Gross Domestic Product by State

Advance Statistics for 2009 and Revised Statistics for 1963–2008

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REAL GROSS domestic product (GDP) declined in 38 states and in all eight BEA regions in 2009. The sharpest downturns were in Nevada, where real GDP declined 6.4 percent, and in Michigan, where real GDP declined 5.2 percent (chart 1). Real U.S. GDP by state—a measure of nationwide growth calculated as the sum of GDP of all states deflated by a national price measure—declined 2.1 percent in 2009 after increasing 0.1 percent in 2008 (table 1).[1]

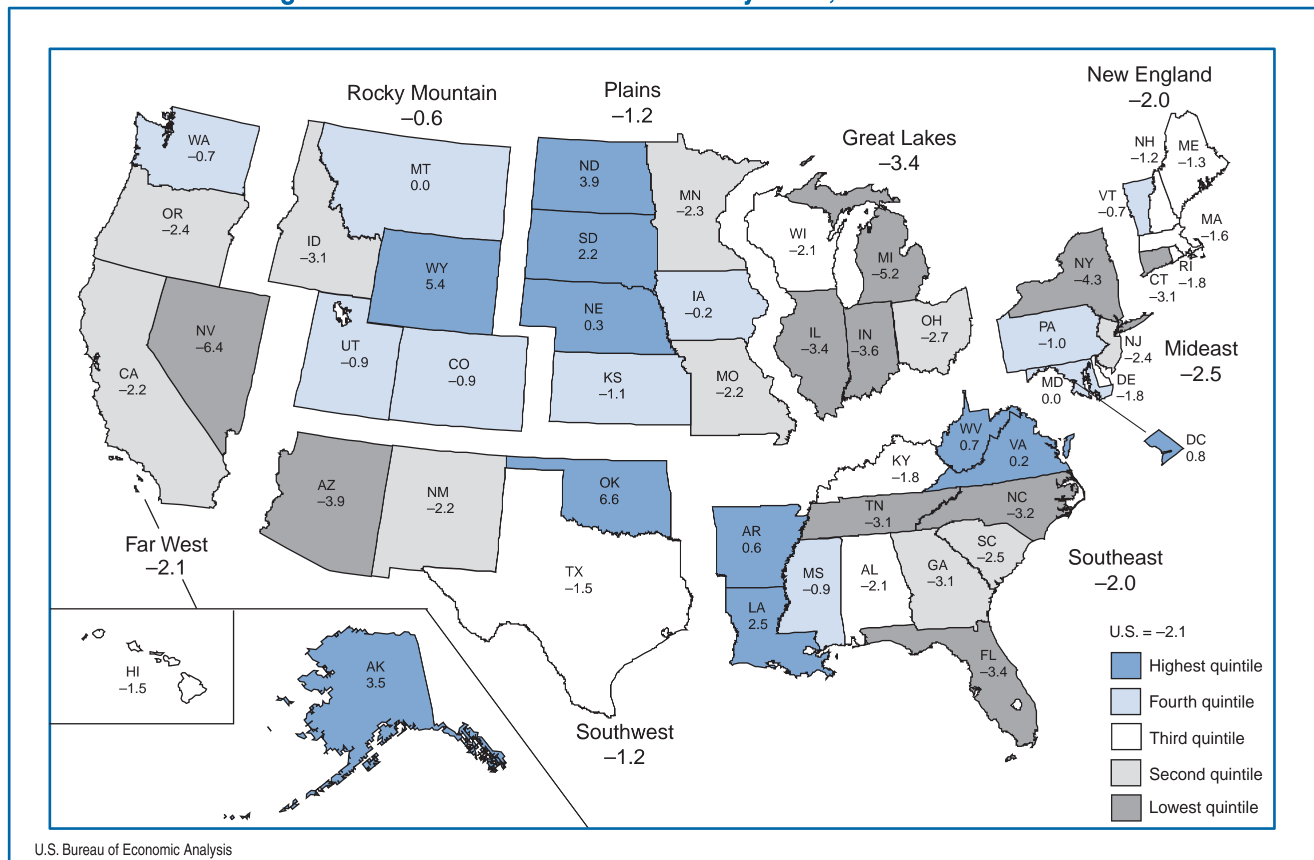
GDP by state is the most comprehensive measure of overall economic activity in individual states—the state counterpart to GDP in the national income and product accounts (NIPAs). In November, the Bureau of Economic Analysis (BEA) released advance current-dollar and real (chained-dollar) statistics of GDP by state for 2009.[2] Additional 2009 highlights include the following:

- Durable-goods manufacturing and construction led the decline in real U.S. GDP by state in 2009.
- The states hardest hit by the decline in durable-goods manufacturing were in the Great Lakes region.

