

The Representation of Young Children in the American Community Survey

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Outline of Presentation

1. Coverage in the census
2. Use of census counts in population estimates and American Community Survey (ACS) weights
3. Coverage of young children in the ACS

How do we Assess the Accuracy of the Census?

- Demographic Analysis (DA)
Compares census results to an independent estimate based largely on administrative records on births and deaths and estimates of international migration
- Dual-Systems Estimates (DSE)
Compares census results to a second follow-up survey conducted in selected areas (Called CCM in 2010)

What is Demographic Analysis?

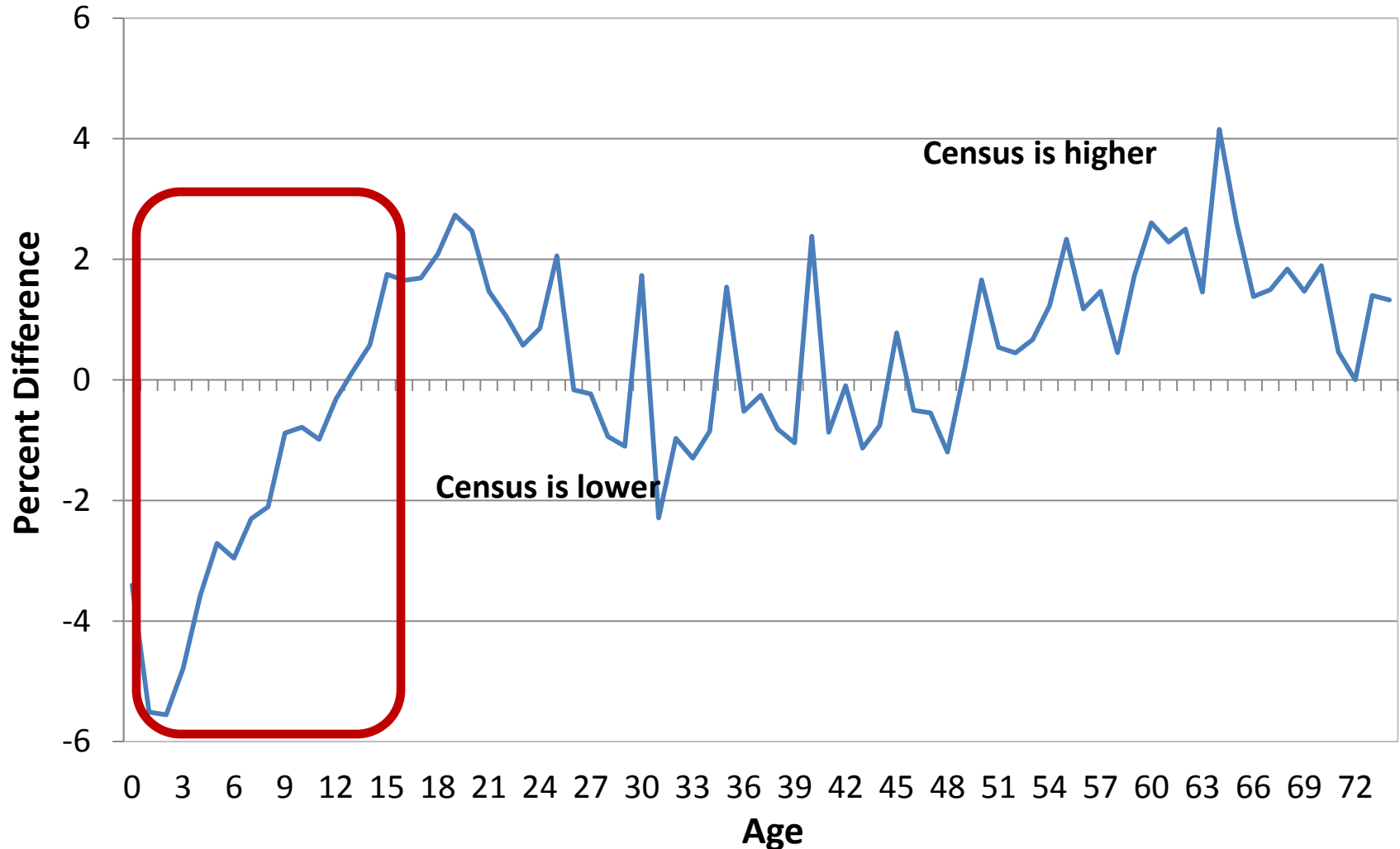
- 2010 DA estimates for the population under age 75 were based on historical components of change for cohorts

