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Examining industry composition effects in state employment

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Using Current Employment Statistics data, this article examines employment for all 50 states and the District from 2007 to 2016 to determine whether an industry composition effect slowed the post-Great Recession recovery of six states—Alabama, Connecticut, Mississippi, New Mexico, West Virginia, and Wyoming. The industry composition of these states was analyzed first at a macrolevel (from goods producing to service providing) and then at a more detailed industry supersector level. Based on industry shares over a decade, the industry composition of the six states that were slower to recover was little different from the composition of the states that did recover. However, the six states had higher rates of employment in goods-producing industries before the recession and higher rates of employment in service-providing industries following the recession.

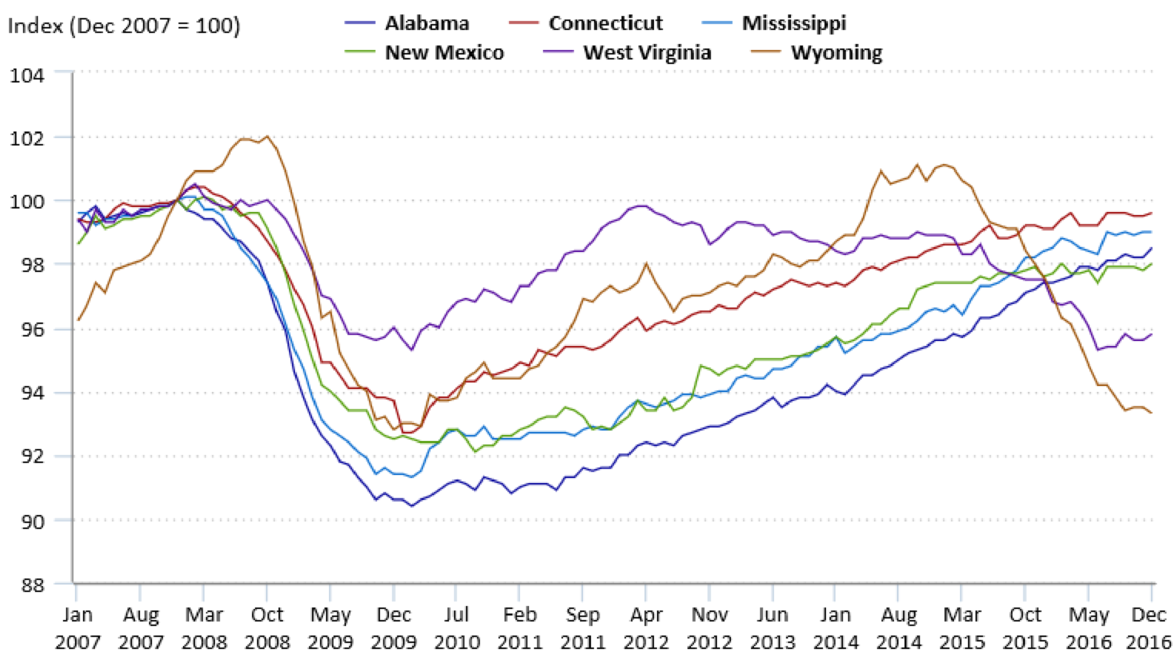
The Great Recession began in December 2007 and ended in June 2009, as determined by the National Bureau of Economic Research.[1] The effects of the recession were still evident a decade later in the employment levels of six states, although national employment had rebounded. This slow recovery raises some questions:

1. Did these states have a different industry composition that resulted in different recessionary impacts?
2. Did these states shift to a mix of industries that was different from that of other states?

Using data from the Current Employment Statistics (CES) program, this article analyzes industry composition, focusing on how employment was affected by the Great Recession at the state level.[2] In particular, this article looks at the nonrecovered states that did not recover their employment from each of the major industry supersectors.[3] Although the Great Recession officially lasted only 18 months, total private employment (total nonfarm employment less government) at the national level did not recover until early 2014.[4] Forty-three states and the District of Columbia took at least 18 months to recover to their prerecession employment levels. Meanwhile, by December 2016, nonrecovered states had yet to recover all of their prerecession peak employment: Alabama, Connecticut, Mississippi, New Mexico, West Virginia, and Wyoming. (Henceforth, the six states will be referred to as nonrecovered states.) Figure 1 shows the employment of these nonrecovered states, indexed to

December 2007, which was the first month of the recession. All states in this group began seeing declines in the early months of 2008.

Figure 1. Indexes of total private employment for unrecovered states, seasonally adjusted, January 2007–December 2016



