July 2014 1

Comprehensive Revision of Gross Domestic Product by State

Advance Statistics for 2013 and Revised Statistics for 1997–2012

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REAL U.S. gross domestic product (GDP) by state—a measure of nationwide growth calculated as the sum of GDP of all states deflated by a national price measure—slowed to 1.8 percent in 2013 after increasing 2.5 percent in 2012. Real GDP increased in 49 states and in all eight BEA regions in 2013, according to statistics released by the Bureau of Economic Analysis (BEA). The Rocky Mountain region was the fastest growing region, increasing 4.1 percent. North Dakota (9.7 percent) was the fasting growing state (chart 1 and table 1).

Additional 2013 highlights include the following:

• Nondurable-goods manufacturing was the leading contributor to growth in U.S. real GDP by state.

This industry grew 5.3 percent in 2013, rebounding from -0.5 percent in 2012. Growth in this industry accounted for almost a fifth of the U.S. growth and was the leading contributor to growth in three of the eight BEA regions and in 10 states.

- Real estate and rental and leasing was the secondlargest contributor to growth in U.S. real GDP by state, accounting for 11.7 percent of U.S. growth. This industry grew 1.6 percent, down from 2.2 percent in 2012. It contributed to growth in 42 states.
- Agriculture, forestry, fishing, and hunting contributed to real GDP growth in all eight BEA regions and in 49 states. It was the largest contributor to growth in the Plains region.

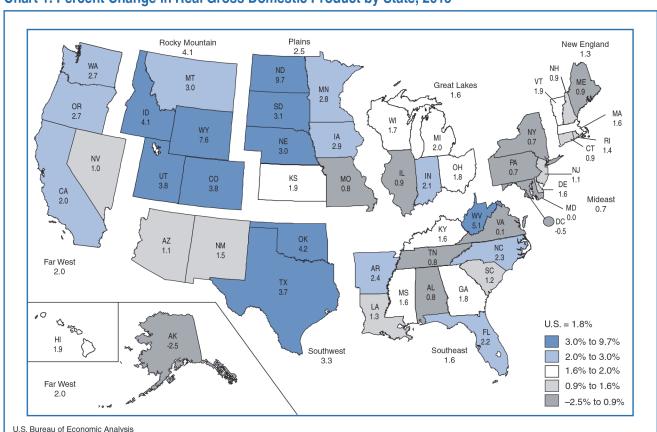


Chart 1. Percent Change in Real Gross Domestic Product by State, 2013

- Mining was not a significant contributor to real GDP growth for the nation, but it played a key role in several states. This industry was a large contributor to growth in five of the fastest growing states. It also subtracted significantly from growth in several slow growing states.
- The government sector subtracted the most from real GDP growth. The government sector declined 0.9 percent in 2013.

GDP by state is the most comprehensive measure of economic activity in states—the counterpart to GDP

in the national income and product accounts (NIPAs).¹ On June 11, 2014, BEA released advance current-dollar and real (inflation-adjusted) statistics on GDP by state for 2013.² The release also provided revised statistics for 1997–2012.

Gross Domestic Product (GDP) by State

Gross domestic product (GDP) by state is calculated as the sum of incomes earned by labor and capital and the costs incurred in the production of goods and services. It includes the wages and salaries that workers earn, the income earned by sole proprietorships and partnerships and corporations, and taxes on production and imports—such as sales, property, and federal excise taxes.

In contrast, GDP in the national income and product accounts (NIPAs) is calculated as the sum of spending by consumers, businesses, and government on final goods and services plus investment and net foreign trade. In theory, income earned should equal spending, but because of different data sources, income earned, usually referred to as "gross domestic income (GDI)," does not always equal what is spent (GDP). The difference is referred to as the "statistical discrepancy."

