

Suggested Revisions to South Carolina Economic Growth Forecasts

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Summary: 2013 Growth Forecasts Less Optimistic by 0.4 Percentage Points Relative to a Year Ago

- Forecasts of 2013 global output growth have fallen by 0.9 percentage points over the past year.
- Forecasts of 2013 U.S. real growth have fallen by 0.5 percentage points over the past year, and forecasts of 2013 U.S. nominal growth (including the effects of inflation) have fallen by 0.4 percentage points over the past year. Similarly, for 2014, forecasts of both real and nominal GDP growth have been revised downward by 0.4 percentage points.
- Odds of a quarter of negative real GDP growth in 2013 are now approximately 20% in each quarter of 2013, and the futures markets have the odds of two consecutive quarters of negative growth during 2013 at 33.5%. There is clearly a lot of uncertainty as to the future direction of the U.S. economy.
- Likely increases in the top marginal Federal Income Tax rates would reduce the income tax base, causing additional declines in state income tax revenues.
- S.C. BEA's last South Carolina personal income growth working estimates for 2013 and beyond were 3.5%.^{1,2} The previous 3.5% SC BEA estimates were made at a time when the average forecasts of the surveys I examined were forecasting 4.43% (one year ago). The BEA's previous estimates were more conservative than the average of the national estimates at the time.
- Applying the same degree of revision to the SC BEA's prior personal income estimates would suggest a revision to 3.0% estimated future growth rate of SC personal income. Taking the U.S. surveys at face value, however, would suggest an estimate closer to 4.0%. In my opinion, I think the national surveys are too optimistic, and that it is better to err on the side of caution (research suggests most state revenue estimates are biased downward)³
- Based on these reasons, and estimates of the elasticity of SC revenue with respect to the economy, in my opinion there is going to be approximately a 3.35% growth in SC revenue during FY 13-14.

¹ See SC BEA *General Fund Revenue Forecast Fiscal Years FY2008-09 to FY 2011-12*

[http://www.bcb.sc.gov/webfiles/BCB_BEAGF%20Forecasts/General_Fund_Revenue_Forecast_2012-13_.pdf], accessed October 18, 2012.

² See SC BEA *Long Range General Fund Revenue Forecast Fiscal Years FY2009-10 to FY2014-15*

[http://www.bcb.sc.gov/webfiles/BCB_BEAGF%20Forecasts/Long_Range_Forecast_FY09-10_to_FY14-15.pdf], accessed October 18, 2012.

³ See: Feenberg, Daniel R., William Gentry, David Gilroy, and Harvey S. Rosen, "Testing the Rationality of State Revenue Forecasts," *Review of Economics and Statistics* 71, No. 2 (May 1989), pp. 300-308; and Gentry, William M., "Do State Revenue Forecasters Utilize Available Information?" *National Tax Journal* 42, no. 4 (December 1989), pp. 429-439.

Summary of Economic Forecast Values and Changes in Forecasts from One Year Ago

Today (most recent):

	2013				2014	
	Real GDP Growth	Nominal GDP Growth	Employment Growth		Real GDP Growth	Nominal GDP Growth
International Monetary Fund	2.10%	3.90%				
Society of Professional Forecasters	2.10%	4.10%	1.30%		2.70%	5.00%
Livingston Survey	2.40%	4.10%				
Average	2.20%	4.03%	1.30%		2.70%	5.00%

One year ago these forecasts were:

	2013				2014	
	Real GDP Growth	Nominal GDP Growth	Employment Growth		Real GDP Growth	Nominal GDP Growth
International Monetary Fund	2.50%	4.40%				
Society of Professional Forecasters	2.90%	4.50%			3.10%	5.40%
Livingston Survey	2.70%	4.40%				
Average	2.70%	4.43%			3.10%	5.40%

Change in forecast over past year:

	2013				2014	
	Real GDP Growth	Nominal GDP Growth	Employment Growth		Real GDP Growth	Nominal GDP Growth
International Monetary Fund	-0.40%	-0.50%				
Society of Professional Forecasters	-0.80%	-0.40%			-0.40%	-0.40%
Livingston Survey	-0.30%	-0.30%				
Average	-0.50%	-0.40%			-0.40%	-0.40%