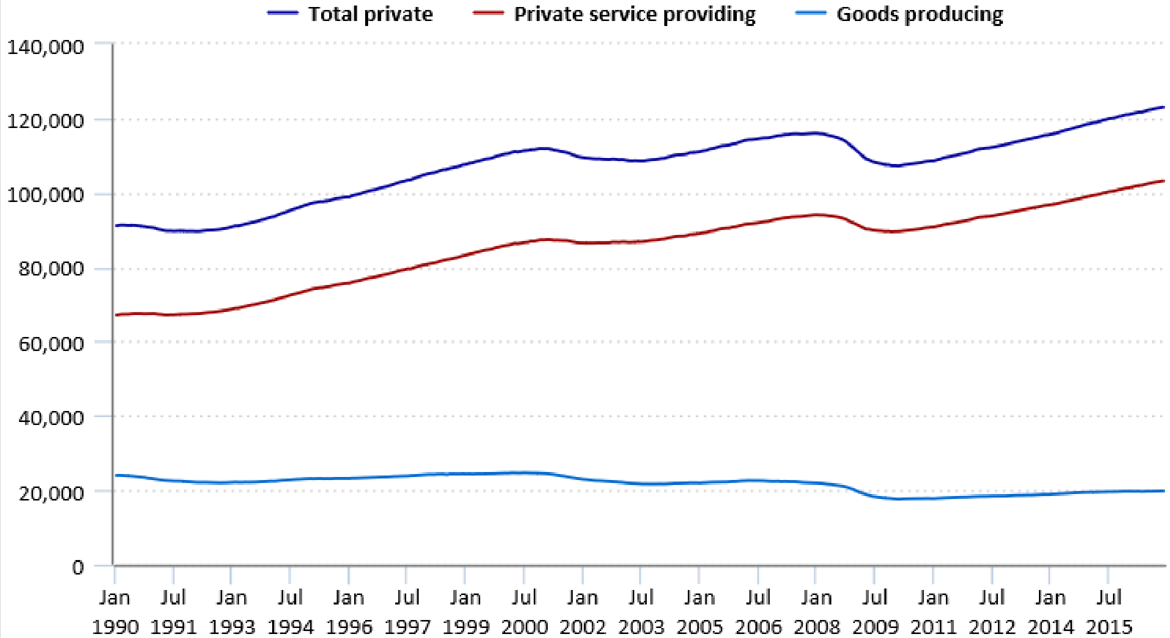
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

In December 2016, five of the nonrecovered states were nearly at or above their December 2007 employment levels, if not at their prerecession peak employment. At first, West Virginia and Wyoming rebounded from the effects of the recession, but then West Virginia in July 2013 and Wyoming in January 2015 began to experience further employment declines.

Declines in employment and changes in the industry composition of the American economy are nothing new. Over the last 30 years, goods-producing jobs (mining and logging, construction, and manufacturing industries) have declined overall. (In this article, mining, logging, and construction [MLC] will be considered one industry based on the guaranteed publication criteria under the CES State and Area program.)[5] Conversely, the share of private service-providing jobs in the economy has steadily increased over the same period. (See figure 2.) These jobs include those in trade, transportation, and utilities; information; financial activities; professional and business services; education and health services; leisure and hospitality; and other services sectors (other services is its own industry supersector and includes industries such as repair and maintenance and religious and civic organizations).[6] Following the recessions of 1990–91 and 2001, establishments, particularly goods-producing establishments, were more likely to lay off workers permanently, which led to a structural economic change toward more service-based jobs. In previous recessions, workers were often laid off temporarily and then rehired to the same establishment once economic conditions improved.[7] Each of the two recessions was followed by what was termed a "jobless recovery," in which gross domestic product growth occurred without a corresponding return or

growth in employment or payroll. This condition was caused by productivity gains resulting from technological change.

Figure 2. Employment in total private, private service-providing, and goods-producing industries, seasonally adjusted, in thousands, January 1990–December 2016



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Comparing goods-producing jobs with service-providing jobs

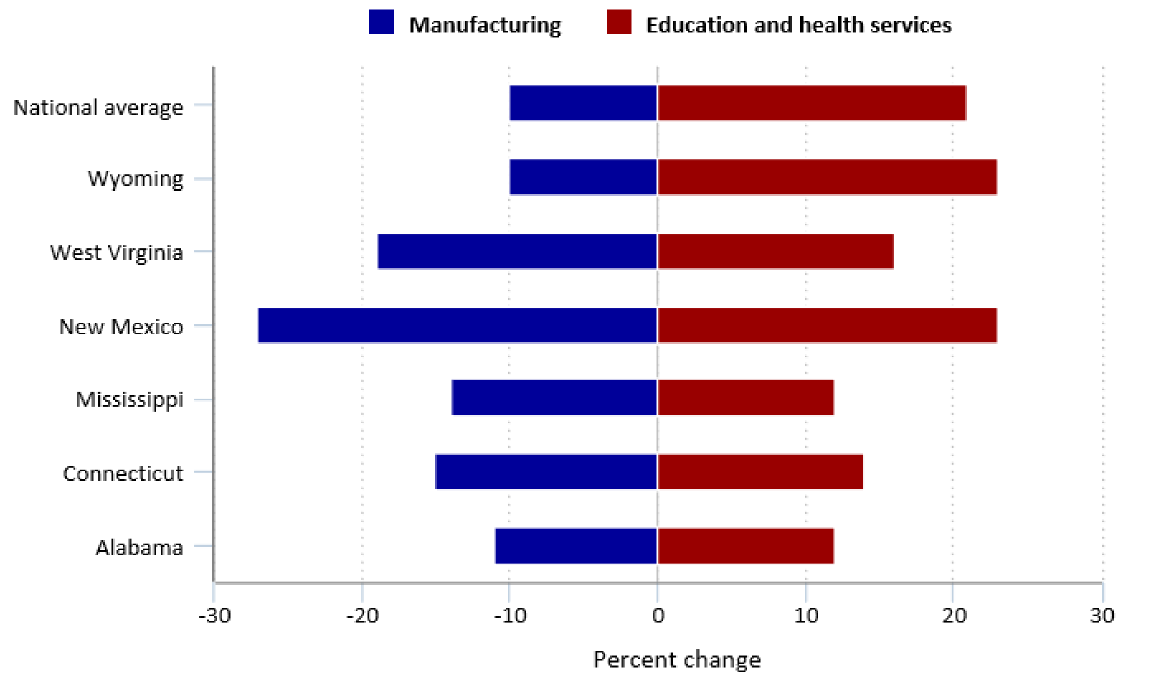
Nationally, private service-providing (henceforth referred to as service-providing) jobs increased steadily throughout the 1990s, increased more modestly in the 2000s, and then increased sharply following the end of the Great Recession. The number of goods-producing jobs, however, remained relatively stable throughout the 1990s and 2000s, dropped sharply during the Great Recession, and stabilized, but then slowly increased from mid-2011 to 2016. The proportion of goods-producing employment as a percentage of total private employment fell from 26.3 percent in 1990 to 16.1 percent in 2016.

