

# inside the vault

AN ECONOMIC EDUCATION NEWSLETTER FROM THE FEDERAL RESERVE BANK OF ST. LOUIS



## Behind the Signs: Factors That Affect Gasoline Prices

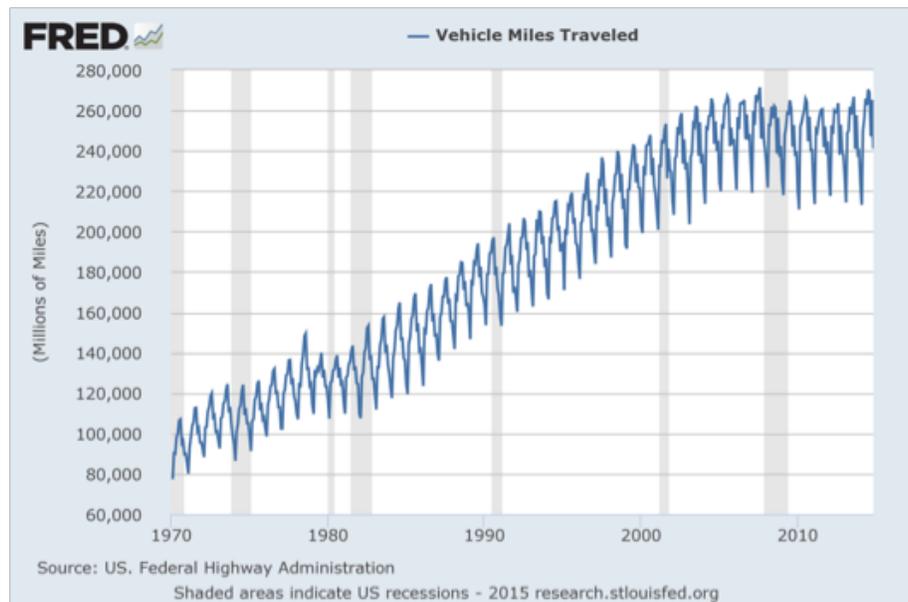
BY JEANNETTE BENNETT

Massive numbers of cars, pickups, SUVs, and vans are on the move! In 2012 in the United States, approximately 233 million registered light-duty vehicles<sup>1</sup> traveled about 2.7 trillion miles on U.S. highways.<sup>2</sup> And each licensed driver drove an estimated 12,579 miles annually.<sup>3</sup> To travel these miles, **consumers** purchased approximately 124 billion gallons of fuel.<sup>4</sup>

**What's Your Question?**  
Gasoline Prices

**Economic Snapshot**  
Understanding Gasoline Prices

**Resources**  
New This Spring



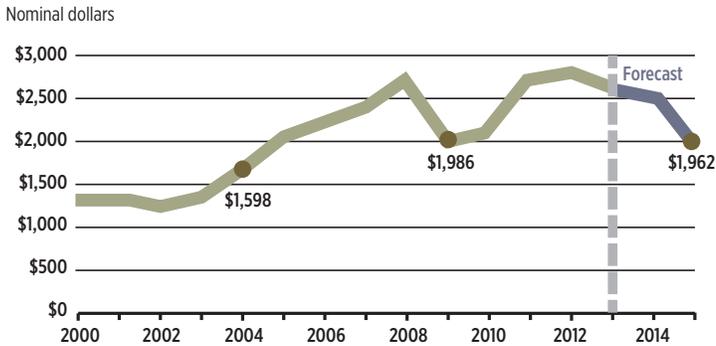
Drive down any U.S. highway and you will see a seemingly endless number of gas signs. They're everywhere—colorful, big, bright, carefully designed, and strategically placed signs to grab attention. On July 7, 2008, the retail **price** for regular grade gasoline in the United States reached an all-time average-

high of \$4.11 per gallon.<sup>5</sup> But even at lower prices, most consumers still check out gas signs to find the best price. After all, every dollar saved at the gas pump is a dollar that can be spent on other things.