Summary by Data Source:

1. IMF World Economic Outlook, released October 2012:⁴

Global Real Output Growth Forecasts:

- Forecast of 2013 Global Real GDP growth is 3.6% as of October 2012, down 0.5 percentage points from their 4.1% forecast as of April 2012, down 0.3 percentage points from their 3.9% forecast in the July 2012 report, down 0.3 percentage points from their 3.9% forecast in the January 2012 report, and down 0.9 percentage points from the 4.5% forecast in their September 2011 report.
- Their long-run forecast (2016/2017) of global real GDP growth is 4.6%, down 0.1 percentage points from 4.7% in the April 2012 report, and down 0.3 percentage points from 4.9% in their September 2011 report.

U.S. Real Output Growth Forecasts:

- Forecast of 2013 U.S. Real GDP growth is 2.1% as of October 2012, down by 0.3 percentage points from their 2.4% forecast as of in April 2012, down 0.1 percentage points from their 2.2% forecast in the July 2012 report, down 0.1 percentage points from their 2.2% forecast in the January 2012 report, and down 0.4 percentage points from their 2.5% forecast in their September 2011 report.
- Their long-run forecast (2016/2017) of U.S. real GDP growth is 3.3%, unchanged from 3.3% in the April 2012 report, and down 0.1 percentage points from 3.4% in their September 2011 report.

U.S. Inflation Forecasts:

- Forecast of 2013 U.S. inflation is 1.8% as of October 2012, down by 0.1 percentage points from their 1.9% forecast as of in April 2012.
- Their long-run forecast (2016/2017) of U.S. inflation is 2.1%, up 0.2 percentage points from 1.9% in the April 2012 report, and up 0.4 percentage points from 1.7% in their September 2011 report.

Summary: 2013 global real output growth forecasts adjusted downward by almost 1 percentage point over the past year to 3.6%, 2013 U.S. real output forecasts adjusted downward 0.4 percentage points over the past year to 2.1%, U.S. short-run (2013) inflation forecasts adjusted downward by 0.1 percentage points to 1.8%, while long-run (2016/17) U.S. inflation forecasts adjusted upward by 0.4 percentage points to 2.1%.

2. Federal Reserve Bank of Philadelphia's Livingston Survey, June 2012:⁵

- Forecast of 2013 U.S. Real GDP growth revised downward by 0.3 percentage points (was 2.7% in December 2011 report and is now 2.4%), forecast of 2013 U.S. inflation revised downward by 0.3 percentage points (was 2.3% in December 2011 report and is now 2.0%), forecast of 2013 U.S. Nominal GDP growth revised downward by 0.3 percentage points (was 4.4% in December 2011 report and is now 4.1%), and forecast of 2013 U.S. unemployment down by 0.7 percentage points (was 8.4% in December 2011 report and is now 7.7%).

3. Survey of Professional Forecasters, released August 10, 2012:⁶

U.S. Real Output Growth Forecasts:

- Forecast of 2013 U.S. Real GDP growth is 2.1%, down 0.6 percentage points from their 2.7% forecasts in the May 2012, Feb 2012, and Nov 2011 reports, and down 0.8 percentage points from their 2.9% forecast in their August 11 report.
 - Risk of negative Real GDP growth in each quarter of 2013 now approximately 21%, up 3.5 percentage points from approximately 17.5% in the May 2012 report, and up 5.2 percentage points from approximately 15.8% in the Feb 2012 report.

⁴ See <http://www.imf.org/external/pubs/ft/weo/2012/02/pdf/text.pdf>, accessed October 18, 2012.

⁵ See <http://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey/>, accessed October 18, 2012.

⁶ See <http://www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/2012/spfq312.pdf>, accessed October 18, 2012.

Survey of Professional Forecasters, U.S. Real Output Growth Forecasts (continued):

- Forecast of 2014 U.S. Real GDP growth is 2.7%, down 0.4 percentage points from their 3.1% forecast in the May 2012 report, 0.3 percentage points from their 3.0% forecast in the Feb 2012 report, down 0.8 percentage points from their 3.5% forecast in the Nov 2011 report, and down 0.4 percentage points from their 3.1% forecast in the Aug 2011 report.
- Forecast of 2015 U.S. Real GDP growth is 3.1%, down 0.3 percentage points from their 3.4% forecast in the May 2012 report, and unchanged from the 3.1% forecast in their Feb 2012 report.