Most of the shift from goods-producing jobs to service-providing jobs in each state occurred just before and immediately following the Great Recession. From 2007 to 2010, employment in goods-producing industries declined in 49 states as employment in service-providing jobs grew, with only North Dakota gaining slightly in goods-producing jobs. (North Dakota also had the fastest recovery in total private employment in the nation at 22 months.) After 2010, goods-producing jobs in most states continued to decline or did not change. In the District of Columbia, goods-producing jobs declined and then rebounded, so from 2007 to 2016, industry composition had no net change. In the District, goods-producing jobs composed only 3.1 percent of total private employment. From 2007 to 2016, goods-producing jobs declined an average of 14.8 percent as a share of total private employment statewide. Most of this decline, however, was from 2007 to 2010 (−13.5 percent), with a decline of −1.5 percent from 2010 to 2016. In contrast, the number of service-providing jobs in each state increased an average of 3.6

percent over the decade. Again, most of this growth occurred between 2007 and 2010 (+3.3 percent) and was essentially unchanged from 2010 to 2016 (+0.3 percent).

Figure 3 shows the percent change from December 2007 to December 2016 of employment in manufacturing and education and health services. Nationwide, manufacturing employment declined 10 percent over that period, while employment in education and health services increased by 21 percent. Each of the nonrecovered states experienced double-digit percentage declines in manufacturing employment. Employment in education and health services increased in these nonrecovered states over the decade. Healthcare jobs, in particular, fared well—previous research has determined that these types of jobs are “recession proof.”[8]

Figure 3. Percent change in manufacturing and education and health services, of unrecovered states and national average, seasonally adjusted, December 2007–December 2016



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Looking at the nonrecovered states

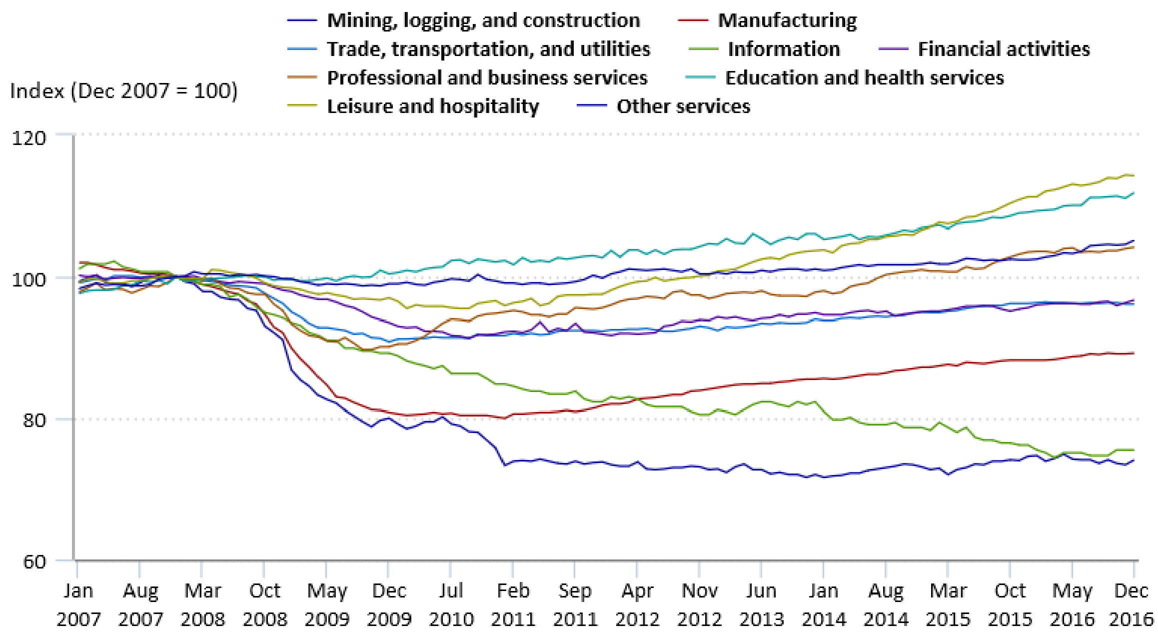
As stated earlier, the unrecovered states that had not recovered their prerecession total private employment by December 2016 were Alabama, Connecticut, Mississippi, New Mexico, West Virginia, and Wyoming. These nonrecovered states experienced a greater decrease in the number of goods-producing jobs from 2007 to 2016 than did other states (−18.2 percent versus −14.3 percent), but they also experienced a greater increase in the share of service-providing jobs over the same period (+5.5 percent versus +3.4 percent). Employment in goods-producing jobs in the other 44 states and the District declined in the recessionary years and stabilized afterward. However, for the nonrecovered states, employment in goods-producing jobs continued to decline throughout the postrecession years. When industry supersectors of each of the nonrecovered states are indexed as a share of

total private employment to December 2007 (the start of the Great Recession), figures 4 through 9 show the recovery across each of the nonrecovered states by industry.

