

Case Study 3:

Making Comparisons

2009 Population Association of America
ACS Workshop
April 29, 2009

Different Types of Comparisons

- 1) Comparisons within the same time period
- 2) Comparisons across time

1) Comparisons within the same time period (e.g., 2007 ACS or 2005-2007 ACS)

- Across geographies
- Across demographic categories
- Across geography and demographic categories
- See examples in next slides

Comparison within Same Time Period: Example of Ranking Table for States

View this table...

- ▶ for states
- ▶ from 2007
 - from [2006](#)
 - from [2005](#)
 - [without statistical significance](#)
- View...
 - as a [chart](#)
- Other tables...
 - [Select another ranking table](#)

• [Subject Definitions](#)

• [Quality Measures](#)

United States and States
R1601. Percent of People 5 Years and Over Who Speak a Language Other Than English at Home: 2007
Universe: Population 5 years and over ?
Data Set: 2007 American Community Survey 1-Year Estimates
Survey: American Community Survey, Puerto Rico Community Survey

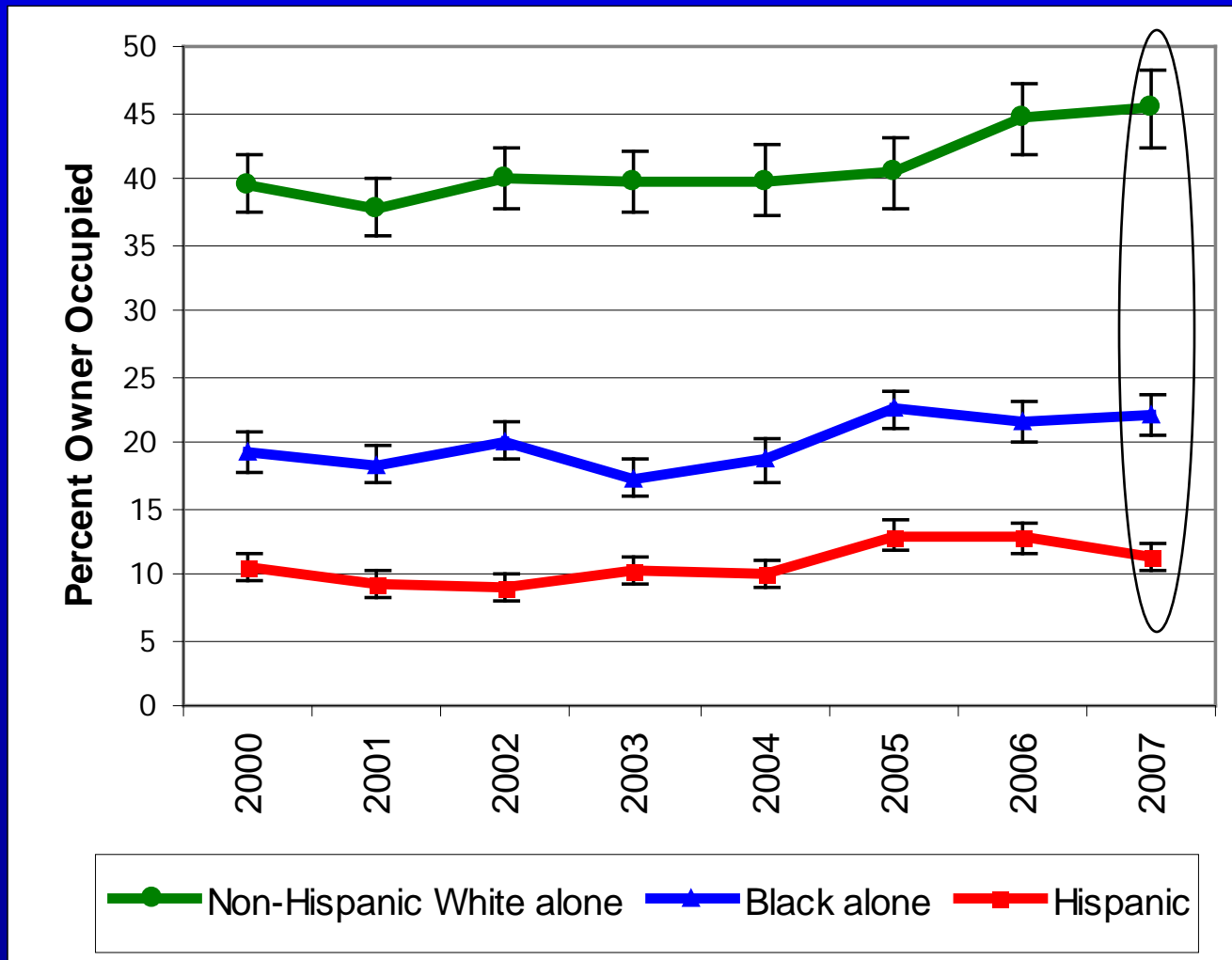
Select a state and click 'GO', or click a row of the table to see statistical significance.

