

# 2010 ACS Match Study: Evaluating Administrative Records Coverage of ACS Data

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Disclaimer: Any views and conclusions expressed in this study are those of the authors and do not necessarily represent those of the U.S. Census Bureau. All results have been reviewed to ensure no confidential information is disclosed.

# Overview of Presentation

- Background and Research Objectives
- Data and Methodology
- Major Findings
- Conclusions & Further Research

# Background

- Administrative records (AR) as a cost-effective way to support surveys and decennial censuses, while maintaining quality
- The 2010 Census Match Study (CMS) first national level study evaluating coverage & quality of AR with respect to a Decennial Census
  - Affirmed potential use of AR in decennial censuses
- ACS Match Study represents a continuation of research undertaken in the 2010 CMS
  - Evaluate AR coverage and consistency over time

# Objective

- Evaluate AR *coverage* of 2010 ACS addresses, persons and person-address pairs overall, and at different levels of geography, by demographic characteristics (Hispanic origin, race, age and sex) and response mode
  - Assess presence/absence of ACS records in AR – not intended to evaluate AR coverage of underlying population that ACS is designed to represent
  - Establishes a baseline for future AR research using the ACS

# Data

- Centers for Medicare and Medicaid Services Medicare Enrollment Database
- Housing and Urban Development (HUD) Public and Indian Housing Information Center (PIC)
- HUD Tenant Rental Assistance Certification System (TRACS)
- HUD Computerized Homes Underwriting Management System (CHUMS)
- Indian Health Service Patient Registration File
- Health and Human Services Temporary Assistance for Needy Families (TANF)
- Commercial data (5 vendors, 9 datasets)
- Internal Revenue Service (IRS) Individual Income Returns 1040
- IRS Information Returns 1099
- Selective Service System Registration File
- Social Security Administration (SSA) Supplemental Security Income Record
- US Postal Service National Change of Address (NCOA)
  
- 2010 ACS Data – Address and Person files

# Record Linkage

- Person records in the 2010 ACS and AR are linked using unique person identifiers called Protected Identification Keys (PIKs)
- Addresses in the 2010 ACS and AR are linked using address identifiers called Master Address File Identification Numbers (MAFIDs)

# Coverage Measure

- Match Ratio (or Rate):

$$[ (\text{Matched AR\&2010 ACS}) \div (\text{2010 ACS count}) ] * 100$$

# Difference between ACS and AR Person Data

2010 ACS	AR Data
Rolling sample – reference date any time during the year	Reference date as of April 1 or prior (time frame misalignment)  Lag for small children (tax code effect)