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 generate the advance statistics, see the box "Advance Statistics on Gross Domestic Product (GDP) by State for 2009."

Chart 1. Percent Change in Real Gross Domestic Product by State, 2009



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- States that benefited from a strong housing market earlier in the decade were particularly hard hit by the decline in construction in 2009.
- Real GDP growth in 2009 was positive in several states due to growth in agriculture, forestry, fishing, and hunting and in mining.

This article presents industry contributions to regions and states in 2009 and a discussion of key improvements incorporated in the 2010 comprehensive revision to GDP-by-state statistics.

Industry contributions to regions and states

The decline in real GDP across the United States in 2009 was primarily caused by declines in the durable-goods manufacturing and construction sectors. For the nation, durable-goods manufacturing declined 7.5 percent in 2009, ending a run of 7 years of growth. Construction continued the decline that began in 2005, falling 9.9 percent in 2009. Despite a widespread decline in most sectors, some states fared well because of growth in the agriculture, forestry, fishing, and hunting sector and the mining sector (tables 2 and 3).

Industries contributing to the decline. In 2009, the durable-goods manufacturing sector contracted in all eight BEA regions and in 48 states and the District of Columbia. The only two states where this sector contributed positively to growth were in Maryland and Alaska. Durable-goods manufacturing was the largest contributor to the decline in 19 states, including all the states in the Great Lakes region. This industry contributed more than 2 percentage points to the decline in real GDP in Michigan and Indiana, and more than 1 percentage point in Ohio, Wisconsin, Tennessee, and Kentucky.

The construction sector also declined in all eight BEA regions. This sector declined in 45 states and the

Advance Statistics on Gross Domestic Product (GDP) by State for 2009

The advance statistics on GDP by state are based on limited state source data and an abbreviated estimation methodology that differs from the standard methodology used to prepare the state statistics for 1997–2008. These statistics are prepared at the sector level of the North American Industry Classification System (NAICS). Detailed state source data on value added by industry and state and local taxes by industry are not yet available for 2009. The advance 2009 statistics draw heavily on 2009 state earnings by industry, released on September 20, 2010, and on advance 2009 statistics on GDP by industry, released on May 25, 2010. As a result, the advance 2009 statistics on GDP by state are consistent with the national annual industry accounts and the state personal income accounts.

The 2009 advance statistics on current-dollar GDP by state were extrapolated from industry value added (GDP) for 2008, using the change in state earnings by industry from state personal income statistics. For two industries, preliminary source data were incorporated, which significantly improved the accuracy of the advance statistics. 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 2009 advance statistics on GDP by state for all sectors were scaled to the advance 2009 statistics on GDP by industry by allocating the difference between the two measures among 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.

Financial sector activity in the advance statistics

The measured financial sector activity reported in the advance statistics on GDP by state differs from the national income and product account statistics on corporate profits for 2009 because of differences in production schedules and the timing of revisions to source data underlying the state and national statistics as well as concepts, which usually cause some differences between the Bureau of Economic Analysis estimates of national and state level GDP. Usually these differences are not significant; however, in recent years, revisions to reported financial profits have resulted in larger-than-normal differences between the various vintages of national and regional estimates for states with significant financial activities.

Advance statistics are based upon more limited source data and abbreviated estimating methodologies, compared with standard regional statistics. The advance statistics for GDP by state for 2009 will be revised in June 2011 to incorporate a fuller set of source data and a more complete estimating methodology, but profits are likely to continue to be subject to revision until final profits data from the Internal Revenue Service are available in 2012.