U.S. GDP by state differs from the GDP in the NIPAs and thus from GDP by industry in the annual industry accounts, because the U.S. GDP by state excludes federal military and civilian activity located overseas, which cannot be attributed to a particular state. The 2013 statistics on GDP by industry are identical to those from the 2013 annual revision of the NIPAs released in July 2013. However, because of revisions since July 2013, NIPA GDP may differ from U.S. GDP by state.

The statistics on GDP by state for industries for 1997 forward are based on the 2007 North American Industry Classification System (NAICS). For each industry, the three components of GDP by state are presented: compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. Compensation of employees is the sum of wage and salary accruals, employer contributions for employee pension and insurance funds, and employer contributions for government social insurance. Taxes on production and imports is the sum of federal excise taxes and customs duties, state and local government sales taxes, property taxes (including residential real estate taxes), motor vehicle licenses, severance taxes, other taxes, and special assessments. Gross operating surplus is the sum of corporate profits, proprietors' income, rental income of persons, net interest, capital consumption allowances, business transfer payments, nontax payments, and the current surplus of government enterprises.

Current-dollar statistics on GDP by state and its components are scaled to equal national totals of current-dollar GDP by industry and its components for all industries except federal military and civilian government. If the national total for an industry differs from the initial sum-of-states total for an industry, the difference between the national total and the sum-of-states total is allocated to the states according to the state distribution of the initial estimates.

The statistics on real GDP by state are prepared in chained (2009) dollars. Real GDP by state is an inflation-adjusted measure of each state's GDP that is based on national prices of the goods and services produced in that state. The statistics on real GDP by state and on quantity indexes with a base year of 2009 were derived by applying national chain-type price indexes for value added to current-dollar GDP by state for the 64 detailed NAICS-based industries for 1997 forward.

The chain-type index formula that is used in the national accounts is then used to calculate the values of total real GDP by state and of real GDP by state at more aggregated industry levels. Real GDP by state may reflect a substantial volume of output that is sold to other states and countries. To the extent that a state's output is produced and sold in national markets at relatively uniform prices (or sold locally at national prices), real GDP by state captures the differences across states that reflect the relative differences in the mix of goods and services that the states produce. However, real GDP by state does not capture geographic differences in the prices of goods and services that are produced and sold locally.

^{1.} This measure differs conceptually from GDP in the national income and product accounts, though the values are similar. For a description of the differences, see the box "Gross Domestic Product (GDP) by State."

^{2.} For a description of the abbreviated methodology used to prepare the advance statistics, see the box "Advance Statistics on Gross Domestic Product (GDP) by State for 2013."

^{1.} For additional information, see J. Steven Landefeld and Robert P. Parker, "BEA's Chain Indexes, Time Series, and Measures of Long-Term Economic Growth," SURVEY OF CURRENT BUSINESS 77 (May 1997): 58–68; and Gerard P. Aman, George K. Downey, and Sharon D. Panek, "Comprehensive Revision of Gross State Product: Accelerated Estimates for 2003 and Revised Estimates for 1977–2002," SURVEY 85 (January 2005): 80–106.

This article focuses on growth in real GDP by state and the main industries that contributed to the growth. It then discusses per capita real GDP by state, comparing it with per capita personal income. It concludes by discussing improvements made as part of this comprehensive revision and the revisions to GDP by state for 1997–2012.

Regional and state growth in 2013

Growth slowed in all regions except the Rocky Mountain and the Plains regions. In the Rocky Mountain region—the fastest growing region in 2013—growth increased to 4.1 percent from 2.7 percent in 2012. Each state in this region grew faster than the national average—Wyoming (7.6 percent), Idaho (4.1 percent), Utah (3.8 percent), Colorado (3.8 percent), and Montana (3.0 percent). The Rocky Mountain region was the only region in which all states grew faster than the national average. In the Plains region, growth increased to 2.5 percent in 2013 from 2.3 percent in 2012. Growth in the Southwest region has been higher than the national average since 2010, primarily due to growth in Texas.

