

Changes to the American Community Survey between 2007 and 2008 and the Effect on the Estimates of Employment and Unemployment

Background

For the 2008 American Community Survey (ACS), changes were made to the questionnaire that modified and improved existing questions for several subject areas.¹ In particular, an improved series of labor force questions was introduced to better capture data on employment status. Prior research and analysis of employment data from the ACS and Census 2000 revealed that employment levels were underestimated and unemployment levels were overestimated relative to benchmark data from the Current Population Survey (CPS) or from the Local Area Unemployment Statistics (LAUS) program at the Bureau of Labor Statistics. The CPS and LAUS are used to produce the official estimates of employment, unemployment, and the unemployment rate for the nation and states. We believe the modifications and improvements to the existing series of labor force questions had the effect of increasing the number of employed persons captured in the 2008 ACS data relative to CPS and LAUS estimates, and as a result, contributed to the lack of significant change in ACS unemployment rates between 2007 and 2008.

2008 Questionnaire Changes to the Labor Force Question Series

In January through March of 2006, the ACS conducted the first test of new and modified content since the ACS reached full implementation levels of data collection, hereafter referred to as the 2006 ACS Content Test. The evaluation and results of this test helped to determine the content for the 2008 ACS.

The primary objective of the 2006 ACS Content Test work on the employment status question series, specifically, the questions about worked last week, temporarily absent, and looking for work, was to improve the measurement of employment status by addressing several limitations that previous research suggested were present in the ACS question wording prior to 2008. Past research and analysis of employment data from the ACS and Census 2000 revealed that employment levels were underestimated and unemployment levels were overestimated relative to benchmark data from the CPS or LAUS program at the Bureau of Labor Statistics. For more information, see the reports “Census 2000 Evaluation B.7 – Accuracy of Data for Employment Status as Measured by the CPS-Census 2000 Match” at:

<http://www.census.gov/pred/www/rpts/B.7%20Final%20Report.pdf> and “Census 2000 Auxiliary Evaluation B.8 – Comparing Employment, Income, and Poverty: Census 2000

¹ A summary of the changes made to the 2008 ACS can be found at http://www.census.gov/acs/www/AdvMeth/content_test/summary_results.htm. The 2007 and 2008 ACS questionnaires are available at <http://www.census.gov/acs/www/Downloads/SQuest07.pdf> and <http://www.census.gov/acs/www/Downloads/SQuest08.pdf>, respectively.

and the Current Population Survey” at http://www.census.gov/hhes/www/laborfor/final2_b8_nov6.pdf.

Three of the ACS employment status questions were modified for the test panel (Person Questions 28a-28b, 34b, and 35). The worked last week (28a-28b) and temporarily absent (34b) questions are key components in the measurement of employed people and people who are not in the labor force, while the looking for work question (35) is a component in the measurement of unemployed people. These changes were done with an overall goal of better matching CPS labor force estimates by increasing the estimate of employed people, reducing the estimate of unemployed people, and reducing response inconsistencies in the individual categories of the employment status concept.

The 2006 ACS Content Test compared two versions of the employment status series question set. The control version replicated the 2006 ACS questions.² The test version modified the employment status series questions by

- separating the worked last week question into two parts to address irregular work arrangements,
- removing the reference to work for profit in the worked last week question,
- including the meaning of work in the worked last week question rather than parenthetically,
- revising the list of examples of reasons for temporary absence to include maternity/paternity leave, family or personal reasons, and bad weather in order to reduce the estimate of unemployed people, and
- adding the word “actively” in all capital letters to the looking for work question

The 2006 ACS Content Test findings overall showed that the test questions produced a higher estimate of employed people compared to the control. While the test questions did not produce a lower estimate of unemployed people, the overall unemployment rate was lower for the test panel. The unemployment rate is the more useful measure because it excludes people who are not in the labor force. Empirically, the test version of the questions performed better than the existing ACS questions in terms of more favorable estimates. For more information, see the report “2006 American Community Survey Content Test Report P.6.a. – Evaluation Report Covering Employment Status” at: http://www.census.gov/acs/www/AdvMeth/content_test/P6a_Employment_Status.pdf.