[births, deaths, net international migration]

$$P = B - D + NIM$$

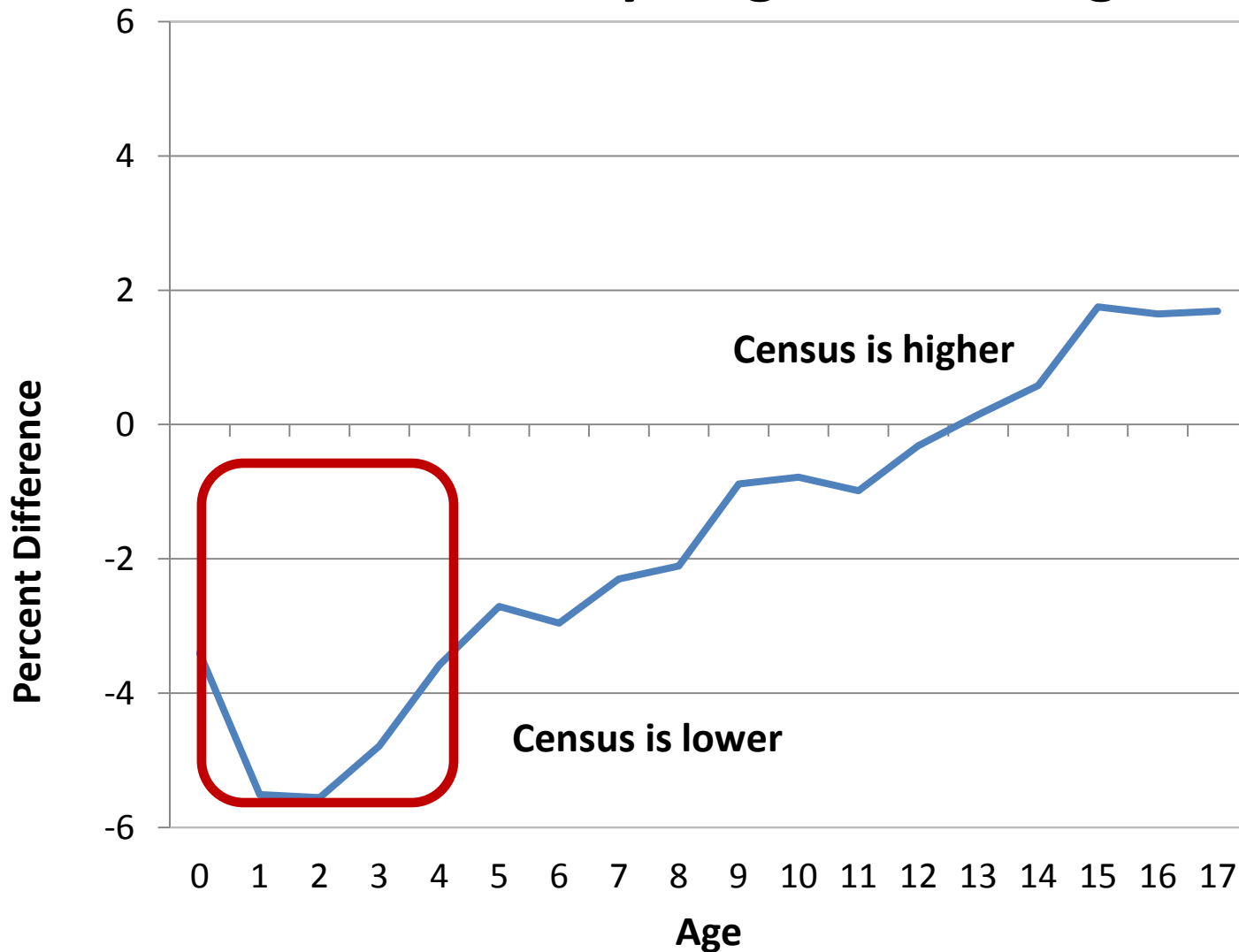
- 99.6% of the DA estimate for the population aged 0 to 4 was based on births