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District of Columbia. It was the leading contributor to the decline in 15 states, including all the states in the Rocky Mountain region. In Arizona, Nevada, and Florida—states that benefited from a strong housing market earlier this decade—construction was a large contributor to the decline. The construction sector contributed more than 1 percentage point to the decline in real GDP in Nevada, Arizona, and Idaho. Although construction contributed less than 1 percentage point to Florida's GDP decline (0.95 percentage point), it was the largest contributor.

Nevada's 6.4 percent decline in real GDP, the largest decline of all the states, reflected declines in accommodation and food services and "real estate, rental, and leasing" as well as construction.

Industries contributing to growth. In contrast to most sectors, the mining sector and the agriculture, forestry, fishing, and hunting sector contributed significantly to real GDP growth in many states.

Real GDP growth in mining resulted from sharp declines in prices for petroleum, natural gas, and other mining products. In Oklahoma, the fastest growing state in 2009 (6.6 percent), mining contributed 7.23 percentage points. In Wyoming, the second-fastest growing state in 2009 (5.4 percent), mining contributed 5.90 percentage points to growth. Mining also contributed 1.66 percentage points to growth in Louisiana

The agriculture, forestry, fishing, and hunting sector was the leading contributor to growth in North Dakota and Nebraska, and it was the second largest contributor to growth in South Dakota.