In recent years, the amount U.S. households have spent on gasoline has averaged

approximately 5 percent of total household expenditures.<sup>6</sup> In 2011, the average U.S. household spent \$2,655 on gasoline, and in 2012 that amount increased to \$2,912.<sup>7</sup> In 2013, however, the amount dropped below the 2011 level—to \$2,600.<sup>8</sup> In 2014, the average U.S. retail price of a gallon of regular gasoline peaked in June at \$3.70<sup>9</sup>; for the remainder of the year, gas signs changed mainly in one direction—down. That downward trend has continued into 2015, and the average U.S. household is expected to

**Average Annual Household Expenditures on Gasoline and Motor Oil (2000-2015)**



Source: U. S. EIA (2014e): U.S. EIA, *Short-Term Energy Outlook*.



spend even less on gasoline in 2015 than in 2014. Gasoline expenditures are on track to fall to their lowest level in 11 years and dip below \$2,000 for the first time since 2009.<sup>10</sup>

What factors drive gasoline prices? How is the price of gasoline determined? In other words, what’s behind the signs? Answers to these questions can be found by examining factors that influence gas prices.

**Taxes**

The price of every gallon of gasoline includes **taxes**—federal, state, and local taxes.<sup>11</sup> The federal **excise tax** on gasoline has remained at 18.4 cents per gallon since 1993, with about 60 percent of the amount set aside for highway and bridge construction.<sup>12</sup> State gasoline taxes vary, however, and the average state tax on gasoline is 24.17 cents per gallon. Some states and localities add additional taxes to the price of gasoline, including local and state sales taxes and a variety of other taxes.<sup>13</sup>

SELECTED STATE GASOLINE TAXES			
State	Tax cents per gal.	State	Tax cents per gal.
Arkansas	21.80	Missouri	17.30
California	41.06	Pennsylvania	41.80
Georgia	8.00	Tennessee	21.40
Kentucky	32.30	Texas	20.00
Mississippi	18.40		

Note: \*Taxes as of January 1, 2014, exclusive of county and local taxes. Source: U.S. EIA (2014a).



**Seasonal and Weather Effects**

In the United States, seasons of the year affect gasoline prices. Generally, prices begin an upward trend in the spring. U.S. refineries often conduct maintenance at this time of year, which can lead to a drop in gasoline production and thus a decrease in **supply**.<sup>14</sup> Also, in warmer temperatures, government regulations require different gasoline formulas, which are better for the environment. The additives required for the summer formula increase the **production costs** for refineries and thus the prices paid at the pump. Warmer temperatures also bring increased travel, which increases the **demand** for gasoline, and this translates into higher prices at the pump. Colder temperatures, on the other hand, can lead to savings at the pump: People tend to travel less (reducing demand), and the winter formula used in some areas is less costly to produce.<sup>15</sup>

Unplanned events such as severe weather and other natural disasters can affect gasoline prices. Even the anticipation of a potentially destructive event can trigger increased demand and, in turn, increase prices. If events shut down refineries or disrupt the supply of gasoline, the reduced supply will tend to cause prices to rise. As the following report shows, Hurricane Katrina, which struck the Gulf Coast in 2005, is one (of many) hurricanes that caused a severe reduction in supply:

According to the Minerals Management Services (MMS), as of 11:30 Central Time August 31, 2005, Gulf of Mexico oil production was reduced by over 1.371 mb/d [millions of barrels per day] as a result of Hurricane Katrina, equivalent to about 91.45 percent of daily Gulf of Mexico oil production (which is 1.5 mb/d).<sup>16</sup>

## Location

As mentioned earlier, taxes added at the local level cause gasoline prices to vary. Other location-specific factors can make prices differ as well. For example, ordinary business expenses, such as wages, rent, insurance, and utilities, can vary widely.<sup>17</sup> Also, the number of competitors plays a role in gas pricing. For example, gas stations physically close together must aggressively compete on price to gain customers, whereas gas stations farther apart have more flexibility in pricing. Generally, fewer gas stations mean higher prices. And traffic patterns can affect gasoline prices as well. Stations located in highly traveled areas with easy access naturally have more customers.