The five fastest growing states in 2013 were North Dakota (9.7 percent), Wyoming (7.6 percent), West Virginia (5.1 percent), Oklahoma (4.2 percent), and Idaho (4.1 percent). These states, however, only represent 2.5 percent of the nation's economy.

The five states with the largest real GDP in 2013 were California, Texas, New York, Florida, and Illinois. These five states represent 39 percent of the nation's

economy. Of these five states, Texas grew the fastest (3.7 percent), followed by Florida (2.2 percent) and California (2.0 percent). These three states grew faster than the national average (1.8 percent) in 2013. Texas and California also grew faster than the national average in 2011 and 2012.

Data Availability

Summary statistics on gross domestic product (GDP) by state in current dollars and in real chained (2009) dollars for 2010–2013 are presented in this article. More detailed statistics for states, BEA regions, and the United States can be accessed interactively on BEA's Web site.

The following annual statistics are available at www.bea.gov/regional:

- Advance statistics on current-dollar GDP by state, real GDP by state in chained (2009) dollars, and quantity indexes for 2013 for 24 NAICS-based sectors.
- Current-dollar and real GDP by state and quantity indexes for 1997–2012 for 81 NAICS-based subsectors.
- Current-dollar statistics of compensation of employees, taxes on production and imports less subsidies, taxes on production and imports, subsidies, and gross operating surplus for 1997–2012 for 81 NAICS-based subsectors.
- Per capita real GDP by state for 1997–2013. E-mail gdpbystate@bea.gov or call 202–606–5340 for further information.

Advance Statistics on Gross Domestic Product (GDP) by State for 2013

The advance statistics on GDP by state are based on source data that are incomplete or subject to further revision by the source agency. Revised statistics, based on more complete data, will be released in the summer of 2015. The advance statistics are prepared at the sector level of the 2007 North American Industry Classification System. The advance 2013 statistics draw heavily on preliminary 2013 state earnings by industry, released on March 25, 2014, and on advance 2013 statistics on GDP by industry, released on April 25, 2014. As a result, the advance 2013 statistics on GDP by state are consistent with the national annual industry accounts and the state personal income accounts.

The 2013 advance statistics on current-dollar GDP by state were extrapolated from industry value added (GDP) for 2012, using the change in state earnings by industry from state personal income statistics. For two industries, preliminary source data were incorporated: the advance statistics for the agriculture, forestry, fishing, and hunting sector incorporated preliminary data on farm sector cash receipts from the U.S. Department of Agriculture,

and the advance statistics for the mining sector incorporated preliminary data on value of production and prices from the U.S. Department of the Interior and the U.S. Department of Energy.

The 2013 advance statistics on GDP by state for all sectors were scaled to the advance 2013 statistics on GDP by industry by allocating the difference between the two measures to the states. The sector statistics were then summed to total GDP for the states.

The advance statistics on real GDP by state for detailed industries are derived by applying national chain-type price indexes for value added to the industry values of current-dollar GDP by state. The chain-type index formula that is used in the national accounts is then used to calculate the real values for sectors and total real GDP for the states

The advance U.S. real GDP by state differs from the corresponding GDP values in the national income and product accounts (NIPAs) because of differences in source data and vintages of data used to estimate GDP by state and NIPA GDP.

The five states with the smallest real GDP in 2013 were Vermont, Wyoming, Montana, South Dakota, and North Dakota. These five states only represent 1.3 percent of the nation's economy. Each of these states grew faster than the national average—North Dakota (9.7 percent), Wyoming (7.6 percent), South Dakota (3.1 percent), Montana (3.0 percent), and Vermont (1.9 percent). North Dakota also grew faster than the national average in 2010, 2011, and 2012, while Vermont, Montana, and South Dakota grew faster than the national average in 2010 and 2011.

The slowest growing (or declining) states in 2013 were Alaska, Maryland, and Virginia. Real GDP declined only in Alaska (2.5 percent) and the District of Colombia (0.5 percent). Growth in Maryland (0.0 percent) and Virginia (0.1 percent) was negligible. In both states, growth slowed significantly from 2012. In Virginia, growth was 1.3 percent in 2012, and in Maryland, growth was 1.2 percent.

