

# PAGE ONE Economics®

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## CLASSROOM EDITION

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### Falling Oil Prices Create Winners and Losers

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An informative and accessible economic essay with a classroom application. Includes the full version of *Page One Economics*®, plus questions for students and an answer key for classroom use.

Common Core State Standards (see page 8)

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## Falling Oil Prices Create Winners and Losers

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“ When you see [an oil] rig like that sitting in the yard, that just means that there’s no longer demand to keep it in the field, and there’s just not enough work out there for you. ”

—Danny Morgan, Morgan Well Service<sup>1</sup>



Oil is important to the economic development of the United States: It powers much of the U.S. economy, and its price fluctuations can influence inflation<sup>2</sup> and unemployment. However, the impact of oil prices is often felt more directly (both positively and negatively) by local economies with close ties to the oil industry.<sup>3</sup> For example, the recent decrease in oil prices has resulted in an estimated 75,000 worker layoffs in the oil industry, and more are expected.<sup>4</sup> As such, it might seem that falling oil prices are harmful to the economy, but most economists believe the recent decline in oil prices will promote economic expansion.<sup>5</sup>

### Regional Expansion During a National Recession

The recent oil industry boom was largely due to the emergence of two new oil drilling technologies—horizontal drilling and hydraulic fracturing (or “fracking”)—and high oil prices. This boom started during the Great Recession, amid high national unemployment (10 percent in October 2009), and was felt most dramatically in western North Dakota, where employers had difficulty finding enough workers to fill the many jobs created by the boom.

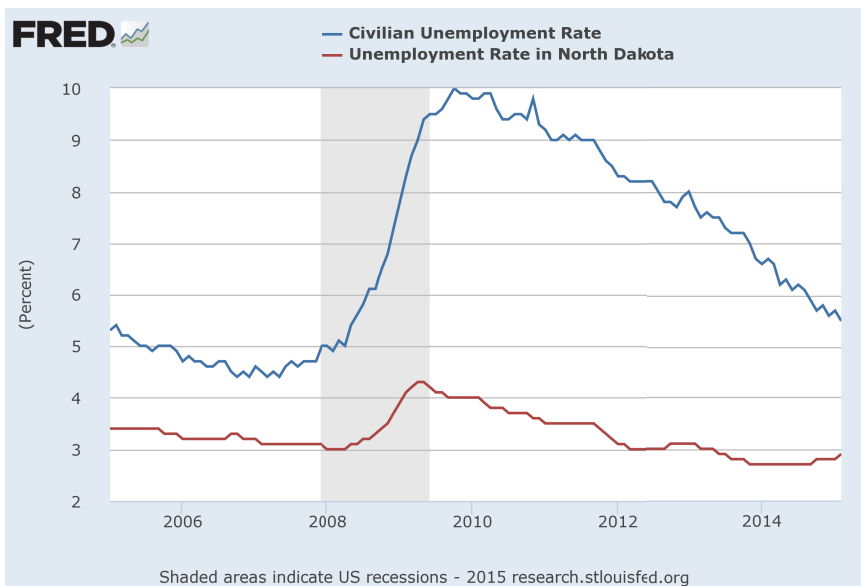
Distance and the housing crisis restricted the flow of job seekers to the job opportunities in North Dakota. North Dakota is relatively isolated from large population centers; Minneapolis-St. Paul, the nearest large metropolitan area, is over 500 miles from the Bakken Formation.<sup>6</sup> Further, the states that had very high unemployment rates during the recession (the most job seekers)—Arizona, California, Florida, and Nevada—are all well over 1,000 miles away. The housing crisis made it difficult for many job seekers to move to find employment because plunging housing prices left many homeowners “underwater”—that is, owing more on their home loans than they could recoup by selling the house. As a result, they were financially tied to their current location.

### GLOSSARY

**Relative scarcity**—Demand for a resource, good, or service relative to the available supply of that resource, good, or service.