Percent Difference Between 2010 Census Counts and DA Estimates by Single Year of Age: 0-74



Source: U.S. Census Bureau, 2010 Demographic Analysis, May 2012 DA Release.

Percent Difference Between 2010 Census Counts and DA Estimates by Single Year of Age: 0-17



Source: U.S. Census Bureau, 2010 Demographic Analysis, May 2012 DA Release.

Difference Between 2010 Census Counts and DA Estimates for the Population Aged 0-4 by Race and Hispanic Origin (Numbers in 1000s)

	Numeric Difference	Percent Difference
Total	970	4.6
Black alone or in combination	247	6.3
Not "Black alone or in combination"	724	4.2
Hispanic	414	7.5
Non-Hispanic	556	3.6

Note: Estimates by Hispanic origin are only available from the December 2010 DA release. Responses of "Some Other Race" from the 2010 Census are modified. This contributes to differences between the population for specific race categories shown for the 2010 Census population in this table versus those in the original 2010 Census data. For more information, see <<http://www.census.gov/popest/data/historical/files/MRSF-01-US1.pdf>>. Source: U.S. Census Bureau, 2010 Census and 2010 Demographic Analysis, December 2010 release, and May 2012 release.

Implications of 2010 Census Undercount of Population Aged 0 to 4 for the ACS

- 2010 Census Counts are used to weight the 2010 American Community Survey and as a base for Post-2010 Population Estimates
- The difference between the 2010 Census Counts and Census 2000-based Population Estimates (Vintage 2010) for ages 0 to 4 was 5.3%.
- Population Estimates for those aged 0 to 4 were developed using administrative records
 - Estimates for the population aged 10+ are based on Census 2000 counts

Population Aged 0 to 4 from the Vintage 2010 Population Estimates and 2010 American Community Survey: July 1, 2010 (Numbers in 1000s)

	Vintage 2010 Population Estimate	2010 ACS	Numeric Difference	Percent Difference
Total	21,262	20,134	1,128	5.3

Source: 2010 ACS 1-year file and Vintage 2010 Population Estimates. For more information on the Vintage 2010 Population Estimates, see <http://www.census.gov/popest/research/eval-estimates/eval-est2010.html#cty2012>

State-Level Differences for the Population Aged 0 to 4

- There were five states where the estimate of the population aged 0-4 in the Vintage 2010 Population Estimates **were not** statistically different from the ACS estimate (Montana, North Dakota, Vermont, Wyoming, Maine)
 - Using the 90-percent confidence interval
- For the other 46 states, the Vintage 2010 Population Estimate was **higher** than the ACS estimate

Differences Between Vintage 2010 State Estimates and ACS State Estimates for the Population Aged 0 to 4

Mean Absolute Numeric Difference	Mean Absolute Percent Difference	Mean Algebraic Numeric Difference	Mean Algebraic Percent Difference
22,208	4.3	22,127	4.1

Source: 2010 ACS 1-year file and Vintage 2010 Population Estimates. For more information on the Vintage 2010 Population Estimates, see <http://www.census.gov/popest/research/eval-estimates/eval-est2010.html#cty2012>

States With Largest Percent Difference Between the Vintage 2010 Population Estimate and the 2010 American Community Survey Estimate of the 0-4 Population: July 1, 2010

Rank	State	Percent Difference	MOE
1	DC	15.9	0.5
2	Arizona	9.9	0.3
3	Florida	8.2	0.3
4	Georgia	7.9	0.5
5	California	7.8	0.1
6	Texas	7.6	0.2
7	Nevada	6.7	0.5
8	New York	6.4	0.2

Note: Florida and Georgia are not statistically different from each other. Georgia, California, and Texas are not statistically different from each other. Nevada and New York are not statistically different from each other or from New Mexico (not shown).

