Measuring Iowa's Economy: Output

By

Michael A. Lipsman

Strategic Economics Group
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Introduction

After going through the deepest recession since the 1930s, the United States economy continues to struggle its way back to prosperity. Although not as badly damaged as the economies of many other states, Iowa's economy has not yet fully recovered from the recession. But what does it mean to say the recovery is not complete? Or at an even more basic level, what is the appropriate basis for comparison?

Studies of an area's economic condition most frequently reference measures of output, income, and employment. This paper is the first of four papers that address the issue of what story different measures of economic activity tell about Iowa. This paper focuses on the measure of economic output, which economists commonly refer to as gross domestic product (GDP). Two additional papers will address the income and employment measures. A final paper will analyze relationships among the three measures.

Using annual data the analysis focuses on the years beginning with 2000. To put Iowa's economy into perspective comparisons are made to the nation, the Great lakes and Plains regions, and to eleven other Midwestern states that along with Iowa comprise the two regions.

The U.S. Department of Commerce's Bureau of Economic Analysis (BEA) publishes annual state gross domestic product data for the nation, eight regions, and for each state. This allows meaningful comparisons among the states and across regions. The analysis presented in this paper uses real gross domestic product data, which eliminates the impact of inflation.

The paper's first section defines state gross domestic product and explains how the state values are determined. The second section, investigates the trend and cyclical behavior of Iowa real GDP over the years 2000 through 2011. In this section year-to-year percent changes in total real GDP are presented and a trend growth rate for the period is derived. The third section addresses Iowa state gross domestic product in terms of 20 sectors determined by the Bureau of Economic Analysis. Section four makes comparisons in terms of total real GDP between Iowa and the nation and among Iowa the Great Lakes and Plains regions and the states that comprise these regions. The final section provides a detailed analysis of seven economic sectors and makes comparison to the nation, the two regions, and the eleven other states.

State Gross Domestic Product Defined

Like its national counterpart, state gross domestic product (GDP) measures the value of all goods and services produced within a state. The methodology employed to compute state GDP involves the addition of labor income, business taxes, and capital income. These three components of state GDP are defined as follows:

- Labor income includes the wages, salaries, and other benefits earned by workers.
- Business taxes include federal excise, sales, property, and other taxes that can be included as a business expense.

- Capital income includes income earned by individual or joint business entrepreneurs as well as corporations, plus depreciation and other income earned by capital.[1]

The data sources used to estimate the different components of state GDP include:

- The BEA's personal income accounts for labor income and for non-corporate capital income,
- The U.S. Census Bureau, other federal agencies, and state agencies for business taxes less subsidies,
- The U.S. Department of Agriculture and the Census Bureau for value-added data for goods-producing industries, and
- Regulatory reports filed by regulated service-producing industries, and Census Bureau gross receipts and payroll data for non-regulated service-producing industries for corporate capital income.

To eliminate the impact of price changes, national chain-weighted price deflators are used to convert nominal state GDP estimates to constant dollar (real) values.

The state real GDP data used in this paper was obtained from annual estimates released each June by the U.S. Bureau of Economic Analysis. Unlike the national estimates that are done quarterly state estimates are only done annually. The most recent state release contains data through 2011. The 2011 data is preliminary and contains only overall and major sector estimates. Final state GDP estimates with additional sector detail are released a year after the preliminary estimate release, or about eighteen months following the close of the year to which they apply.

State Gross Domestic Product Trends and Cycles

Over the twelve years from 2000 to 2011 the State's real GDP increased by 22.08%, which equals an average annual rate of growth equal to 1.83%. However, during this period Iowa like the nation experienced two recessions. The first recession occurred between March and November 2001 and was relatively mild with the nation's output shrinking by only 0.3 percent over the eight months. The second recession proved to be the deepest suffered by this country since the Great Depression of the 1930s with the nation's real gross domestic product declining by 5.1% over the eighteen months from December 2007 to June 2009.

As shown in Figure 1 Iowa began the 21st century with a 2.02% decrease in real GDP followed by a recovery that built over three years peaking with a growth rate of 6.97% during 2004. But then during the next two year the State's grown in output dropped to only 1.83% in 2005 and an even weaker 0.96% in 2006. Real GDP growth picked up again during 2007 increasing by 4.67%. But this strong growth was short lived. With the onset of the Great Recession Iowa's real GDP decreased by 2.47% during 2008 and by an additional 2.90% during 2009. As recovery from the Great Recession took hold the State's output grew by 5.07% during 2010, but this growth slowed to a rate of 1.92% in 2011 as fiscal and monetary stimulus actions ended and international economic problems spilled over to the United States.

[1] U.S. Department of Commerce, Bureau of Economic Analysis, "Gross Domestic Product by State Estimation Methodology," (2006), pp. ii-iii.

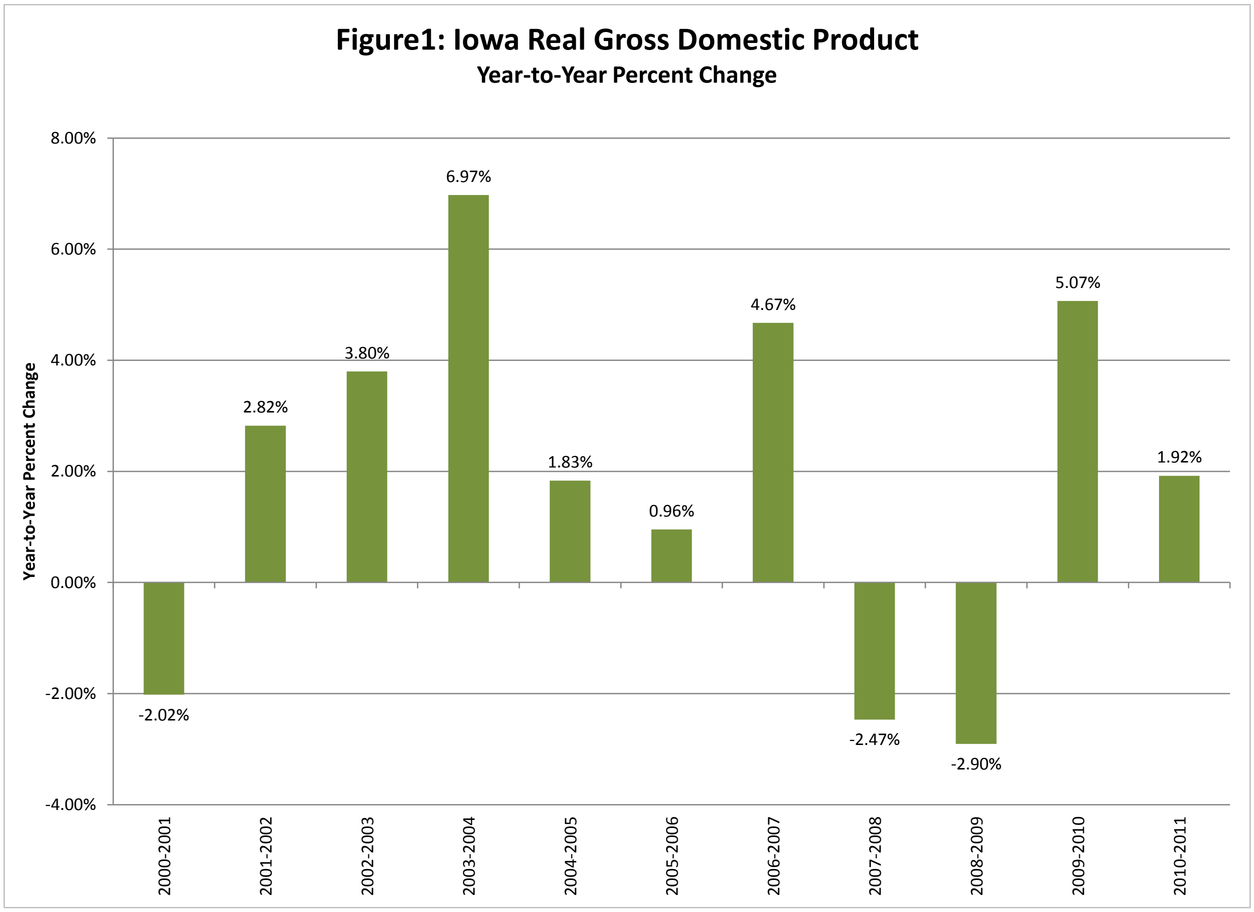


Figure 2 shows actual total Iowa real GDP plotted against the predicted trend values for each year. The trend predictions were obtained by regressing the natural logarithm of the total real GDP values on years. This generated a predicted annual rate of growth of 1.98%.

This analysis shows that in 2000 actual total Iowa real GDP slightly exceeded trend, but then over the next three years Iowa's real GDP fell below trend and over this period accumulated a growth deficit of \$8.287 billion. From 2004 through 2008 Iowa real GDP grew above trend and accumulated a surplus of \$17.863 billion. Then during the most recent three years Iowa real GDP again grew below trend. For 2011 actual real GDP was \$2.022 billion (1.55%) below trend.

State Gross Domestic Product by Sector

In addition to total state gross domestic product estimates the Bureau of Economic Analysis provides estimates for 20 major sectors for each state. This additional detail provides the means to better understand both structural changes and cyclical contractions and expansions for each state, as well as the basis for making comparisons to the nation as a whole and among regions and states.

Table 1 presents total and major sector Iowa real GDP amounts for the years 2000 through 2011. The top part of the table presents real GDP amounts expressed in millions of 2005 chain-weighted dollars. The bottom part of the table presents the share of total real GDP accounted for by each sector of the State's economy.[2]

In 2000, Iowa real GDP equaled $105.338 billion. By 2011, Iowa real GDP reached $128.597 billion. Also, by 2011 the State's real GDP exceeded its pre-Great Recession level of $126.808 billion achieved during 2007. So, in terms of overall state economic output, Iowa has fully recovered from the last recession and has entered a period of economic expansion. Based on the distress still being suffered by a significant number of people this assessment of the condition of the State's economy may not seem creditable. Subsequent analysis of income and employment trends will shed light on why many people are not yet benefiting from the recovery of the State's economy.

[2] Due to the manner in which nominal values have been converted to real values the sectors do not always sum to the all industries total.

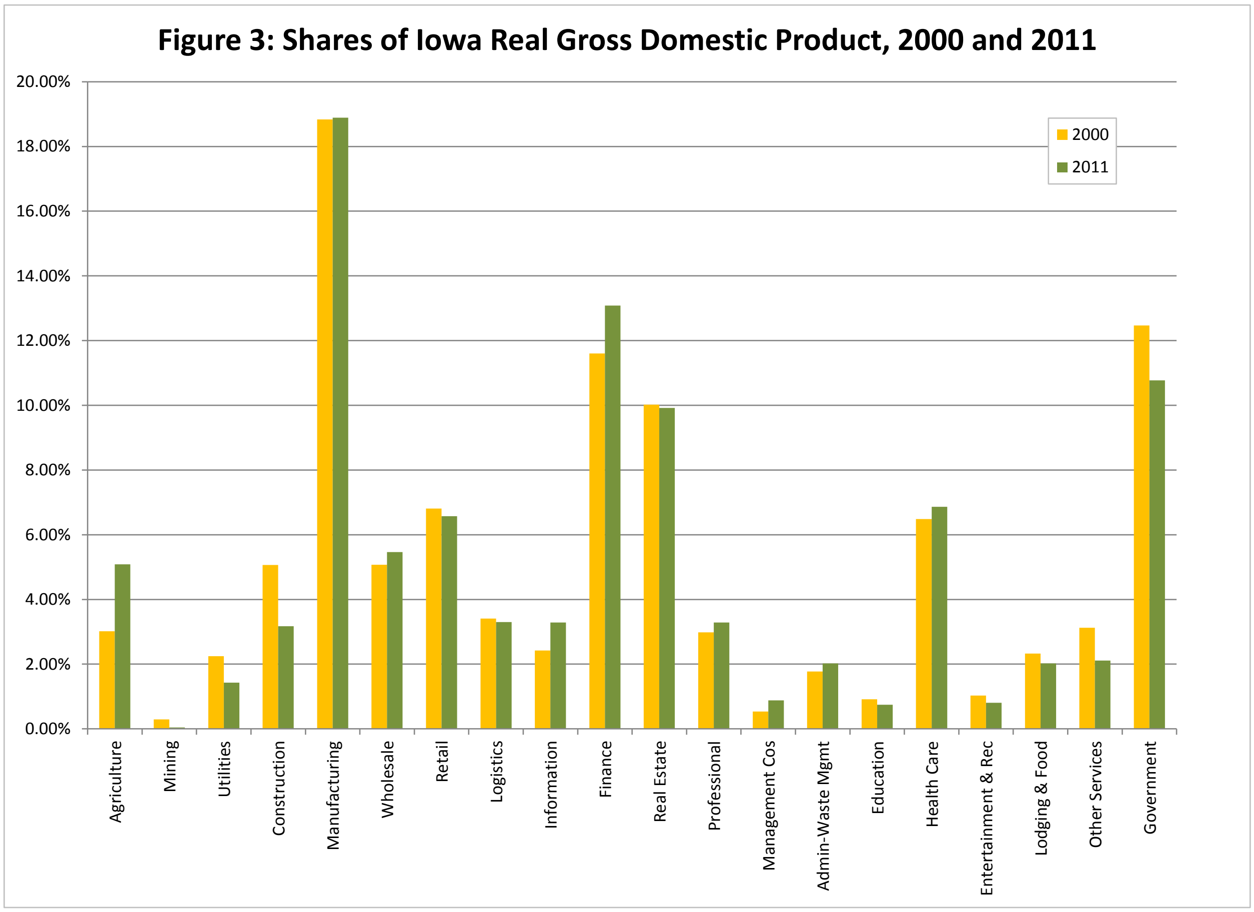
Table 1: Iowa Real Gross Domestic Product, 2000 - 2011

Sectors	Real Gross Domestic Product ($2005 millions)											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Industry Totals	105,338	103,211	106,125	110,158	117,839	119,998	121,146	126,808	123,680	120,088	126,172	128,597
Private Industries	92,247	90,077	92,921	96,844	104,516	106,552	107,670	113,451	110,061	106,207	112,350	114,771
Agriculture, Forestry, Fishing and Hunting	3,179	2,930	4,082	4,058	5,582	4,826	4,876	5,086	6,813	7,539	6,759	6,539
Mining	309	266	278	226	170	127	93	73	79	62	59	57
Utilities	2,368	2,028	2,111	2,101	2,181	1,971	1,915	1,988	2,088	1,872	1,926	1,837
Construction	5,337	4,901	4,723	4,825	4,905	4,863	4,715	4,431	4,333	4,068	4,026	4,081
Manufacturing	19,839	19,317	20,080	20,815	22,992	23,130	24,615	24,862	23,269	20,054	23,203	24,293
Durable Goods	10,333	10,046	10,660	10,557	12,888	13,659	14,104	14,079	12,721	10,213	13,009	14,032
Nondurable Goods	9,500	9,266	9,407	10,254	10,098	9,471	10,512	10,788	10,539	9,751	10,237	10,357
Wholesale Trade	5,342	5,509	5,598	5,933	6,302	6,547	6,618	7,011	7,224	6,556	6,822	7,028
Retail Trade	7,171	7,283	7,502	7,591	7,514	7,453	7,471	7,487	7,459	7,651	8,342	8,449
Transportation and Warehousing	3,592	3,378	3,410	3,616	3,961	4,223	4,401	4,568	4,470	4,000	4,301	4,242
Information	2,555	2,586	2,881	3,043	3,477	3,692	3,728	3,853	4,152	4,100	4,128	4,230
Finance and Insurance	12,224	11,185	11,344	13,242	15,204	16,981	15,992	19,472	14,038	14,629	16,744	16,823
Real Estate and Leasing	10,556	10,906	10,645	10,633	10,790	11,063	11,108	11,783	12,240	12,521	12,069	12,756
Professional, Scientific and Technical Services	3,146	3,200	3,249	3,296	3,480	3,480	3,627	3,865	4,049	3,848	4,067	4,230
Management of Companies and Enterprises	568	654	721	936	910	1,018	1,068	1,108	1,107	1,114	1,015	1,136
Administrative and Waste Management Services	1,870	1,990	1,920	2,102	2,084	2,249	2,293	2,435	2,557	2,440	2,656	2,604
Educational Services	963	994	1,013	993	1,012	971	970	960	1,002	1,001	989	958
Health Care and Social Assistance	6,834	7,082	7,211	7,378	7,539	7,648	7,776	7,873	8,348	8,329	8,542	8,824
Arts, Entertainment and Recreation	1,084	948	1,032	951	994	960	1,050	1,228	1,020	979	1,042	1,038
Accommodations and Food Services	2,450	2,388	2,416	2,482	2,557	2,609	2,615	2,665	2,629	2,433	2,545	2,605
Other Services, except Government	3,292	2,817	2,887	2,806	2,779	2,740	2,756	2,797	2,691	2,649	2,715	2,714
Government	13,136	13,211	13,257	13,346	13,325	13,446	13,477	13,381	13,615	13,842	13,828	13,848