### Resources and Employment in Boom Times

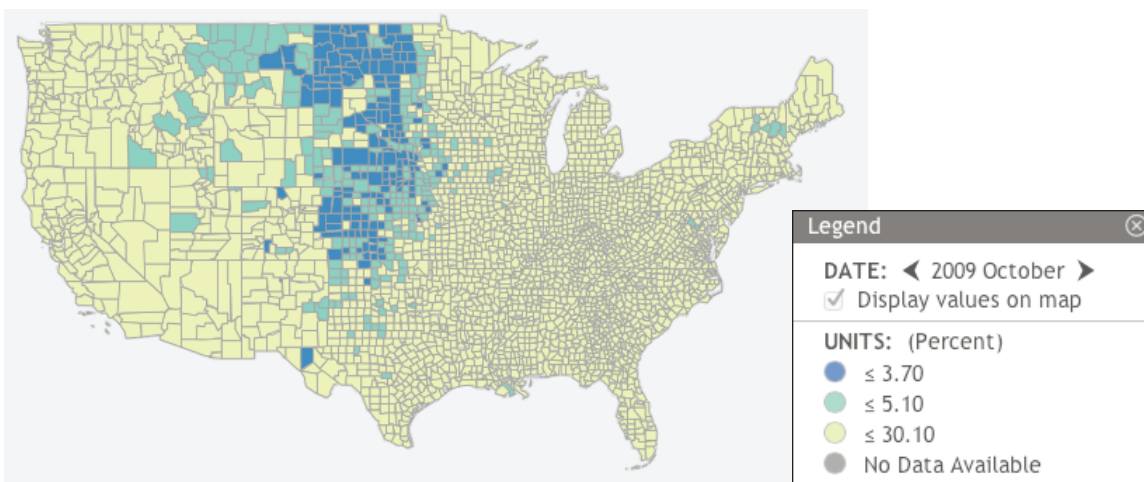
The boom in North Dakota that produced vast quantities of one valuable resource (oil) left employers searching for another valuable resource: labor. The demand for labor is derived from—or determined by—the demand for the goods and services that the labor produces. That is, the demand for oil drilling services determines the demand for workers in the oil services industry. The combination of new oil drilling technology and high oil prices provided oil companies with an incentive to drill new wells. Explorations ramped up in 2006 with the discovery of the Parshall oil field,<sup>7</sup> which led to growing interest in the larger Bakken Formation. Oil production in North Dakota grew at least 12-fold from January 2006 (99,000 barrels per day) to December 2014 (1,227,000 barrels per day).<sup>8</sup> The **relative scarcity**—that is, the demand for a resource relative to the available supply—of workers in western North Dakota set the stage for regional labor shortages and higher wages.



NOTE: The U.S. unemployment rate rose to 10 percent during the 2007-09 recession (blue line) and has since decreased to 5.5 percent. Meanwhile, the North Dakota unemployment rate peaked at 4.3 percent during the recession and decreased to a low of 2.7 percent (April 2014). The gray bar indicates the 2007-09 recession as determined by the National Bureau of Economic Research.

SOURCE: FRED®, Federal Reserve Economic Data. Federal Reserve Bank of St. Louis; US. Bureau of Labor Statistics, Civilian Unemployment Rate [UNRATE], Unemployment Rate in North Dakota [NDUR]. <http://research.stlouisfed.org/fred2/graph/?g=13WX>; accessed March 31, 2015.

### 2009 October Unemployment Rate by County



NOTE: North Dakota experienced a lower-than-average unemployment rate during the 2007-09 recession. This GeoFRED® map shows the unemployment rate by county in October 2009.

SOURCE: Federal Reserve Bank of St. Louis. "Editing the Legend and Changing Colors by Mapping an Oil Boom." <https://www.stlouisfed.org/~media/Education/Lessons/pdf/GeoFRED-Mapping-an-Oil-Boom.pdf>, p. 8; accessed March 12, 2015.