Two additional factors that may affect gasoline prices include **population density** and the availability of public transportation. Population density determines the number of potential gasoline customers—that is, the potential demand for gasoline. Public transportation also can affect the demand for gasoline: The more people choose public transportation over driving, the fewer gallons of gasoline are sold.<sup>18</sup>

The process of creating gasoline from beginning to end—from oil well to gas station—requires transportation, which affects pricing. Most gasoline is shipped from refineries (where crude oil is refined into gas) by pipeline to storage facilities near sales regions. From there, trucks deliver the gasoline to stations. Usually, gasoline prices tend to be higher the farther the gasoline must travel to get to the pump. Once again, location can affect prices at the pump. Ownership of the refineries and stations can affect transportation prices as well. If the final point of sale (a gas station) is owned and operated by the refiner, the transportation costs, and ultimately the cost of the gasoline, will tend to be lower.<sup>19</sup>

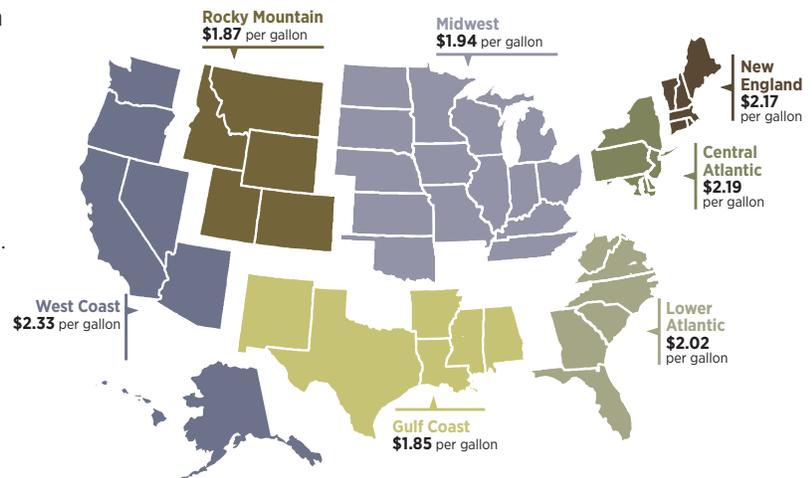
## Crude Oil: The Primary Driver of Gasoline Prices

According to the **U.S. Energy Information Administration (EIA)**, changes in the price of crude oil have been the primary reason for changes in U.S. gasoline prices in recent years.<sup>20</sup> The EIA estimates that as much as two-thirds of the price of gasoline is due to crude oil and refinery costs.<sup>21</sup> Crude oil is sold by the barrel. If nothing else changes, a \$1 change in the price of a barrel of crude oil will result in approximately a 2.4-cent change in the price of a gallon of gasoline.<sup>22</sup>

Because the price of crude oil is the primary driver of gasoline prices, trends in crude oil prices are related to trends in gasoline prices. To understand crude oil pricing, some basic information is

## Regular Grade Gasoline Prices at Retail Outlets by Region

January 26, 2015



Note: Includes taxes.

Source: U.S. EIA (2015e): U.S. EIA, 878 Motor Gasoline Price Survey.

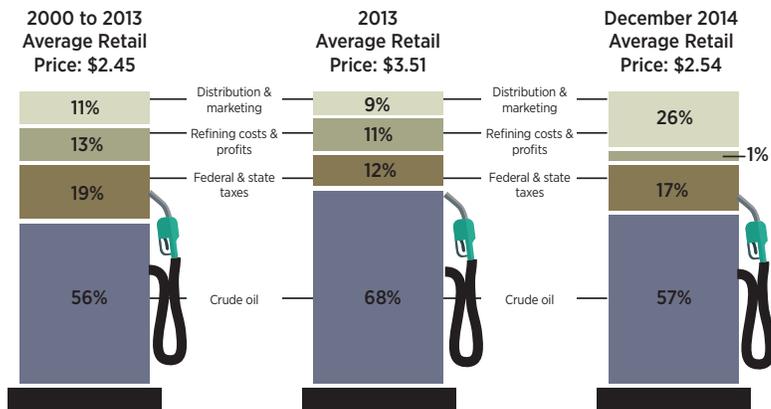


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## Behind the Signs

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### What Do We Pay For in a Gallon of Regular Grade Gasoline?



Note: Totals may not equal sum of components due to independent rounding.