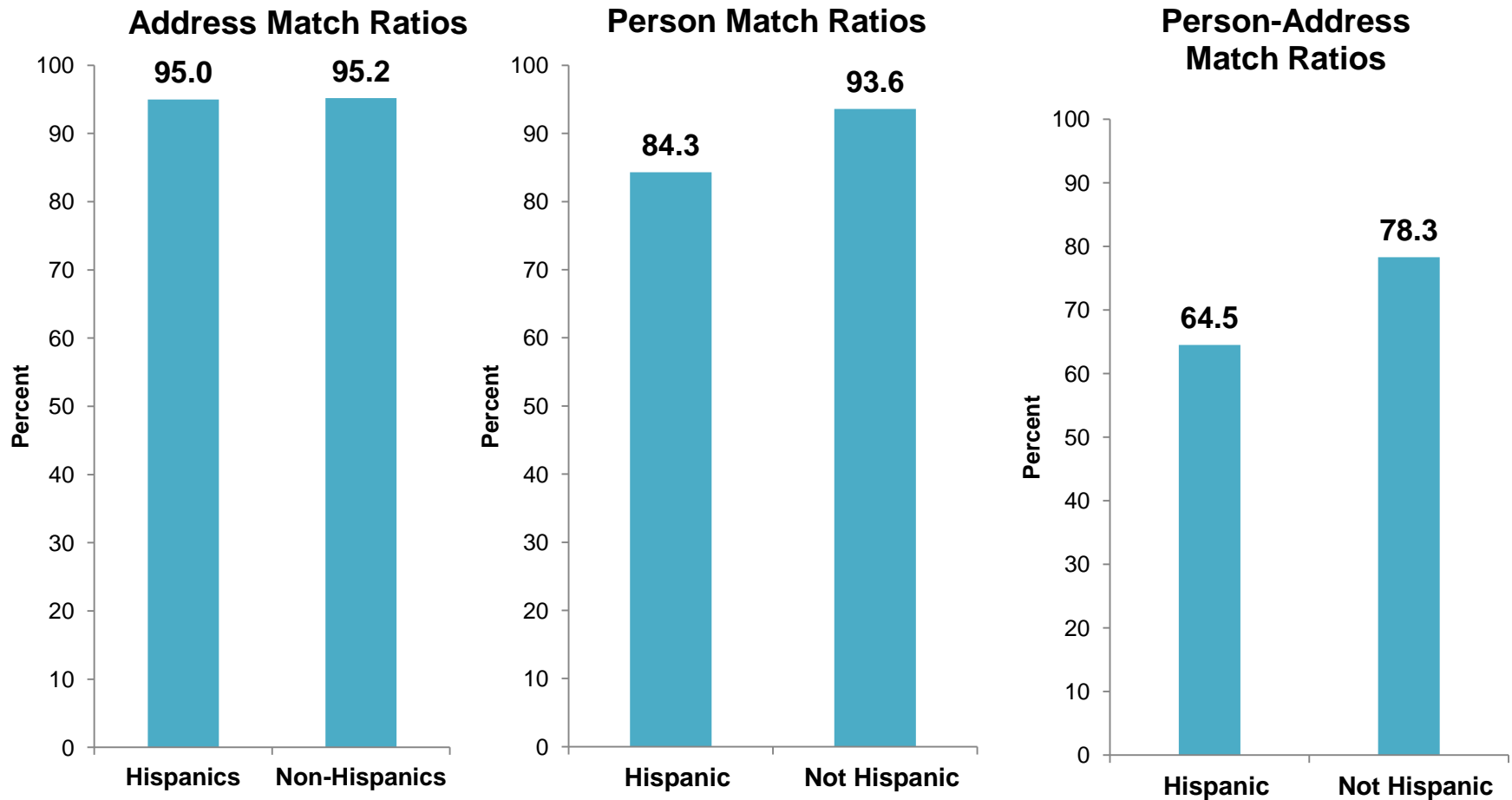
# Results

# Coverage Results – Overall & by Type of Living Quarter

Type of Living Quarter	2010 ACS Addresses		2010 ACS Persons			2010 ACS Person-Address Pairs
	ACS Number	Match Ratio	ACS Number	% with PIKs	Match Ratio	Match Ratio
<b>Total</b>	1.93 mill.	<b>92.7</b>	4.5 mill.	<b>94.2</b>	<b>92.1</b>	<b>74.3</b>
<b>Housing Units</b>	1.92 mill.	<b>93.0</b>	4.3 mill.	<b>94.4</b>	<b>92.4</b>	<b>76.5</b>
<b>Group Quarters</b>	13,400	<b>54.4</b>	144,948	<b>89.2</b>	<b>83.3</b>	<b>7.1</b>

Source: 2010 American Community Survey and Administrative Records Data

# Coverage Results by Hispanic Origin



Source: 2010 American Community Survey and Administrative Records Data.  
Note: Housing Units.