The presence of a ***** indicates geographies whose estimates are **not** statistically significantly different from the estimate for the selected geography. ****** indicates the selected geography.

NOTE. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [Survey Methodology](#).

Rank	State	Percent	Margin of Error
1	California	42.6	+/-0.2
2	New Mexico	35.7	+/-0.7
3	Texas	33.9	+/-0.2
4	New York	28.9	+/-0.2
5	Arizona	28.5	+/-0.3
6	** New Jersey	27.8	+/-0.3
7	* Nevada	27.4	+/-0.5
8	Florida	26.1	+/-0.2
9	Hawaii	25.5	+/-1.0
10	Illinois	21.8	+/-0.2
11	Rhode Island	20.8	+/-0.7
12	Massachusetts	20.2	+/-0.4
	United States	19.7	+/-0.1
13	Connecticut	19.4	+/-0.4
14	Colorado	16.7	+/-0.4
14	Washington	16.7	+/-0.2
16	Alaska	15.9	+/-0.8
17	Maryland	14.8	+/-0.3
18	District of Columbia	14.5	+/-0.9

Comparison within Same Time Period: Percent Owner-Occupied Units for Race/Origin Groups based on 1-Year ACS Estimates, 2000 to 2007, Bronx County, NY



2) Comparisons across time (measurement of change)

- ACS to ACS
- ACS to census
- See examples in next slides

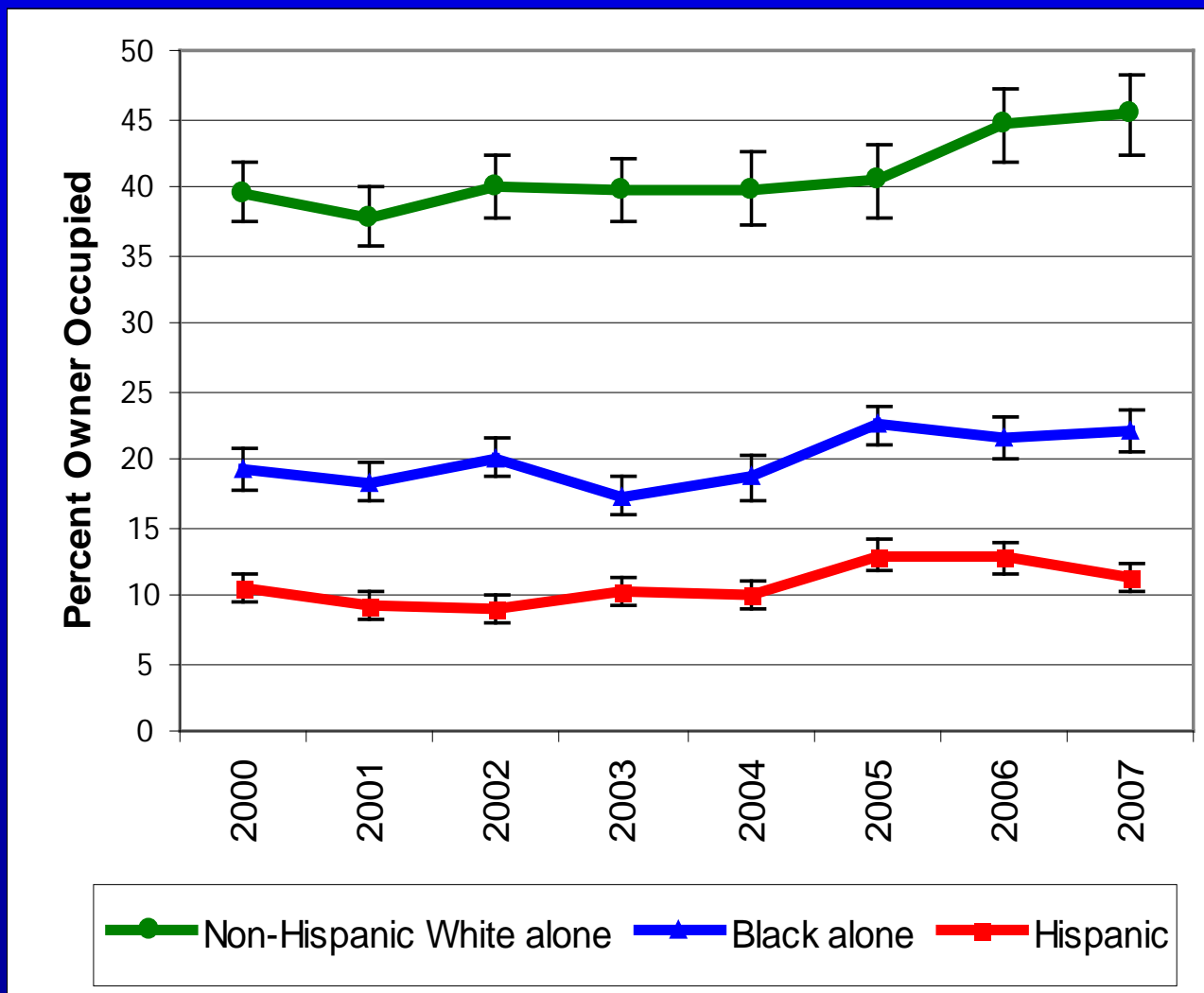
Comparison across Time: Example of Comparison Profile for Bronx County, NY