Alabama

As figure 4 shows, Alabama's employment declined primarily in MLC, manufacturing, and information. Manufacturing slowly increased through the end of 2016 from a trough in January 2011, but employment in December 2016 was a 12.6-percent decrease from January 2007. In contrast, MLC and information continued to decline over the 10-year period. Alabama's share of this industry was the same as the average of the recovered states, 7.6 percent. Because Alabama's share of employment in MLC is smaller, roughly half the size of the share of nonrecovered states New Mexico, West Virginia, and Wyoming, the decline in this industry in Alabama appears greater compared with that of the other nonrecovered states. Employment in this industry declined 25.9 percent from December 2007 to December 2016.

Figure 4. Indexes of Alabama employment by industry, seasonally adjusted, January 2007–December 2016

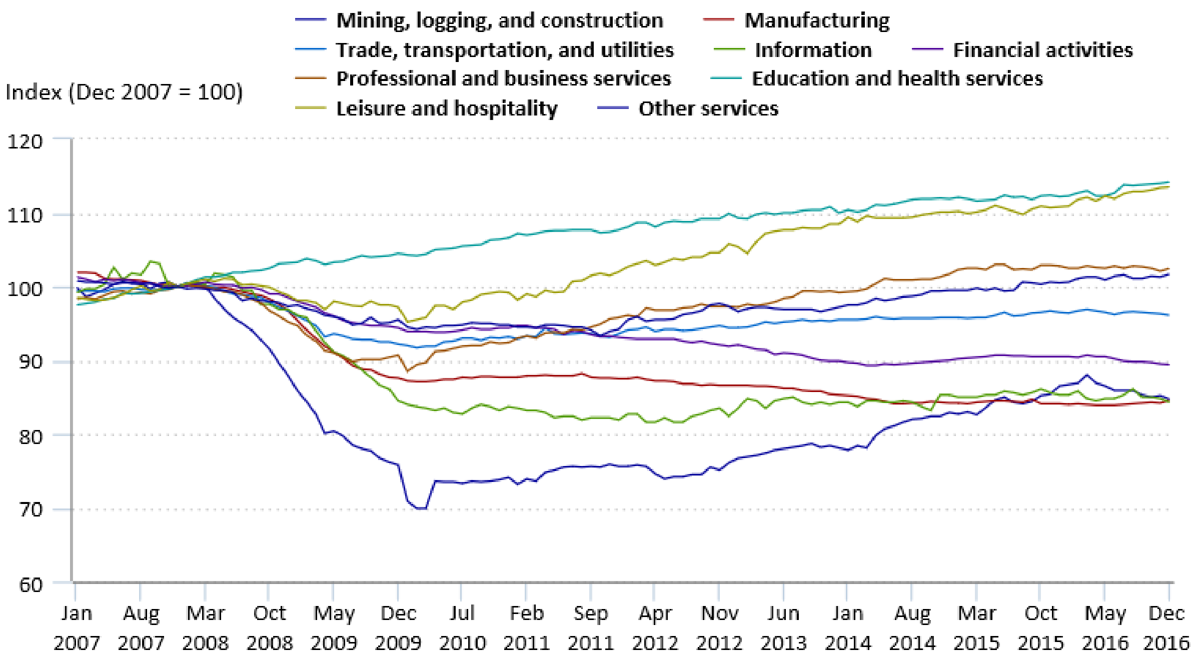


Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Connecticut

As shown in figure 5, goods-producing employment declined in Connecticut in both MLC and manufacturing; however, by the end of 2016, decline had slowed. Employment in education and health services showed no decline as a share of total private employment over the decade. Among the nonrecovered states in 2007, Connecticut had a higher share of employment in financial activities than the average share of recovered states (10.0 percent versus 7.0 percent). Connecticut also had a higher share of employment in financial activities in 2016 (9.0 percent versus 6.7 percent). The average share of financial activities as a share of total private employment for all states was largely stable from 2007 to 2016, from 6.9 percent to 6.6 percent.

Figure 5. Indexes of Connecticut employment by industry, seasonally adjusted, January 2007–December 2016