Sectors	Real Gross Domestic Product Shares (%)											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Industry Totals	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Private Industries	87.57%	87.27%	87.56%	87.91%	88.69%	88.79%	88.88%	89.47%	88.99%	88.44%	89.05%	89.25%
Agriculture, Forestry, Fishing and Hunting	3.02%	2.84%	3.85%	3.68%	4.74%	4.02%	4.02%	4.01%	5.51%	6.28%	5.36%	5.08%
Mining	0.29%	0.26%	0.26%	0.21%	0.14%	0.11%	0.08%	0.06%	0.06%	0.05%	0.05%	0.04%
Utilities	2.25%	1.96%	1.99%	1.91%	1.85%	1.64%	1.58%	1.57%	1.69%	1.56%	1.53%	1.43%
Construction	5.07%	4.75%	4.45%	4.38%	4.16%	4.05%	3.89%	3.49%	3.50%	3.39%	3.19%	3.17%
Manufacturing	18.83%	18.72%	18.92%	18.90%	19.51%	19.28%	20.32%	19.61%	18.81%	16.70%	18.39%	18.89%
Durable Goods	9.81%	9.73%	10.04%	9.58%	10.94%	11.38%	11.64%	11.10%	10.29%	8.50%	10.31%	10.91%
Nondurable Goods	9.02%	8.98%	8.86%	9.31%	8.57%	7.89%	8.68%	8.51%	8.52%	8.12%	8.11%	8.05%
Wholesale Trade	5.07%	5.34%	5.27%	5.39%	5.35%	5.46%	5.46%	5.53%	5.84%	5.46%	5.41%	5.47%
Retail Trade	6.81%	7.06%	7.07%	6.89%	6.38%	6.21%	6.17%	5.90%	6.03%	6.37%	6.61%	6.57%
Transportation and Warehousing	3.41%	3.27%	3.21%	3.28%	3.36%	3.52%	3.63%	3.60%	3.61%	3.33%	3.41%	3.30%
Information	2.43%	2.51%	2.71%	2.76%	2.95%	3.08%	3.08%	3.04%	3.36%	3.41%	3.27%	3.29%
Finance and Insurance	11.60%	10.84%	10.69%	12.02%	12.90%	14.15%	13.20%	15.36%	11.35%	12.18%	13.27%	13.08%
Real Estate and Leasing	10.02%	10.57%	10.03%	9.65%	9.16%	9.22%	9.17%	9.29%	9.90%	10.43%	9.57%	9.92%
Professional, Scientific and Technical Services	2.99%	3.10%	3.06%	2.99%	2.95%	2.90%	2.99%	3.05%	3.27%	3.20%	3.22%	3.29%
Management of Companies and Enterprises	0.54%	0.63%	0.68%	0.85%	0.77%	0.85%	0.88%	0.87%	0.90%	0.93%	0.80%	0.88%
Administrative and Waste Management Services	1.78%	1.93%	1.81%	1.91%	1.77%	1.87%	1.89%	1.92%	2.07%	2.03%	2.11%	2.02%
Educational Services	0.91%	0.96%	0.95%	0.90%	0.86%	0.81%	0.80%	0.76%	0.81%	0.83%	0.78%	0.74%
Health Care and Social Assistance	6.49%	6.86%	6.79%	6.70%	6.40%	6.37%	6.42%	6.21%	6.75%	6.94%	6.77%	6.86%
Arts, Entertainment and Recreation	1.03%	0.92%	0.97%	0.86%	0.84%	0.80%	0.87%	0.97%	0.82%	0.82%	0.83%	0.81%
Accommodations and Food Services	2.33%	2.31%	2.28%	2.25%	2.17%	2.17%	2.16%	2.10%	2.13%	2.03%	2.02%	2.03%
Other Services, except Government	3.13%	2.73%	2.72%	2.55%	2.36%	2.28%	2.27%	2.21%	2.18%	2.21%	2.15%	2.11%
Government	12.47%	12.80%	12.49%	12.12%	11.31%	11.21%	11.12%	10.55%	11.01%	11.53%	10.96%	10.77%

Using the most recent data from 2011 as the point of reference, the five sectors that account for the largest share of Iowa's economy are manufacturing (18.89%), finance and insurance (13.08%), government (10.77%), real estate and leasing (9.92%), and health care and social assistance (6.86%). In 2011, the agriculture, forestry, fishing and hunting sector accounted for only 5.08% of the State's real GDP.

The relative contributions made by the different sectors of the State's economy have changes over the past twelve years. Figure 3 summarizes the changes in sector shares that have occurred over this period.



One of the most interesting changes, because it goes against conventional beliefs, is that government's share of the Iowa economy has shrunk from 12.47% in 2000 to 10.77% in 2011. Furthermore, this decline cannot be attributed to the recent recession. In 2007, before the recession, government's share of the State's real GDP equaled only 10.55%. Some of the other most notable observations about the shares of state economic output accounted for by different sectors include:

- Manufacturing has accounted for the largest share of State real GDP every one of the twelve years. Manufacturing's share began the period at 18.83% and ended the period at 18.89%, and its share peaked at 20.32% in 2006.

- Within the overall manufacturing sector durable goods manufacturing increased its share from 9.81% to 10.91%, while nondurable goods manufacturing's share decreased from 9.02% to 8.05%.
- Agriculture's share of Iowa real GDP increased from 3.02% in 2000 to 5.08% in 2011, and this sector's share actually peaked at 6.28% in 2009.
- Two other sectors that realized notable gains in their shares of State real GDP were finance, which increased from 10.60% to 13.08%, and information, which increased from 2.43% to 3.29%.
- The share of Iowa real GDP accounted for by the health care sector did increase, but somewhat surprising by only 0.37 of a percentage point from 6.49% in 2000 to 6.86% in 2011.
- Among the major share losers, not surprisingly, was the construction sector. This sector produced 5.07% of the State's output in 2000 and its share of Iowa real GDP dropped throughout the twelve years ending the period at 3.17%. The surprise here is that the construction sector only accounted for 3.89% in 2006 and 3.49% in 2007 of State real GDP during the supposed boom years before the bursting of the housing bubble.
- Another surprise is that the real estate sector saw its share of Iowa real GDP only decrease from 10.02% in 2000 to 9.92% in 2011.

Beyond sector shares, looking at changes in economic output provides absolute measures of growth and decline across the different sectors, and in addition, it provides a basis for determining the extent to which each sector contributed to the State's overall economic growth or decline during a particular year and over a period of years. Table 2 presents the year-to-year change (top) and percent change (bottom) for the State's real GDP for each year and for the twelve years from 2000 to 2011. These measures of change in output are provided for the overall Iowa economy and for its major sectors.

Over the twelve years Iowa's real GDP grew by $23.259 billion (22.08%). The five sectors that contributed the most to the growth are finance and insurance (19.77%), manufacturing (19.15%), agriculture, foresting, fishing and hunting (14.45%), real estate and leasing (9.46%), and health care and social assistance (8.56%).[3]

Six sectors contributed negatively to the State's economic growth. Not surprisingly construction experienced a $1.256 billion (-23.53%) decline in real GDP. Other sectors that experienced contractions in economic output are mining (-81.55%), utilities (-22.42%), other services (-17.56%), arts, entertainment, and recreation (-4.24%), and educational services (-0.52%).

Figure 4 shows the percent change in real GDP for each of the twenty sectors of Iowa's economy over the entire period from 2000 to 2011. However, Iowa's economy, like the nation's, experienced two recessions over this period. All sectors of the State's economy were not impacted to the same degree during these periods of decline and recovery. To gain a better understanding of how different sectors were impacted by the two recessions the percent change in real GDP for each of the twenty sectors was reviewed for four separate time periods: 2000 to 2002, 2002 to 2007, 2007 to 2009, and 2009 to 2011.

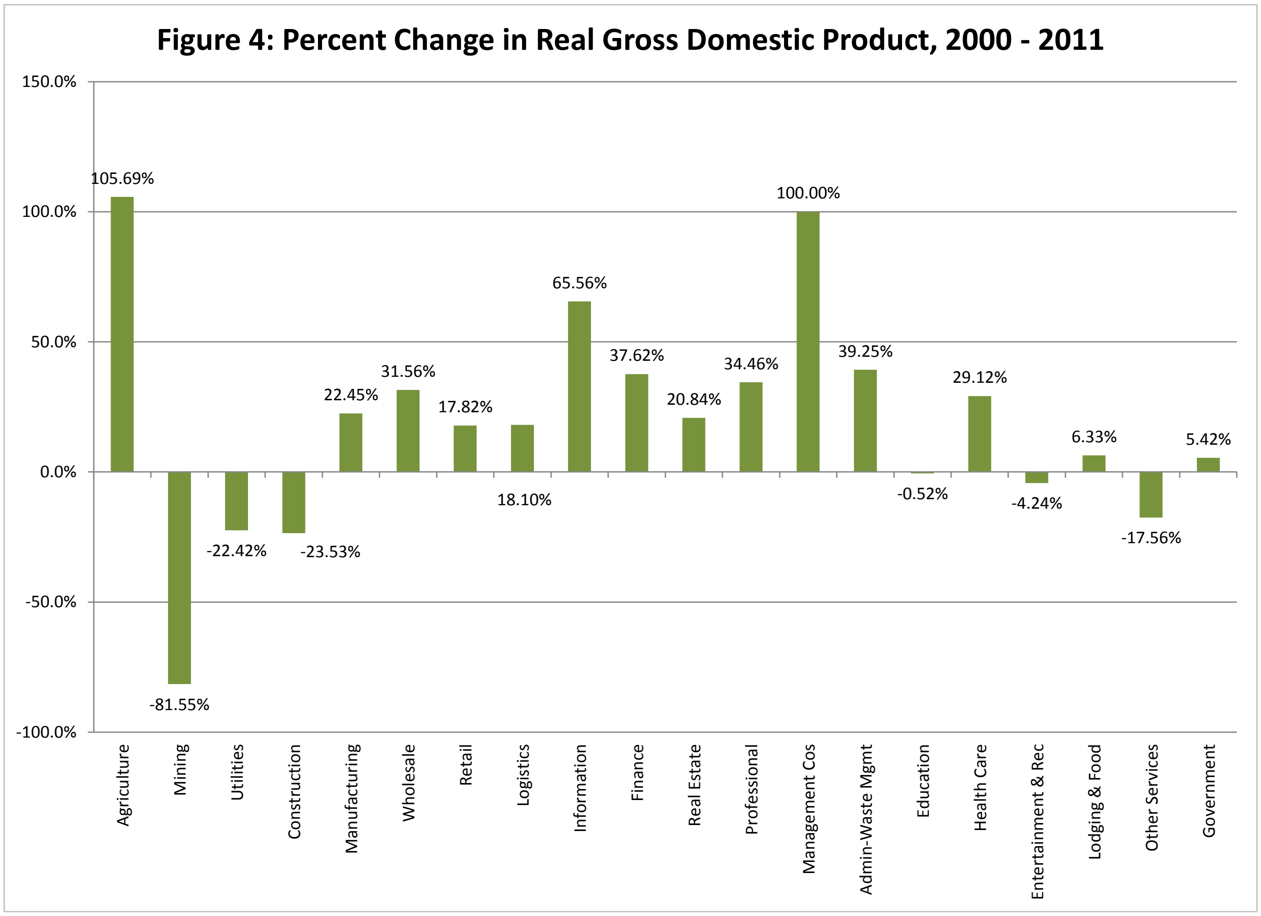
Figure 5 shows the percent changes in output by sector for the two recession periods – 2000 to 2002 and 2007 to 2009. Figure 6 shows the percent changes in output by sector for the two recovery and expansion periods – 2002 to 2007 and 2009 to 2011.

[3] The percentages in parentheses following each of the five sectors represent their shares of total Iowa real GDP growth over the years 2000 to 2011.

Table 2: Changes in Iowa Real Gross Domestic Product, 2000 - 2011

Sectors	Change in Real Gross Domestic Product ($2005 millions)											
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2000 - 2011
All Industry Totals	-2,127	2,914	4,033	7,681	2,159	1,148	5,662	-3,128	-3,592	6,084	2,425	23,259
Private Industries	-2,170	2,844	3,923	7,672	2,036	1,118	5,781	-3,390	-3,854	6,143	2,421	22,524
Agriculture, Forestry, Fishing and Hunting	-249	1,152	-24	1,524	-756	50	210	1,727	726	-780	-220	3,360
Mining	-43	12	-52	-56	-43	-34	-20	6	-17	-3	-2	-252
Utilities	-340	83	-10	80	-210	-56	73	100	-216	54	-89	-531
Construction	-436	-178	102	80	-42	-148	-284	-98	-265	-42	55	-1,256
Manufacturing	-522	763	735	2,177	138	1,485	247	-1,593	-3,215	3,149	1,090	4,454
Durable Goods	-287	614	-103	2,331	771	445	-25	-1,358	-2,508	2,796	1,023	3,699
Nondurable Goods	-234	141	847	-156	-627	1,041	276	-249	-788	486	120	857
Wholesale Trade	167	89	335	369	245	71	393	213	-668	266	206	1,686
Retail Trade	112	219	89	-77	-61	18	16	-28	192	691	107	1,278
Transportation and Warehousing	-214	32	206	345	262	178	167	-98	-470	301	-59	650
Information	31	295	162	434	215	36	125	299	-52	28	102	1,675
Finance and Insurance	-1,039	159	1,898	1,962	1,777	-989	3,480	-5,434	591	2,115	79	4,599
Real Estate and Leasing	350	-261	-12	157	273	45	675	457	281	-452	687	2,200
Professional, Scientific and Technical Services	54	49	47	184	0	147	238	184	-201	219	163	1,084
Management of Companies and Enterprises	86	67	215	-26	108	50	40	-1	7	-99	121	568
Administrative and Waste Management Services	120	-70	182	-18	165	44	142	122	-117	216	-52	734
Educational Services	31	19	-20	19	-41	-1	-10	42	-1	-12	-31	-5
Health Care and Social Assistance	248	129	167	161	109	128	97	475	-19	213	282	1,990
Arts, Entertainment and Recreation	-136	84	-81	43	-34	90	178	-208	-41	63	-4	-46
Accommodations and Food Services	-62	28	66	75	52	6	50	-36	-196	112	60	155
Other Services, except Government	-475	70	-81	-27	-39	16	41	-106	-42	66	-1	-578
Government	75	46	89	-21	121	31	-96	234	227	-14	20	712
												22,477

Sectors	Percent Change in Real Gross Domestic Product Shares (%)											
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2000 - 2011
All Industry Totals	-2.02%	2.82%	3.80%	6.97%	1.83%	0.96%	4.67%	-2.47%	-2.90%	5.07%	1.92%	22.08%
Private Industries	-2.35%	3.16%	4.22%	7.92%	1.95%	1.05%	5.37%	-2.99%	-3.50%	5.78%	2.15%	24.42%
Agriculture, Forestry, Fishing and Hunting	-7.83%	39.32%	-0.59%	37.56%	-13.54%	1.04%	4.31%	33.96%	10.66%	-10.35%	-3.25%	105.69%
Mining	-13.92%	4.51%	-18.71%	-24.78%	-25.29%	-26.77%	-21.51%	8.22%	-21.52%	-4.84%	-3.39%	-81.55%
Utilities	-14.36%	4.09%	-0.47%	3.81%	-9.63%	-2.84%	3.81%	5.03%	-10.34%	2.88%	-4.62%	-22.42%
Construction	-8.17%	-3.63%	2.16%	1.66%	-0.86%	-3.04%	-6.02%	-2.21%	-6.12%	-1.03%	1.37%	-23.53%
Manufacturing	-2.63%	3.95%	3.66%	10.46%	0.60%	6.42%	1.00%	-6.41%	-13.82%	15.70%	4.70%	22.45%
Durable Goods	-2.78%	6.11%	-0.97%	22.08%	5.98%	3.26%	-0.18%	-9.65%	-19.72%	27.38%	7.86%	35.80%
Nondurable Goods	-2.46%	1.52%	9.00%	-1.52%	-6.21%	10.99%	2.63%	-2.31%	-7.48%	4.98%	1.17%	9.02%
Wholesale Trade	3.13%	1.62%	5.98%	6.22%	3.89%	1.08%	5.94%	3.04%	-9.25%	4.06%	3.02%	31.56%
Retail Trade	1.56%	3.01%	1.19%	-1.01%	-0.81%	0.24%	0.21%	-0.37%	2.57%	9.03%	1.28%	17.82%
Transportation and Warehousing	-5.96%	0.95%	6.04%	9.54%	6.61%	4.22%	3.79%	-2.15%	-10.51%	7.53%	-1.37%	18.10%
Information	1.21%	11.41%	5.62%	14.26%	6.18%	0.98%	3.35%	7.76%	-1.25%	0.68%	2.47%	65.56%
Finance and Insurance	-8.50%	1.42%	16.73%	14.82%	11.69%	-5.82%	21.76%	-27.91%	4.21%	14.46%	0.47%	37.62%
Real Estate and Leasing	3.32%	-2.39%	-0.11%	1.48%	2.53%	0.41%	6.08%	3.88%	2.30%	-3.61%	5.69%	20.84%
Professional, Scientific and Technical Services	1.72%	1.53%	1.45%	5.58%	0.00%	4.22%	6.56%	4.76%	-4.96%	5.69%	4.01%	34.46%
Management of Companies and Enterprises	15.14%	10.24%	29.82%	-2.78%	11.87%	4.91%	3.75%	-0.09%	0.63%	-8.89%	11.92%	100.00%
Administrative and Waste Management Services	6.42%	-3.52%	9.48%	-0.86%	7.92%	1.96%	6.19%	5.01%	-4.58%	8.85%	-1.96%	39.25%
Educational Services	3.22%	1.91%	-1.97%	1.91%	-4.05%	-0.10%	-1.03%	4.38%	-0.10%	-1.20%	-3.13%	-0.52%
Health Care and Social Assistance	3.63%	1.82%	2.32%	2.18%	1.45%	1.67%	1.25%	6.03%	-0.23%	2.56%	3.30%	29.12%
Arts, Entertainment and Recreation	-12.55%	8.86%	-7.85%	4.52%	-3.42%	9.38%	16.95%	-16.94%	-4.02%	6.44%	-0.38%	-4.24%
Accommodations and Food Services	-2.53%	1.17%	2.73%	3.02%	2.03%	0.23%	1.91%	-1.35%	-7.46%	4.60%	2.36%	6.33%
Other Services, except Government	-14.43%	2.48%	-2.81%	-0.96%	-1.40%	0.58%	1.49%	-3.79%	-1.56%	2.49%	-0.04%	-17.56%
Government	0.57%	0.35%	0.67%	-0.16%	0.91%	0.23%	-0.71%	1.75%	1.67%	-0.10%	0.14%	5.42%