Effect on 2008 Employment and Unemployment Estimates

Tables 1 and 2 present ACS and CPS/LAUS employment status data for the U.S. civilian noninstitutionalized population by state for 2007 and 2008. One notable difference between the ACS and CPS survey universes relates to the group quarters (GQ) population. The ACS includes both institutionalized (e.g., prisons, residential treatment centers, and nursing facilities) and noninstitutionalized (e.g., college/university housing

² The 2006 ACS questionnaire is available at <http://www.census.gov/acs/www/Downloads/SQuest05.pdf>.

and military quarters) GQ in its survey universe, while the CPS includes only noninstitutionalized GQ. This survey sample difference affects total population counts and, likewise, employment-population ratio comparisons. However, it does not impact employment and unemployment estimates since those in the institutionalized GQ population are not considered part of the labor force. To provide data users with additional context regarding the impact of the labor force question changes, employment-population ratios are presented in this note. Furthermore, for comparison purposes, all individuals living in institutionalized group quarters are excluded from the ACS estimates, and as a result, ACS estimates presented in this note may not match published ACS data on American Fact Finder.

Table 1 presents ACS and CPS/LAUS employment-population ratios for the U.S. civilian noninstitutionalized population by state for 2007 and 2008.³ In 2008, the ACS and CPS U.S. employment-population ratios were 62.7 and 62.2, respectively.⁴ Between 2007 and 2008, the ACS U.S. employment-population ratio increased from 61.6 to 62.7, while for the CPS, the U.S. employment-population ratio decreased 0.8 percentage points, from 63.0 to 62.2. The difference between the ACS and CPS U.S. employment-population ratios was 1.3 percentage points in 2007 and 0.5 percentage points in 2008.

For the ACS between 2007 and 2008, 13 states experienced no significant change in their employment-population ratio, while 37 states and the District of Columbia experienced an increase and no states experienced a decrease in their employment-population ratio. For the LAUS between 2007 and 2008, 40 states and the District of Columbia experienced no significant change in their employment-population ratio, while no states experienced an increase and 10 states experienced a decrease in their employment-population ratio. Twenty-eight states and the District of Columbia had ACS and LAUS employment-population ratios that were statistically different from each other in 2007, while the number of statistically different states decreased to 11 in 2008.

Table 2 presents ACS and CPS/LAUS unemployment rates for the U.S. civilian noninstitutionalized population by state for 2007 and 2008.⁵ In 2008, the ACS and CPS U.S. unemployment rates were 6.4 percent and 5.8 percent, respectively. Between 2007 and 2008, the ACS U.S. unemployment rate increased 0.1 percentage points, from 6.3 percent to 6.4 percent, while for the CPS, the U.S. unemployment rate increased 1.2 percentage points, from 4.6 percent to 5.8 percent. The difference between the ACS and CPS U.S. unemployment rates was 1.7 percentage points in 2007 and 0.6 percentage points in 2008.

³ The employment-population ratio is the percentage of all working-age civilians who are employed. It is important to note that while both surveys collect data on a monthly basis, ACS data is reported annually while CPS data is reported monthly. To address this disparity, CPS estimates presented in this note (i.e., the total U.S. estimates) are based on an average of the monthly employment status data across the 12 months of 2007 and 2008. The 2007 and 2008 LAUS estimates are obtained from published Bureau of Labor Statistics data that can be found at <http://www.bls.gov/lau/>.

⁴ All statistical comparisons are made at the 90 percent confidence level.

⁵ The labor force is the sum of employed and unemployed persons. The unemployment rate is the number of unemployed persons divided by the labor force.

For the ACS between 2007 and 2008, 32 states and the District of Columbia had no statistically significant change in their unemployment rate, while six states (California, Delaware, Florida, Nevada, Rhode Island, and South Carolina) experienced an increase and twelve states experienced a decrease in their unemployment rate. For the LAUS between 2007 and 2008, 15 states experienced no significant change in their unemployment rate, while 35 states and the District of Columbia experienced an increase and no states experienced a decrease. Forty-nine states and the District of Columbia had ACS and LAUS unemployment rates that were statistically different from each other in 2007, while the number of statistically different states decreased to 26 in 2008.