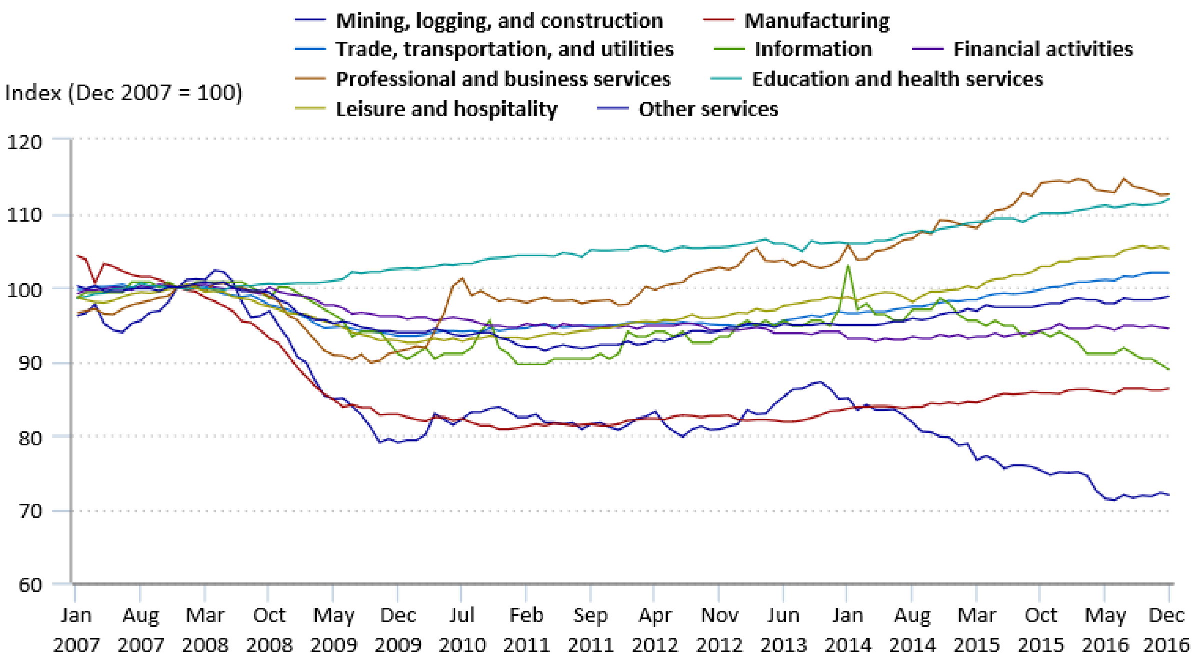
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Connecticut's share of employment in MLC remained relatively stable over the 10-year period, only declining by 0.7 percentage point. Employment in this industry declined 15.3 percent from December 2007 to December 2016. While the recovered states saw a 14.4-percent decrease in the share of MLC employment as a proportion of total private employment, the nonrecovered states experienced a 21.8-percent decrease, showing that they were affected more than recovered states.

Mississippi

In Mississippi, declines in the share of MLC employment were greater than the declines in shares of MLC employment in the other nonrecovered states, a decline of 24.6-percent versus an average decline of 15.6 percent from 2007 to 2016. This difference was driven by declines in both mining and logging starting in January 2015 and construction starting in November 2013. (See figure 6.) Employment in education and health services steadily increased over the 10-year period, declining for only a few months in 2007. Professional and business services employment declined from 2008 to 2011 but, after that period, increased through the end of 2016, for an increase in employment of +12.6 percent from December 2007 to December 2016. Trade, transportation, and utilities and leisure and hospitality had slightly greater employment in December 2016 than in December 2007, +2.0 percent and +5.2 percent, respectively.

Figure 6. Indexes of Mississippi employment by industry, seasonally adjusted, January 2007–December 2016

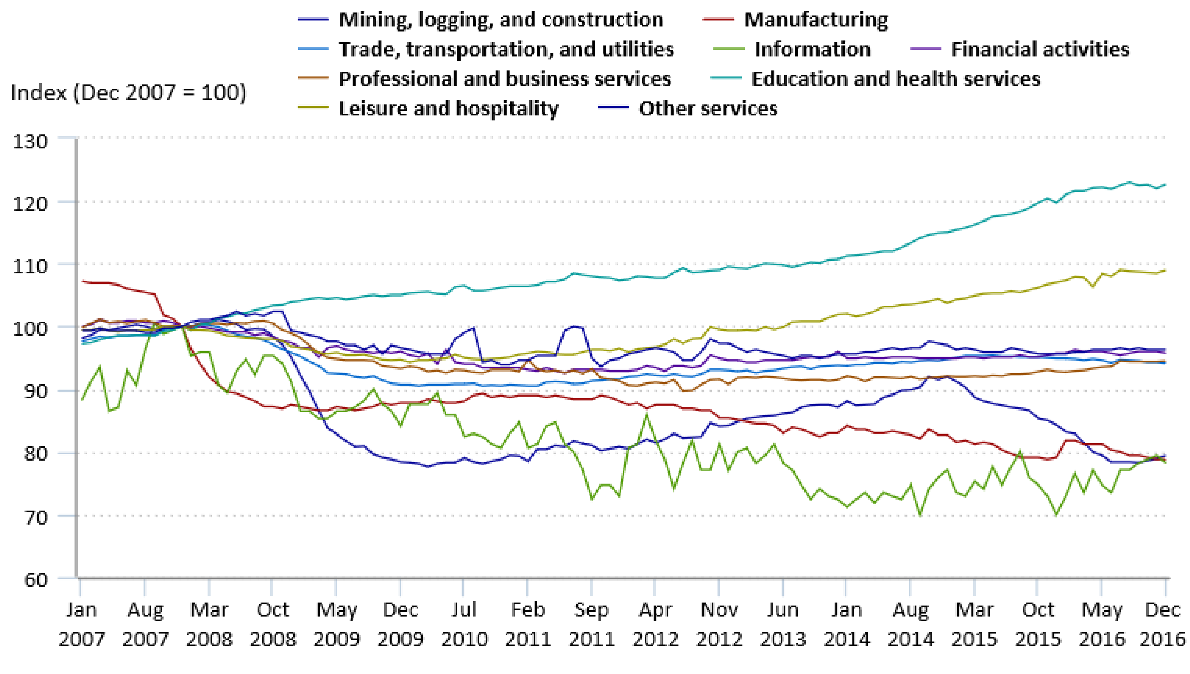


Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

New Mexico

In addition to New Mexico experiencing employment declines in MLC and manufacturing, the state experienced employment declines in the information industry throughout the 10-year period. (See figure 7.) Trade, transportation, and utilities; financial activities; and professional and business services declined modestly, between 4.3 and 5.3 percent from 2007 to 2016. New Mexico had a higher share in professional and business services than did the other nonrecovered states in 2007, or an average of 16.2 percent of total private employment. Therefore, the decline in employment in this industry over the 10-year period brought the share of professional and business services down to 15.9 percent. This percentage is still higher than that of the other five states but is similar to the share of Connecticut for this industry in 2016 (15.2 percent). Education and health services increased by 22.7 percent, whereas manufacturing decreased by 21.8 percent.