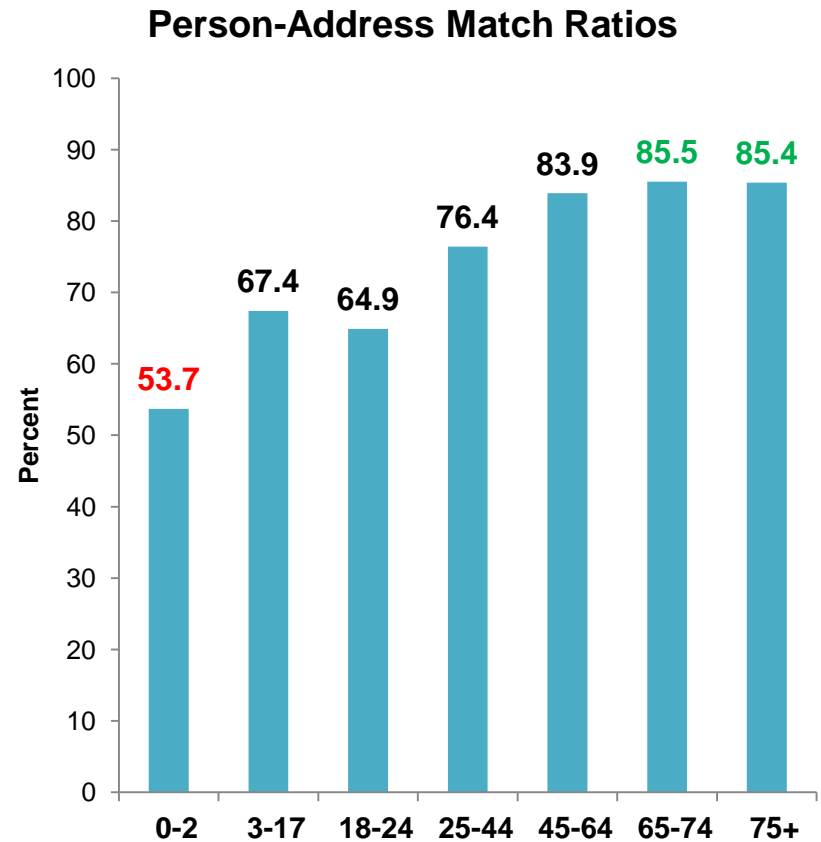
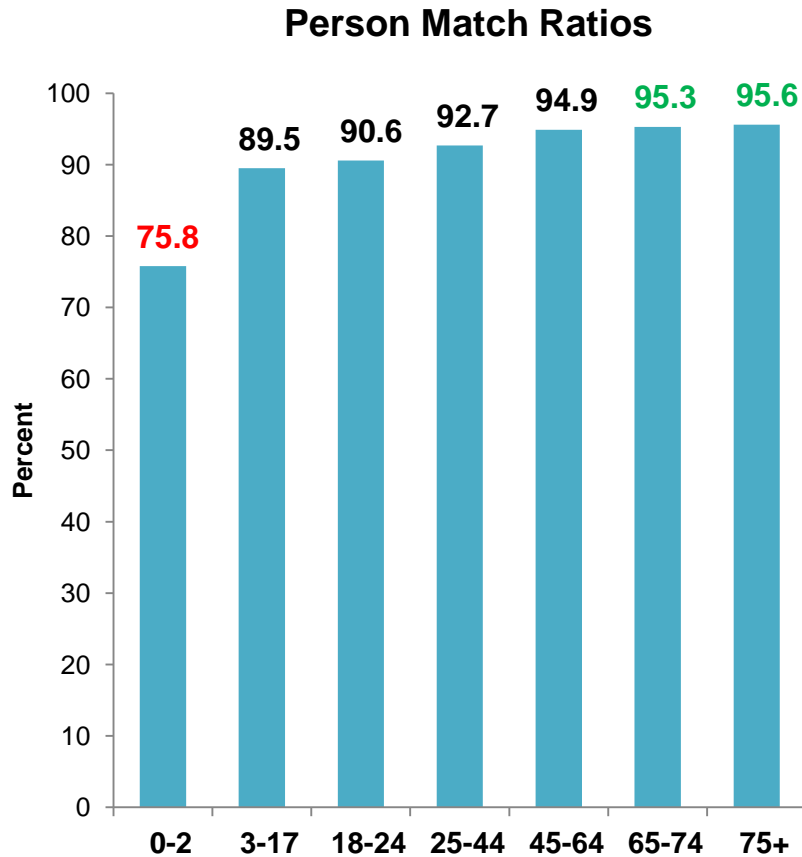
# Coverage Results by Race

ACS Race	Address Match Ratio	Person Match Ratio	Person-Address Match Ratio
White Alone	95.3	93.3	78.6
Black Alone	95.6	91.0	69.7
American Indian or Alaska Native Alone	77.9	88.8	51.4
Asian Alone	96.5	89.7	76.1
Native Hawaiian and Other Pacific Islander Alone	94.9	86.5	64.0
Some Other Race Alone	94.7	81.4	60.8
Two or More Races	94.2	90.3	69.0

Source: 2010 American Community Survey and Administrative Records Data.

Note: Housing Units.

# Coverage Results by Age Group



Source: 2010 American Community Survey and Administrative Records Data.