Industry contributions to regional and state growth in 2013

Nondurable-goods manufacturing was the leading contributor to growth in U.S. real GDP by state in 2013. Growth in this industry contributed 0.33 percentage point, or approximately 18 percent, of the nation's real GDP growth of 1.8 percent (table 2). This industry contributed to real GDP growth in seven of the eight BEA regions and in 40 states. It was the leading contributor to growth in three BEA regions (Great Lakes, Southeast, and Southwest) and in 10 states. This industry contributed more than 1.0 percentage point to growth in four states—Louisiana (2.65 percentage points), Texas (1.19 percentage points), Indiana (1.08 percentage points) and Montana (1.07 percentage points).

Nationally, real estate and rental and leasing was the second-largest contributor to the growth in U.S. real GDP by state, contributing 0.21 percentage point. This industry has grown for 4 consecutive years since the housing market bust of the last half of the previous decade. This industry contributed to growth in all eight BEA regions and in 42 states. It was the leading contributor to growth in the New England region and in four of the six New England states (Maine, Massachusetts, New Hampshire, and Vermont). In Florida and Nevada—two states particularly hard hit by the housing market bust—this industry improved in 2012 and was the leading contributor to the state's growth in 2013.

Agriculture, forestry, fishing, and hunting was the third-largest contributor to growth (0.21 percentage point) for the nation. This industry contributed to real GDP growth in all eight BEA regions and in 49 states.

It was the leading contributor to growth in the Plains region and in seven states. This industry contributed more than 1.0 percentage point to growth in North Dakota (1.79 percentage points), South Dakota (1.67 percentage points), Iowa (1.41 percentage points), Nebraska (1.36 percentage points), and Idaho (1.14 percentage points). South Dakota, Iowa, and Nebraska recovered from the effects of the drought that affected the Midwest in 2012.

Although mining's contribution to real GDP growth for the nation was quite small, this industry strongly influenced several states. This industry was the largest contributor to growth in the Rocky Mountain region and in eight states. In North Dakota, the fastest growing state in 2013, mining contributed 3.61 percentage points to real GDP growth of 9.7 percent. In West Virginia, mining contributed 5.49 percentage points to real GDP growth of 5.1 percent. In Wyoming, the second-fastest growing state in 2013, mining contributed 6.12 percentage points to real GDP growth of 7.6 percent. By contrast, mining subtracted 2.55 percentage points from growth in Alaska, the only state with a decline in growth in 2013. This industry also subtracted more than a percentage point from growth in Louisiana (-2.42 percentage points) and Nevada (-1.26 percentage points), significantly reducing these state's growth rates.

The government sector subtracted from real GDP growth in 2013. This sector subtracted from growth in six of eight BEA regions and in 39 states and the District of Columbia. It was the leading detractor from growth in five BEA regions and in 22 states. This sector shaved 0.41 percentage point from real GDP growth in Georgia and Louisiana. A decline in the government sector was the primary factor for real GDP decreasing in 2013 in the District of Columbia, where the federal government accounts for nearly 32 percent of GDP.

Per capita real GDP by state

Per capita real GDP by state ranged from \$70,113 in Alaska to \$32,421 in Mississippi (chart 2 and table 3). Alaska's per capita real GDP was 43 percent above the national average. The mining sector was the leading contributor to the state's high per capita real GDP; mining accounted for 29.5 percent of Alaska's economy in 2013.

North Dakota had the second-highest per capita real GDP at \$68,804. The oil boom in North Dakota has significantly raised the state's per capita real GDP from slightly below the national average in 2008 to 40 percent above the national average in 2013.

Wyoming, Connecticut, and Massachusetts had the next highest per capita real GDP.