Bronx County, New York

An * indicates that the estimate is significantly different (at a 90% confidence level) than the estimate from the most current year. A 'c' indicates the estimates for that year and the current year are both controlled; a statistical test is not appropriate.

Selected Social Characteristics in the United States: 2007	2007 Percent Distribution	2006 Percent Distribution	Statistical Significance
HOUSEHOLDS BY TYPE			
Total households	469,446	470,839	
Family households (families)	66.2%	65.7%	
With own children under 18 years	36.1%	36.1%	
Married-couple family	28.2%	28.0%	
With own children under 18 years	14.3%	13.9%	
Male householder, no wife present, family	8.0%	6.5%	*
With own children under 18 years	3.3%	2.5%	*
Female householder, no husband present, family	30.0%	31.3%	
With own children under 18 years	18.6%	19.7%	
Nonfamily households	33.8%	34.3%	
Householder living alone	29.9%	29.9%	
65 years and over	9.8%	9.7%	
Households with one or more people under 18 years	42.0%	41.3%	
Households with one or more people 65 years and over	22.1%	21.3%	*
Average household size	2.84	2.79	*
Average family size	3.55	3.51	
RELATIONSHIP			
Population in households	1,331,146	1,312,731	*
Householder	35.3%	35.9%	*
Spouse	9.9%	10.0%	
Child	36.5%	36.8%	
Other relatives	13.2%	12.3%	*
Nonrelatives	5.1%	5.0%	

Comparison Across Time: Percent Owner-Occupied Units for Race/Origin Groups based on 1-Year ACS Estimates, 2000 to 2007, Bronx County, NY



Things to Consider in Making Comparisons

- 1) Testing for statistical significance
- 2) Type of estimate
- 3) Detail of comparisons
- 4) Comparisons to Census 2000 results
- 5) “Start-up” challenges

1) Testing for Statistical Significance

- Easier for ACS to ACS comparisons (MOEs are included with published ACS estimates)
- More difficult for ACS to census comparisons (census MOEs need to be calculated and requires effort)
- A good explanation of calculating census MOEs is found in forthcoming handbook on “What Users of Data for Rural Areas Need to Know”
- Reliability check: Use coefficient of variation to “standardize” MOEs for comparison

2) Type of Estimate

- Percent distributions (e.g., percent in poverty)
- Levels (e.g., number of poor)
- Comparison of levels may require more caution than comparison of percent distributions

3) Detail of Comparisons (affects reliability)

- Total population (larger samples and more reliability)
- Demographic cross-classifications (smaller samples and less reliability)
- Determines ACS data sets to use (1, 3, 5-year)—as discussed in previous presentation