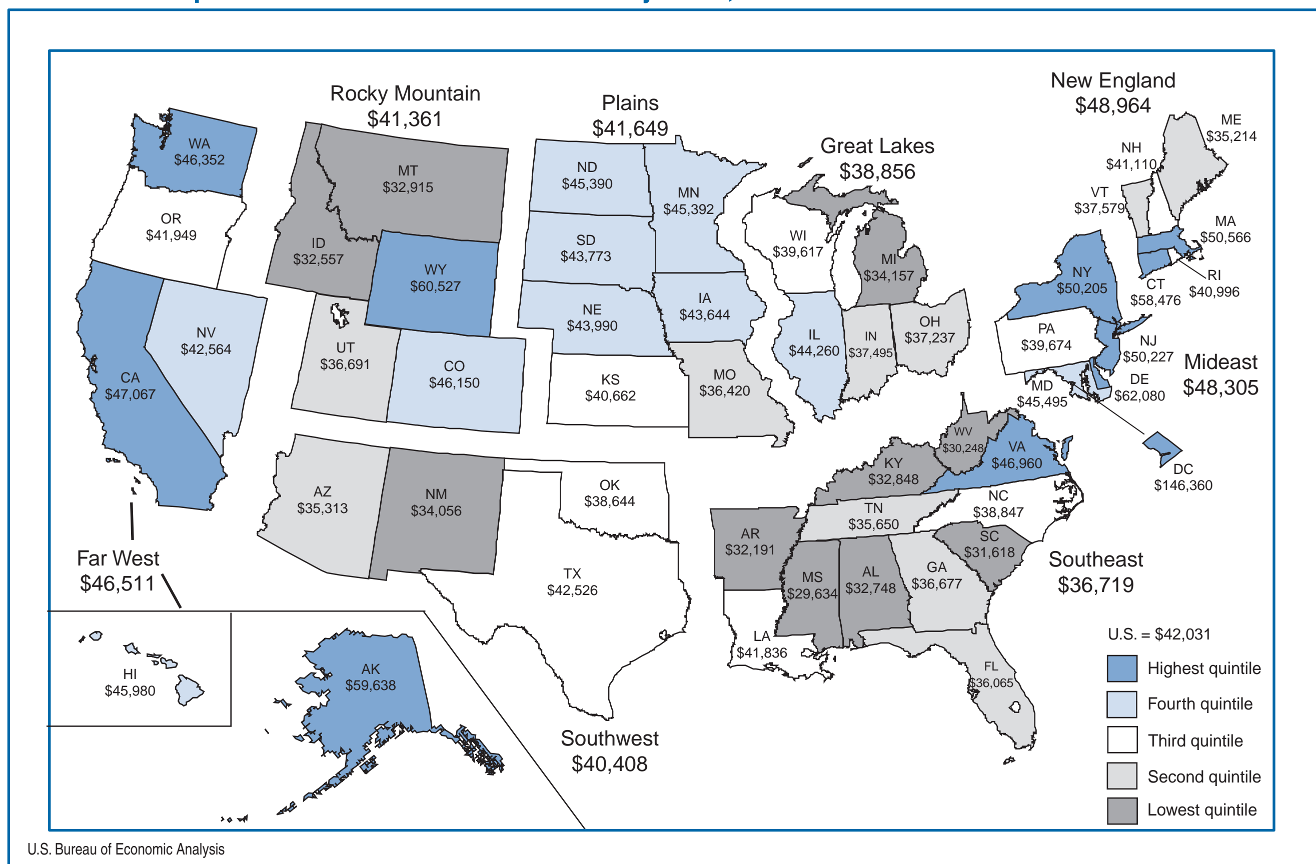
Per capita real GDP by state

In 2009, per capita real GDP fell in all but seven states. Both slowing or declining state GDP and growing population caused per capita real GDP in most states to fall. Nationwide, per capita real GDP decreased 2.9 percent in 2009, reflecting a decline in real GDP and a population increase of 0.9 percent.

In 2009, the states in the highest quintile of per capita real GDP did not change significantly from 2008. Delaware continued to have the highest per capita real GDP at $62,080 (table 4 and chart 2).[3] The lowest quintile was almost identical to 2008. Mississippi again had the lowest per capita real GDP in the nation at $29,634.

3. Per capita real GDP by state is computed using Census Bureau midyear population estimates.

Chart 2. Per Capita Real Gross Domestic Product by State, 2009



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 national income and product accounts (NIPAs) and thus GDP by industry from 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 2009 statistics on GDP by industry are identical to those from the 2009 comprehensive revision of the NIPAs released in July 2009. However, because of revisions since July 2009, 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 North American Industry Classification System (NAICS), and the statistics for industries for 1963–97 are based on the Standard Industrial Classification (SIC). 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 of 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 (2005) 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 2005 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 and for the 63 detailed SIC-based industries for 1977–97.

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.[1] 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.

BEA is working toward a long-term goal of replacing the national implicit price deflators used to deflate state-level current-dollar GDP by industry with state-specific prices. A paper posted on BEA's Web site "Estimates of State and Metropolitan Price Parities for Consumption Goods and Services in the United States, 2005" by Bettina H. Aten presents estimates of spatial price deflators that may be used for adjusting price level differences across geographic areas (but not across time). The work is based on microlevel price data from the consumer price index of the Bureau of Labor Statistics and the American Community Survey of the Census Bureau. It represents an important first step in deriving producer-type price indexes—which are the basis for the national implicit price deflators used in BEA's GDP-by-state accounts—at the state level. BEA plans to continue research into developing state-level prices and to explore estimating GDP by state on an expenditures basis.

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.

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Typically, the year-to-year rankings in state per capita real GDP are relatively stable. However, North Dakota and Oklahoma made sizable moves up in the rankings since 2007. North Dakota climbed 11 places to 15th with per capita real GDP of $45,390 in 2009, roughly the national average. Similarly, Oklahoma climbed 10 places to 30th with per capita real GDP of $38,644 in 2009. In contrast, the state with the largest drop in the rankings was Nevada, falling 11 places to 20th; its GDP fell in 2008 and 2009 and its population increased 2.9 percent from 2007 to 2009 with per capita real GDP of $42,564 in 2009.

Comprehensive revision improvements

BEA's November release of GDP by state also provided (1) revised statistics for 2008 at a more detailed industry level, (2) revised statistics for 1997–2007 on the North American Industry Classification System (NAICS), and (3) revised statistics for 1963–97 on the Standard Industrial Classification (SIC).[4] These statistics incorporate the 2010 comprehensive revision of GDP by state. Comprehensive revisions differ from annual revisions in scope and in the number of years subject to revision. Comprehensive revisions are made every 5 years and incorporate more detailed methodological and statistical changes than annual revisions.