The impact was most dramatic in Mountrail and Williams counties in North Dakota. While the national unemployment rate rose to 10 percent, the unemployment rate in Mountrail County fell to 3.3 percent in October 2009 and continued to fall—all the way to 1.1 percent in October 2014.<sup>9</sup> In neighboring Williams County, the unemployment rate dropped below 1 percent.<sup>10</sup> Over time, workers moved to the area—the population in Mountrail County increased 47 percent in seven years—from 6,376 in 2006 to 9,376 in 2013.<sup>11</sup> As might be expected, incomes boomed along with the oil industry: Per capita income more than tripled, from \$26,219 in 2006 to \$90,614 in 2013.<sup>12</sup> In Williams County, per capita income peaked at \$121,459 in 2012.<sup>13</sup>

### The Economic Impact of Falling Oil Prices

High oil prices sustained the boom for a while, but the recent decline in oil prices has deflated the local economy. On July 28, 2014, prices reached \$105.68 per barrel, and by January 28, 2015, they had fallen to \$44.08 per barrel, a 62 percent price decrease in only six months.<sup>14</sup> While most operating wells continue to produce, the dramatic decrease in oil prices has greatly reduced new drilling. Oil rigs that were used 24 hours a day for months at a time are now idle, as are the workers who operated them. In April 2015, North Dakota reported 94 active oil rigs, down from 217 in the spring of 2012.<sup>15</sup> This change has important implications for the state's economy; reports estimate that each operating rig supports 120 full-time jobs.<sup>16</sup>

Clearly, falling oil prices hurt oil companies and workers in oil services industries. But they do benefit the general economy. Money that consumers and businesses might have normally spent on fuel for heating and transportation can now be spent on other goods and services (or saved). For example, the U.S. Energy Information Administration estimates that U.S. households will spend (on average) about \$750 less on gasoline in 2015 compared with 2014.<sup>17</sup> This increase in consumer disposable income can spur consumer demand for other goods and services. On net, these economic gains that arise from increased consumer spending tend to outweigh the effects of a reduction in oil drilling activity. In addition, lower oil prices are associated with factors such as lower overall inflation and lower (nominal) interest rates, which might increase demand for consumer spending on automobiles and housing and business investment on capital goods.<sup>18</sup>

### Conclusion

Fluctuations in oil prices can produce booms and busts in rural areas that result in fluctuations in the demand for labor. North Dakota is a case in point: Rising oil prices resulted in a flurry of drilling and the hiring of oil field workers, and the recent collapse of oil prices has seen a parallel decrease in drilling and employment. Oil prices also have implications for the larger economy. Although falling oil prices hurt some local economies, they are a net positive for the economy.<sup>19</sup> ■

## NOTES

<sup>1</sup> Morris, Frank. "Analysts Fear a Prolonged Drop in Oil Prices Will Hurt Oklahoma's Banks." KCUR National Public Radio, Kansas City, MO, February 24, 2015; <http://www.npr.org/2015/02/24/387750572/analysts-fear-a-prolonged-drop-in-oil-will-hurt-oklahomas-banks>.

<sup>2</sup> Kliesen, Kevin L. "Are Oil Price Declines Good for the Economy?" Federal Reserve Bank of St. Louis *Economic Synopses*, No. 3, February 6, 2015; [http://research.stlouisfed.org/publications/es/15/ES\\_3\\_2015-02-06.pdf](http://research.stlouisfed.org/publications/es/15/ES_3_2015-02-06.pdf).

<sup>3</sup> Federal Reserve Bank of St. Louis. "Plunging Oil Prices: Impact on U.S. and State Economies. Part 4: Regional Effects of Lower Oil Prices." Dialogue with the Fed, presented February 12, 2015; <https://www.stlouisfed.org/dialogue-with-the-fed/plunging-crude-prices/videos/part-4-regional-effects-of-lower-oil-prices>.

<sup>4</sup> Helman, Christopher. "Itemizing the Oil Bust: 75,000 Layoffs and Counting." *Forbes* (blog), March 16, 2015, updated March 18, 2015; <http://www.forbes.com/sites/christopherhelman/2015/03/16/oil-layoffs-itemized-75000-and-counting/>.