Summary

The changes to the employment status series of questions in the 2008 ACS will make ACS labor force data more consistent with benchmark data from the CPS and the LAUS program. The CPS and LAUS are used to produce the official estimates of employment, unemployment, and the unemployment rate for the nation and states. We believe the modifications and improvements to the existing series of labor force questions had the effect of increasing the number of employed persons captured in the 2008 ACS data relative to CPS and LAUS estimates, and as a result, contributed to the lack of significant change in ACS unemployment rates between 2007 and 2008. Users should use caution in making comparisons between 2008 and earlier years.

Even though the 2008 ACS data did not capture as many significant increases in state unemployment rates between 2007 and 2008 as the LAUS data, the 2008 ACS did capture an increase in unemployment rates for those states (California, Florida, and Nevada) most affected by the economic slowdown that occurred over the course of 2008.⁶ Given this and the decreased prevalence of statistical differences between ACS and CPS/LAUS employment-population ratio and unemployment rate estimates, we believe that the 2008 ACS data represents an improvement in the estimates of employment and unemployment data compared to prior ACS data.

⁶ The Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) maintains a chronology of the beginning and ending dates (months and quarters) of U.S. recessions. The NBER was founded in 1920, and published its first business cycle dates in 1929. Please see <http://www.nber.org/cycles/dec2008.html> for more information concerning the dating of the most recent U.S. recession.

Table 1. Employment Population Ratio by State, 2007 and 2008
(Civilian noninstitutionalized population)