The 2010 comprehensive revision of GDP by state introduced two major types of improvements to BEA's regional accounts: (1) an updated industry classification and (2) statistical changes that incorporate new and improved methodologies and newly available and revised source data. Significant changes introduced with this comprehensive revision include the following:

- Updated industry definitions based on the 2002 NAICS.
- Results of the 2009 comprehensive revision of the national income and product accounts, the 2010 comprehensive revision of the annual industry accounts, and the 2009 comprehensive revision of state personal income.[5]
- New data sources to better allocate national economic activity across states for utilities, air transportation, freight rail transportation, and state and local government.
- Improved use of economic census data on tax-exempt establishments to allocate national economic activity across states for services-producing industries.
- Improved statistical methods for the federal enterprises of flood and crop insurance to improve consistency with the national income and product accounts.

In addition to the improvements made as part of the comprehensive revision, the revised GDP by state

4. The advance statistics for 2008 were released in June 2009; thus, the 2008 statistics are revised.

5. See Matthew M. Donahoe, Edward T. Morgan, Kevin J. Muck, and Ricky L. Stewart, "Annual Industry Accounts: Advance Statistics on GDP by Industry for 2009 and Revised Statistics for 1998–2008, Comprehensive Revision," Survey of Current Business 90 (June 2010): 14–29; Robert Kornfeld, "Initial Results of the 2009 Comprehensive Revision of the National Income and Product Accounts," Survey 89 (August 2009): 6–49; Robert L. Brown, "Regional Quarterly Report: State Personal Income and the Comprehensive Revision," Survey 89 (November 2009): 71–108.

Data Availability

Summary statistics on gross domestic product (GDP) by state in current dollars and in real chained (2005) dollars for 1997–2009 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/gsp:

- Advance statistics on current-dollar GDP by state, real GDP by state in chained (2005) dollars, and quantity indexes for 2009 for 24 NAICS-based sectors.
- GDP by state in current dollars, real GDP by state in chained (2005) dollars, and quantity indexes for 1997–2008 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 1997–2008 for 81 NAICS-based subsectors.
- Per capita real GDP by state in chained (2005) dollars for 1997–2009.

For further information, call 202–606–5340 or e-mail gdpbystate@bea.gov.

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statistics incorporate new and revised state source data, most notably, new data from the Census Bureau's Economic Census for 2007 and the Annual Survey of Manufactures for 2008.

Current-dollar statistics for 1998–2002. 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 1998–2002 for the United States was 1.2 percent (table 5). In 37 states and the District of Columbia, the mean absolute revisions were 2 percent or less. The largest downward revision was in Alaska in 2000 (4.1 percent), which was mainly due to a downward revision to oil and gas extraction. The largest upward revision was in South Dakota in 2001 (5.3 percent), which was due to an upward revision in Federal Reserve banks, credit intermediation, and related services.

Current-dollar statistics for 2002–2007. Revisions for 2002–2007 were generally larger than the revisions for 1998–2002. For 2002–2007, the mean absolute revision for the United States was 1.7 percent. Twenty-three states and the District of Columbia had a mean absolute revision of 2 percent or less; 41 states and the District of Columbia had a mean absolute revision of 3 percent or less. The largest revisions over this period came in 2005, when the revisions ranged from –5.0 percent for Delaware to 7.7 percent for Louisiana. For Delaware, the revision was mainly due to a downward revision to rental and leasing services. For Louisiana, the revision was due to an upward revision to petroleum and coal products manufacturing.

Real (chained-dollar) statistics. The real GDP growth rates for 2008 correctly identified the direction of change in 40 states and the District of Columbia and whether a state grew at a faster or slower pace than U.S. real GDP growth for 39 states and the District of Columbia.

Revisions to the real GDP growth rates for 1998–2008 primarily reflect 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 2008, only two states had a revision of 2 percentage points or greater (in absolute terms); the mean absolute revision was 0.8 percentage point (table 6). The states with the largest absolute revisions were Montana (2.5 percentage points), Wyoming (2.2 percentage points), Nevada (1.9 percentage points), and Delaware (1.9 percentage points).

In 2006 and 2007, the revisions to Louisiana was due to significant upward revisions to petroleum and coal products manufacturing in 2005 (a revision in 2005 affects the 2006 growth rate) and 2006 and downward revisions to mining in 2006 and 2007. In 2007, the downward revisions in real GDP growth for North Dakota and South Dakota are primarily due to downward revisions in crop and animal production (farms).

Appendix A and tables 1–9 follow.