<sup>5</sup> IGM Forum. "Oil Prices." January 13, 2015; [http://www.igmchicago.org/igm-economic-experts-panel/poll-results?SurveyID=SV\\_40tbz0HBxqXSypL](http://www.igmchicago.org/igm-economic-experts-panel/poll-results?SurveyID=SV_40tbz0HBxqXSypL).

<sup>6</sup> The Bakken Formation covers 200,000 square miles and underlies parts of Montana, North Dakota, Saskatchewan, and Manitoba. Oil was first discovered there in 1951, but the technology to extract it was introduced only recently.

<sup>7</sup> The Parshall oil field, near the town of Parshall, North Dakota, draws from the Bakken Formation. The discovery of the Parshall oil field in 2006 is often marked as the start of the North Dakota oil boom.

<sup>8</sup> North Dakota Industrial Commission, Department of Mineral Resources. "ND Monthly Oil Production Statistics." <https://www.dmr.nd.gov/oilgas/stats/historicaloilprodstats.pdf>.

<sup>9</sup> Federal Reserve Economic Database (FRED®). "Unemployment Rate in Mountrail County, ND [NDMOUN1URN]." <http://research.stlouisfed.org/fred2/graph/?g=11wx>; accessed March 31, 2015.

<sup>10</sup> FRED®. "Unemployment Rate in Williams County, ND [NDWILL5URN]." <http://research.stlouisfed.org/fred2/graph/?g=12TQ>; accessed March 31, 2015.

<sup>11</sup> FRED®. "Resident Population in Mountrail County, ND [NDMOUN1POP]." <http://research.stlouisfed.org/fred2/graph/?g=12TK>; accessed March 31, 2015.

<sup>12</sup> FRED®. "Per Capita Personal Income in Mountrail County, ND [PCPI38061]." <http://research.stlouisfed.org/fred2/graph/?g=12TL>; accessed March 31, 2015.

<sup>13</sup> FRED®. "Per Capita Personal Income in Mountrail and Williams Counties, ND [PCPI38061, PCPI38105]." <http://research.stlouisfed.org/fred2/graph/?g=12TP>; accessed March 31, 2015.

<sup>14</sup> FRED®. "Crude Oil Prices: West Texas Intermediate (WTI)—Cushing, Oklahoma [DCOILWTICO]." <http://research.stlouisfed.org/fred2/graph/?g=12Ug>; accessed March 31, 2015.

<sup>15</sup> North Dakota Industrial Commission, Department of Mineral Resources. "Current Active Drilling Rig List." <https://www.dmr.nd.gov/oilgas/riglist.asp>; accessed April 3, 2015.

<sup>16</sup> Kovacevich, Terry. "North Dakota Petroleum Council." [http://alaskaalliance.com/files/alliance\\_presentations/TerryKovacevich.pdf](http://alaskaalliance.com/files/alliance_presentations/TerryKovacevich.pdf).

<sup>17</sup> "Statement of Adam Sieminski before the Committee on Energy and Commerce, U.S. House of Representatives, March 3, 2015; [http://www.eia.gov/pressroom/testimonies/sieminski\\_03032015.pdf](http://www.eia.gov/pressroom/testimonies/sieminski_03032015.pdf).

<sup>18</sup> See note 2.

<sup>19</sup> See note 2.

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Name \_\_\_\_\_ Period \_\_\_\_\_

Federal Reserve Bank of St. Louis *Page One Economics*®:  
**“Falling Oil Prices Create Winners and Losers”**

**After reading the article, answer the following questions:**

1. What technological and economic factors led to the oil boom in North Dakota?
  
  
  
  
  
  
  
  
  
  
2. How did distance and the housing crisis make it difficult for employers in North Dakota to fill the many jobs created by the oil boom?
  - Distance:
  
  
  
  
  
  
  
  - Housing crisis:
  
  
  
  
  
  
  
  
  
  
3. How did the unemployment rate in oil-producing counties in North Dakota compare with the national average during the Great Recession?
  