	ACS			CPS/IAUS			ACS-CPS/IAUS			
	2007	90% Confidence Interval ²	2008	2007	90% Confidence Interval ²	2008	2007-2008 Change	2007-2008 Change	Difference	
United States¹	61.6	61.6 - 61.7	62.7	62.6 - 62.7	62.7	62.2	62.0 - 62.4	-0.8	-1.3	0.5
Alabama	57.0	56.6 - 57.5	58.0	57.6 - 58.4	59.2	57.2	55.5 - 58.9	-2.0	-2.2	0.8
Alaska	65.3	64.5 - 66.2	67.7	66.8 - 68.7	66.2	66.5	64.7 - 68.2	0.3	-0.9	1.2
Arizona	59.6	59.2 - 59.9	60.4	60.1 - 60.8	61.2	60.7	59.3 - 62.1	-0.5	-1.6	-0.3
Arkansas	57.4	56.8 - 57.9	58.4	57.9 - 58.9	59.8	59.7	58.6 - 60.9	-0.1	-2.4	-1.3
California	60.8	60.7 - 61.0	61.3	61.2 - 61.5	62.1	61.7	60.7 - 61.6	-0.1	-3.1	0.2
Colorado	66.9	66.5 - 67.3	68.3	68.0 - 68.7	70.0	68.5	67.2 - 70.2	-1.3	-3.1	-0.4
Connecticut	64.9	64.5 - 65.3	65.6	65.1 - 66.1	65.4	64.2	63.7 - 66.0	-0.5	-0.5	0.7
Delaware	62.1	61.1 - 63.1	62.4	61.5 - 63.3	64.0	62.4	61.3 - 63.5	-1.6	-1.9	0.0
District of Columbia	62.0	60.9 - 63.1	63.6	62.4 - 64.8	64.3	64.2	63.0 - 65.4	-0.1	-2.3	-0.6
Florida	58.3	58.0 - 58.5	58.1	57.9 - 58.3	61.2	61.2	60.3 - 62.0	-1.3	-2.9	-1.8
Georgia	62.2	62.0 - 62.5	63.1	62.8 - 63.4	64.9	63.1	62.1 - 64.1	-1.8	-2.7	0.0
Hawaii	61.7	61.0 - 62.3	63.9	63.1 - 64.7	63.9	63.4	62.2 - 64.7	-0.5	-1.8	0.5
Idaho	64.2	63.7 - 64.8	64.0	63.3 - 64.6	66.0	63.5	62.1 - 64.9	-2.5	-1.8	0.5
Illinois	62.8	62.6 - 63.0	64.0	63.8 - 64.3	64.8	63.4	62.4 - 64.3	-1.4	-2.0	0.6
Indiana	62.6	62.3 - 62.9	63.4	63.1 - 63.7	63.3	62.4	61.0 - 63.8	-0.9	-0.7	1.0
Iowa	66.9	66.5 - 67.3	68.9	68.5 - 69.2	69.1	68.0	67.0 - 70.2	0.0	-2.2	-0.2
Kansas	66.5	66.1 - 67.0	68.5	68.1 - 68.9	67.5	67.6	66.5 - 68.7	0.1	-1.0	0.9
Kentucky	58.1	57.7 - 58.5	57.8	57.4 - 58.2	59.1	57.9	56.6 - 59.2	-1.2	-1.0	-0.1
Louisiana	58.3	57.8 - 58.7	59.7	59.3 - 60.2	63.4	63.0	61.8 - 64.2	-0.4	-1.0	-0.2
Maine	62.4	61.9 - 63.0	62.8	62.0 - 63.5	64.0	63.0	61.8 - 64.2	-0.4	-0.6	1.9
Maryland	65.8	65.5 - 66.1	67.7	67.3 - 68.0	66.4	65.5	65.5 - 67.3	-0.6	-0.6	0.0
Massachusetts	64.2	63.9 - 64.5	65.9	65.5 - 66.2	63.8	63.0	61.9 - 64.1	-0.8	0.4	2.9
Michigan	58.1	57.9 - 58.4	58.8	58.5 - 59.0	59.7	58.1	57.1 - 59.0	-1.6	-1.6	0.7
Minnesota	68.3	68.0 - 68.6	69.8	69.5 - 70.0	69.6	68.6	67.4 - 69.8	-1.0	-1.3	1.2