4) Comparisons to Census 2000 Results

-- The comparability of the ACS and census must be considered. For guidance on the comparability of specific items, see

<http://www.census.gov/acs/www/UseData/compACS.htm>

-- The next two slides give an example of the information provided about making comparisons for specific items

Comparison to Census 2000: Extract from ACS Comparison Guidance

Census > ACS Main > How to Use the Data > Comparing ACS Data to Other Sources

How to Use the Data: Comparing ACS Data to Other Sources

Subject Area/Item ¹	Comparing 2007 ACS with Census 2000	Comparing 2007 ACS with 2006 ACS
Age and Sex (01)		
Age	Compare with Caution more info table crosswalk	Compare more info
Sex	Compare more info table crosswalk	Compare more info
Race (02)		
Race	Compare more info table crosswalk	Compare more info
Hispanic Origin (03)		
Hispanic or Latino Origin	Compare more info table crosswalk	Compare more info
Ancestry (04)		
Ancestry	Compare more info table crosswalk	Compare more info
Foreign Born; Citizenship; Year of Entry; Nativity (05)		
Citizenship Status	Compare more info table crosswalk	Compare more info
Nativity	Compare more info table crosswalk	Compare more info
Year of Entry	Compare more info No comparable detailed tables published	Compare more info
Place of Birth (06)		
Place of Birth	Compare more info table crosswalk	Compare more info
Residence 1 Year Ago: Migration (07)		
Residence 1 Year Ago (Migration)	Do Not Compare more info No comparable detailed tables published	Compare more info

<http://www.census.gov/acs/www/UseData/compACS.htm>

ACS Comparison Guidance – “More Info”

Census > ACS Main > How to Use the Data > Detailed Information on 2007 ACS Data Comparisons

How to Use the Data: Detailed Information on 2007 ACS Data Comparisons

Subject Area/Item ¹	Comparing 2007 ACS with Census 2000	Comparing 2007 ACS with 2006 ACS
Language Spoken at Home and Ability to Speak English (16)		
Ability to Speak English	Compare	Compare
Language Spoken at Home	Compare	Compare
Poverty (17)		
Poverty Status of Families and People in Families	Compare with Caution - The ACS collects data throughout the year on an on-going, monthly basis and asks for a respondent's income over the "past 12 months." Census 2000, however, collected the income data for a fixed period of time -- "during 1999" (the last calendar year). In a comparison study between Census 2000 income data and the 2000 ACS, income collected in Census 2000 was found to be about 4 percent higher than that in the 2000 ACS. For more information on the differences of income in the ACS and Census 2000, see http://www.census.gov/acs/www/Downloads/ACS/ASA_nelson.pdf . For specific questions and answers about sources of poverty data, see http://www.census.gov/acs/www/Downloads/QA_SourcesOfPovertyData.pdf [PDF 130K].	Compare with Caution - As ACS data are collected every month of the year, adjacent years will have some reference months in common. Hence, comparing the 2007 ACS with the 2006 ACS estimates is not an exact comparison of the economic conditions in 2007 with those in 2006. For a discussion of this and related issues, see Hogan, Howard, "Measuring Population Change Using the American Community Survey," Applied Demography in the 21st Century, Steven H. Murdock and David A. Swanson eds., Springer Netherlands, 2008. For specific questions and answers about sources of poverty data, see http://www.census.gov/acs/www/Downloads/QA_SourcesOfPovertyData.pdf [PDF 130K].
Poverty Status of All People in the Poverty Universe	Compare with Caution - The ACS collects data throughout the year on an on-going, monthly basis and asks for a respondent's income over the "past 12 months." Census 2000, however, collected the income data for a fixed period of time -- "during 1999" (the last calendar year). In a comparison study between Census 2000 income data and the 2000 ACS, income collected in Census 2000 was found to be about 4 percent higher than that in the 2000 ACS. For more information on the differences of income in the ACS and Census 2000, see http://www.census.gov/acs/www/Downloads/ACS/ASA_nelson.pdf . For specific questions and answers about sources of poverty data, see http://www.census.gov/acs/www/Downloads/QA_SourcesOfPovertyData.pdf [PDF 130K].	Compare with Caution - As ACS data are collected every month of the year, adjacent years will have some reference months in common. Hence, comparing the 2007 ACS with the 2006 ACS estimates is not an exact comparison of the economic conditions in 2007 with those in 2006. For a discussion of this and related issues, see Hogan, Howard, "Measuring Population Change Using the American Community Survey," Applied Demography in the 21st Century, Steven H. Murdock and David A. Swanson eds., Springer Netherlands, 2008. For specific questions and answers about sources of poverty data, see http://www.census.gov/acs/www/Downloads/QA_SourcesOfPovertyData.pdf [PDF 130K].
Disability (18)		
Disability Going Out / Working	Do Not Compare - The 2007 ACS disability questions are different from the Census 2000 disability questions, thus comparisons cannot be made.	Compare
Disability Learning / Dressing		Compare
Disability Vision / Hearing / Physical		Compare

