



Economics Group

John E. Silvia, Chief Economist
john.silvia@wellsfargo.com • (704) 374-7034
Azhar Iqbal, Econometrician
azhar.iqbal@wellsfargo.com • (704) 383-6805
Sarah Watt, Economic Analyst
sarah.watt@wellsfargo.com • (704) 374-7142

The Unemployment Rate: Seasonality and Sampling

Since 2010, the unemployment rate has fallen rapidly late in the year, suggesting seasonal adjustment processes may be distorting the timing of improvement. Further declines seem likely in the months ahead.

Seasonality, Sampling and the Ghost of 2008

The sharp decline in the unemployment rate in September to its lowest rate since January 2009 raised concerns about data manipulation. The less nefarious story reflects the combination of the inherent volatility of the household employment series and the seasonal quirk of the unemployment rate declining in the final months of the year since 2009.

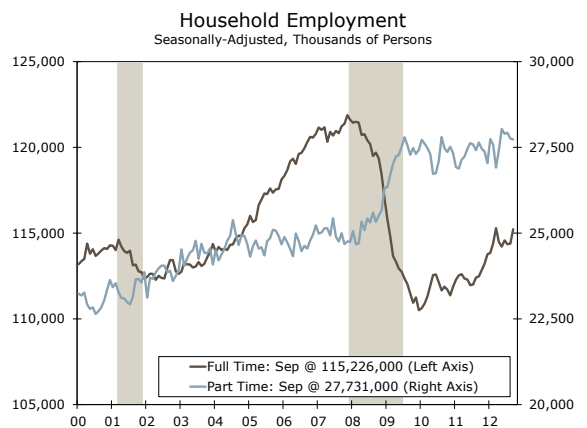
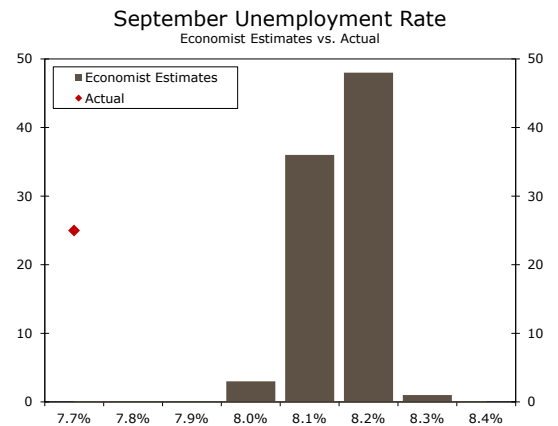
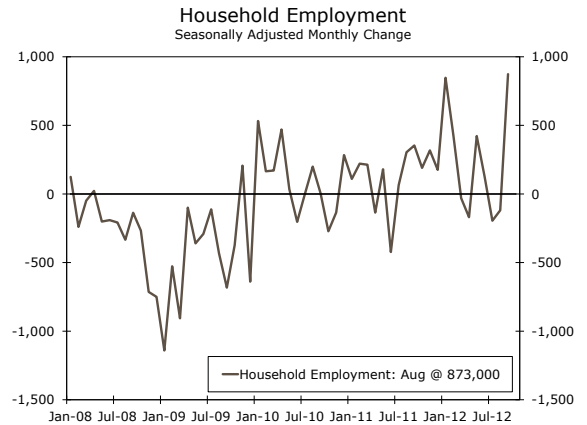
The unemployment rate fell to 7.8 percent in September from 8.1 percent in August. Yet the unemployment rate has displayed a similar pattern in the fall months of recent years, even though this widely reported number is seasonally adjusted. For example, from the August to January period in both 2010 and 2011, the unemployment rate fell 0.5 and 0.8 percentage points, respectively. September's decline was likely accelerated by distortions in the BLS's seasonal adjustment process and suggests that perhaps the current process is inadequate. Following the rapid deterioration in the economy in the fall of 2008, the unemployment rate rose 1.7 percentage points between August and January of that year. As a result, the small improvements in the unemployment rate in today's environment are likely being exaggerated by how favorable they look compared to the unemployment rate's swift ascent in 2008. Until modifications are made to account for the historic rise of the unemployment rate in 2008, payback from September's sizable one-month drop is not a guarantee, and further declines in the unemployment rate may be in store in the months ahead.

A Black Swan Outlier

In addition to the survey's recent seasonal adjustment quirks, the small sample size of the household survey (60,000 households) can contribute to volatile changes on a monthly basis. September's drop in the unemployment rate was helped by an inordinate gain of 873,000 in the household survey's measure of employment, which was more than four times the size of the average change over the past 12 months, and followed an average decline of 157,000 in July and August (top graph). Combining the seasonal-adjustment quirks and the inherent volatility of the household employment survey, the outlier for the unemployment rate estimate was not only possible, but became a reality (middle graph).

The Secular Story Underlying the Cyclical Improvement

While the one-month focus is on the volatility of full- and part-time jobs, the longer-term story reflects two distinct trends. As illustrated in the bottom graph, there has been a clear up-shift in part-time employment in this economic expansion compared to the pre-recession period. Meanwhile, the upswing in full-time employment, while not yet back to pre-recession levels, is following a cyclical pattern of improvement.



Wells Fargo Securities, LLC Economics Group

Diane Schumaker-Krieg	Global Head of Research, Economics & Strategy	(704) 715-8437 (212) 214-5070	diane.schumaker@wellsfargo.com
John E. Silvia, Ph.D.	Chief Economist	(704) 374-7034	john.silvia@wellsfargo.com
Mark Vitner	Senior Economist	(704) 383-5635	mark.vitner@wellsfargo.com
Jay Bryson, Ph.D.	Global Economist	(704) 383-3518	jay.bryson@wellsfargo.com
Eugenio Aleman, Ph.D.	Senior Economist	(704) 715-0314	eugenio.j.aleman@wellsfargo.com
Sam Bullard	Senior Economist	(704) 383-7372	sam.bullard@wellsfargo.com
Anika Khan	Senior Economist	(704) 715-0575	anika.khan@wellsfargo.com
Azhar Iqbal	Econometrician	(704) 383-6805	azhar.iqbal@wellsfargo.com
Tim Quinlan	Economist	(704) 374-4407	tim.quinlan@wellsfargo.com
Michael A. Brown	Economist	(704) 715-0569	michael.a.brown@wellsfargo.com
Sarah Watt	Economic Analyst	(704) 374-7142	sarah.watt@wellsfargo.com
Kaylyn Swankoski	Economic Analyst	(704) 715-0526	kaylyn.swankoski@wellsfargo.com
Sara Silverman	Economic Analyst	(704) 715-7395	sara.silverman@wellsfargo.com
Zachary Griffiths	Economic Analyst	(704) 715-1030	zachary.griffiths@wellsfargo.com
Peg Gavin	Executive Assistant	(704) 383-9613	peg.gavin@wellsfargo.com
Cyndi Flowe	Administrative Assistant	(704) 715-3985	cyndi.h.flowe@wellsfargo.com

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