverse-bridging proportions using the distribution of the original and bridged-race categories.
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5. The proportion of males and females in each bridged-race category that will be assigned to each of the single and multiple-race groups.

6. Apply the reverse-bridging proportions to the paired race of the parents in the birth data.
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5. The proportion of males and females in each bridged-race category that will be assigned to each of the single and multiple-race groups.
6. Apply the reverse-bridging proportions to the paired race of the parents in the birth data.

Birth data with a multiple-race distribution for mothers and fathers.
## Example of Reverse-Bridging Proportions

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<th>Mother (Bridged Race = White)</th>
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<tr>
<td>Black</td>
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<td>0.981</td>
</tr>
<tr>
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<td>0.001</td>
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Assigning Race to Births

- Race is assigned to *each* birth based on distributions of race reporting by parents of children age 0 from the 2000 and 2010 censuses
  - Produce a series of cross-tabulations of the reported race of the child for every race combination of parents.
  - These tabulations are used to produce a series of proportions for the categories defined by every combination of parents’ race.
  - Race is assigned to births by multiplying the births by the proportions for that parental race combination.
Results

- Births by year of birth: 1980-2010
  - Black alone
  - Black in combination with other races
  - Black alone + Black in combination with other races
Figure 1. Births classified as Black alone by year of birth: 1980-2010. (In thousands)
Figure 2. Births classified as Black in combination by year of birth: 1980-2010. (In thousands)
Figure 3. Births classified as Black alone or Black in combination by year of birth: 1980-2010. (In thousands)
Figure 4. Births classified as Black alone or Black in combination by year of birth: 1980-2010.
(In thousands)
Summary

• Single category distributions of parents’ races were converted into multiple-race categories using the reverse-bridging procedure.
• Race was assigned to births based on patterns of race reporting in census data.
• The number of births classified as Black in combination was increased substantially.
• The number of births classified as Black alone decreased slightly.
Future Research

• Investigate alternatives to the assumption that the race of the mother and father are independent.

• Assess the feasibility of producing estimates of the Black alone or in combination population for cohorts born before 1980.
Contact Information

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