Source: 2010 ACS 1-year file and Vintage 2010 Population Estimates. For more information on the Vintage 2010 Population Estimates, see <<http://www.census.gov/popest/research/eval-estimates/eval-est2010.html#cty2012>>

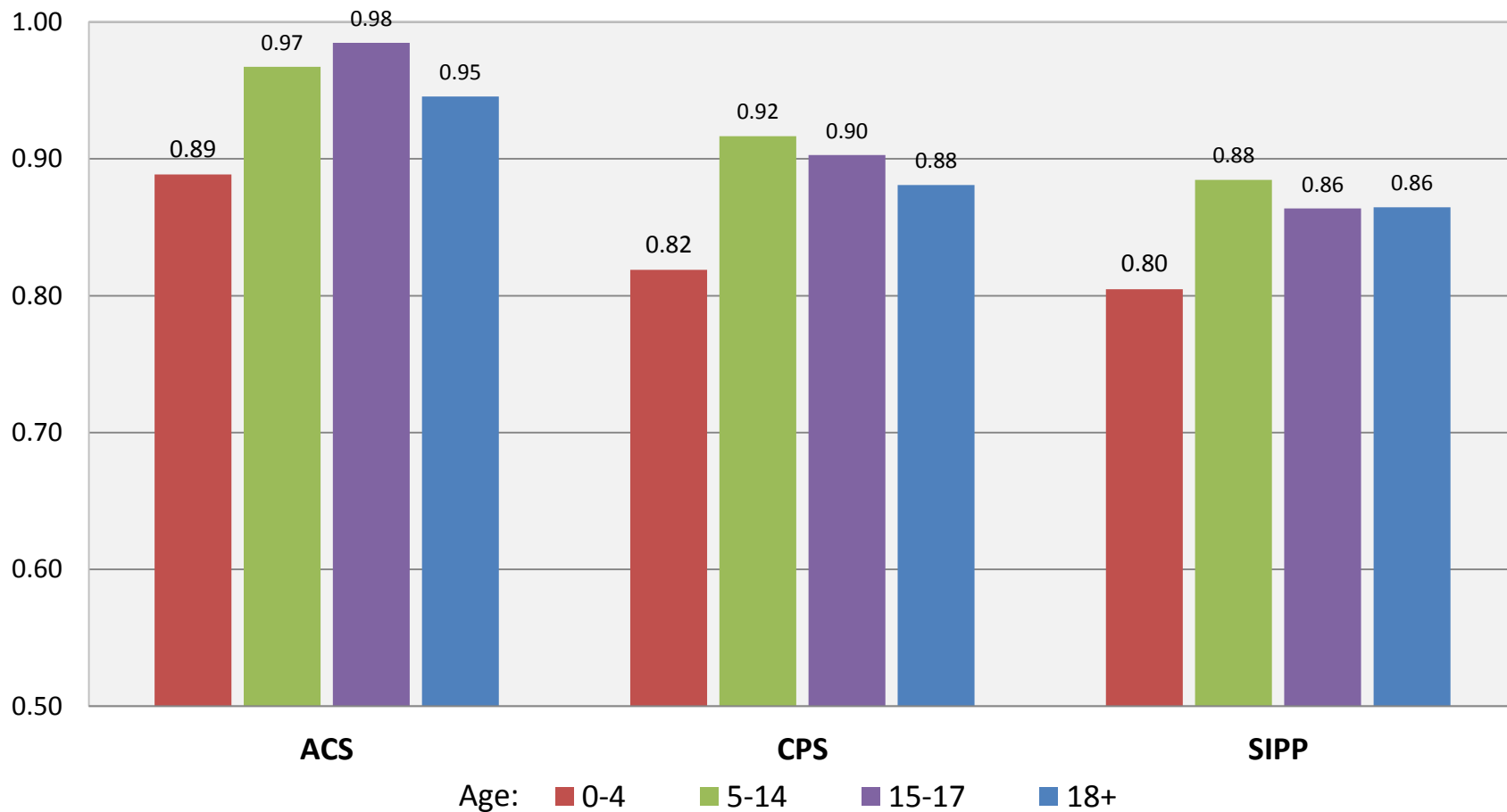
Measuring Coverage in the ACS

- Coverage rates
 - Ratio of the ACS population estimate of an area or group to the independent estimate for that area or group, times 100
 - ACS population estimates are weighted for the probability of selection into the sample, the subsampling for personal visit follow-up, and non-response
 - A coverage rate under 1.0 implies underrepresentation prior to controlling to the population controls