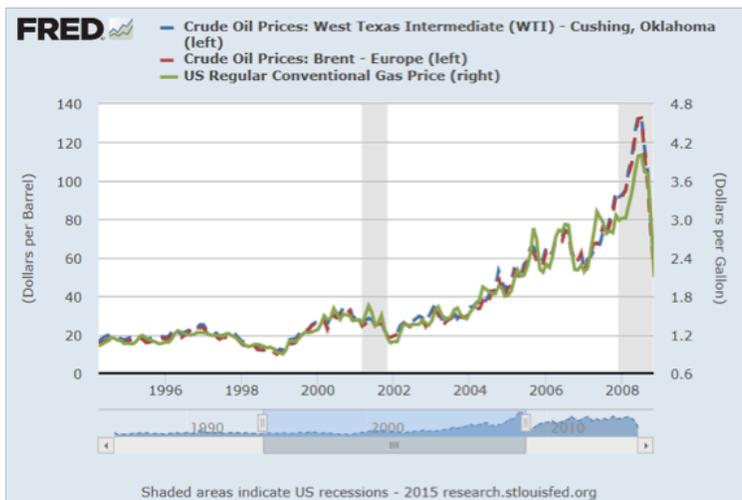
Note: Totals may not equal sum of components due to independent rounding.

Source: U.S. EIA (2014b,i) averages based on Gasoline and Diesel Fuel update.



helpful. The prices of two particular crude oils, West Texas Intermediate (WTI) and Brent, serve as benchmarks for the pricing of other crude oils. That is, buyers and sellers look at the prices of these two crude oils to determine prices of other crude oil. WTI and Brent are basically the same product with only slight differences. WTI, often called Texas sweet light crude, is both extracted and refined in the United States. Its price serves as a benchmark for prices of some crude oil in the United States. Cushing, Oklahoma, a major trading hub for U.S. crude oils, is the headquarters for setting the price of WTI. Brent is sourced from European oil fields in the North Sea and refined in Europe. In recent years, Brent crude oil has become the primary international benchmark for pricing crude oil.<sup>23</sup>

Overall, the prices of WTI and Brent tend to move in the same direction and gasoline prices tend to follow the ups and downs in the prices of these crudes.



Source: U.S. EIA (2015j, k, l).

## Supply and Demand

The price of crude oil is determined by global supply and demand. As global demand increases or supply decreases, the price of crude oil increases. Conversely, as global demand decreases or supply increases, the price decreases.

### Global Demand

Global crude oil demand is the total crude oil demanded from all countries in the world. Some countries demand far more than others, and the demand from each country can fluctuate. Some countries, however, are currently on upward or downward trends.

The demand for crude oil in the United States is affected to a large degree by driving since approximately 45 percent of the total amount of crude oil consumed in the United States is for gasoline to fuel private passenger vehicles.<sup>24</sup> And despite an increase in population, there has been a decrease in the demand for fuel used for consumer driving in recent years. A 2014 study by the University of Michigan Transportation Research Institute attributes this decreased demand to several factors, including increased vehicle fuel economy, increased telecommuting, increased use of public transportation, and a trend toward urbanization.<sup>25</sup> In addition, the study revealed the following U.S. trends:

- Gasoline consumption decreased 11 percent from a high of almost 139 billion gallons in 2004 to almost 124 billion gallons in 2012.
- The number of registered light-duty vehicles declined from 236.4 million in 2008 to 233.8 million in 2012.
- Miles driven decreased from a high of 2.77 trillion miles in 2006 to 2.66 trillion miles in 2012.

This decrease in the demand for crude oil has also occurred in Europe. For Russia specifically, a downturn in the economy is expected to result in a decrease in their demand for crude oil in both 2015 and 2016.<sup>26</sup> But some countries in Asia, Latin America, and the Middle East, for example, are increasing their fuel consumption.<sup>27</sup> In China, the world's second-largest oil consumer (behind the United States), demand for crude oil is expected to continue an upward trend. One driving force behind this trend is sales of private passenger vehicles, which have increased 29 percent over the past 13 years.<sup>28</sup>

In 2014, the cumulative global demand for crude oil was approximately 91.4 million barrels per day. According to the EIA, global demand is expected to increase by 1 million barrels per day in both 2015 and 2016.<sup>29</sup> Although U.S. demand for crude oil has decreased, global demand is expected to reach 93.4 million barrels per day by the end of 2016.