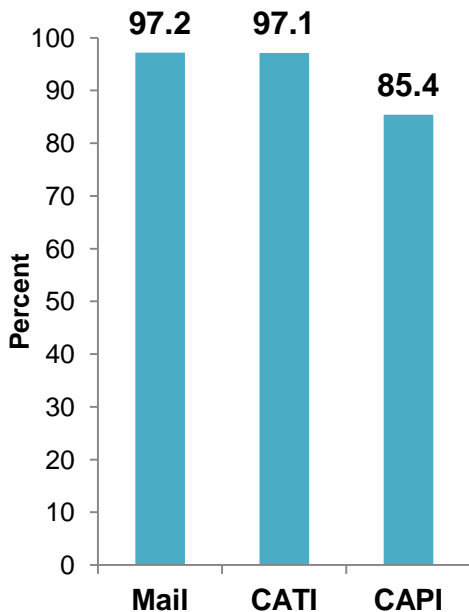
Note: Housing Units.

# Coverage Results by Sex

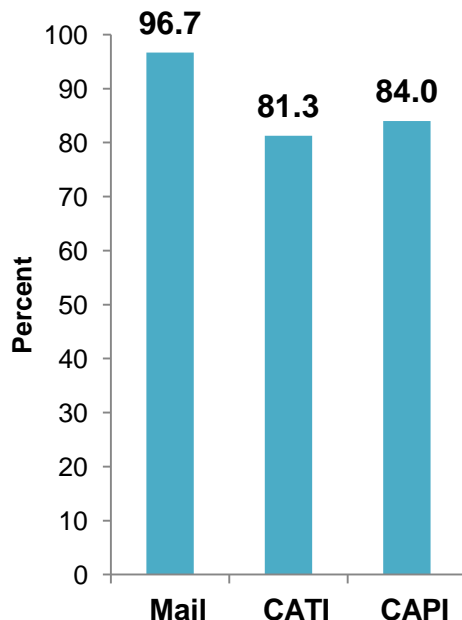
- AR coverage for males and females was nearly identical:
  - 92.1% of males and 92.7% of females in the 2010 ACS were in AR
  - 75.9% male and 77.1% of female person-address records in the 2010 ACS were in AR

# Coverage Results by Mode

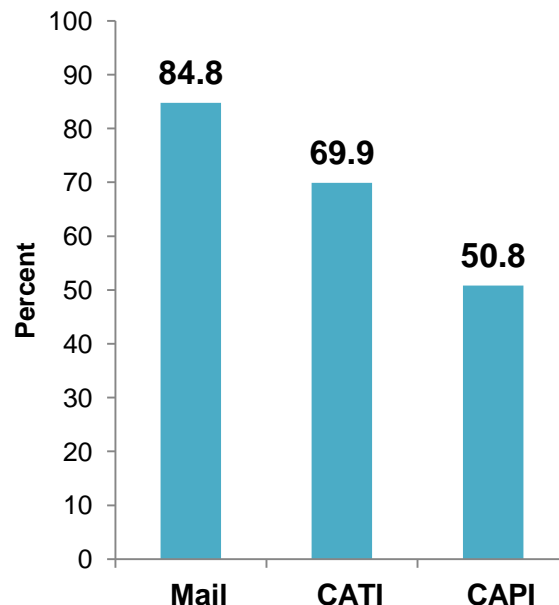
### Address Match Ratios



### Person Match Ratios



### Person-Address Match Ratios



Source: 2010 American Community Survey and Administrative Records Data.  
Note: Housing Units.

CATI Addresses composed of:

- Unmailable/undeliverable: 29% match rate
- Remainder/non-responses: 92% match rate

# Match Ratios by Region

ACS Region	Address Match Ratio	Person Match Ratio	Person-Address Match Ratio
Northeast	90.4	92.7	76.8
Midwest	94.4	94.0	80.4
South	93.3	92.2	75.2
West	93.2	90.3	73.6

Source: 2010 American Community Survey and Administrative Records Data.  
 Note: Housing Units.



# Conclusions

# Conclusions

- AR coverage of 2010 ACS is substantial in all three coverage areas, although less extensive for person-address pairs
- Less well represented in AR: young children, AIAN alone, SOR alone, NHPI alone, Hispanics as well as group quarters
  - Efforts to acquire AR data providing better coverage
- Very similar results to 2010 ACS Match Study
  - Strong caveat: our results are unweighted

# Further Research

- Evaluating coverage & agreement of demographic response data in AR relative to the 2010 ACS
- Examining characteristics associated with PIK assignment, and better AR coverage & consistency over time
- Evaluate coverage & quality of additional ACS items beyond demographics, such as income or program participation
- Assess AR ability to identify vacant housing units & deletes
- Continue analysis throughout the decade using the ACS

# Thank you!

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