 - A coverage rate over 1.0 implies overrepresentation prior to controlling to the population controls

Measuring Coverage in the ACS

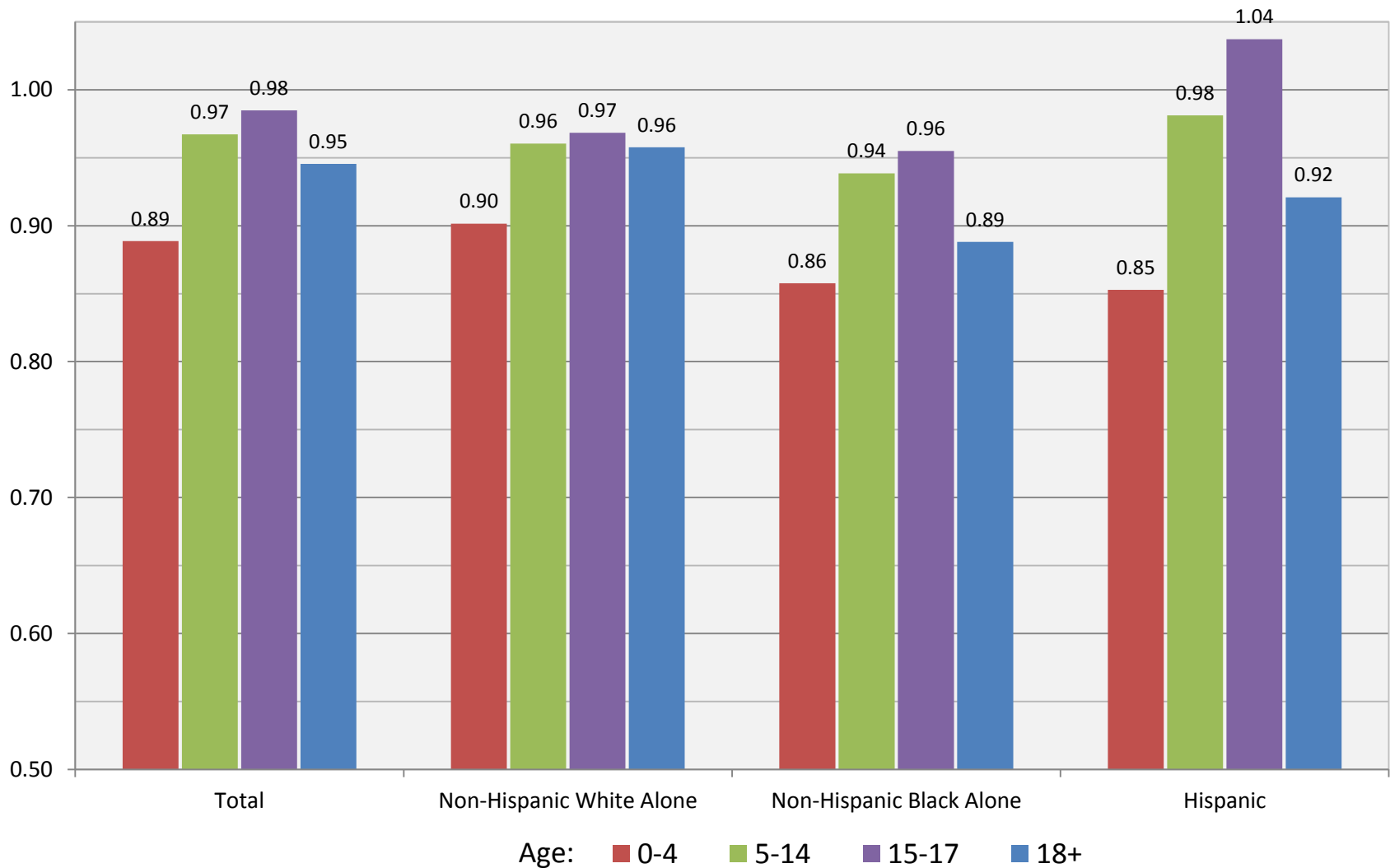
- We calculated coverage rates by age, race, Hispanic origin, and state of residence
- ACS data come from the 2009 single-year ACS file
- The independent estimates come from the Vintage 2009 Population Estimates
- Estimates for the population aged 0-4 are “DA like”
 - Developed primarily using administrative records on births, deaths, and migration
 - By 2009, this age group would not be in the Census 2000 base population