Mississippi	55.3	54.7 - 55.9	57.3	56.8 - 57.8	56.7	55.9	54.3 - 57.4	-0.8	-1.4	1.4
Missouri	62.3	62.0 - 62.6	63.5	63.3 - 63.8	63.8	62.2	60.9 - 63.6	-1.6	-1.5	1.3
Montana	62.8	62.0 - 63.5	64.0	63.2 - 64.8	64.8	63.4	62.4 - 65.1	-1.0	-2.0	0.2
Nebraska	66.6	66.1 - 69.0	70.5	70.0 - 70.9	70.7	71.0	69.6 - 72.1	0.3	-2.1	-0.5
Nevada	64.3	63.8 - 64.8	64.6	64.1 - 65.1	65.4	65.0	63.9 - 66.2	-0.4	-1.1	-0.4
New Hampshire	67.2	66.6 - 67.9	68.8	68.1 - 69.5	68.4	68.0	67.0 - 69.0	-0.4	-1.2	0.8
New Jersey	63.0	62.7 - 63.2	64.9	64.7 - 65.2	63.4	62.9	62.0 - 63.9	-0.5	-0.4	0.2
New Mexico	58.9	58.3 - 59.6	60.0	59.2 - 60.7	60.9	61.0	60.0 - 62.0	0.1	-2.0	-1.0
New York	60.0	59.8 - 60.2	61.4	61.2 - 61.6	59.9	59.6	59.0 - 60.3	-0.3	0.1	1.8
North Carolina	61.2	60.9 - 61.5	62.4	62.1 - 62.7	62.5	60.7	59.7 - 61.7	-1.8	-1.3	1.7
North Dakota	68.3	67.4 - 69.1	69.9	69.1 - 70.6	71.2	71.8	70.2 - 73.5	0.6	-2.9	-1.9
Ohio	61.3	61.1 - 61.6	62.5	62.3 - 62.8	63.6	62.7	61.9 - 63.5	-0.9	-2.3	-0.2
Oklahoma	60.9	60.4 - 61.3	62.2	61.7 - 62.7	60.7	61.2	59.9 - 62.5	0.5	0.2	1.0
Oregon	61.4	60.9 - 61.9	61.7	61.3 - 62.1	62.1	61.5	60.5 - 62.5	-0.6	-0.7	0.2
Pennsylvania	60.6	60.4 - 60.8	61.6	61.4 - 61.8	61.5	61.7	60.9 - 62.5	0.2	-0.9	-0.1
Rhode Island	62.4	61.6 - 63.2	62.5	61.7 - 63.3	65.4	62.8	61.6 - 63.9	-2.6	-3.0	-0.3
South Carolina	59.0	58.6 - 59.5	58.8	58.4 - 59.2	59.7	58.4	57.4 - 59.4	-1.3	-0.7	0.4
South Dakota	68.4	67.5 - 69.2	69.4	68.7 - 70.2	71.0	70.6	69.4 - 71.8	-0.4	-2.6	-1.2
Tennessee	59.8	59.5 - 60.1	60.8	60.5 - 61.1	60.9	59.2	58.0 - 60.4	-1.7	-1.1	1.6
Texas	62.6	62.4 - 62.7	64.3	64.1 - 64.5	62.9	62.5	61.7 - 63.2	-0.4	-0.3	1.8
Utah	67.5	67.0 - 68.0	67.7	67.2 - 68.1	70.3	68.9	67.2 - 70.2	-1.6	-2.8	-1.0
Vermont	66.9	66.1 - 67.7	67.4	66.5 - 68.2	67.8	67.2	66.0 - 68.4	-0.6	-0.9	0.2
Virginia	64.4	64.1 - 64.6	65.6	65.2 - 65.9	66.9	66.8	65.9 - 67.7	-0.1	-2.5	-1.2
Washington	62.6	62.2 - 62.9	63.5	63.2 - 63.8	64.8	64.7	63.7 - 65.7	-0.1	-2.2	-1.2
West Virginia	52.5	51.8 - 53.2	54.1	53.4 - 54.7	53.4	53.2	51.6 - 54.9	-0.2	-0.9	0.9
Wisconsin	65.9	65.7 - 66.2	67.6	67.4 - 67.9	67.4	66.9	65.6 - 68.3	-0.5	-1.5	0.7
Wyoming	69.3	68.1 - 70.4	69.2	68.1 - 70.2	69.2	69.2	67.8 - 70.5	0.0	0.1	0.0