Mississippi, Idaho, South Carolina, West Virginia,

and Alabama were the states with the lowest per capita real GDP in 2013. Mississippi's per capita real GDP was 34 percent below the national average. States with the lowest per capita real GDP are more concentrated in an area of the United States: These five states represent two of the eight BEA regions, and four of these states are in the Southeast region.

Per capita real GDP by state and per capita personal income. Per capita real GDP by state and per capita personal income both measure the economic well-being of a state. Although there are many similarities between the two measures, there are also several differences. Per capita real GDP is measured by place of work, but per capita personal income is measured by place of residence. Per capita real GDP includes corporate income, but per capita personal income does not. Per capita personal income includes entitlements, such as social security and Medicare payments, but per capita real GDP by state does not.

The District of Columbia had the highest per capita real GDP and highest per capita personal income. The District of Columbia's per capita real GDP was more than three times the national average and reflects that many people commute into the District of Columbia for work.

Eight of the states that ranked in the top 10 in per

capita real GDP also ranked in the top 10 in per capita personal income. Connecticut, which ranked fourth in per capita real GDP, was the top ranked state in per capita personal income. The higher ranking in per capita personal income reflects that a significant number of people living in Connecticut commute into New York City for work.

Seven of the states that ranked in the bottom 10 in per capita real GDP also ranked in the bottom 10 in per capita personal income. Mississippi ranked last in both per capita real GDP and per capita personal in-

Several states ranked in the highest or lowest category in one measure but not in the other. Alaska ranked in the top 10 in both per capita GDP by state and per capita personal income, but the rankings differed by eight places: it ranked first in per capita real GDP but ninth in per capita personal income.

Revisions

BEA's June release of GDP by state included revised statistics for 2012 at a more detailed industry level and revised statistics for 1997-2011. These statistics incorporate the 2014 comprehensive revision of GDP by state. Comprehensive revisions differ from annual revisions in scope and in the number of years subject

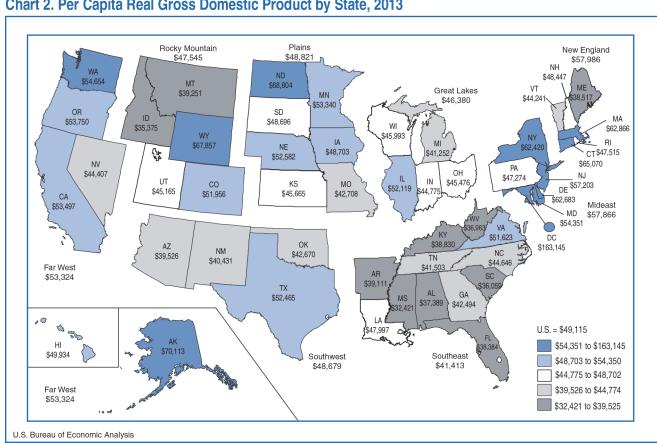


Chart 2. Per Capita Real Gross Domestic Product by State, 2013

to revision. Comprehensive revisions occur approximately every 5 years and incorporate more detailed methodological and statistical changes than annual revisions.

Methodological and statistical improvements. The 2014 comprehensive revision of GDP by state not only incorporates new and revised source data, but it also includes significant improvements in classifications and statistical methods in order to more accurately portray the state economies. Significant changes introduced with this revision include the following:

- Updated industry definitions consistent with the 2007 North American Industry Classification System (NAICS)
- Results of the 2013 comprehensive revision of state personal income ³
- Results of the 2013 comprehensive revision of the national income and product accounts and the 2014 comprehensive revision of the industry economic accounts, which included the recognition of research and development (R&D) expenditures as capital, the capitalization of entertainment, literary, and other artistic originals, the expansion of the capitalization of the ownership transfer costs of residential fixed assets, the use of an improved accrual accounting treatment of transactions for defined benefit pension plans, and improved methods for computing financial services provided by commercial banks ⁴

Even though significant improvements were incorporated into GDP by state for this comprehensive revision, the overall picture of the state economies remains similar to the picture shown by the previous statistics. One of the larger improvements to GDP by state was the capitalization of R&D and entertainment, literary, and other artistic originals.⁵ This improvement resulted in revised levels of GDP for many states and industries, but it did not significantly change growth rates. Likewise, revisions from incorporating new and revised source data were small for most states and industries.

