Coverage and Agreement of Administrative Records and 2010 American Community Survey Demographic Data

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Background

- Administrative Records (AR) provide high coverage of persons and addresses in censuses and surveys

- Demographic data in AR may be useful when demographic information are missing

- Comparisons between AR and 2010 Census reveal high agreement and coverage for some demographic variables
Motivation

- Expand on AR/2010 analysis by evaluating AR and the American Community Survey (ACS)

- There may be changes in the population and in the coverage of administrative records over time

- The ACS allows us to evaluate AR throughout the decade
Research Objectives

• **Coverage**: Evaluate the extent to which AR provide data on race, Hispanic origin, age, and sex for 2010 ACS respondents

• **Agreement**: Evaluate whether demographic responses in AR are in agreement with responses in the 2010 ACS
Data and Methodology
Data

- 2010 ACS data compared to:
  - Centers for Medicare and Medicaid Services Medicare Enrollment Database
  - Housing and Urban Development (HUD) Public and Indian Housing Information Center
  - HUD Tenant Rental Assistance Certification System
  - HUD Computerized Homes Underwriting Management System
  - Indian Health Service Patient Registration File
  - Selective Service System Registration File
  - Health and Human Services Temporary Assistance for Needy Families
  - Social Security Administration (SSA) Supplemental Security Income Record
  - Commercial data (5 vendors, 9 datasets)
  - SSA Numerical Identification File (Numident)
  - Previous Census Records (Census 2000 and ACS 2001-2009)
Methodology

- Record Linkage - Unique identifiers called Protected Identification Keys (PIKs) were used to link persons in AR and the 2010 ACS

- Coverage

  *Individuals in the 2010 ACS for whom AR provides demographic data*  
  *2010 ACS count*

- Agreement

  *Individuals with matching AR and 2010 ACS demographic response*  
  *Individuals in 2010 ACS for whom AR provides demographic data*
Results
Coverage of Each Demographic Item

• There are 4.47 million people in the 2010 ACS

• Of the 2010 ACS sample, AR provides:
  – Hispanic origin data for 4.16 million, or 93 percent
  – Race data for 3.61 million, or 81 percent
  – Age data for 4.17 million, or 93 percent
  – Sex data for 4.16 million, or 93 percent
Demographic Characteristics

• AR provides higher coverage of Hispanic origin data for non-Hispanics in the ACS (94 percent) compared to Hispanics (83 percent)

• Coverage of race data varies by race group
  – White alone and Black alone: 83 percent
  – American Indian or Alaska Native alone: 82 percent
  – Asian alone and Native Hawaiian and Other Pacific Islander alone: 76 percent
  – Two or More Races: 67 percent
  – Some Other Race alone: 46 percent

• Coverage of age and sex data high (over 90 percent) for all age groups and both sexes
Coverage by Federal or Commercial Administrative Records Source File

Source: 2010 American Community Survey and Administrative Records Data
Federal AR Files

• Numident
  – Highest coverage of sex and age data
  – Highest coverage of race data for certain groups (Black alone, Asian alone, Native Hawaiian Pacific Islander alone)

• Previous Census Records
  – Highest coverage of Hispanic origin data
  – Second highest coverage of sex and age data
  – Highest coverage of race data for certain groups (White alone, Two or More Races, Some Other Race alone)

• Medicare Enrollment Database
  – High coverage of age data for older population
Agreement

• Coverage results indicate that AR provides substantial data on certain demographic items

• Next, we look at whether demographic data in AR and in the 2010 ACS are in agreement

• Restrict to cases whose 2010 ACS demographic response was not allocated
## Agreement of Hispanic Origin Response