Figure 7. Indexes of New Mexico employment by industry, seasonally adjusted, January 2007–December 2016



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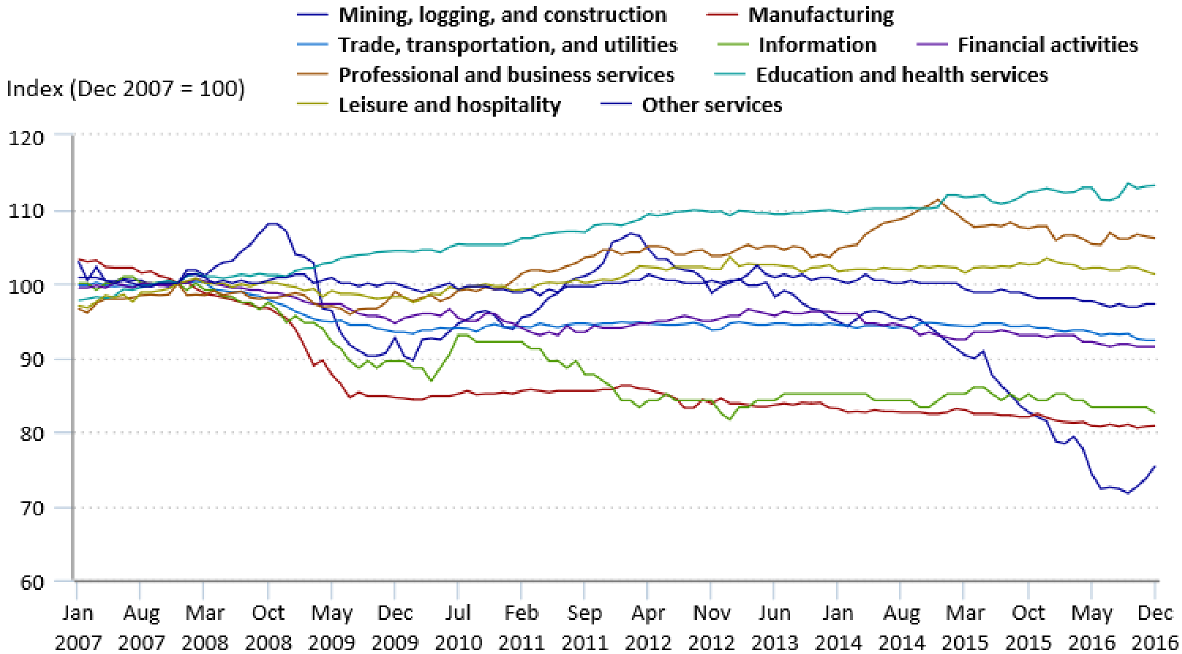
Source: U.S. Bureau of Labor Statistics.

West Virginia

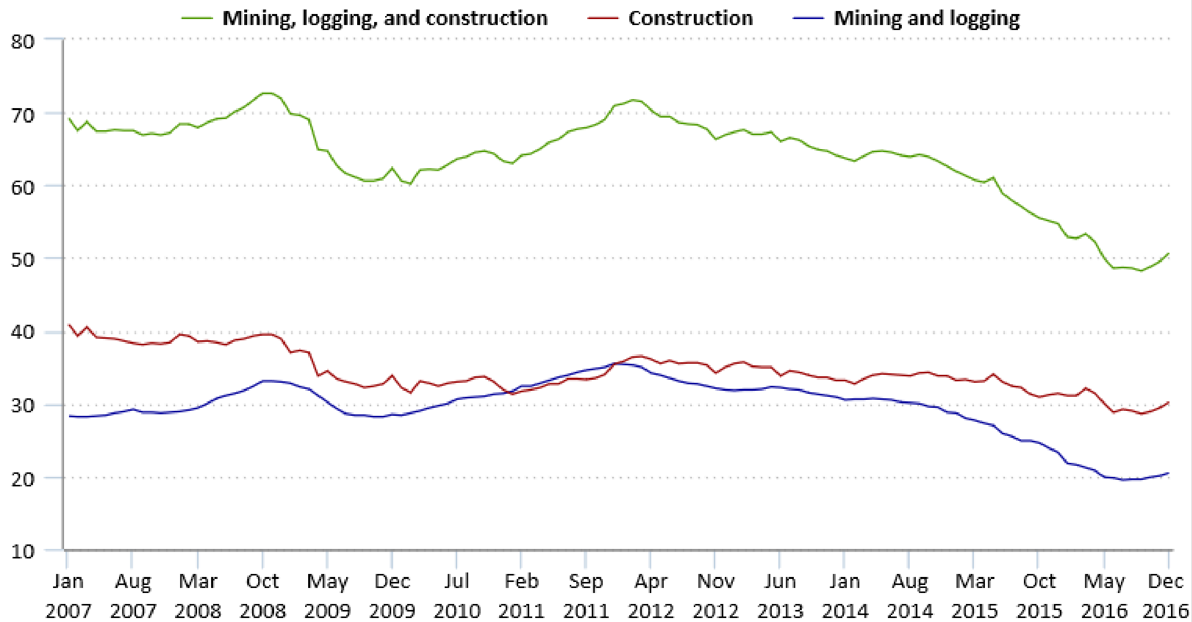
West Virginia's MLC employment increased 8.0 percent during the recessionary months, from December 2007 to November 2008. (See figure 8.) From November 2008 to February 2010, employment decreased 17.1 percent; from February 2010 to February 2012, it increased 19.1 percent; and from February 2012 to December 2016, it decreased 29.3 percent. This pattern is noticeably different from the pattern for the other five states, in which employment declined steadily over the 10-year period, with no return to prerecession employment levels. West Virginia's employment in mining and logging, on the one hand, and construction, on the other, reveals almost identical patterns of growth and decline over the 10-year period. (See figure 9.) Employment saw modest increases in professional and business services, education and health services, and leisure and hospitality from December 2007 to December 2016 (+6.1 percent, +13.2 percent, and +1.2 percent, respectively). In contrast, employment in trade, transportation, and utilities; financial activities; and other services decreased slightly over the same period (–7.7 percent, –8.5 percent, and –2.8 percent, respectively), similar to employment trends in those industries in New Mexico.