Coverage Rates by Selected Age Groups for American Community Survey (ACS), Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP): 2009



Source: U.S. Census Bureau, 2009 1-year American Community Survey, March 2009 Base Current Population Survey, Survey of Income and Program Participation, 2008 (Waves 2 and 3) Panel. For information on sampling and nonsampling error in the ACS, see <http://www.census.gov/acs/www/methodology/methodology_main/>; CPS, see <<http://www.census.gov/cps/methodology/techdocs.html>>; and SIPP, see <<http://www.census.gov/sipp/source.html>>.

American Community Survey (ACS) Coverage Rates for Selected Age Groups by Race and Hispanic Origin: 2009



Source: U.S. Census Bureau, 2009 1-year American Community Survey, special tabulation.

American Community Survey Coverage Rates by Age Group for States Below the National Average for the Population Aged 0-4: 2009

State	Age Groups					
	0-4		5-14		15-17	
	Coverage rate	Margin of error	Coverage rate	Margin of error	Coverage rate	Margin of error
U.S.	0.89	<0.01	0.97	<0.01	0.98	<0.01
Arizona	0.74	0.03	0.88	0.02	0.93	0.03
District of Columbia	0.77	0.10	0.86	0.09	0.87	0.14
Florida	0.81	0.02	0.92	0.01	0.93	0.02
Montana	0.81	0.07	0.90	0.05	0.86	0.06
Mississippi	0.83	0.04	0.89	0.03	0.93	0.04
Nevada	0.84	0.04	0.90	0.04	0.97	0.06
Georgia	0.84	0.02	0.90	0.02	0.91	0.03
Louisiana	0.84	0.04	0.91	0.02	0.97	0.04
California	0.86	0.01	0.96	0.01	1.00	0.01
Texas	0.87	0.01	0.96	0.01	0.99	0.02

Source: 2009 1-year American Community Survey, special tabulation.

Conclusion

- The 2010 Demographic Analysis implied a net undercount of young children in the 2010 Census
- The Population Estimates which are used as controls for the ACS use the 2010 Census as the base
- Results show that weighting to the Vintage 2010 estimates and not Census 2010 would impact the ACS estimates of young children

Conclusion

- The coverage rate for young children in demographic surveys (ACS, CPS, SIPP) is lower than for other age groups
- Within the population aged 0-4, there is variation in coverage by race and Hispanic origin
- The coverage rate for young children in the ACS varies by state

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