Over the full period the agriculture, forestry, fishing, and hunting sector realized the greatest percentage increase in output, 105.69%. The management of companies and enterprises sector showed the second largest percentage increase at 100.00%, but this sector, which consists primarily of financial institution and other types of holding companies, accounted for less than 1 percent of State real GDP throughout the twelve years. Of the State's larger sectors the five non-agricultural sectors that experienced the largest percentage growth are manufacturing (22.45%), finance and insurance (37.62%), real estate and leasing (20.84%), health care and social assistance (29.12%), and retail trade (17.82%). As indicated previously six sectors experienced decreases in real output between 2000 and 2011.

Figure 5 shows some distinct differences between the two recession periods. The first recession was actually very mild and in fact over the 2000 to 2002 period Iowa's economy managed to grow by 0.75%. In contrast, during the second recession Iowa suffered a 5.30% decrease in real GDP.

The agriculture sector experienced strong growth during both of the recession periods with its real output increasing by 28.41% between 2000 and 2002 and by an even stronger 48.23% between 2007 and 2009. Eight other sectors experienced real growth during both recession periods. The health care sector, which has not been much affected by economic cycles in recent years, grew by 5.52% between 2000 and 2002 and by 5.79% between 2007 and 2009. Somewhat surprisingly the output of retail firms grew by 4.62% between 2000 and 2002 and by 2.19% between 2007 and 2009. Another sector that performed relatively well during the two recessions was information services. This sector, which includes publishing, broadcasting, film and sound recording, software publishing, and data processing, increases its output by 12.76% between 2000 and 2002 and by 6.41% between 2007 and 2009.

The manufacturing and wholesale trade sectors both grew during the first recession but declined during the second recession. From 2000 to 2002 manufacturing output in Iowa increased by a slight 1.21% and output of the wholesale sector increased by 4.79%. From 2007 to 2009 manufacturing output experienced a drop of 19.34%, while output in the wholesale sector decreased by 6.49%.

Major sectors of the Iowa economy that experienced decreases in output during both recessions include the construction, logistics (transportation and warehousing), finance, entertainment and recreation, and lodging and food sectors. As indicated previously, output from the construction sector in Iowa declined throughout the entire 2000 to 2011 period. During the first recession construction sector real GDP decreased by 11.50% in spite of this being a relative mild recession. From 2007 to 2009 construction sector output decreased by 8.19%. On the other hand, even though the finance and insurance sector realized substantial growth over the full 2000 to 2011 period, from 2000 to 2002 its output shrank by 7.20% and during the 2007 to 2009 recession period this sector experienced the largest decrease of all sectors equaling -24.87%.

Figure 5: Recession Periods Percent Change in Real Gross Domestic Product

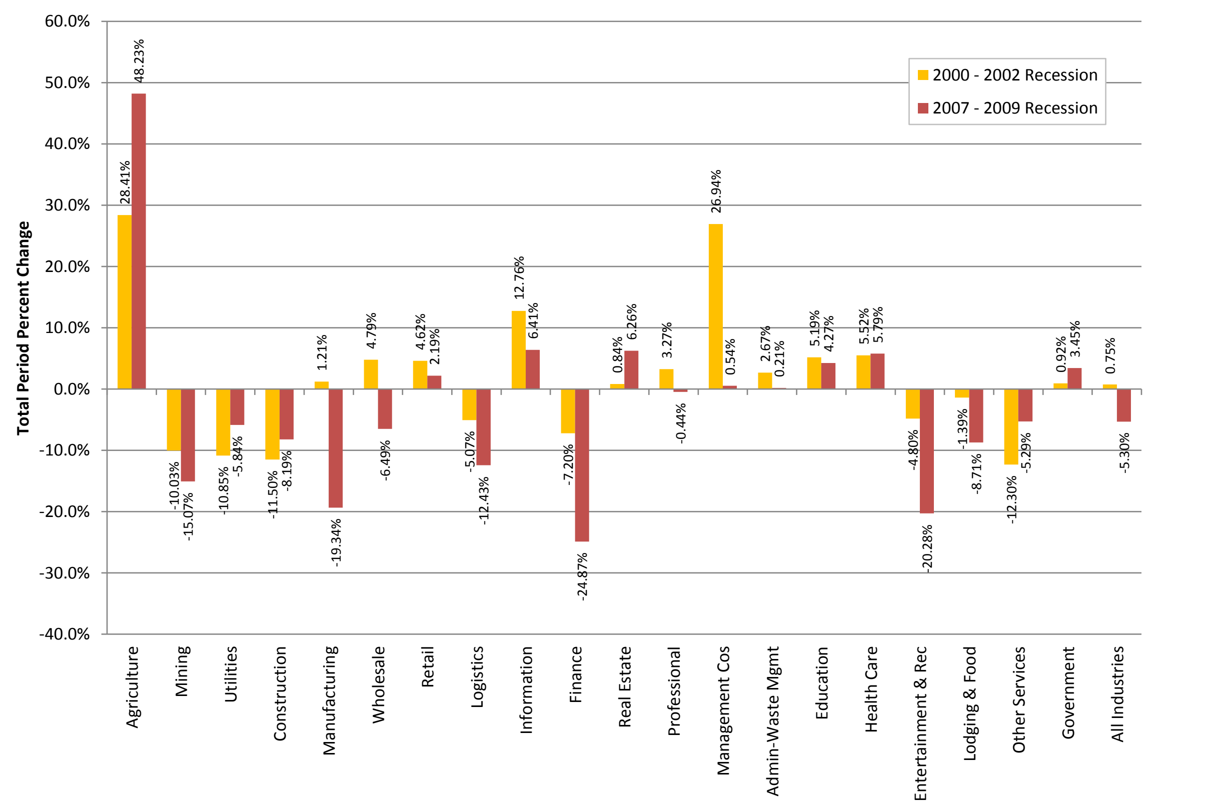
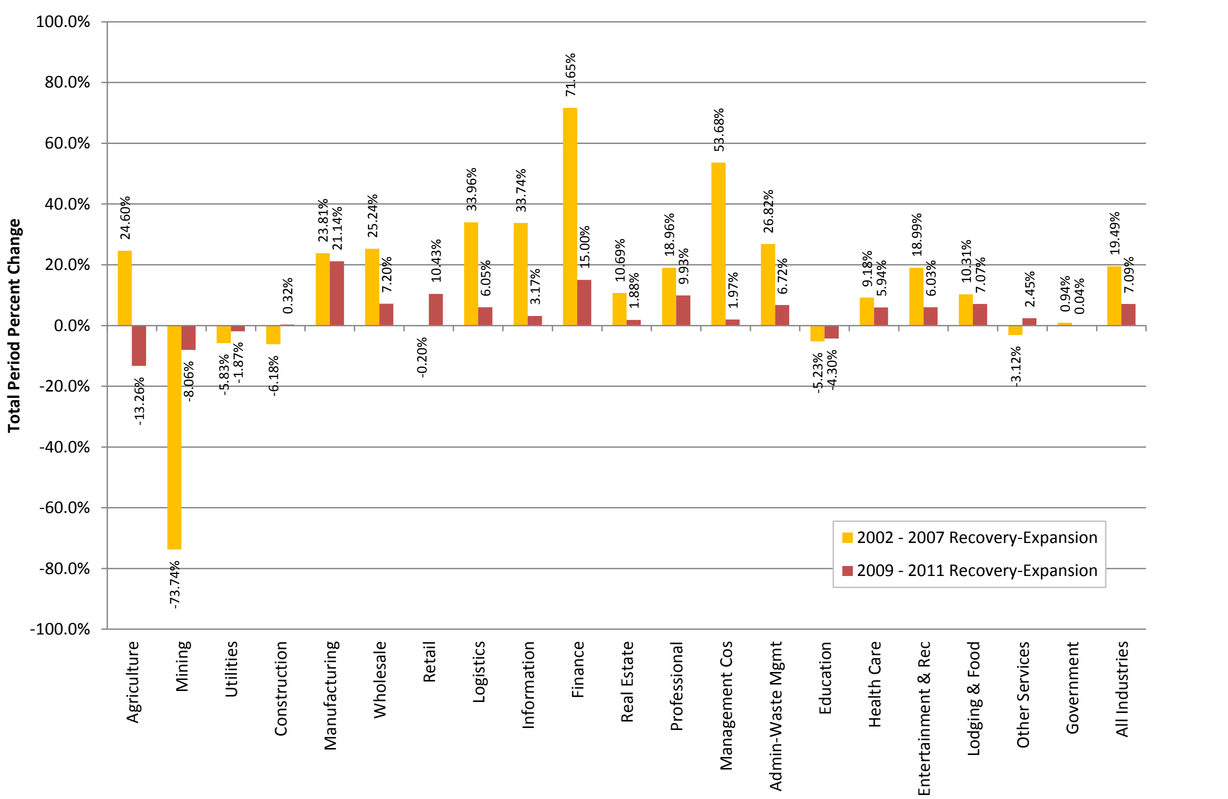


Figure 6 shows that most sectors of the Iowa economy achieved substantial growth after the 2001 recession, but although most sectors are growing again after the 2007 – 2009 recession increases in output to this point in the recovery have remained modest. A few sectors have not staged any recovery since the last recession. One of the bigger surprises is that in spite of strong commodity price growth over the past few years agricultural sector real GDP has decreased by 13.26% since 2009. The other three sectors that have continued to experience output decreases since 2009 – mining, utilities, and education services – are not large contributors to the State's overall economy.

Given that the last recession was driven by collapses in the financial and construction sectors the recoveries in these two sectors hold significant importance for the overall economy. The construction sector is just beginning to recover and since 2009 output in this sector has increased by only 0.32%. Real GDP for the financial and insurance sector has grown by 15.00% since 2009, which is only second to the manufacturing sector, which has experienced real GDP growth of 21.14%.

Other sectors that are particularly important to the State's recovery are the wholesale, retail, logistics, and lodging and food sectors. Since 2009, real GDP for these sectors have increased by 7.20%, 10.43%, 6.05%, and 7.07%, respectively.

Figure 6: Recovery and Expansion Periods Percent Change in Real Gross Domestic Product

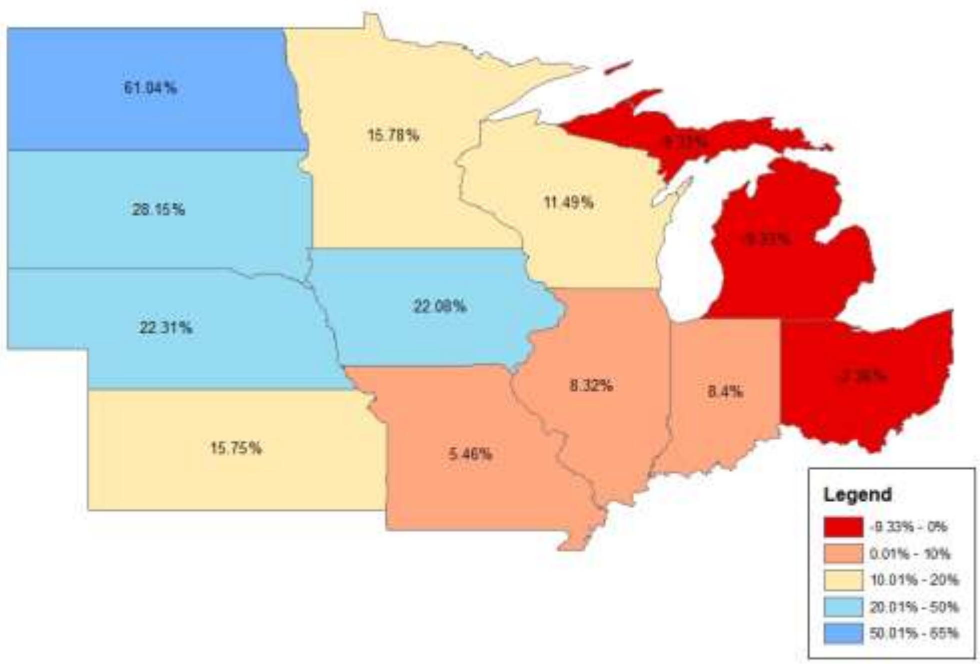


Overall Real GDP National, Regional, and Other States Comparisons

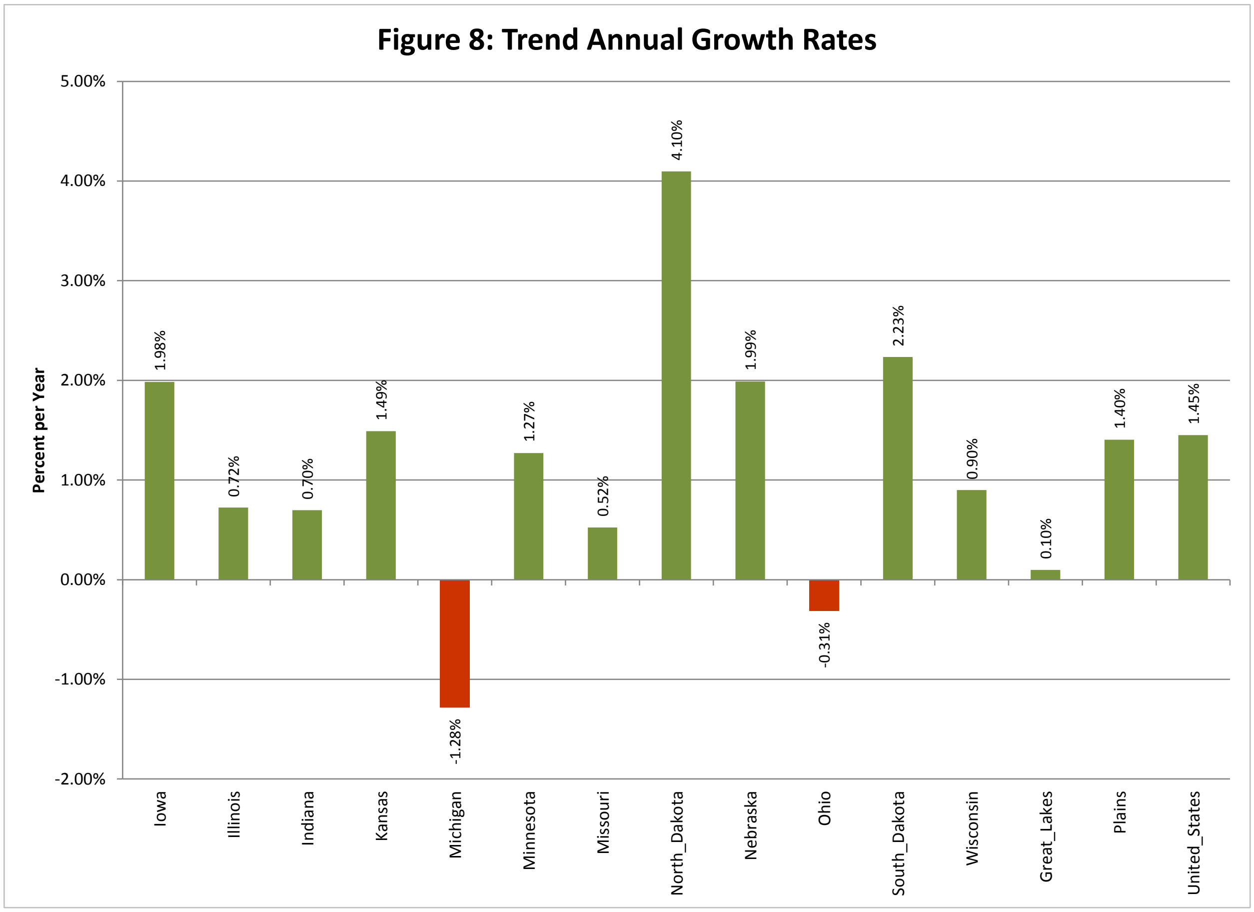
The last section explored changes in Iowa real GDP over the past twelve years by looking inward at the major sectors that comprise the State's economy. Another way to look at Iowa's economy is to make comparisons to the nation and to neighboring regions and states.