  
  
  
  
  
  
  
  
  
4. How have falling oil prices affected oil drilling activity and employment in North Dakota?
  
  
  
  
  
  
  
  
  
  
5. What are the positive effects of falling oil prices for the economy in general?

## Teacher's Guide

Federal Reserve Bank of St. Louis *Page One Economics*®:  
"Falling Oil Prices Create Winners and Losers"

After reading the article, answer the following questions:

1. What technological and economic factors led to the oil boom in North Dakota?

The boom was largely due to the emergence of two new oil drilling technologies—horizontal drilling and hydraulic fracturing (or “fracking”)—and high oil prices.

2. How did distance and the housing crisis make it difficult for employers in North Dakota to fill the many jobs created by the oil boom?

- Distance: North Dakota is relatively isolated from large population centers; Minneapolis-St. Paul is over 500 miles away from the oil fields. Further, the states that had very high unemployment rates during the recession—Arizona, California, Florida, and Nevada—are all well over 1,000 miles away.
- Housing crisis: The housing crisis made it difficult for many job seekers to move to find employment because plunging housing prices left many homeowners “underwater” on their mortgages. As a result, they were financially tied to their current location.

3. How did the unemployment rate in oil-producing counties in North Dakota compare with the national average during the Great Recession?

In October 2009, the national unemployment rate hit 10 percent; the unemployment rate was 3.3 percent in Mountrail County and continued to fall to 1.1 percent. In neighboring Williams County, the unemployment rate dropped below 1 percent.

4. How have falling oil prices affected oil drilling activity and employment in North Dakota?

In April 2015, North Dakota reported 94 active oil rigs, down from 217 in the spring of 2012. Reports estimate that each operating rig supports 120 full-time jobs.

5. What are the positive effects of falling oil prices for the economy in general?

The U.S. Energy Information Administration estimates that U.S. households will spend (on average) about \$750 less on gasoline in 2015 compared with 2014. This increase in consumer disposable income can spur consumer demand for other goods and services. In addition, lower oil prices are associated with factors such as lower overall inflation and lower (nominal) interest rates, which might increase demand for consumer spending on automobiles and housing and business investment on capital goods.



## For Further Discussion

The Federal Reserve Bank of St. Louis has prepared several resources for teachers to use with their students. These include lesson plans, videos, online modules, interactive whiteboard lessons, and podcasts. These free resources are available at <https://www.stlouisfed.org/education>.

A recent teaching tool that aligns with the content of this publication is *Tools for Teaching with GeoFRED®: Editing the Legend and Changing Colors by Mapping an Oil Boom*.

### **Tools for Teaching with GeoFRED®: Editing the Legend and Changing Colors by Mapping an Oil Boom**

This online activity demonstrates how simple it is to use key tools in GeoFRED® to focus on regional economic growth and development. The activity examines U.S. unemployment data at the county level to explore how employment was affected by the oil boom around the time of the Great Recession.

Beginning in late 2007—following a worsening global financial crisis—the Great Recession lasted until mid-2009 when U.S. real gross domestic product (GDP) resumed its upward growth path. During that 1½-year period, the number of Americans unable to find work spiked, driving the unemployment rate to its highest levels in a generation. In the face of such a broad economic downturn, many workers broadened their job searches, looking elsewhere for signs of an economy with jobs instead of layoffs.

While most of the country's economy was contracting, one area in particular experienced a remarkable expansion: the oil and gas fields in adjoining counties of the Upper Great Plains, North Dakota and Montana in particular. This activity illustrates the contours of an ongoing and distinct regional economic expansion. It can be found here: <https://www.stlouisfed.org/education/mapping-an-oil-boom>.

For other *Tools for Teaching with GeoFRED®*, click here:  
<https://www.stlouisfed.org/education/tools-for-teaching-with-geofred>.



## Common Core State Standards

### Grades 6-12 Literacy in History/Social Studies and Technical Subjects

- Key Ideas and Details

RH.11-12.1: Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

RH.11-12.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

- Craft and Structure

RH.11-12.4: Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).