<table>
<thead>
<tr>
<th>Administrative Records Source File</th>
<th>Percent in Agreement: Non-Hispanic</th>
<th>Percent in Agreement: Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Files</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous Census Records</td>
<td>99.5</td>
<td>91.6</td>
</tr>
<tr>
<td>Numident</td>
<td>N/A</td>
<td>52.9</td>
</tr>
<tr>
<td>HUDCHUMS</td>
<td>98.6</td>
<td>82.0</td>
</tr>
<tr>
<td>HUDPIC</td>
<td>98.1</td>
<td>85.6</td>
</tr>
<tr>
<td>HUDTRACS</td>
<td>98.5</td>
<td>77.9</td>
</tr>
<tr>
<td>TANF</td>
<td>98.2</td>
<td>68.9</td>
</tr>
<tr>
<td>MEDB</td>
<td>N/A</td>
<td>26.9</td>
</tr>
<tr>
<td><strong>Commercial Files</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial File 1</td>
<td>98.6</td>
<td>78.4</td>
</tr>
<tr>
<td>Commercial File 2</td>
<td>98.2</td>
<td>75.3</td>
</tr>
<tr>
<td>Commercial File 3</td>
<td>98.2</td>
<td>78.4</td>
</tr>
<tr>
<td>Commercial File 4</td>
<td>98.2</td>
<td>75.5</td>
</tr>
</tbody>
</table>
# Agreement of Race Response

<table>
<thead>
<tr>
<th>2010 ACS Race</th>
<th>Range in Percent Agreement by AR Source Files</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Federal</td>
</tr>
<tr>
<td>White Alone</td>
<td>96.9 to 99.0</td>
</tr>
<tr>
<td>Black Alone</td>
<td>88.7 to 98.0</td>
</tr>
<tr>
<td>American Indian Alaska Native Alone</td>
<td>30.4 to 97.9</td>
</tr>
<tr>
<td>Asian Alone</td>
<td>55.7 to 94.3</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander Alone</td>
<td>33.6 to 72.9</td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>12.3 to 53.6</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2.5 to 35.0</td>
</tr>
</tbody>
</table>
Agreement of Age Response

• Age in the ACS calculated as age at the time of survey (January 1 – December 31, 2010)

• Age in AR files calculated as age as of Census reference date: April 1, 2010

• Agreement: AR age is within one year of ACS age

• Future work will compare AR and ACS date of birth
# Agreement of Age Response

<table>
<thead>
<tr>
<th>2010 ACS Age Group</th>
<th>Range in Percent Agreement by AR Source Files</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Federal</td>
</tr>
<tr>
<td>0 to 2</td>
<td>96.4 to 99.8</td>
</tr>
<tr>
<td>3 to 17</td>
<td>92.5 to 99.7</td>
</tr>
<tr>
<td>18 to 24</td>
<td>98.6 to 99.2</td>
</tr>
<tr>
<td>25 to 44</td>
<td>98.3 to 99.2</td>
</tr>
<tr>
<td>45 to 64</td>
<td>97.1 to 99.2</td>
</tr>
<tr>
<td>65 to 74</td>
<td>94.4 to 99.6</td>
</tr>
<tr>
<td>75 and older</td>
<td>91.8 to 99.3</td>
</tr>
</tbody>
</table>
## Agreement of Sex Response

<table>
<thead>
<tr>
<th>2010 ACS Sex Response</th>
<th>Range in Percent Agreement by AR Source Files</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Federal</td>
</tr>
<tr>
<td>Males</td>
<td>97.9 to 100.0</td>
</tr>
<tr>
<td>Females</td>
<td>98.0 to 99.7</td>
</tr>
</tbody>
</table>
Discussion

• Sex: high coverage, high agreement

• Age: high coverage, agreement to be recalculated using date of birth
Discussion

• Hispanic origin and race: coverage and agreement more variable but high for some groups

• AR may be able to assist when demographic data are missing
Future Research

• How to determine a single demographic response from the various AR files

• Additional AR data sources
  – Supplemental Nutrition Assistance Program
  – Medicaid Statistical Information System

• Agreement of allocated responses

• Continue analysis throughout the decade
Thank you!

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