Nationally, total real GDP grew by 16.78% between 2000 and 2011 compared to 22.08% for Iowa. The two regions of the country most comparable to Iowa in terms of geography and economic structure are the Great Lakes region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) and the Plains region (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota). Over the twelve years total real GDP for the Great Lakes region grew by only 2.36%, while for the Plains region total real GDP grew by 16.15%. Of the twelve states that comprise these two regions only North Dakota (61.04%), South Dakota (28.15%), and Nebraska (22.31%) had growth rates greater than Iowa's. Two states, Michigan and Ohio experienced decreases in real GDP over the period. Figure 7 shows percent change in total real GDP for each state.

Figure 7: Real GDP Percent Change, 2000 - 2011



Another way to compare the performance of the different state economies is in terms of their annual trend growth rates. Figure 8 shows these range from -1.28% for Michigan to 4.10% for North Dakota. The difference between these two extremes is explained by the decline of the automobile industry in Michigan and the discovery of oil in North Dakota. Ohio, Missouri, Illinois, and Indiana have also had their economies damaged by the decline of the American automobile industry as well as the loss of other manufacturing enterprises.

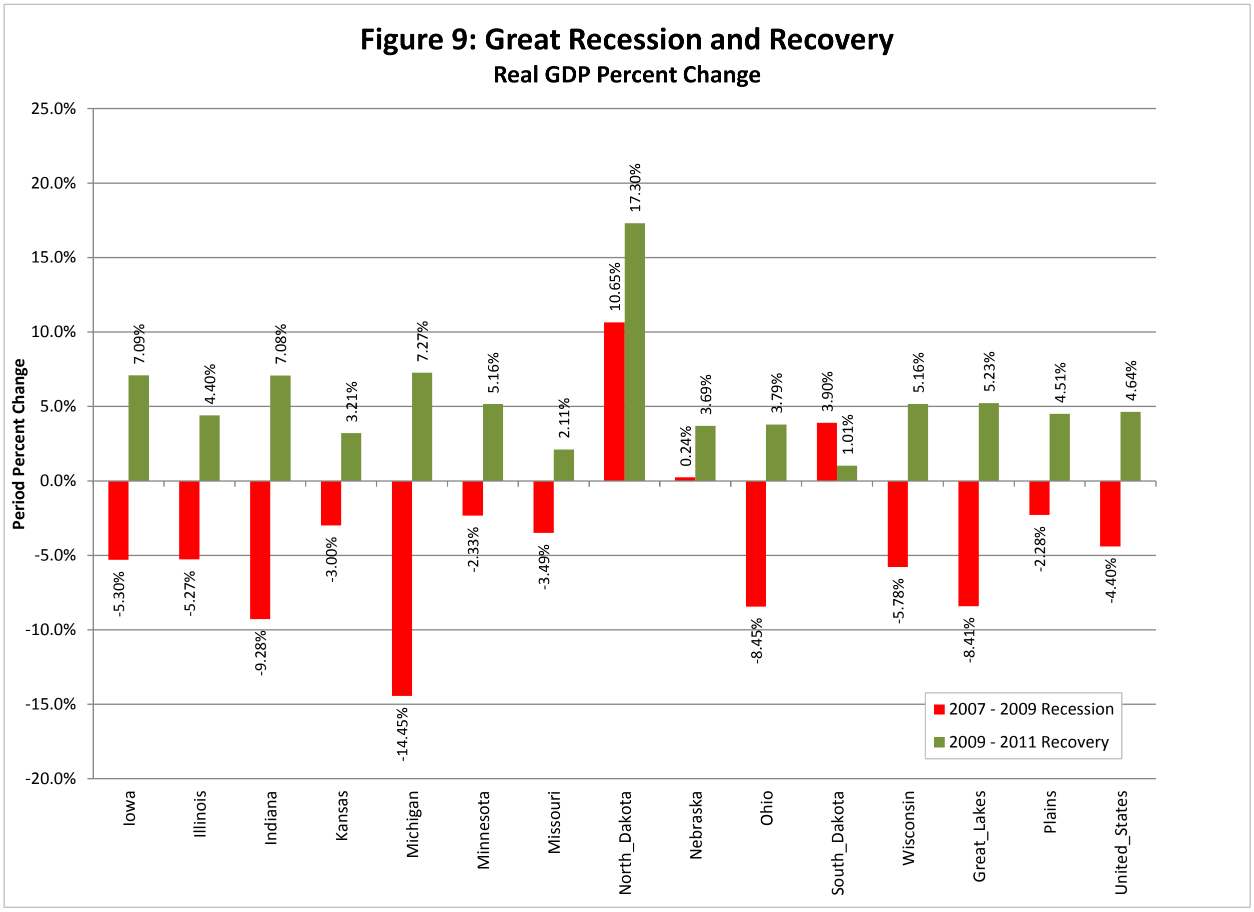


Of the twelve states seven had not fully recovered by the end of 2011 to the peak level of state real GDP that existed prior to the 2007 – 2009 recession. For Michigan real GDP peaked during 2003 at $378.506 billion and by 2011 the state's output only equaled 89.15% of that level. Similarly, Ohio's real GDP peaked at $444.083 billion in 2005 and by 2011 output had recovered to only 94.32% of the peak level. The other five states still working to recover lost ground and the percent of pre-recession peak output they had achieved by 2011 are Indiana (97.15%), Missouri (97.26%), Illinois (98.89%), Wisconsin (99.90%), and Kansas (99.34%). In the cases of Michigan and Ohio and for at least some of these other five states a fair assessment requires the acknowledgement that their economies have suffered from significant structure problems as well as from the finance and housing industry problems that led to the Great Recession.

Iowa's real GDP in 2011 was 1.41% above its pre-recession peak, which is the fifth best of the twelve states behind North Dakota (29.80%), South Dakota (4.96%), Nebraska (3.94%), and Minnesota (2.71%).

Figure 9 shows how each of the twelve states, the Great Lakes and Plains regions, and the nation fared during the years of the Great Recession from 2007 to 2009 and since the end of the recession as the recovery and in some case an expansion has begun. North Dakota clearly escaped the recession with real GDP growth of 10.65%. For South Dakota and Nebraska economic growth clearly decreased from pre-recession rates, but technically these states escaped the recession. At the other extreme the recession just made a bad situation worse for Michigan (-14.45%), which had been experiencing economic decline since the 2001 recession. Other states most adversely impacted by the recession are

Indiana (-9.28%) and Ohio (-8.45%). Iowa with a 5.30% decrease in real GDP over the two years experienced the fifth worse decline of the twelve states.



On the flip side since the beginning of the recovery, Iowa at 7.09% has experienced the third strongest growth in real GDP. The two states that have done better are North Dakota (17.30%) and Michigan (7.27%), which are sort of special cases. North Dakota has benefited greatly from the discovery of oil and the revival of the automobile industry is leading the recovery of Michigan's economy.

National, Regional, and State Real GDP Sector Comparisons

A better understanding of how Iowa compares to the nation and to other Great Lakes and Plains states requires the investigation of how different sectors of their economies fared over the twelve years. Figure 10 provides a comparison of the twelve year growth rates by sector for Iowa and the nation. Figure 11 shows the share of 2011 total economic output accounted for by each of the twenty major sectors for Iowa and the entire United States. Among the most obvious differences between Iowa and the nation is Iowa's over doubling of output from its agricultural sector versus growth of only 16.83% nationally. Other significant sectors in which Iowa outperformed the nation include construction (-23.53% for Iowa versus -32.77% for the nation), finance (37.62% versus 34.53%),

Figure 10: Iowa and United States Real GDP Percent Change, 2000 - 2011

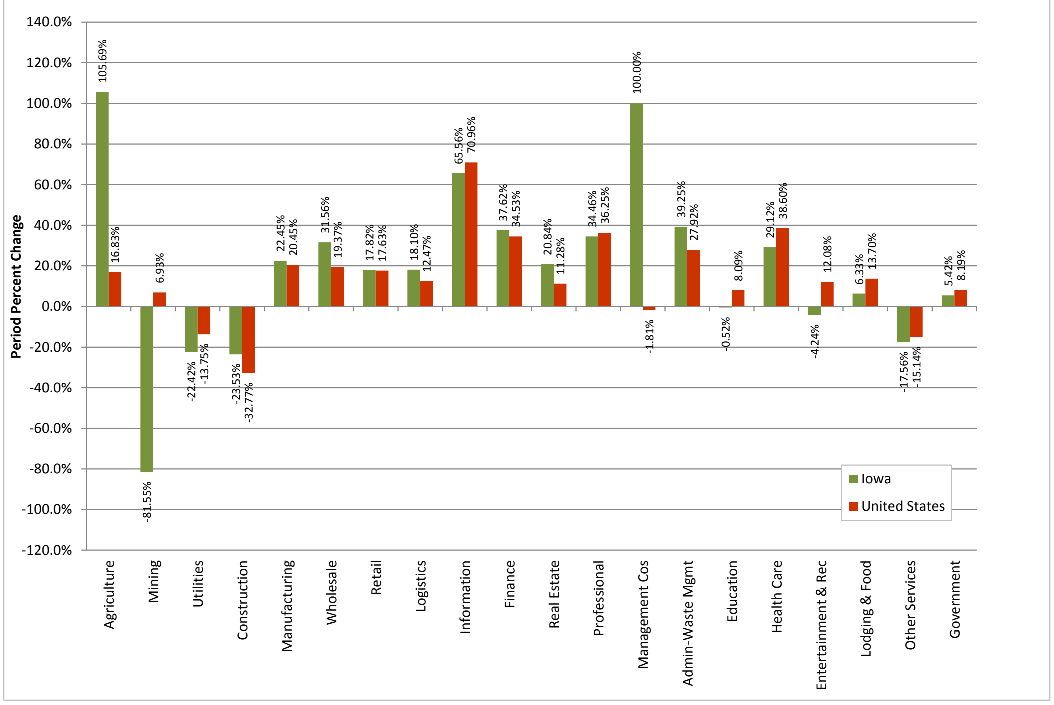
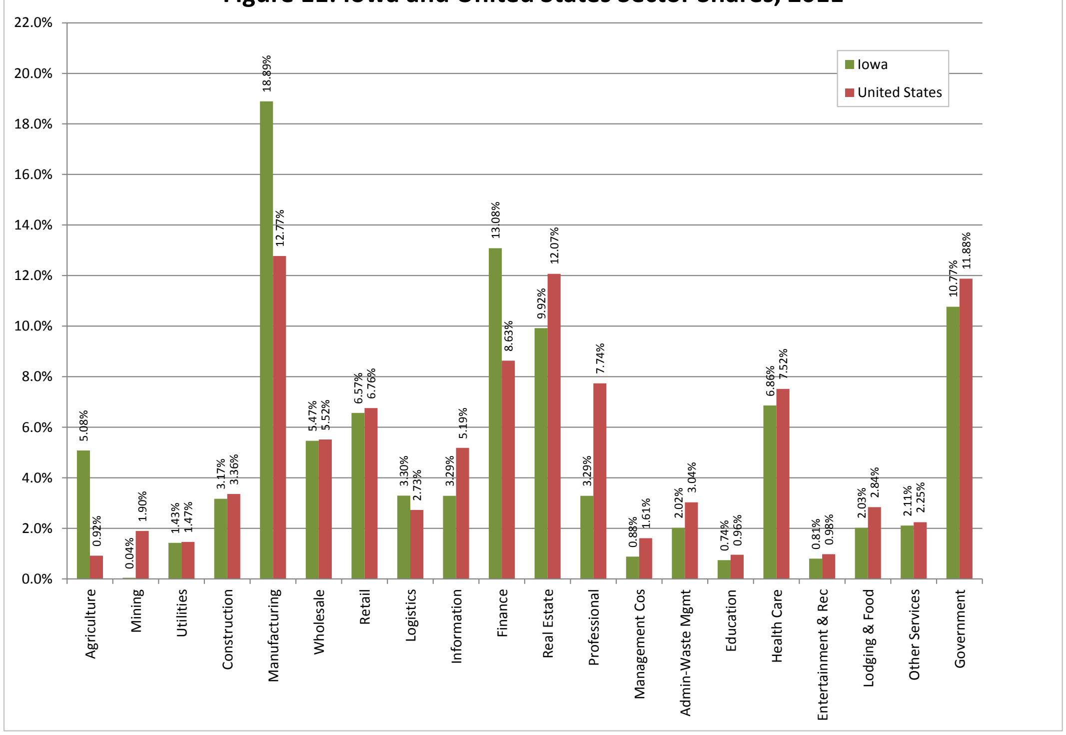


Figure 11: Iowa and United States Sector Shares, 2011



real estate (20.84% versus 11.28%), and wholesale trade (31.56% versus 19.37%). Major sectors in which Iowa performed about on par with the nation include manufacturing (22.45% versus 20.45%), retail (17.82% versus 17.63%), and professional and technical services (34.64% versus 36.25%). Iowa underperformed relative to the nation in the information services sector (65.56% versus 70.96%), the entertainment and recreation sector (-4.24% versus 12.08%), and the lodging and food services sector (6.33% versus 13.70%). In addition, Iowa's growth in the health care and government sectors were less than for the nation as a whole, but this can be interpreted as a positive rather than a negative for the State's economy.

As Figure 11 shows eight sectors each accounted for at least 5 percent of the State's economic output in 2011. These sectors include manufacturing (18.89%), finance and insurance (13.08%), government (10.77%), real estate and leasing (9.92%), health care and social assistance (6.86%), retail trade (6.57%), wholesale trade (5.47%), and agriculture, forestry, fishing, and hunting (5.08%). Taken together these eight sectors produced 76.64% of Iowa's real GDP during 2011. In comparison, these same sectors accounted for only 66.08% of total United States real GDP during 2011. In particular, manufacturing, finance, and agricultural are much more important sectors to the Iowa economy than to the national economy. A couple of sectors in which Iowa has a significantly lower share of output than the nation are professional and technical services (3.29% versus 7.74%) and information services (3.29% versus 5.19%). These sectors tend to concentrated in large metropolitan areas.

To gain a better understanding of how Iowa compares to other Great Lakes and Plains states more detailed comparisons are made for seven economic sectors: agriculture, manufacturing, finance and insurance, construction, retail trade, health care and social assistance, and lodging and food services. These sectors were selected either because of their importance to Iowa or because of their sensitivity to the recent Great Recession.

For each of these sectors three types of comparisons are presented. First, the share of total real GDP in 2011 is presented for the twelve states, two regions, and the nation. Second, total percentage growth between 2000 and 2011 is presented. Third comparisons are made for the recession and the recovery-expansion periods associated with the Great Recession.

A. Agriculture, Forestry, Fishing, and Hunting Sector

In the Great Lakes and Plains regions this sector is dominated by the production of field crops and livestock. States in the Great Lakes region are more industrial than states in the Plains region and more populous, but the Great Lakes states still produce a considerable amount of agricultural commodities. During 2000 the Great Lakes and Plains states accounted for 10.00% and 14.20%, respectively, of the agricultural sector's total national output. By 2011 these regions' shares of agricultural output increased to 13.99% and 23.43%, respectively.

Figure 12 shows the percent of each state's total real GDP accounted for by its agricultural sector during 2011. The difference in the importance of agriculture between the Great Lakes states and the Plains states is readily apparent. Agriculture is the Great Lakes states accounted for about the same share of total real GDP (0.94%) as for the nation (0.92%). On the other hand, agricultural in the Plains states accounted for more than three and a half times as large a share of real GDP (3.33%) as for the nation.

Comparing the individual states, South Dakota at 8.41% is the state with the largest share of its economy accounted for by agriculture. Iowa at 5.08% ranks fourth behind North Dakota and Nebraska.