### Global Supply

As global demand for crude oil has increased, the EIA estimates that global inventories have increased as well, by almost 0.8 million barrels per day in 2014. This stockpiling is expected to continue throughout the first half of 2015.<sup>30</sup> The supply of crude oil available worldwide is largely controlled by the Organization of the Petroleum Exporting Countries (OPEC). OPEC is a group of 12 countries that attempts to actively manage how much oil is produced by setting production targets for its members. (The technical term for this type of organization is cartel.) OPEC countries produce approximately 40 percent of the world's crude oil and about 60 percent of total crude oil traded internationally. Because this share controlled by OPEC is so large and widespread, its actions greatly affect global supply and, ultimately, gas prices.<sup>31</sup>

The global supply of crude is also affected by U.S. crude

production. In 2015, U.S. production is expected to average 9.3 million barrels per day, which is an increase of 700,000 barrels per day above the 2014 level.<sup>32</sup> Every barrel of crude oil produced in the United States contributes to the total global supply.

In addition, oil reserves are an important consideration. Oil reserves, or *proved* reserves, are amounts of crude oil in a given area known to be recoverable with reasonably certainty in the future—but not pumped yet. U.S. crude oil reserves rose for the fifth consecutive year in 2013, increasing by 9 percent over the 2012 level to 36.5 billion barrels. The increase in U.S. reserves serves as an indicator of potential future crude production. Specifically, Texas remains the leading state in total oil reserves, increasing from 11.1 billion barrels in 2012 to 12 billion barrels in 2013. However, among individual states, in 2013, North Dakota had the largest increase in oil reserves: 51 percent, for a total of 1.9 billion barrels.<sup>33</sup>

Oil prices in the United States respond to both the international and domestic supplies of crude oil. In recent times, the surge in North American crude oil output combined with the production in OPEC countries has created a global supply that exceeds global demand.<sup>34</sup> In turn, crude oil prices—and thus gasoline prices—have spiraled downward.

### Conclusion

According to the Federal Highway Administration, there are over 164,000 miles of highways in the United States.<sup>35</sup> Along these miles and miles of highways are gas signs that prominently display current prices. Behind the signs are numerous factors that determine gasoline prices: taxes, location, seasonal and weather effects, but *especially* the price of crude oil. The global supply and demand for crude oil dictate its price in the global marketplace and ultimately the price at the pump.

Crude oil prices are historically volatile, and statistics for the supply and demand of crude oil are a snapshot of a moment in time. The industry continues to change and, with all factors considered, what's happening today can—and will—change tomorrow. We can expect gasoline prices to change in response. Of course, so will the numbers on the signs.

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## ENDNOTES

- <sup>1</sup> Cars, pickup trucks, SUVs, and vans only; does not include commercial tractor trailers.
- <sup>2</sup> Sivak (2014, p. 3).
- <sup>3</sup> Sivak (2014, p. 8).
- <sup>4</sup> Sivak (2014, p. 3).
- <sup>5</sup> U.S. EIA (2015f).
- <sup>6</sup> U.S. EIA (2014e).
- <sup>7</sup> U.S. EIA (2013).
- <sup>8</sup> U.S. EIA (2014c, p. 1).
- <sup>9</sup> U.S. EIA (2015h).
- <sup>10</sup> U.S. EIA (2014e).
- <sup>11</sup> Gasoline taxes differ from diesel taxes. The information provided is for gasoline only.
- <sup>12</sup> Wikipedia (n.d.).
- <sup>13</sup> U.S. EIA (2014a, p. 104).
- <sup>14</sup> U.S. EIA (2014b).
- <sup>15</sup> Owyang and Vermann (2014, p. 7).
- <sup>16</sup> U.S. EIA (2005).
- <sup>17</sup> U.S. EIA (2014b).
- <sup>18</sup> Owyang and Vermann (2014, p. 8).
- <sup>19</sup> U.S. EIA (2014b).
- <sup>20</sup> U.S. EIA (2014b).
- <sup>21</sup> The percentage may vary according to crude prices and other factors of production.
- <sup>22</sup> 1/42 of \$1 because there are 42 gallons in one barrel. U.S. EIA (2014c, p. 5).
- <sup>23</sup> Owyang and Vermann (2014, p. 8).
- <sup>24</sup> American Energy Independence (n.d.).
- <sup>25</sup> Sivak (2014, pp. i and 1).
- <sup>26</sup> U.S. EIA (2015b).
- <sup>27</sup> U.S. EIA (2014c, p. 3).
- <sup>28</sup> U.S. EIA (2015d).
- <sup>29</sup> U.S. EIA (2015b).
- <sup>30</sup> U.S. EIA (2015a).
- <sup>31</sup> U.S. EIA (2015g).
- <sup>32</sup> U.S. EIA (2015c).
- <sup>33</sup> U.S. EIA (2014d).
- <sup>34</sup> Strauss (2015).
- <sup>35</sup> U.S. Department of Transportation, Federal Highway Administration (2010).