<http://www.census.gov/acs/www/UseData/compACS.htm>

5) “Start-up” challenges where measurement of change based on the ACS alone cannot be made (with 3-year and 5-year estimates)

- Change should be based on nonoverlapping estimates; the first 3-year estimate comparisons will be 2008-2010 to 2005-2007 and the first 5-year estimate comparisons will be 2010-2014 to 2005-2009)
- But many users will not want to wait so long, so is there a compromise in working with overlapping multiyear estimates to assess change?

Comparisons of Estimates of Overlapping Periods

- Hard to interpret; OVERLAPPING MULTIYEAR ESTIMATES DO NOT MEASURE ANNUAL CHANGE
- Difference determined by difference of non-overlapping years (e.g., 2005-2007 compared to 2006-2008--2006 and 2007 overlap, 2005 and 2008 do not)
- Requires adjustments in statistical testing (see Appendix 4 to the Compass Handbooks)
- See examples in next slides

Nonoverlapping 5-Year Multiyear Estimates: Example of 2005-2009 ACS and 2010-2014 ACS

Period	ACS Years									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2005-2009	X	X	X	X	X					
2006-2010		X	X	X	X	X				
2007-2011			X	X	X	X	X			
2008-2012				X	X	X	X	X		
2009-2013					X	X	X	X	X	
2010-2014						X	X	X	X	X

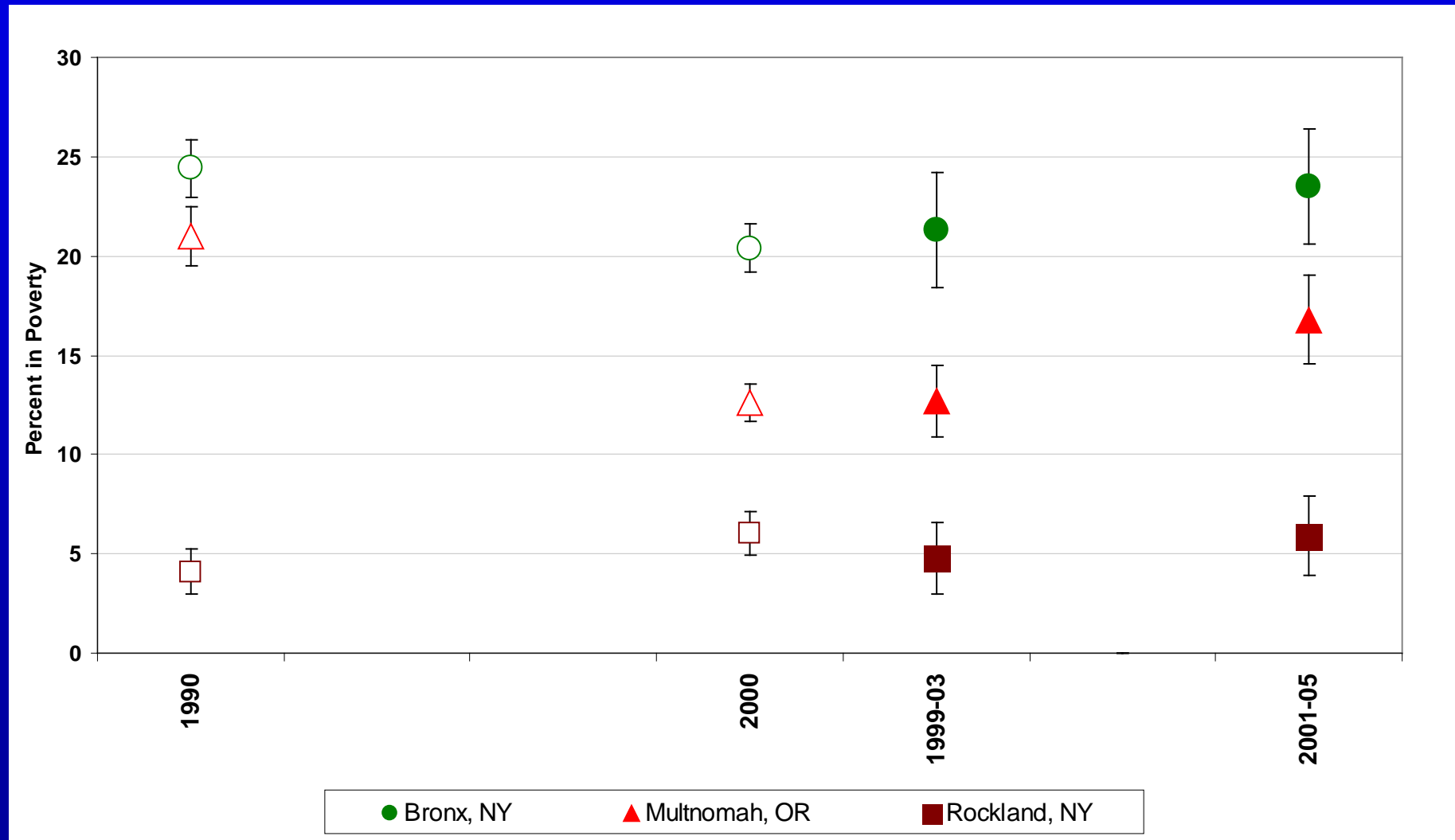
Overlapping 5-Year Multiyear Estimates: Example of 2005-2009 ACS and 2007-2011 ACS