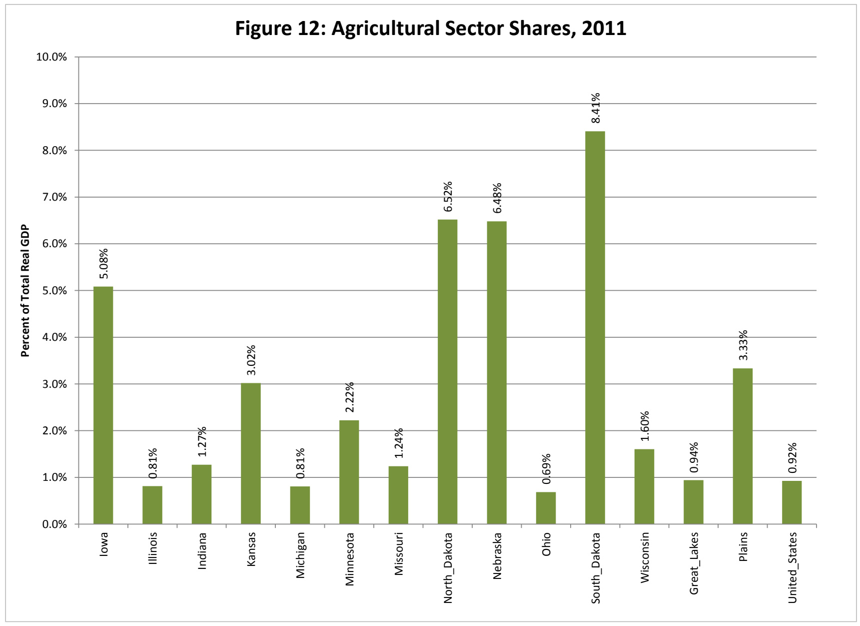


Figure 12: Agricultural Sector Shares, 2011

Nationally, agricultural sector real GDP increased by 16.83% between 2000 and 2011. Over the same years agricultural output increased by 63.44% in the Great Lakes states and by 92.82% in the Plains States.

As shown in Figure 13, Nebraska's agricultural sector experienced the greatest growth in output over this period increasing by 121.52% and Ohio experienced the smallest increase at 32.29%. Agricultural output in Iowa grew by 105.69%.

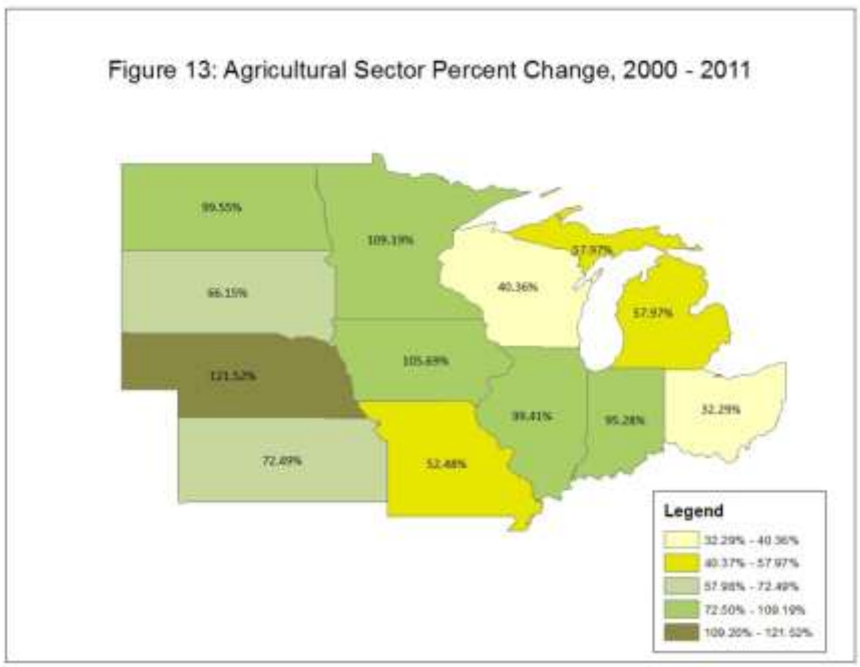
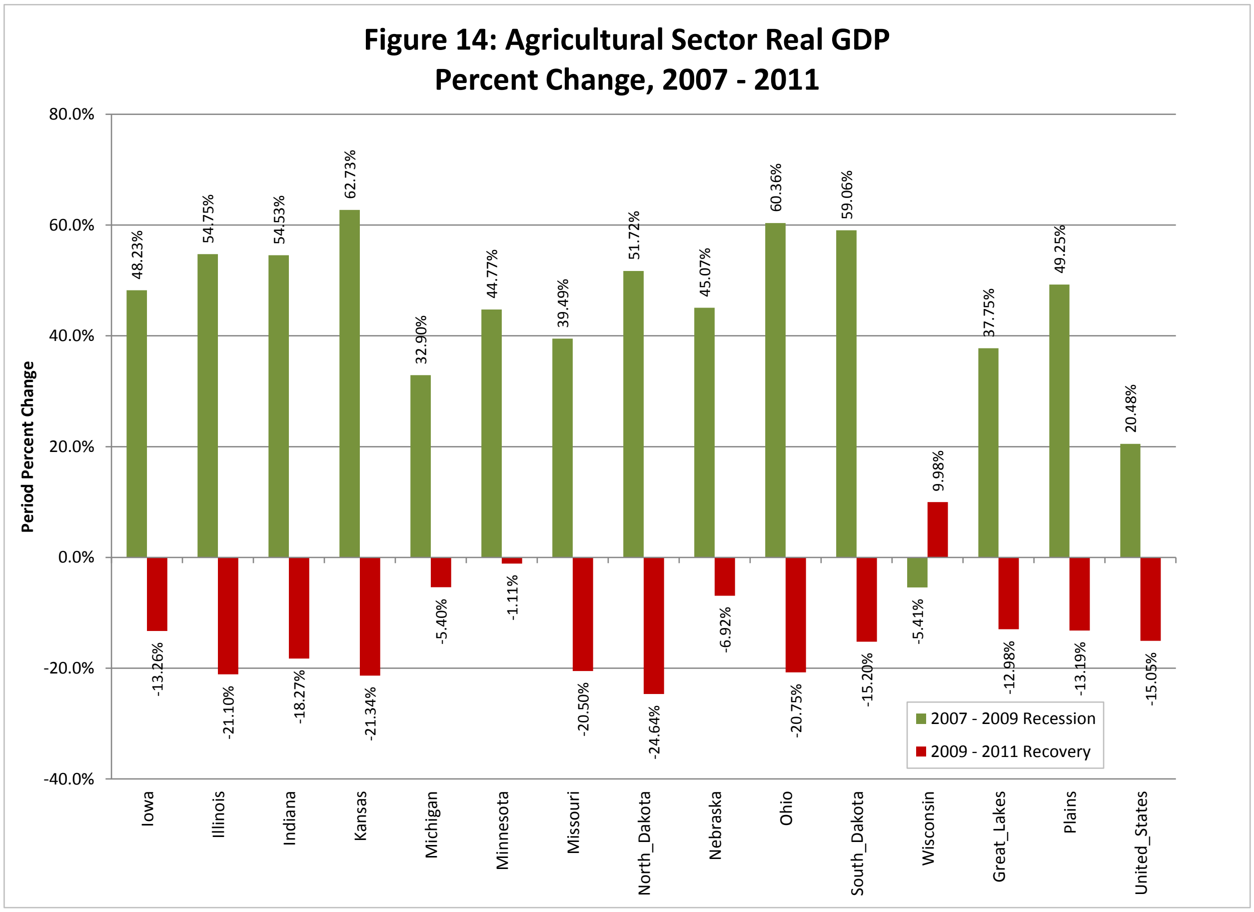


Figure 13: Agricultural Sector Percent Change, 2000 - 2011

Over this same period in Iowa the average price of a bushel of corn increased from $1.78 to $5.96 in nominal dollars, or when adjusted for inflation to $4.56, an increase of 256%. Similarly, for soybeans the average price per bushel increased from $4.67 to $12.49 in nominal dollars, or when adjusted for inflation to $9.56, an increase of 205%.

Although the agricultural sector largely avoided the Great Recession, output growth for this sector did vary each year of the period. As shown in Figure 14, one of the most unusual observations about the agriculture sector is that during the recession years from 2007 to 2009 agricultural output increased in eleven of the twelve Great Lakes and Plains states, but then since 2009 output in these same eleven states has contracted. During the recession years agricultural output nationally increased by 20.48%. During these years agricultural output in Iowa increased by 48.23%, which ranked it seventh among the twelve states. Since 2009 agricultural output nationally has decreased by 15.05% and in Iowa by 13.26%. Further study will be undertaken to better understand this recent decline in output.



B. Manufacturing Sector

The Great Lake region has traditionally been dominated by manufacturing. In 2000 this region accounted for 23.50% of total manufacturing output for the nation. By 2011 this region's share of the nation's manufacturing output had decreased to 18.56%. Detailed manufacturing subsector statistics are only available through 2010, but these show the importance of the motor vehicle industry to the Great Lakes region. In 2010 automobile assembly and parts manufacturing accounted for 9.54% of the region's manufacturing output down from 17.18% in 2000. Other industries that supply the motor vehicle industry, such as primary metals manufacturing, metal products fabrication, and machinery manufacturing, accounted for another 27.57% of the region's manufacturing output in 2010.

Manufacturing is also important to the states of the Plains region. For this region manufacturing accounted for 7.50% of national manufacturing output in 2000 and it decreased only slightly to 7.19% in 2011. Manufacturing companies located within the Plains region produce farm equipment, construction equipment, aircraft, navigation equipment, and other types of electronics.

During 2000 Iowa accounted for 1.43% of the nation's manufacturing output and its share increased to 1.45% by 2011. In 2000 machinery manufacturing accounted for 17.73% of Iowa's manufacturing output and this subsector's share of Iowa's manufacturing output increased to 24.94% in 2010. The machinery manufacturing subsector includes farm implement and construction equipment manufacturing.

Comparing the individual states, Indiana at 26.90% is the state with the largest share of its state real GDP resulting from manufacturing in 2011. What may be surprising to some, Iowa at 18.89% ranks third among the twelve states.

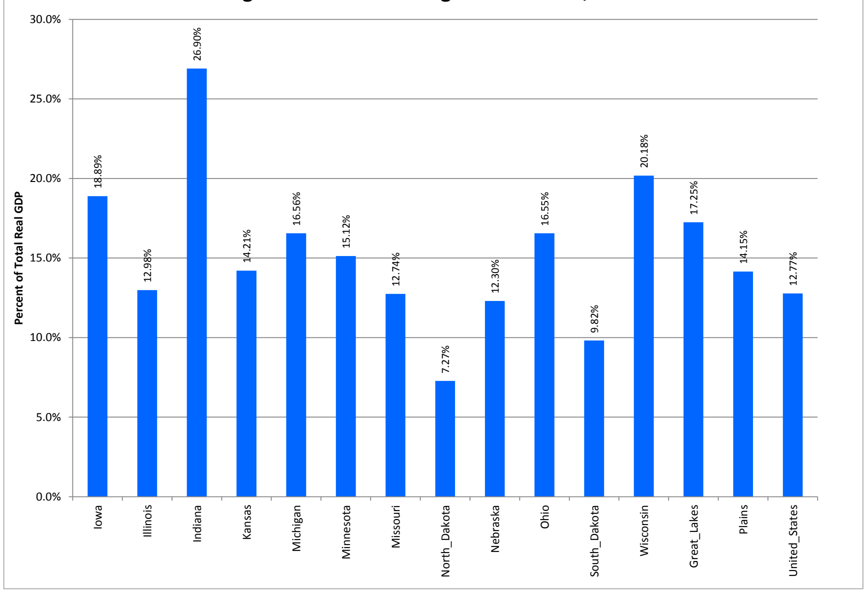


Figure 15: Manufactring Sector Shares, 2011

Nationally, manufacturing sector real GDP increased by 20.45% between 2000 and 2011. Over the same period manufacturing output decreased by 4.87% in the Great Lakes region and increased by 15.47% in the Plains region.

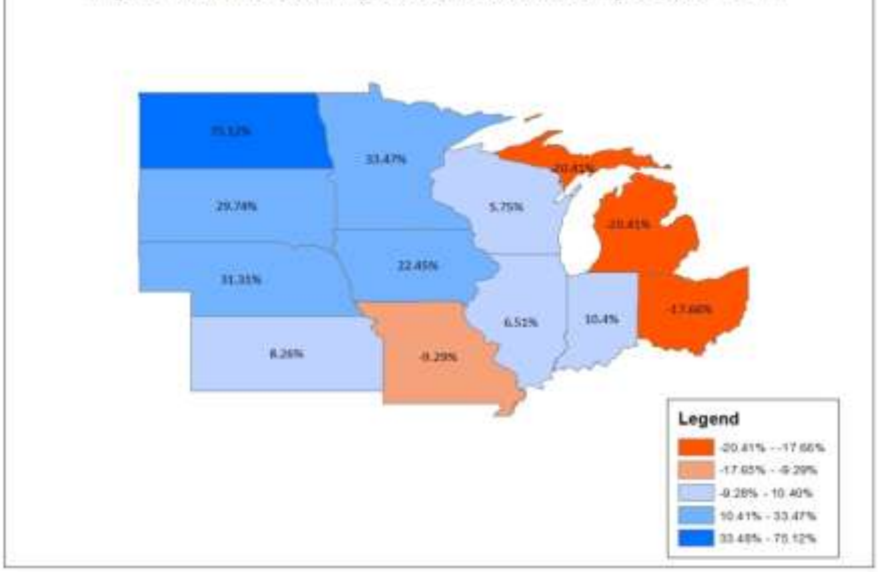
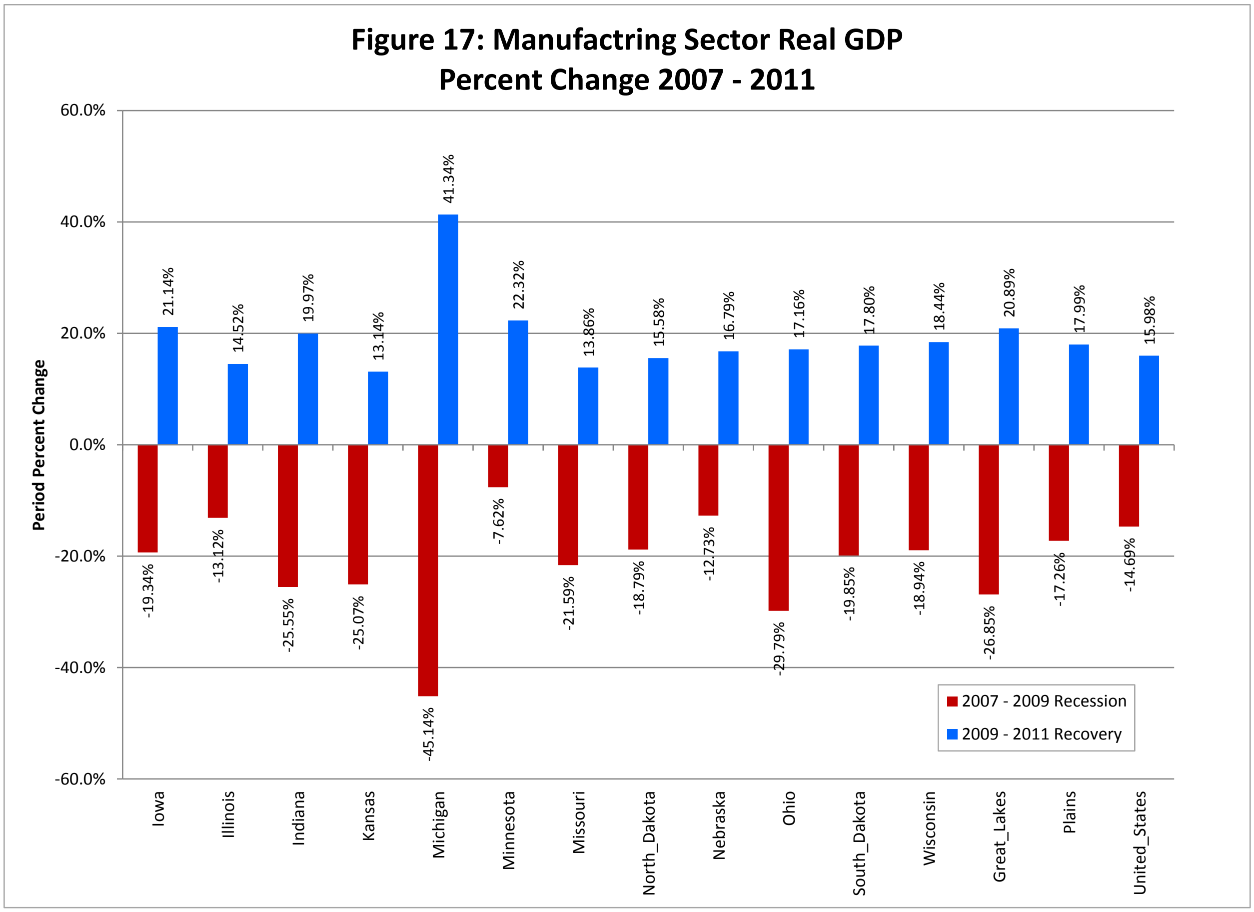


Figure 16: Manufacturing Sector Percent Change, 2000 - 2011

As shown in Figure 16, North Dakota's manufacturing experienced the greatest growth between 2000 and 2011 equaling 75.12%, while Michigan's manufacturing sector experienced an output decrease of 20.41%. Iowa's manufacturing sector grew by 22.45% over this period ranking fifth among the twelve states.