Revised advance statistics for 2012. Revisions to the advance statistics of GDP by state for 2012, which were released in June 2013, were generally larger than revisions for 1997–2011. The advance statistics for 2012 correctly indicated the direction of change in 47 states, and they correctly identified whether a state grew at a faster or a slower pace than U.S. real GDP growth for 39 states and the District of Columbia. In addition, 31 states and the District of Columbia stayed in the same growth category (fast, moderate, or slow), 16 states moved one category, and 3 states moved two categories.

Current-dollar statistics for 1997–2009. Revisions to the current-dollar statistics, measured as a percentage of the previously published data, were fairly small for most states. The mean absolute revision for 1997–2009 for the United States was 3.5 percent (table 4). In 29 states, the mean absolute revision was 3 percent or less; 38 states had a mean absolute revision of 4 percent or less. For 1997–2009, the revisions ranged from –6.8 percent for Delaware in 2009 to 12.4 percent for Wyoming in 2008.

Current-dollar statistics for 2010–2012. Revisions for 2010–2012 were generally larger than revisions for 1997–2009. For 2010–2012, the mean absolute revision for the United States was 3.4 percent. Twenty-four states and the District of Columbia had a mean absolute revision of 3.0 percent or less; 33 states and the District of Columbia had a mean absolute revision of 4.0 percent or less. The largest revisions over this period stemmed from national revisions. For 2010–2012, the revisions ranged from –9.0 percent for Delaware in 2011 to 15.0 percent for Alaska in 2012. For Delaware, the revisions in 2010–2012 were mainly due to a downward revision in banking. For Alaska, the revisions in 2010–2012 were due to an upward revision to mining.

Acknowledgments

The statistics of gross domestic product (GDP) by state were prepared by the staff of the Regional Product Division under the direction of Charles Ian Mead, Chief, and Clifford H. Woodruff III, Chief of the Regional Product Branch. Joel D. Platt, Associate Director for Regional Economics, provided general guidance. Contributing staff members were Sharon D. Panek, Chief of the GDP by State Services Section, Zheng (Catherine) Wang, Chief of the GDP by State Goods Section, Frank T. Baumgardner, John E. Broda, Lam X. Cao, Jacob R. Hinson, Ralph M. Rodriguez, Todd P. Siebeneck, Robert P. Tate, and Shane T. Taylor. Carol A. Robbins, Chief of the Regional Analysis and Special Studies Branch, Christian Awuku-Budu, Christopher A. Lucas, and Robert P. Tate provided guidance and prepared statistics on expenditures for research and development and entertainment, literary, and artistic originals.

^{3.} See David G. Lenze, "Regional Quarterly Report: Comprehensive Revision of State Personal Income," Survey of Current Business 93 (November 2013): 52–56.

^{4.} See Donald D. Kim, Erich H. Strassner, and David B. Wasshausen, "Industry Economic Accounts: Results of the Comprehensive Revision and Revised Statistics for 1997–2012," SURVEY 94 (February 2014): 1–18; Robert Kornfeld, "Initial Results of the 2013 Comprehensive Revision of the National Income and Product Accounts," SURVEY 93 (August 2013): 6–17.

^{5.} For more information on the recognition of R&D expenditures as capital and the capitalization of entertainment, literary, and other artistic originals, see the box "New Recognition of Investment Increases Level of GDP by State."