Figure 8. Indexes of West Virginia employment by industry, seasonally adjusted, January 2007–December 2016



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Figure 9. West Virginia employment in mining, logging, and construction; mining and logging; and construction, seasonally adjusted, in thousands, January 2007–December 2016

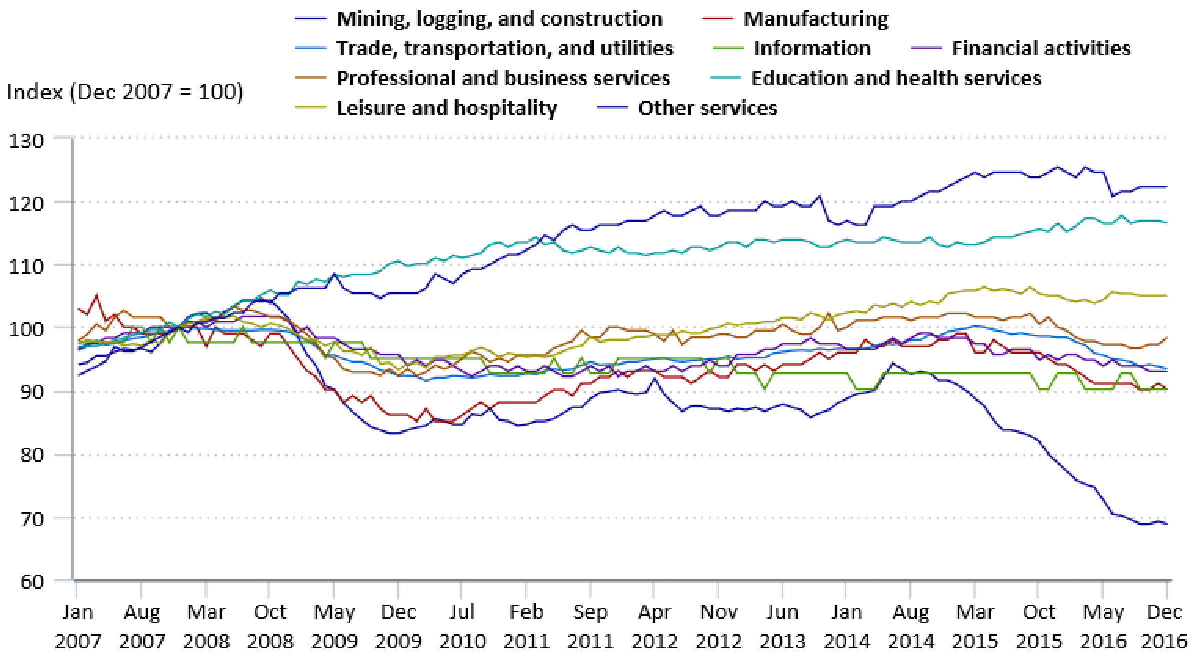


Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Wyoming

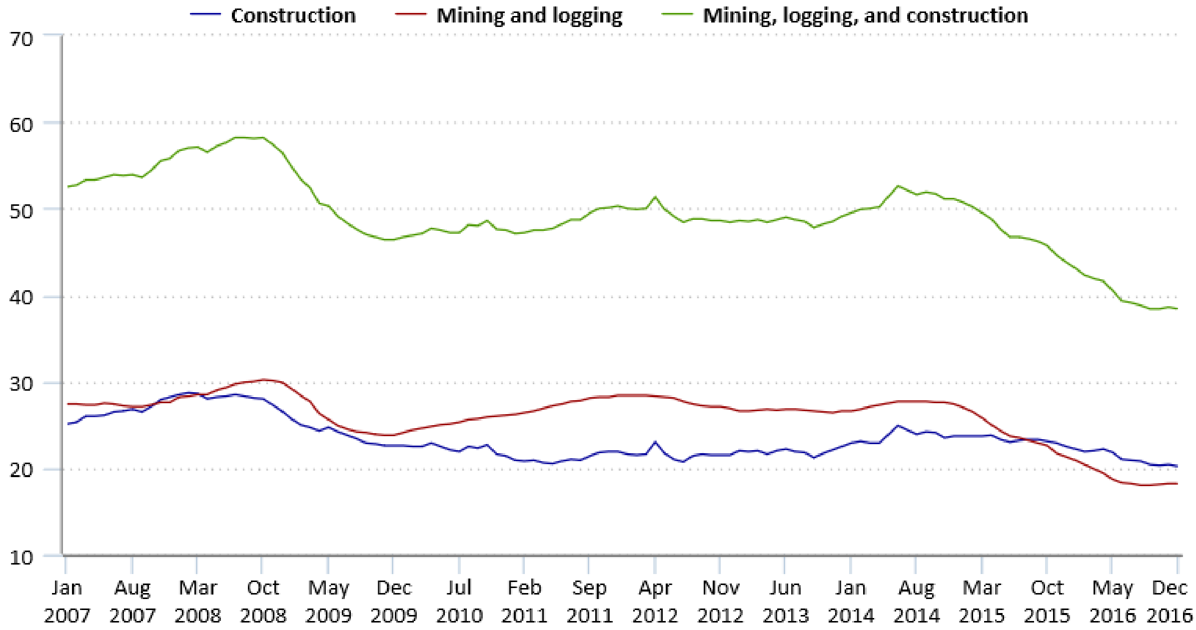
Wyoming experienced a large increase in employment, both in education and health services and in other services. (See figure 10.) When indexed to its respective December 2007 level, employment in the other services sector increased more than that in education and health services, +22.3 percent versus +16.5 percent. By March 2016, the employment level of other services increased as high as 25.4 percent above its prerecession level, compared with the +17.3-percent increase in education and health services (the increase occurred in both March and July 2016). Leisure and hospitality was the only other service-providing industry to have employment above its prerecession level by the end of 2016. From December 2007 to the end of 2016, MLC experienced the worst decline—31.2 percent—among industries in Wyoming. As with West Virginia's employment experience, Wyoming's employment in mining and logging, on the one hand, and construction, on the other, followed similar patterns of growth and decline over the 10-year period. (See figure 11.)

Figure 10. Indexes of Wyoming employment by industry, seasonally adjusted, January 2007–December 2016



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Figure 11. Wyoming employment in mining, logging, and construction; mining and logging; and construction, seasonally adjusted, in thousands, January 2007–December 2016



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Conclusion

Before the Great Recession, the nonrecovered states had higher shares of employment overall in MLC, education and health services, leisure and hospitality, and other services industries than did the recovered states. This finding was still true in 2016. MLC had the biggest decline in the share of employment among the nonrecovered states over the decade, with Wyoming showing the greatest decline among the nonrecovered states. Over the decade, nonrecovered states saw gains in education and health services, followed by leisure and hospitality, professional and business services, and other services. In contrast, recovered states declined the most in shares of employment in manufacturing, MLC, and trade, transportation, and utilities. In addition, they experienced gains in the same service industries as the nonrecovered states, but at smaller shares of employment. In most states, not just the nonrecovered states, goods-producing jobs made up a smaller share of total private employment in 2016 than in 2007, with most of this structural shift occurring by the end of 2010.