## Glossary

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**Consumers** – People who buy goods and services to satisfy their wants.

**Demand** – The quantity of a good or service that buyers are willing and able to buy at all possible prices during a certain time period.

**Excise tax** – A tax on use or consumption of certain products such as vehicle fuels, cigarettes, tires, and alcohol. An excise tax may be levied by the federal or state government and is often included in the price of a product.

**Inelastic demand** – The type of demand that exists when the percentage change in quantity demanded is less than the percentage change in price; that is, consumers are not very sensitive to a change in the price of a good or service.

**Nominal price** – The actual price at the time not adjusted for inflation.

**Population density** – The number of people living in a given measure of land (e.g., a square mile).

**Price** – The amount consumers pay to purchase a good or service.

**Production costs** – The total costs incurred to produce a good. The amount spent on resources (inputs) used to produce a good or service. Inputs include wages and salaries, payments for purchase or rent of building space and equipment, utilities, and raw materials.

**Supply** – The quantity of a good or service that producers are willing and able to sell at all possible prices during a certain time period.

**Taxes** – Fees charged by the government on business or individual income, activities, property, or products that people are required to pay.

**U.S. Energy Information Administration (EIA)** – The primary federal government authority on energy statistics and analysis. The agency is part of the U.S. Department of Energy.

## Gasoline Prices

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### 1. Gasoline signs usually have different prices for different grades of gasoline. How do the grades differ?

The three main grades of gasoline—regular, midgrade, and premium—are based on octane levels. Gas companies may use various names such as unleaded, super, or premium for the different grades. Higher octane helps engines resist knocking, which occurs (and is heard) when an engine isn't processing gasoline smoothly. By law, bright yellow stickers on gas pumps identify octane levels, and higher octane levels have higher prices. Each vehicle has a recommended octane level (noted in the vehicle's user manual). Most light-weight vehicles need only the lowest octane level and do not perform any better with higher grades. Sports cars and luxury vehicles are more likely to require higher octane grades.

Source: <http://www.consumer.ftc.gov/articles/0210-paying-premium-high-octane-gasoline>; [http://www.eia.gov/EnergyExplained/?page=gasoline\\_home](http://www.eia.gov/EnergyExplained/?page=gasoline_home).

### 2. Why do gasoline prices end with 9/10?

The fraction 9/10 stands for nine-tenths of 1 cent. So, for example, \$3.49 9/10 is actually \$3.499. Years ago, when prices were relatively lower, 1 cent could be a significant price increase. During the Great Depression, gasoline prices fell below 10 cents a gallon at times and fractional pricing allowed smaller incremental price changes. By the mid-1930s the practice was common. The pricing to 0.9 cents remained because marketing experts learned that consumer perception was important—a price of \$1.999 sounds less expensive than \$2.00.

Source: [http://www.nacsonline.com/YourBusiness/FuelsReports/GasPrices\\_2013/Pages/Why-Is-Gas-Priced-Using-Fractions.aspx](http://www.nacsonline.com/YourBusiness/FuelsReports/GasPrices_2013/Pages/Why-Is-Gas-Priced-Using-Fractions.aspx).

### 3. When was the Organization of the Petroleum Exporting Countries (OPEC) formed, which countries are members, and what is its purpose?

OPEC was organized in 1960 and the 12 member countries are Iran, Iraq, Kuwait, Saudi Arabia, Qatar, United Arab Emirates, Algeria, Angola, Ecuador, Libya, Nigeria, and Venezuela. Although the individual member countries make production decisions, OPEC negotiates with oil companies to manage oil production and prices by setting production targets for each country.