¹ Estimates for the United States are from the Current Population Survey and estimates for the states are from the Local Area Unemployment Statistics program.

² Data are based on a sample and are subject to sampling variability. The confidence interval is a measure of an estimate's variability.

* Indicates that the change or difference is statistically significant at the 90-percent confidence level.

Table 2. Unemployment Rate by State, 2007 and 2008
(Civilian noninstitutionalized population)

	ACS		CPS/LAUS		ACS-CPS/LAUS		ACS-CPS/LAUS Difference 2008
	2007	90% Confidence Interval ²	2008	90% Confidence Interval ²	2007	90% Confidence Interval ²	
United States¹	6.3	6.3-6.4	6.4	6.3-6.4	0.1	6.3-6.4	0.1
Alabama	6.7	6.4-7.0	7.0	6.6-7.3	0.3	6.6-7.3	0.3
Alaska	8.8	8.1-9.4	7.7	7.0-8.4	-1.1	7.0-8.4	-1.1
Arizona	5.8	5.5-6.0	6.1	5.8-6.3	0.3	5.8-6.3	0.3
Arkansas	7.2	6.8-7.5	6.6	6.2-7.0	-0.5	6.2-7.0	-0.5
California	6.6	6.5-6.7	7.5	7.4-7.6	0.9	7.4-7.6	0.9
Colorado	5.5	5.3-5.7	4.9	4.6-5.1	-0.6	4.6-5.1	-0.6
Connecticut	6.0	5.7-6.3	6.4	6.1-6.7	0.4	6.1-6.7	0.4
Delaware	5.6	5.0-6.2	6.6	5.9-7.3	1.0	5.9-7.3	1.0
District of Columbia	8.1	7.2-8.9	7.8	6.8-8.7	-0.3	6.8-8.7	-0.3
Florida	6.2	6.0-6.3	7.5	7.3-7.7	1.3	7.3-7.7	1.3
Georgia	7.0	6.8-7.3	7.0	6.8-7.3	0.0	6.8-7.3	0.0
Hawaii	4.5	4.1-5.0	4.1	3.6-4.5	-0.5	3.6-4.5	-0.5
Idaho	5.1	4.7-5.4	5.5	5.0-5.9	0.4	5.0-5.9	0.4
Illinois	7.2	7.0-7.3	6.9	6.7-7.1	-0.3	6.7-7.1	-0.3
Indiana	6.6	6.4-6.8	6.9	6.7-7.1	0.3	6.7-7.1	0.3
Iowa	4.8	4.5-5.1	3.9	3.7-4.1	-0.9	3.7-4.1	-0.9
Kansas	5.1	4.8-5.4	4.4	4.2-4.7	-0.6	4.2-4.7	-0.6
Kentucky	6.6	6.3-6.9	6.9	6.6-7.1	0.2	6.6-7.1	0.2
Louisiana	6.4	6.1-6.8	6.0	5.7-6.4	-0.4	5.7-6.4	-0.4
Maine	6.0	5.6-6.5	5.9	5.5-6.3	-0.1	5.5-6.3	-0.1
Maryland	5.5	5.3-5.7	5.4	5.1-5.6	-0.2	5.1-5.6	-0.2
Massachusetts	6.1	5.8-6.4	6.0	5.7-6.3	-0.1	5.7-6.3	-0.1
Michigan	9.6	9.4-9.8	9.5	9.3-9.7	-0.1	9.3-9.7	-0.1
Minnesota	5.4	5.2-5.6	4.9	4.7-5.1	-0.5	4.7-5.1	-0.5
Mississippi	9.3	8.8-9.7	7.8	7.3-8.2	-1.5	7.3-8.2	-1.5
Missouri	6.3	6.1-6.6	6.1	5.9-6.4	-0.2	5.9-6.4	-0.2
Montana	5.2	4.6-5.8	4.7	4.2-5.2	-0.5	4.2-5.2	-0.5
Nebraska	4.6	4.3-5.0	4.0	3.7-4.3	-0.6	3.7-4.3	-0.6
Nevada	5.6	5.2-6.0	7.3	6.9-7.8	1.7	6.9-7.8	1.7
New Hampshire	5.1	4.6-5.5	4.5	4.1-4.9	-0.6	4.1-4.9	-0.6
New Jersey	5.9	5.7-6.1	5.9	5.8-6.1	0.0	5.8-6.1	0.0
New Mexico	5.6	5.2-6.1	6.0	5.6-6.4	0.4	5.6-6.4	0.4
New York	6.2	6.1-6.3	6.3	6.1-6.4	0.1	6.1-6.4	0.1
North Carolina	6.9	6.6-7.1	6.8	6.5-7.0	-0.1	6.5-7.0	-0.1
North Dakota	3.5	3.0-3.9	3.2	2.7-3.6	-0.3	2.7-3.6	-0.3
Ohio	7.2	7.0-7.3	7.0	6.8-7.2	-0.1	6.8-7.2	-0.1
Oklahoma	5.4	5.1-5.6	4.6	4.3-4.9	-0.7	4.3-4.9	-0.7
Oregon	6.5	6.2-6.8	6.7	6.4-7.0	0.2	6.4-7.0	0.2
Pennsylvania	5.9	5.8-6.1	5.7	5.6-5.9	-0.2	5.6-5.9	-0.2
Rhode Island	6.3	5.6-7.0	7.5	6.8-8.2	1.2	6.8-8.2	1.2
South Carolina	6.9	6.6-7.2	7.7	7.4-8.1	0.8	7.4-8.1	0.8
South Dakota	4.1	3.7-4.6	3.7	3.2-4.2	-0.4	3.2-4.2	-0.4
Tennessee	6.9	6.7-7.2	6.9	6.7-7.2	0.0	6.7-7.2	0.0
Texas	5.9	5.7-6.0	5.2	5.1-5.4	-0.6	5.1-5.4	-0.6
Utah	3.8	3.6-4.1	4.0	3.7-4.3	0.2	3.7-4.3	0.2
Vermont	5.1	4.6-5.6	4.9	4.5-5.4	-0.2	4.5-5.4	-0.2
Virginia	4.8	4.7-5.0	4.9	4.7-5.1	0.1	4.7-5.1	0.1
Washington	6.0	5.7-6.3	5.6	5.4-5.9	-0.4	5.4-5.9	-0.4
West Virginia	6.2	5.7-6.7	5.7	5.3-6.1	-0.6	5.3-6.1	-0.6
Wisconsin	5.7	5.6-5.9	5.1	5.0-5.3	-0.6	5.0-5.3	-0.6
Wyoming	3.7	3.2-4.2	3.3	2.8-3.9	-0.3	2.8-3.9	-0.3

¹ Estimates for the United States are from the Current Population Survey and estimates for the states are from the Local Area Unemployment Statistics program.

² Data are based on a sample and are subject to sampling variability. The confidence interval is a measure of an estimate's variability.

* Indicates that the change or difference is statistically significant at the 90-percent confidence level.