Real (chained-dollar) GDP by state. Revisions to the real GDP growth rates for 1998–2012 primarily reflected revisions to the current-dollar statistics, some of which are mentioned above. The revisions to the

real GDP growth rates were measured as a percentage point difference from the previously published growth rate. For 1998–2009, most growth rate revisions were small (table 5). For 2012, only five states had a revision

New Recognition of Investment Increases Level of GDP by State

A major improvement introduced as part of the 2014 comprehensive revision of gross domestic product (GDP) by state was the recognition of expenditures for research and development (R&D) and for entertainment, literary, and artistic originals as fixed investment. Entertainment, literary, and artistic originals includes longlasting, reproducible works by writers, artists, musicians, and motion picture, television, and music studios. The July 2013 comprehensive revision of the national income and product accounts and the January 2014 comprehensive revision of the annual industry accounts recognized these expenditures as fixed investment and the depreciation of these assets as consumption of fixed capital. For the nation, treating R&D and entertainment, literary, and artistic originals as fixed investment increased the level of GDP by 2.9 percent, on average, in 1997–2012.

The greatest impact on GDP in 1997–2012 was in New Mexico (8.0 percent), Maryland (5.7 percent), Massachu-

setts (5.4 percent), and the District of Columbia (5.1 percent). All had average increases from 1997–2012 of greater than 5.0 percent. In New Mexico, Maryland, and the District of Columbia, most of the increase in GDP was accounted for by federal government expenditures for R&D, while in Massachusetts, most of the increase was accounted for by private business expenditures for R&D.

The adjustments to GDP by state for R&D investment are estimated with detailed state-level expenditures for R&D from the National Science Foundation. For entertainment, literary, and other artistic originals, detailed industry receipts for each state from the economic census are used to produce benchmark year estimate (1997, 2002, and 2007). For other years, wage and salary data from the Bureau of Labor Statistics for these same industries are used to interpolate and extrapolate the benchmark year estimates.

Average Annual Percent Increase in Current-Dollar GDP From the New Recognition of Investment, 1997–2012
[In order of increase]

	Percent		Percent
United States	2.9	Delaware	2
New Mexico	8.0	Illinois	2
Maryland	5.7	Tennessee	2
Massachusetts	5.4	Kansas	2
District of Columbia	5.1	Texas	2
California	4.9	Wisconsin	2
New Hampshire	4.4	lowa	2
Rhode Island	4.4	West Virginia	2
Connecticut	3.7	Missouri	1.
Washington	3.7	South Carolina	1
Michigan	3.5	Georgia	1
Oregon	3.3	Louisiana	1
Indiana	3.1	Florida	1
New York	3.1	Kentucky	1
Virginia	3.0	Maine	1
Colorado	2.9	Mississippi	1
New Jersey	2.8	Nebraska	1
Vermont	2.7	North Dakota	1
Alabama	2.7	Montana	1
Utah	2.6	Hawaii	1
Idaho	2.6	Oklahoma	1
North Carolina	2.6	Arkansas	1
Ohio	2.5	Nevada	1
Pennsylvania	2.5	South Dakota	1
Arizona	2.5	Alaska	0
Minnesota	2.4	Wyoming	0

GDP Gross domestic product

of 2 percentage points or more (in absolute terms); the mean absolute revision was 0.9 percentage point. The states with the largest absolute revisions were North Dakota (6.9 percentage points), West Virginia (–4.7 percentage points), Wyoming (–3.0 percentage points), Alaska (2.4 percentage points), and Texas (2.1 percentage points).

For 2011, only two states had a revision of 2 percentage points or more (in absolute terms); the mean absolute revision was 0.8 percentage point. The states with the largest absolute revisions were Wyoming (3.5

percentage points) and Alaska (2.5 percentage points). For Wyoming the revision to the growth rate was caused by an upward revision in mining, except oil and gas. For Alaska, the revision was caused primarily by an upward revision in oil and gas extraction.

For 2010, most percentage point revisions were small. The growth rate for South Dakota was revised up 2.7 percentage points and the growth rates for Arkansas and Rhode Island were revised up 1.4 percentage points.