As indicated previously, much of Iowa's manufacturing growth can be linked to the good fortunes of the agricultural sector. Those states most directly linked to the manufacturing of transportation equipment suffered substantial economic output decreases up through 2009 when the federal government initiated a rescue of the motor vehicle industry.

Figure 17 shows how the manufacturing sectors of the nation, Great Lakes and Plains regions, and the twelve states fared during the 2007 to 2009 recession years and since 2009 as the recovery began. Every state experienced a decline in manufacturing output during the recession. Michigan suffered the most with a 45.14% decrease, while Minnesota suffered the least experiencing only a 7.62% decrease. Since 2009 every state has experienced manufacturing sector growth. Michigan at 41.34% experienced the greatest growth. Iowa's manufacturing sector ranked third among the states with 21.14% growth.



C. Finance and Insurance Sector

During 2000 the Great Lakes and Plains regions accounted for 16.22% and 7.41%, respectively, of total nation output from the finance and insurance sector. By 2011 the national output shares for these two regions decreased to 13.92% and 7.24%. However, Iowa bucked the trend by increasing its share of finance and insurance sector real GDP from 1.45% to 1.49% over the period. Over the past couple decades most of Iowa's largest banks have been acquired by national companies, such as Wells Fargo, Bank of America, and US Bank. Also, Wells Fargo has located and greatly expanded the headquarters for its mortgaging banking operations in Iowa. A large number of insurance carriers have headquarters in Iowa including Principal Financial, Employers Mutual Casualty, Aegon, Aviva, Wellmark, and FBL Financial Group. One factor that may have contributed to the growth of the insurance industry in Iowa is the reduction of the State's insurance premiums tax rate from 2 percent to 1 percent over the years 2004 to 2007.

Figure 18 shows the percent of each state's total real GDP accounted for by its finance and insurance sector during 2011. Nationally, in 2011 the finance and insurance sector accounted for 8.63% of total real GDP, which given the financial sector meltdown in 2008 is somewhat surprisingly up from a 7.50% share in 2000. For the Great Lakes and Plains regions financial and insurance accounted for 8.74% and 9.62% of total real GDP in 2011.

South Dakota at 16.11% is the state with the largest share of its real GDP contributed by the finance and insurance sector. Following the U.S. Supreme Court decision in *Marquette vs. First Omaha Service Corp.,* which allowed credit card companies to base the interest rates they charged on the location of their operations rather than where their customers lived, South Dakota relaxed its interest rate limits and by doing so attracted the credit card operations of Citibank to that state in 1981.

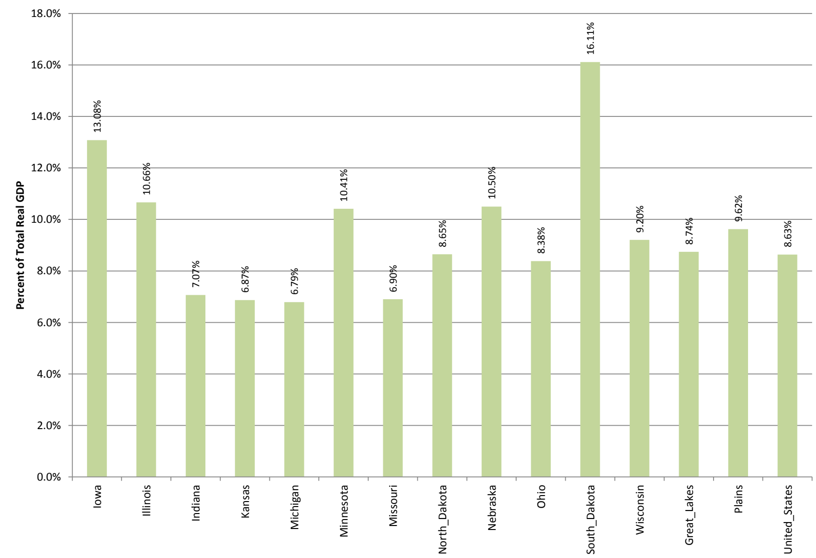


Figure 18: Finance and Insurance Sector Shares, 2011

As shown in Figure 19, North Dakota experienced the largest growth in finance sector real GDP between 2000 and 2011 equaling 117.47%, but the finance sector in North Dakota is small equaling only 0.26% of the national total in 2011.

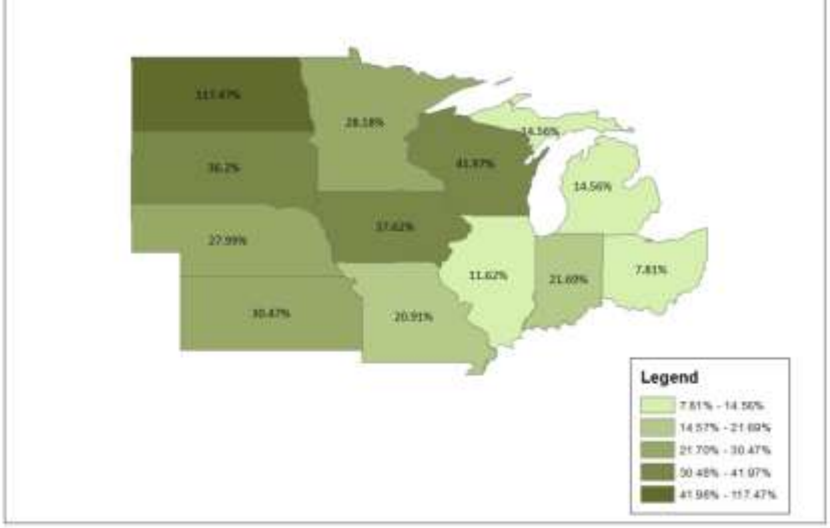
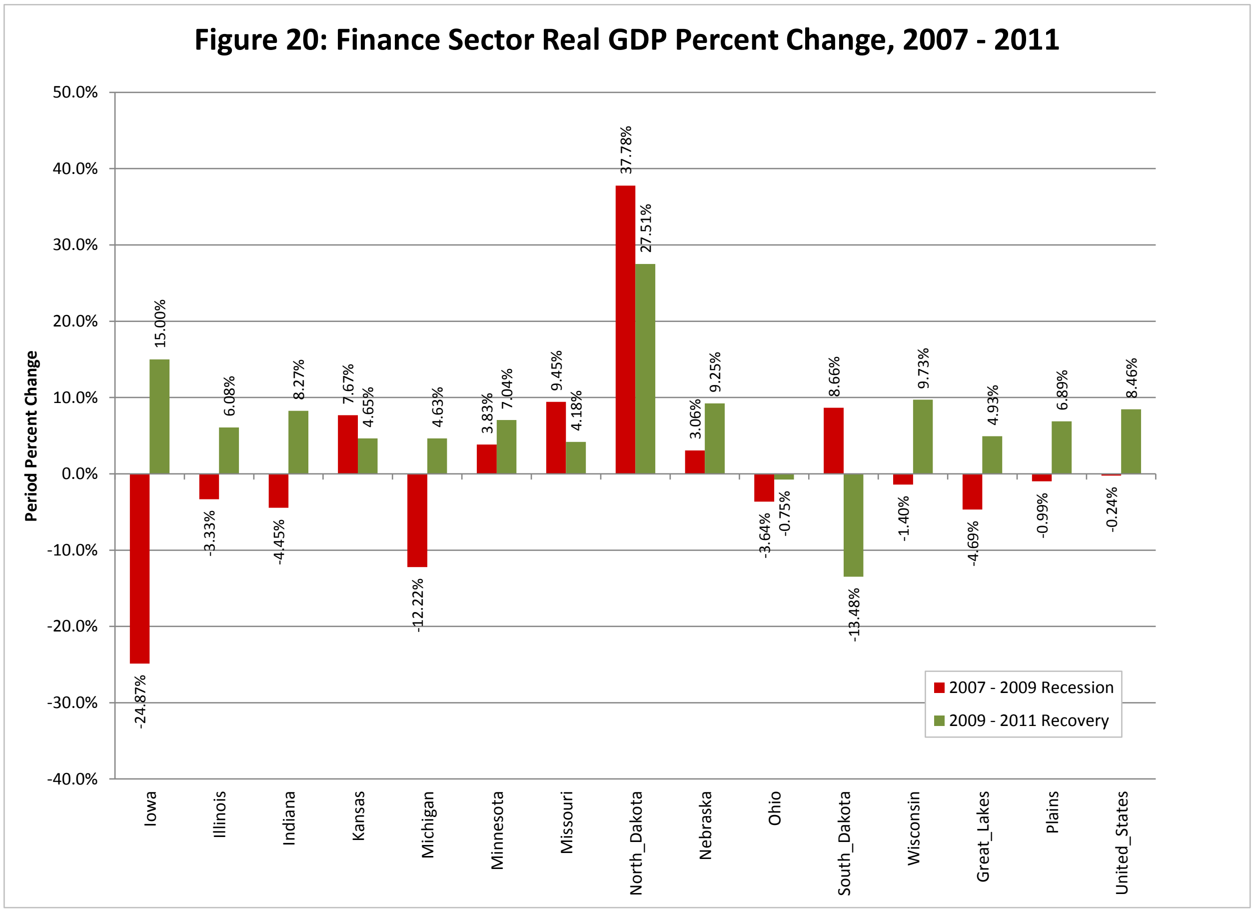


Figure 19: Finance Sector Real GDP Percent Change, 2000 - 2011

In 2011 Iowa's finance sector accounted for 13.08% of state real GDP, and between 2000 and 2011 finance sector real GDP in the State increased by 37.62%, which was the third highest growth rate among the twelve states. The state with the lowest growth in finance sector real GDP over the period was Ohio at 7.81%.

In spite of the finance sector being blamed for the meltdown that led to the Great Recession, this sector weathered the downturn remarkable well. Figure 20 shows that nationally finance sector real GDP contracted by only 0.24% between 2007 and 2009 and since 2009 it has grown by 8.46%. For the Great Lakes and Plains regions from 2007 to 2009 finance sector real GDP decreased by 4.69% and 0.99%, respectively. Then from 2009 to 2011 this sector's output increased in these two regions by 4.93% and 6.89%. During the recession, Iowa's financial sector fared by far the worst of the twelve states decreasing its output by 24.87%, but since 2009 this sector of Iowa's economy has grown by 15.00%.



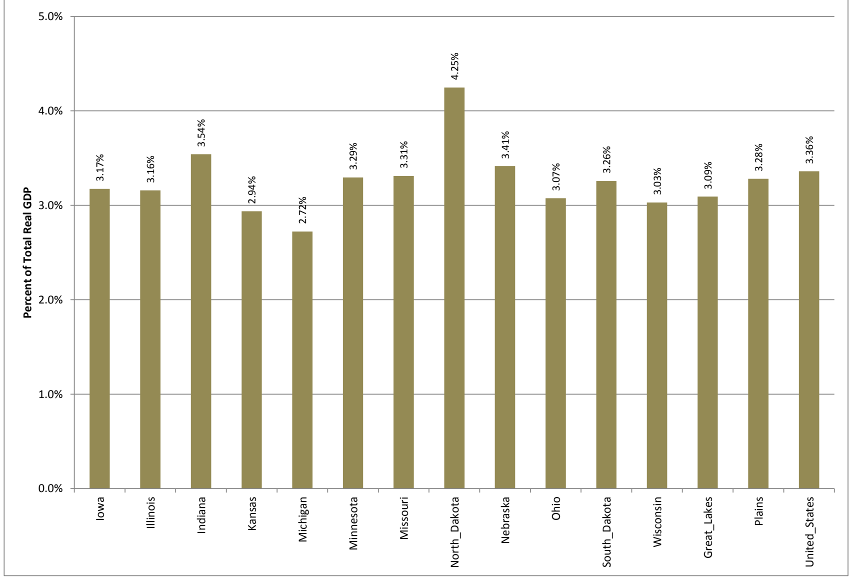
D. Construction Sector

During 2000 the Great Lakes and Plains regions accounted for 15.64% and 6.46%, respectively, of total construction sector real GDP for the nation. These regions' shares of nationwide construction output decreased to 12.64% and 6.34% by 2011. In 2000 Iowa's share of the nation's construction sector output equaled 0.81%. By 2011 Iowa's share increased to 0.93%.

One reason Iowa's share of construction activity in the United States has increased is that it did not suffer as much from the housing bubble as did other parts of the country. Also, unemployment levels in the state never rose as high as they did nationally. A number of other factors helped sustain commercial construction activity in Iowa over the past few years. Wellmark built a new headquarters in downtown Des Moines and Aviva USA built a headquarters in West Des Moines. Also, the strength of the agricultural sector has resulted in the expansion of manufacturing and other activities that support that sector. For example, Pioneer Hi-Bred constructed a new research facility in Johnston. A number of Iowa's casinos undertook expansion projects. Floods in 2008 that devastated several areas in eastern Iowa required rebuilding efforts. A dedicated 1 percent statewide sales tax for school infrastructure supported several hundred million dollars per year of elementary and secondary school renovation and new construction since 2006.

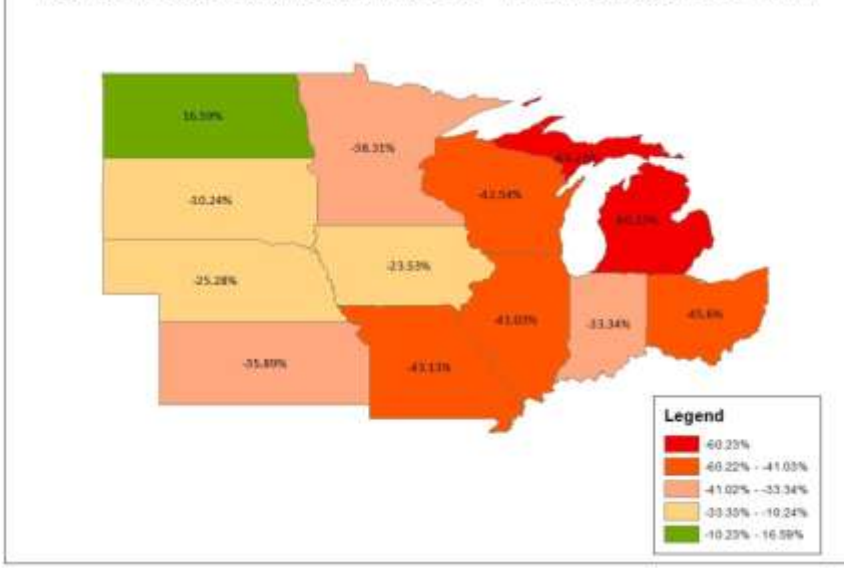
Figure 21 presents construction sector shares for each state, the two regions, and the United States relative to total real GDP for each area. Nationally, the construction sector accounted for 3.36% of total real GDP. For the Great Lakes and the Plains regions the construction sector's shares of total real GDP in 2011 equaled 3.09% and 3.28%, respectively. Across all of the twelve states in these two regions the shares of total real GDP accounted for by the construction sector varied only slightly from a low of 2.72% for Michigan to a high of 4.25% for North Dakota. For Iowa the construction sector share equaled 3.17%, which is seventh among the twelve states.