Source: [http://www.eia.gov/energyexplained/index.cfm?page=oil\\_imports](http://www.eia.gov/energyexplained/index.cfm?page=oil_imports); [http://www.eia.gov/energy\\_in\\_brief/article/world\\_oil\\_market.cfm](http://www.eia.gov/energy_in_brief/article/world_oil_market.cfm).

### 4. When offshore oil and gas production occurs, how far from the coast do oil companies have the right to drill? What are the boundaries?

For most coastal states, drilling rights extend about 3.5 miles from shore. However, for the Texas and Florida coasts along the Gulf of Mexico, the boundaries extend farther—to about 10.35 miles from shore.

Source: <http://www.eia.gov/tools/faqs/faq.cfm?id=42&t=6>.

### 5. Gasoline signs often include the price of diesel fuel, which usually costs more than gasoline. Why is diesel fuel more expensive? Has it always been that way?

Before September 2004, diesel fuel cost less than gasoline. Since that time, however, diesel fuel prices have remained higher for a number of reasons:

- The federal excise tax on diesel fuel is 24.4 cents per gallon, 6 cents higher than on gasoline.
- A change in diesel fuel's formula to reduce pollution increased production and distribution costs for diesel.
- Global demand for diesel fuel has increased.

Source: <http://www.eia.gov/tools/faqs/faq.cfm?id=9&t=9>.

## Gasoline Prices

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### 6. How many gallons of gasoline and diesel fuel come from one barrel of crude oil?

In 2013 in U.S. refineries, one barrel of crude (42 gallons) produced on average about 12 gallons of diesel fuel and 19 gallons of gasoline.

Source: <http://www.eia.gov/tools/faqs/faq.cfm?id=327&t=9>.

- Corporate NOCs do not operate as an extension of the government. Although they may support their government's goals, they are profit oriented and thus primarily commercially driven. Such oil companies include Petrobras (Brazil) and Statoil (Norway).

Source: [http://www.eia.gov/energy\\_in\\_brief/article/world\\_oil\\_market.cfm](http://www.eia.gov/energy_in_brief/article/world_oil_market.cfm).

### 7. What are proved oil reserves and the total quantity of such reserves?

Proved oil reserves are the amount of oil in a given area known to be recoverable with reasonable certainty, with about 1.6 trillion barrels worldwide.

Source: [http://www.eia.gov/energy\\_in\\_brief/article/world\\_oil\\_market.cfm](http://www.eia.gov/energy_in_brief/article/world_oil_market.cfm).

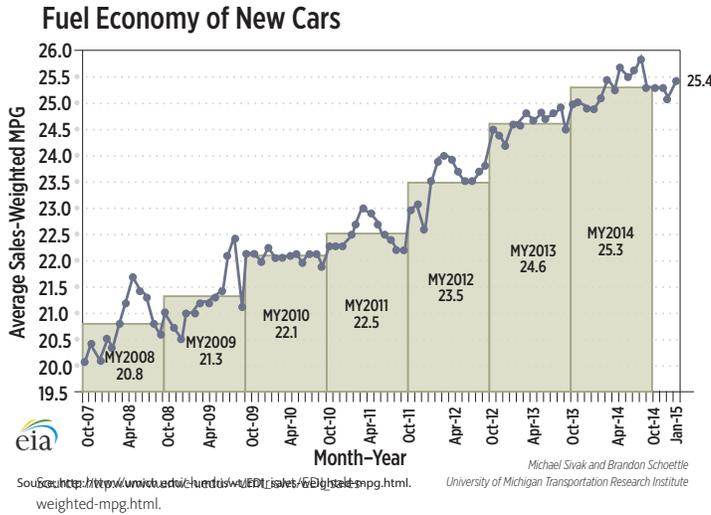
### 8. In the world market for crude oil, are all oil companies owned and operated similarly?