U.S. Inflation Forecasts:

- Forecast of 2013 U.S. CPI inflation is 2.2%, up 0.1 percentage point from their 2.1% forecasts in the May 2012 report, unchanged from the 2.2% forecasts in the Feb 2012 and Nov 2011 reports, and up 0.1 percentage point from their 2.1% forecast in their August 11 report.
- Forecast of 2014 U.S. CPI inflation is 2.3%, down 0.2 percentage points from their 2.5% forecast in the May 2012 report, and unchanged from the 2.3% forecast in the Feb 2012 report.
- Forecast of U.S. long-run inflation 2011/12-2015/16 is 2.2%, down 0.15 percentage points from the 2.35% forecast in their May 2012 report, down 0.1 percentage points from the 2.3% forecast in their Feb 2012 report, down 0.2 percentage points from the 2.4% forecast in their Nov 2011 report, and down 0.1 percentage points from the 2.3% forecast in their Aug 2011 report. The similar forecast for the even longer-run inflation of 2011/12-2020/21 is 2.35%, down 0.13 percentage points from 2.48% in May 2012 report, up 0.05 percentage points from 2.3% in their Feb 2012 report, down 0.15 percentage points from the 2.5% forecast in their Nov 2011 report, and down 0.05 percentage points from 2.4% in their August 2011 report.

U.S. Nominal GDP Growth Forecasts:

- Forecast of 2013 U.S. Nominal GDP growth is 4.1%, down 0.3 percentage points from the 4.4% forecast in their May 2012 report, and down 0.4 percentage points from the 4.5% forecast in their Feb 2012 report.

U.S. Employment Growth / Unemployment Forecasts:

- Forecast of 2013 U.S. employment growth is 1.3%, down 0.3 percentage points from 1.6% in May 2012 report, and down 0.1 percentage points from the 1.5% forecast in the Feb 2012 report.
- Forecast of 2013 U.S. unemployment rate is 7.9%, up 0.2 percentage points from 7.7% in May 2012 report, unchanged from the 7.9% forecast in Feb 2012 report, down 0.5 percentage points from the 8.4% forecast in Nov 2011 report, and down 0.2% from the 8.1% forecast in August 11 report.
- Forecast of 2014 U.S. unemployment rate is 7.3%, up 0.1 percentage point from 7.2% in May 2012 report, down 0.1 percentage points from the 7.4% forecast in Feb 2012 report, down 0.5% from the 7.8% forecast in Nov 2011 report, and down 0.3 percentage points from the 7.6% forecast in August 11 report.
- Forecast of 2015 U.S. unemployment rate is 7.0%, up 0.4 percentage points from 6.6% in May 2012 report, and up 0.3 percentage points from the 6.7 percent forecast in the Feb 2012 report.

Summary: (a) for 2013: 2013 U.S. Real GDP growth forecasts adjusted downward by 0.8 percentage points over the past year to 2.1%, risk of a quarter of negative Real GDP growth in 2013 have increased by 5 percentage points to over 20%. 2013 U.S. inflation forecasts slightly increased to 2.2%, 2013 U.S. Nominal GDP growth forecasts adjusted down by 0.4 percentage points to 4.1%. 2013 U.S. employment growth forecasts down slightly to 1.3%; ***(b) for 2014:*** 2014 U.S. Real GDP growth forecasts adjusted downward by 0.8 percentage points over the past year to 2.7%, 2014 U.S. inflation forecasts roughly unchanged at 2.3%; ***(c) for 2015 and beyond:*** 2015 U.S. Real GDP growth is 3.1% unchanged from a year ago, and long-run inflation forecasts through 2016 down 0.2 percentage points to 2.2%