Employment growth since the Great Recession in 2007–09 has been almost exclusively in service-providing industries at both the national level and the state level. This article has examined how the nonrecovered states with the slowest recovery from the Great Recession differed from all other states. The nonrecovered states started the recession with a larger share of employment in goods-producing industries than did other states and saw slightly larger gains in service-providing industries over the following decade than other states saw. However, for these nonrecovered states, the losses in goods-producing industries were greater than the subsequent gains in service-providing industries.

SUGGESTED CITATION

Meredith Miller, "Examining industry composition effects in state employment," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, July 2020, https://doi.org/10.21916/mlr.2020.13

NOTES

1 The official length of the Great Recession is defined by the National Bureau of Economic Research.

2 For more information on state and metro area employment, hours, and earnings that the Current Employment Statistics (CES) program produces, see https://www.bls.gov/sae/.

3 The supersectors are mining, logging, and construction; manufacturing; trade, transportation, and utilities; information; financial activities; professional and business services; education and health services; leisure and hospitality; and other services.

4 John P. Mullins and Brittney E. Forbes, "CES employment recovers in 2014," *Monthly Labor Review*, April 2015, https://www.bls.gov/opub/mlr/2015/article/ces-employment-recovers-in-2014.htm.

5 For more information on guaranteed publication levels for the CES State and Area program, see https://www.bls.gov/sae/additional-resources/guaranteed-publication-levels-and-the-ces-small-domain-model-sdm.htm.

6 Examples of industries that fall under other services (North American Industry Classification System code 81) include repair and maintenance, personal services, and religious and civic organizations.

7 Erica L. Groshen and Simon Potter, "Has structural change contributed to a jobless recovery?" *Current Issues in Economics and Finance*, vol. 9, no. 8 (New York City, Federal Reserve Bank of New York, August 2003), p. 6, https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci9-8.pdf.

8 Michael L. Dolfman, Matthew Insco, and Richard J. Holden, "Healthcare jobs and the Great Recession," *Monthly Labor Review*, June 2018, https://www.bls.gov/opub/mlr/2018/article/healthcare-jobs-and-the-great-recession.htm.

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