	ACS Years									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2005-2009	X	X	X	X	X					
2006-2010		X	X	X	X	X				
2007-2011			X	X	X	X	X			
2008-2012				X	X	X	X	X		
2009-2013					X	X	X	X	X	
2010-2014						X	X	X	X	X

Working with Overlapping ACS Estimates

- Good examples of use and interpretation of overlapping estimates in Compass Handbooks (see selected references)
- We can “practice” with the use and understanding of overlapping ACS estimates by exploiting the growing times series of the ACS test sites (used for the Multiyear Estimates Study)
- See example comparing overlapping ACS estimates and census benchmarks in next slide

Poverty Rates for the Asian Alone Population for Selected Counties: Census Data (1990, 2000) and 5-Year ACS Estimates (1999-2003 and 2001-2005)



Concluding observations

- For demographers using detailed demographic data in their research, the 5-year ACS estimates will be the workhorse
- Working with the data will help determine the proper balance
- An updated Multiyear Estimates Study can provide a valuable “proving-ground” data source
- Trends and demographic patterns will become more evident once we have a time series of ACS estimates; just be patient!

Selected References on Making Comparisons with ACS Estimates

- 1) Guidance on Comparing ACS Data to Other Sources (including Census 2000 data):

<http://www.census.gov/acs/www/UseData/compACS.htm>

- 2) Information on multiyear estimates and examples comparing 1, 3, and 5-year ACS estimates

http://www.census.gov/acs/www/Downloads/MYE_Guidelines.pdf

- 3) Multiyear Estimates Study, which provides 1, 3, and 5-year ACS estimates for geographic areas in 34 ACS test counties for 1999-2005:

http://www.census.gov/acs/www/AdvMeth/Multi_Year_Estimates/overview.html

Selected References on Making Comparisons with ACS Estimates (continued)

Selected Compass Handbooks with Detailed Examples of Making Comparisons—

- 4) What General Data Users Need to Know (see especially Case studies):
<http://www.census.gov/acs/www/Downloads/ACSGeneralHandbook.pdf>
- 5) What State and Local Governments Need to Know (see especially Case studies; gives example of overlapping estimates):
<http://www.census.gov/acs/www/Downloads/ACSstateLocal.pdf>
- 6) What Users of Data for Rural Areas Need to Know (forthcoming)
- 7) See also Appendices accompanying each Handbook (especially Appendix 1 to 4)

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