4. Intrade.com's Event Futures Markets of Relevance, October 18, 2012:⁷

- Implied probability for "U.S. Economy experience a recession in 2013" futures contract (defined as two consecutive quarters of negative Real GDP growth) is now 33.5%, roughly where it was six months ago.
- Implied probabilities for an increase in the top U.S. federal income tax rate for 2013 are either stable or have risen over the past six months, with the current probabilities of a top marginal rate increase at 70%. An increase in the top marginal federal income tax rate would reduce the income tax base, and with a constant state income tax rate, state income tax revenues fall as a result of a federal income tax rate increase.⁸

5. U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income, Sept. 25, 2012:⁹

- South Carolina Total Personal Income growth 1.06% (2012Q2 over 2012Q1, not annualized), down 0.69 percentage points from the quarterly growth from 2011Q4 to 2012Q1 (which was 1.75%, not annualized) – annualized rate of decrease in S.C. Total Personal Income growth is roughly 2.75% [for reference S.C. Total Personal Income 2012Q2 was \$161,344,000,000]. Growth is up slightly over exactly one year ago, with 2011Q2 over 2011Q1 being 0.86% quarterly (not annualized).
- U.S. Total Personal Income growth 1.01% (2012Q2 over 2012Q1, not annualized), down 0.66 percentage points from the quarterly growth from 2011Q4 to 2012Q1 (which was 1.67%, not annualized) – annualized rate of decrease in U.S. Total Personal Income growth is roughly 2.65%. Growth is up slightly over exactly one year ago, with 2011Q2 over 2011Q1 being 0.65% quarterly (not annualized).

6. U.S. Dept. of Labor, Bureau of Labor Statistics, Employment & Unemployment, Sept. 21, 2012:¹⁰

- South Carolina August 2012 preliminary Unemployment Rate is 9.6%, up from 8.9% from March 2012, but still down from 10.4% in August 2011. For reference the rate was 8.8% in April 2012, 9.1% in May 2012, 9.4% in June 2012, and 9.7% in July 2012.
- South Carolina Total Employment, August 2012 preliminary, was 1,926,595 which is a reduction of 0.4 percent relative to total employment in August 2011. This represents a 2.1 percentage point lower growth rate in employment than the growth rate of March 2012 over March 2011 (which was a 1.7% increase relative to the prior year), and a 1.4 percentage point lower growth rate in employment than the growth rate of August 2011 over August 2010 (which was a 0.965% increase relative to the prior year). For reference the employment growth over the same month from the prior year was 1.5% in April 2012, 1.3% in May 2012, 0.8% in June 2012, and 0.2% in July 2012.

Additional Elasticity Assumptions & Information:

Elasticity of SC personal income with respect to US nominal GDP, estimated using both quarterly and annual data are not significantly different from 1.0, therefore the growth of SC personal income equals the growth of U.S. nominal GDP. Elasticity of SC Total General Revenue with respect to US GDP is 1.115.¹¹

⁷ See these markets under the sections for "Financial", "Political", and "Social and Civil" respectively at <http://www.intrade.com/v4/markets/>, accessed October 18, 2012.

⁸ See Courant, Paul N., and Daniel L. Rubinfeld. 1987. "Tax reform: implications for the state-local public sector." *Journal of Economic Perspectives* 1:87-100; Flowers, Marilyn R. 1988. "Shared tax sources in a leviathan model of federalism." *Public Finance Quarterly* 16:67-77; Ladd, Helen F. 1993. "State responses to the TRA86 revenue windfalls: A new test of the flypaper effect." *Journal of Policy Analysis and Management* 12:82-103; and Sobel, Russell S., "Optimal Taxation in A Federal System of Governments," *Southern Economic Journal* 64, no. 2 (October 1997), pp 468-485.

⁹ See http://bea.gov/newsreleases/regional/spi/sqi_newsrelease.htm, accessed October 18, 2012.

¹⁰ See <http://bls.gov/lau/>, accessed October 18, 2012.

¹¹ See: Holcombe, Randall G., and Russell S. Sobel. *Growth and Variability in State Tax Revenue: An Anatomy of State Fiscal Crises*. Westport, CT: Greenwood Press, 1997, and Sobel, Russell S. and Randall G. Holcombe. "Measuring the Growth and Variability of Tax Bases Over the Business Cycle." *National Tax Journal* 49, No. 4 (December 1996), pp. 535-552.