Figure 21: Construction Sector Shares, 2011



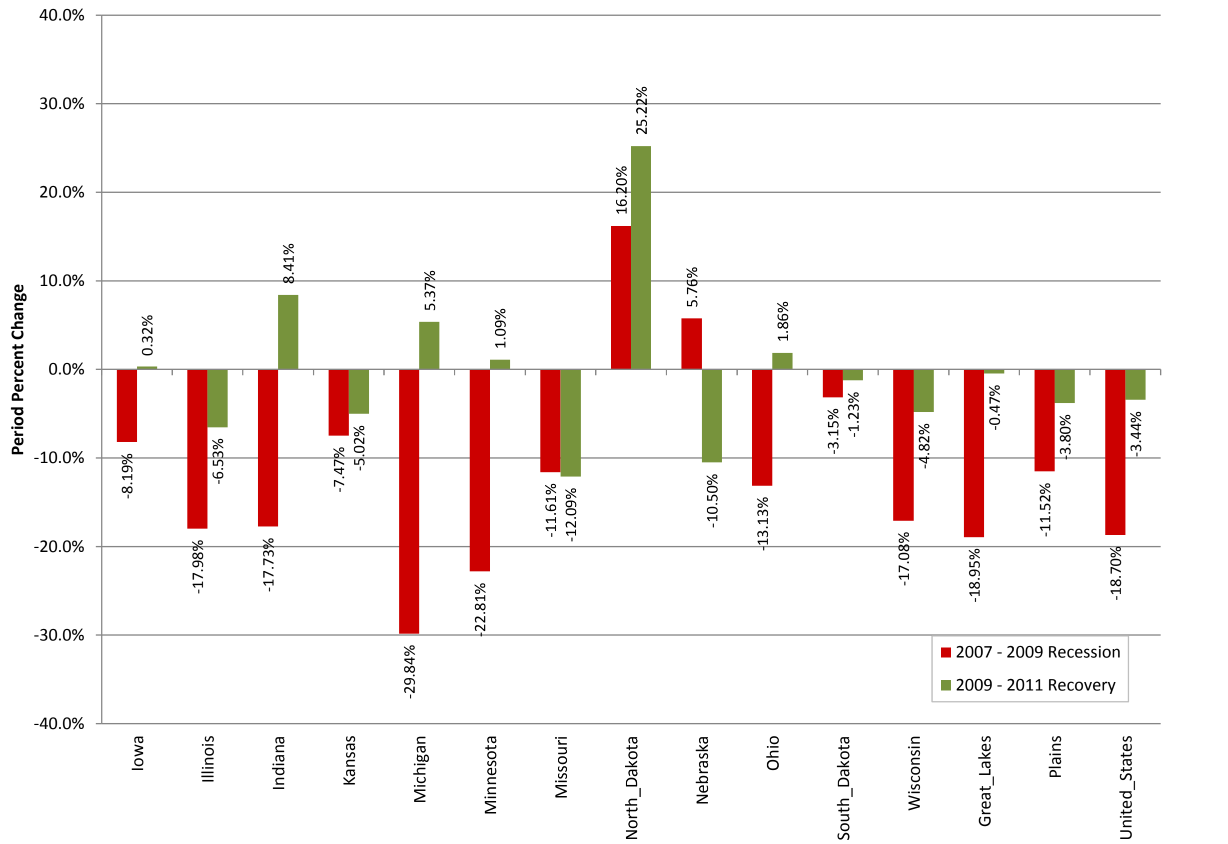
Nationwide between 2000 and 2011 construction sector output decreased by 32.77%. As shown in Figure 22, over this period construction activity increased in only North Dakota, which unquestionably is due to the discovery of oil in that state. In addition, this figure shows that the agricultural states fared much better that the more heavily industrialized states within the two regions. The Great Lakes region states were particularly hard high with construction activity decreasing by 45.63%.

Figure 22: Construction Sector Real GDP Percent Change, 2000 - 2011



Focusing on the Great Recession and recovery periods from 2007 to 2011, the continued problems afflicting the construction sector are obvious. Figure 23 shows that nationwide from 2007 to 2009 construction sector output decreased by 18.70% and even since 2009 output for this sector has continued to decrease. Among the twelve states only two realized construction sector growth during the recession years. These were North Dakota (16.20%) and Nebraska (5.76%). In Iowa during this period construction sector real GDP decreased by 8.19%, which was the fifth best of the period. Since 2009 only five states have experience expansion in their construction sectors with North Dakota at 25.22% showing the greatest increase. In Iowa the construction sector has eked out a very modest 0.32% increase in output.

Figure 23: Construction Sector Real GDP Percent Change, 2007 - 2011



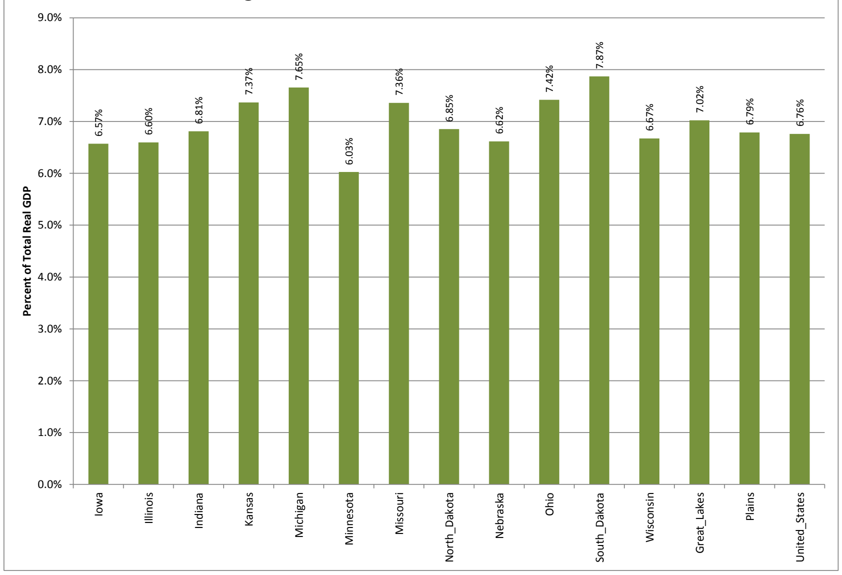
<u>E. Retail Trade Sector</u>

During 2000 the Great Lakes and Plains regions accounted for 15.52% and 6.70%, respectively, of total retail sector real GDP for the nation. By 2011 the shares of retail trade sector output accounted for by these regions decreased slightly to 14.28% and 6.52%. The only states that increased their shares of output from the retail trade sector over this period are Illinois (4.12% to 4.33%) and North Dakota (0.21% to 0.26%). Iowa's share of national retail trade sector output held steady over the twelve years equaling 0.95% in both 2000 and 2001.

Since retail trade represents a derived demand growth in this sector depends on growth in population and income. It can also be affected by the existing debt and wealth of the people in the area served. In addition, tourism and business travel may impact this sector's fortunes. From 2000 to 2011 Iowa's share of national population decreased from 1.04% to 0.98%. However, over the same period Iowa's share of the nation's personal income increased from 0.93% to 0.95%. Taking these two factors into consideration Iowa's share of the nation's retail trade sector output appears to be slightly less than would be expected. Subsequent research into population, personal income, and employment trends hopefully will result in a better understanding of factors impacting retail trade in Iowa.

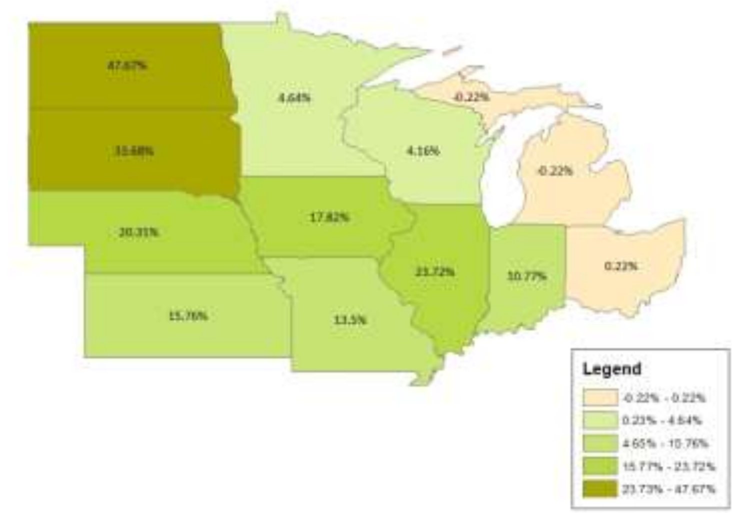
As shown in Figure 24, nationally retail trade accounted for 6.76% of total real GDP in 2011. For the Great Lakes and Plains regions the shares of total real GDP accounted for by this sector in 2011 were slightly above the national average at 7.02% and 6.79%, respectively. For the twelve states the shares of total real GDP contributed by retail trade ranged narrowly between a high of 7.87% in South Dakota to a low of 6.03% in Minnesota. For Iowa retail trade accounted for 6.57% of total real GDP, which was second from the bottom.

Figure 24: Retail Trade Sector Shares, 2011

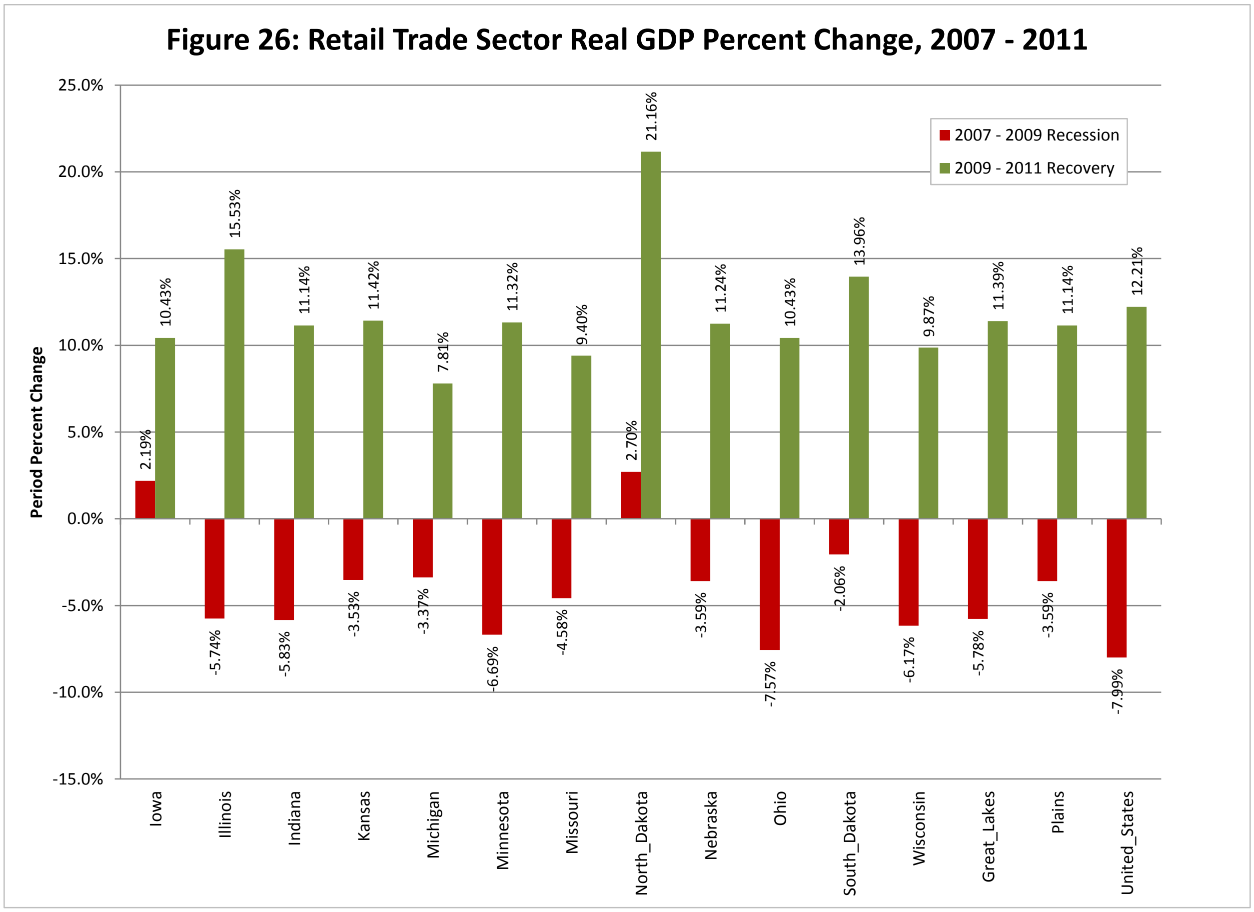


Over the entire period retail sector output nationally increased by 17.63%. In the Great Lakes and Plains regions retail sector output increased by 8.18% and 14.44%, respectively. As shown in Figure 25, North Dakota had the greatest growth in retail trade sector output equaling 47.67%. At the other extreme retail output decreased by 0.22% in Michigan. As indicated relative to other sectors, these extremes can be explained by major structural changes to these states' economies. In Iowa, retail trade sector output increased by 17.82% over the twelve years, which was the fifth highest growth rate. Relatively low unemployment and the strength of the agricultural sector are two factors that likely contributed to the growth in retail trade in Iowa over this period.

Figure 25: Retail Sector Real GDP Percent Change, 2000 - 2011



Focusing on the Great Recession and recovery years from 2007 to 2011 Figure 26 shows that retail trade sector output did not suffer as badly in the Great Lakes (-5.78%) and Plains(-3.59%) regions as nationally (-7.99%). During the recession years from 2007 and 2009 two states actually experienced growth in retail output. Iowa was one of these with growth equal to 2.19%. The other was North Dakota with growth equal to 2.70%. Since 2009 retail trade output has increased by 12.21% national and in the Great Lakes and Plains regions by 11.39% and 11.14%, respectively. North Dakota again experienced the strongest grow equaling 21.16%. Iowa's growth in retail output over the past two years equaled 10.43%. This tied with Ohio as the eighth highest rate.



F. Health Care and Social Assistance Sector

This sector includes services provided by doctor, dentists, and other medical professionals, hospitals, and resident care facilities. In addition, the sector includes vocational rehabilitation services, emergency and relief services, individual and family services, and child care. As shorthand this section refers to all of these services as part of the health care sector.

During 2000 the Great Lakes and Plains regions accounted for 16.46% and 7.25%, respectively, of the nation's health care sector real GDP. In 2011 the Great Lakes and Plains regions' shares equaled 15.12% and 7.09%. Iowa's share of the nation's health care sector output equaled 0.96% in 2000 and decreased to 0.90% by 2011.

It is logical to expect that for most of a state's people health care services are consumed within one's state of residence. Therefore, it is also logical to assume the consumption of health care services correlates closely with each state's population. However, for Iowa the share of the nation's health care services output was below its 1.04% share of population in 2000 and its 0.98% share in 2011. One explanation for this discrepancy is that Iowa has one of the lowest number of doctors per capita of all states ranking 45th in 2007 and equal to only about 70 percent of the national average. This is the lowest ranking of the twelve states in the Great Lakes and Plains regions. Another factor that makes Iowa's low health care consumption surprising is that its population is the fourth oldest in the United States. The three states with a larger share of their populations over 65 years of age have much higher ratios of doctors per 100,000 resident population - Florida (247.9), Pennsylvania (305.3), and West Virginia (232.1) – compared to Iowa's ratio of 189.3.

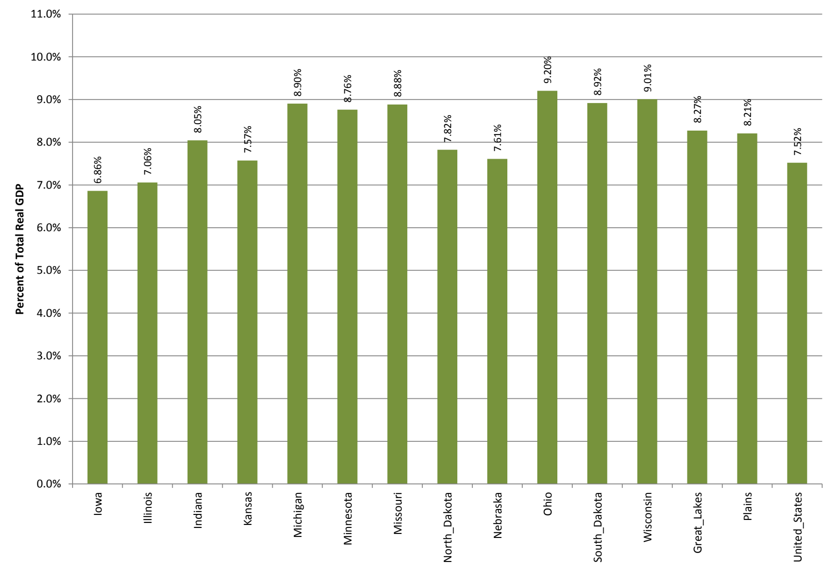
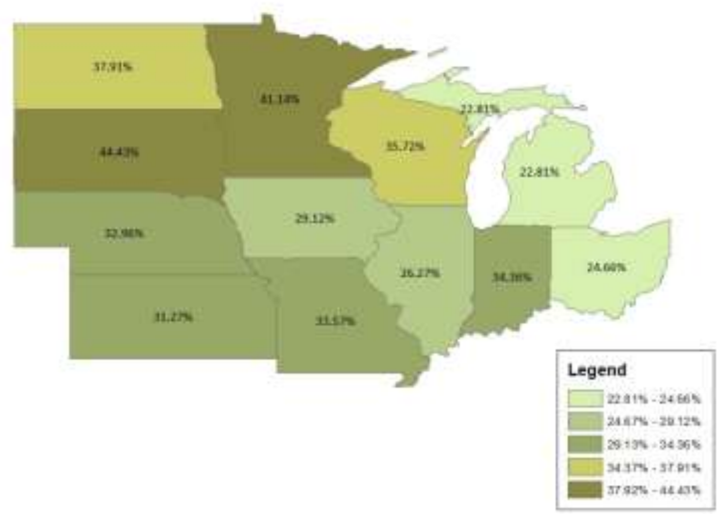


Figure 27: Health Care Sector Shares, 2011

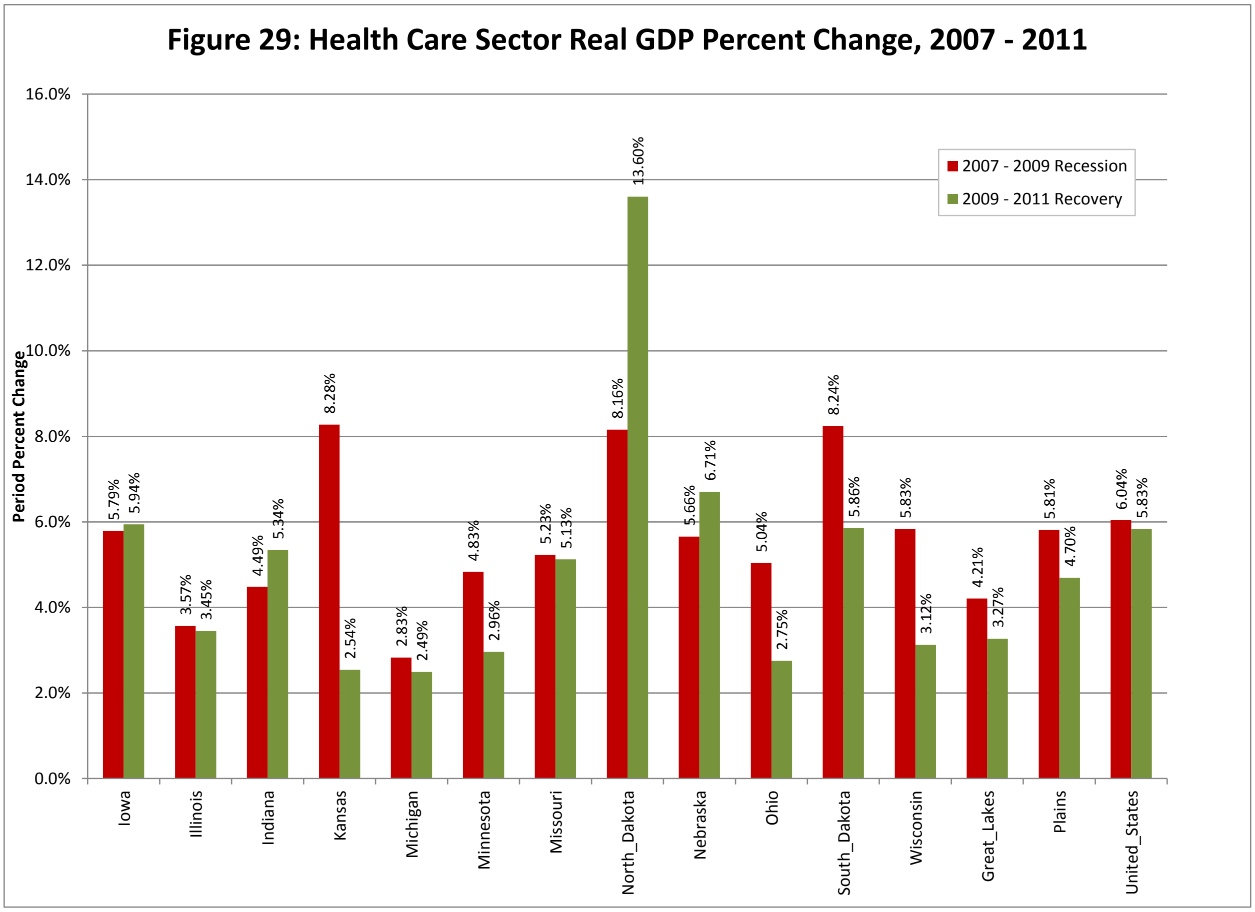
Figure 27 presents the 2011 shares of total real GDP accounted for by health care services for the nation, the Great Lakes and Plains regions, and the twelve states that comprise these regions. The national average share equals 7.52%. The shares for the Great Lakes and Plains regions equal 8.27% and 8.21%, respectively. The individual state shares range from a high of 9.20% for Ohio to Iowa's low of 6.86%.

Figure 28: Health Care Sector Real GDP Percent Change, 2000 - 2011



From 2000 to 2011 real GDP for the health care sector nationally increased by 38.60%. Over this same period health care sector output increased by 27.31% in the Great Lakes region and by 35.49% in the Plains region. Figure 28 presents 2000 to 2011 health care sector growth rates for the twelve states in the two regions. South Dakota had the highest growth over the period equaling 44.43%, while Michigan had the lowest growth equaling 22.81%. Iowa's growth equaled 29.12% ranking it ninth among the twelve states.

Focusing on the Great Recession and recovery years from 2007 to 2011, Figure 29 shows that for this sector no state experienced a contraction during the recession. Nationally, health care sector output increased by 6.04% from 2007 to 2009 and by another 5.83% from 2009 to 2011. Michigan experienced the least growth between 2007 and 2009 equaling 2.83% and Kansas's 8.28% represents the strongest growth. Iowa's health care sector real GDP grew by 5.79% during the two recession years. Since 2009, North Dakota has had the greatest growth equaling 13.60%, while Michigan again had the least growth at 2.49%. Iowa's growth for the health care sector inched up to 5.94%. This was the third highest growth rate since 2009.



G. Lodging (Accommodations) and Food Services Sector

This sector includes businesses that provide overnight lodging for short-term guests, such as motels, and hotels, as well as RV parks. Also, included in this sector are fast food and traditional full-service restaurants and drinking establishments. This sector acts as a good barometer for the economy due to many of the purchases from businesses in this sector being highly discretionary.

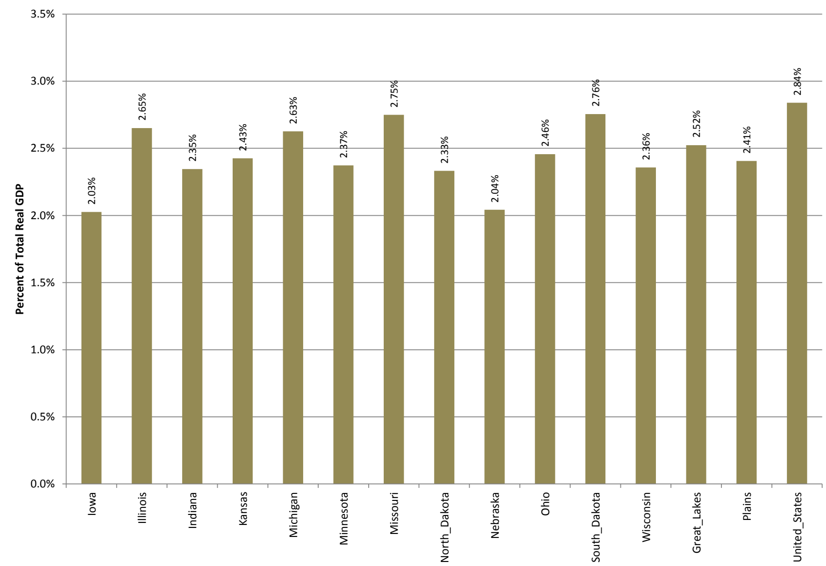
During 2000 the Great Lakes and Plains regions accounted for 12.83% and 5.86%, respectively, of this sector's national output. These shares decreased slightly by 2011 to 12.21% for the Great Lakes region and to 5.50% for the Plains region. For Iowa this sector's share of national output equaled 0.75% in 2000 and decreased to 0.70% by 2011.

The exact reasons for Iowa's small share of national lodging and food service sector output are unclear. However, some factors that likely have contributed to this situation include:

- Compared to other states in the region, with the possible exception of the Dakotas and Nebraska, Iowa has a smaller share of its population living in large metropolitan areas.
- As a related factor many small cities have lost a considerable share of their commercial business over the past couple of decades and consequently many restaurants and bars have closed.
- Iowa does not attract allot of vacation or business travelers.

Figure 30 reinforces the relatively small contribution the lodging and food services sector makes to Iowa's overall economy. In 2011, this sector accounted for only 2.03% of state real GDP, which was the smallest share of all the states in the Great Lakes and Plains Regions. In comparison, nationally this sector accounted for 2.84% of real GDP in 2011. Also, for the more heavily urbanized Great Lakes states the share equaled 2.52%.

Figure 30: Lodging and Food Service Sector Shares, 2011



From 2000 to 2011 the lodging and food services sector grew by 13.70% nationwide. Over the same period this sector's output increased by 8.22% in the Great Lakes region and by 6.78% in the Plains region. As Figure 31 shows in Iowa the sector grew by 6.33%. The states with the highest growth rates were North Dakota (24.45%), South Dakota (22.77%), and Illinois (17.30%). The state with the lowest growth was Ohio at 0.61%.

Figure 31: Lodging and Food Service Sector Real GDP Percent Change, 2000 - 2011

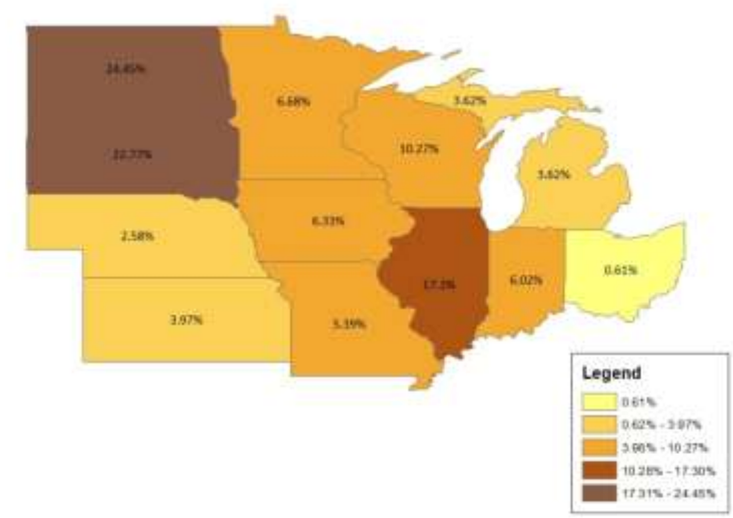
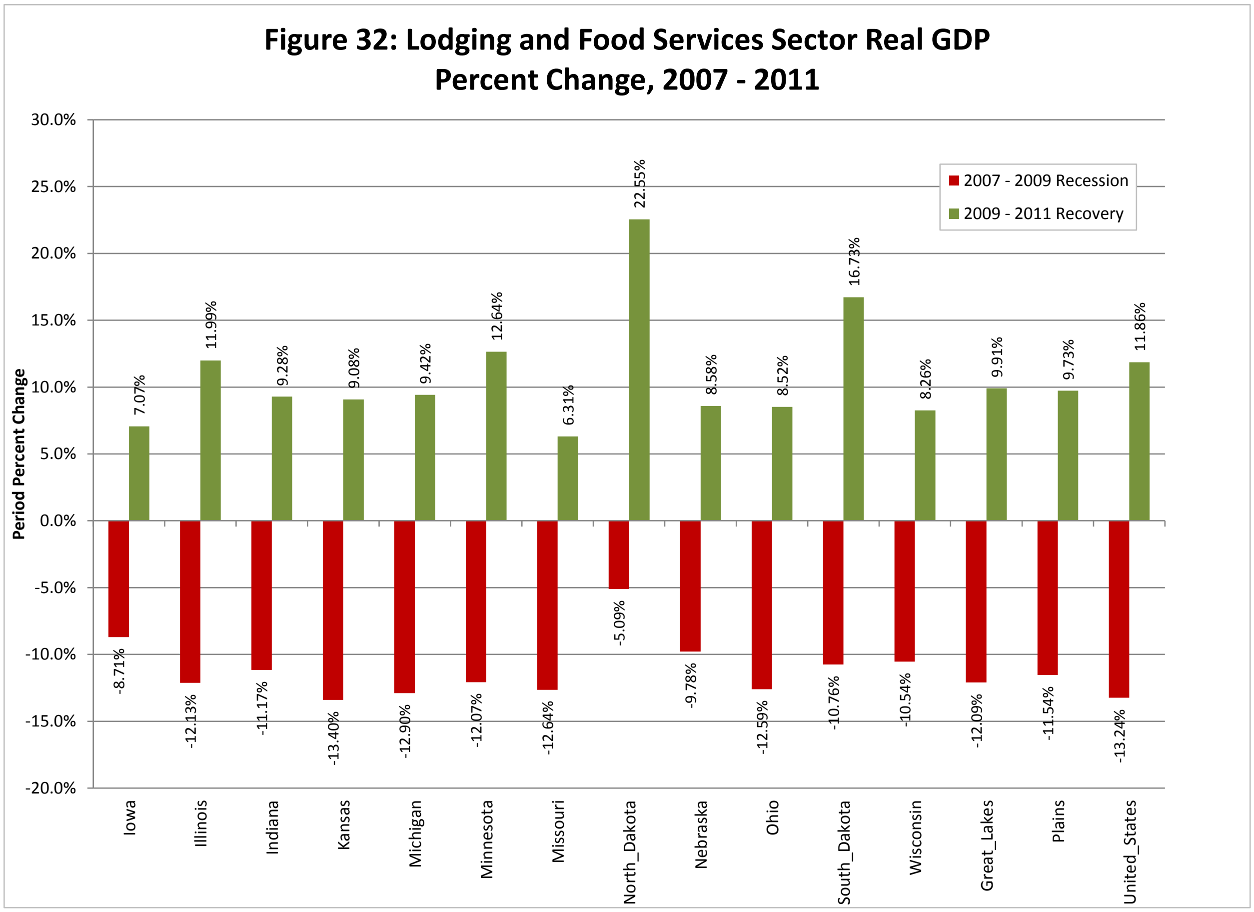


Figure 32 focuses attention on the Great Recession and recovery years from 2007 to 2011. During the recession years from 2007 to 2009 lodging and food service sector output decreased by 13.24% nationally. In the Great Lakes and Plains regions the sector's output decreased over these two years by 12.09% and 11.54%, respectively. Everyone one of the twelve states in these two regions saw this sector contract, but in North Dakota the decrease was a relatively small 5.09%. Kansas experienced the largest decrease equaling 13.40%. In Iowa the decrease equaled 8.71%, which was the second smallest.

Since 2009 nationally lodging and food service sector output has grown by 11.86%. In comparison, for the Great Lakes and Plains regions the growth rates have been 9.91% and 9.73%. In Iowa output for this sector has increased by 7.07%, which is the second lowest rate. So, it appears that output from the lodging and food services sector in Iowa is very stable compared to other states in the two regions. This implies the sector in Iowa primarily serves local residents rather than business travelers and tourists.



Concluding Observations

- From an economic perspective, the first decade of the 21st century has been one of the most volatile of the last century. Although the recession during 2001 was very mild, the second one that stretched from December 2007 to June 2009 almost caused the collapse of the nation's financial system. Even though three years have passed since the end of the Great Recession and interest rates are at historic lows, credit standards remain tight, which is impeding business growth and slowing the recovery of the housing sector.
- The recovery from the Great Recession started out well. After experiencing a 5.30% drop in total real GDP from 2007 to 2009, Iowa's real GDP rebounded strongly with 5.07% growth during 2010. However, during 2011 Iowa's real GDP growth lost steam and fell back to a growth rate of only 1.92%.
- Ten of the other states in the Great Lakes and Plains regions have had experiences similar to Iowa's. The exception is South Dakota, a state that did not really have a recession. Looking at the twelve states' as a group the difference between the total real GDP growth rates for 2009 and 2010 averaged 7.61%. Making the same comparison for the 2001 recession, the twelve state average difference between the 2001 and 2002 total real GPD growth rates equals only 2.55%. This comparison provides strong evidence that the federal stimulus enacted in February 2009 did work, but it was too small and not spread out over a long enough time period.

- In addition to the manufacturing sector and the finance and insurance sector, the strength of production agriculture has been a major reason Iowa has fared better than most other states over the past few years. Benefits from growth of this sector have definitely spilled over to the manufacturing and other sectors of the State's economy. However, there are indications that this may not last much longer.
- Finally, the analysis of individual sectors and comparisons to other states raises some issues that require further exploration. First, the real GDP data shows that although the agricultural sector exhibited strong growth during the recession years from 2007 to 2009, since 2009 this sector's output has contracted in eleven of the twelve states. Second, Iowa's health care sector was found to be unexpectedly small relative to the other states studied. This is particularly surprising given Iowa's older population.

Contact Information

Mike Lipsman
Email: m.lipsman@mchsi.com
Internet: www.economicsgroup.com
Phone: (515) 223-0611