No. There are three types of oil companies, with different mixes of operation and ownership:

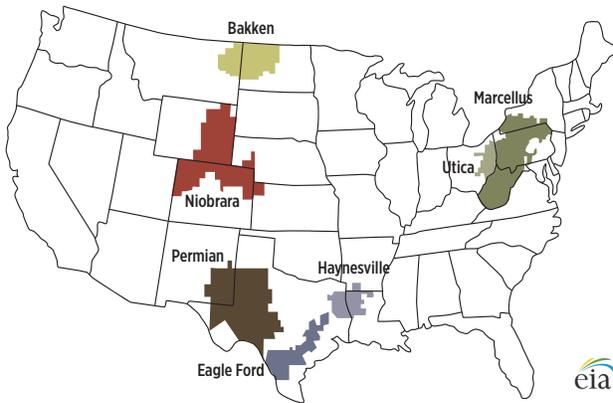
- International oil companies (IOCs) are entirely investor owned and accountable to their shareholders. Decisions are made in the interest of the company and its shareholders—not the government. Large U.S.-based IOCs include ExxonMobil, Chevron, BP, Royal Dutch Shell, and ConocoPhillips.
- National oil companies (NOCs) are government-owned companies that operate as an extension of the government. They support their governments financially and strategically and control most of the world's proved oil reserves (78 percent in 2012) and oil production (58 percent in 2012). Leading NOCs by share of world production include Saudi Aramco, the National Iranian Oil Company, and the China National Petroleum Corporation. Each OPEC member country has at least one NOC, although some, such as Iraq, have several. The United States does not have any NOCs.

## Understanding Gasoline Prices

1. Average sales-weighted fuel economy is calculated based on the monthly sales of new cars, SUVs, vans, and pickup trucks and the miles per gallon (MPG) ratings listed on window stickers of these new vehicles. Monthly averages by model year (MY) show an increase in the average MPG rating of new vehicles purchased from October 2007 to January 2015.



2. Seven regions in the Lower 48 states produce most of the U.S. oil, with 95 percent of domestic oil production growth coming from these regions.

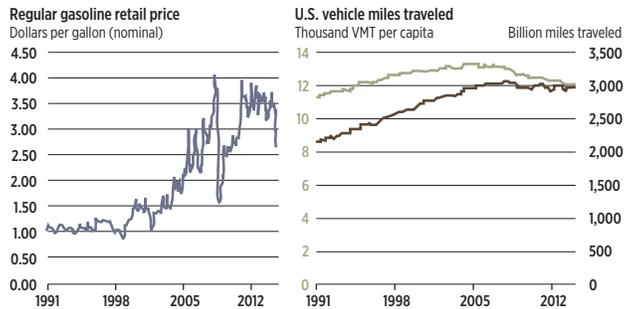


Region	Thousand barrels/day*
Bakken	1,303
Eagle Ford	1,716
Haynesville	58
Marcellus	56
Niobrara	395
Permian	1,932
Utica	55

Note: \*February 2015 oil production.  
Source: <http://www.eia.gov/petroleum/drilling/#tabs-summary-2>.

3. The demand for gasoline is relatively inelastic; consumption varies little even when gasoline prices change. This means that, in the short run, nominal prices (actual prices paid at the time of purchase) tend to have little effect on the miles traveled.

### Gasoline Prices Tend to Have Little Effect on Demand for Car Travel



Note: VMT is vehicle miles traveled. Per capita figures reflect U.S. population age 16 and over. Vehicle miles traveled figures are 12-month rolling averages.  
Source: U.S. EIA, based on Federal Reserve Bank of St. Louis [data]. <http://www.eia.gov/dayinenergy/detail.cfm?id=19191>.

4. The United States, Saudi Arabia, and Russia are the top three oil-producing countries. Together they produce almost as much oil as the next 12 countries combined.

Top World Oil Producers, 2013 (Thousand barrels/day)	
Country	Production
United States	12,343
Saudi Arabia	11,702
Russia	10,764
China	4,459
Canada	4,074
United Arab Emirates	3,441
Iran	3,192
Iraq	3,058
Mexico	2,908
Kuwait	2,812
Brazil	2,694
Venezuela	2,689
Nigeria	2,372
Qatar	2,067
Angola	1,889

Source: <http://www.eia.gov/countries/index.cfm?topL=con>.

## Understanding Gasoline Prices

5. The United States is the world's largest consumer of oil, using almost twice as much as China, the world's second-largest consumer.

Top World Oil Consumers, 2013 (Thousand barrels/day)	
Country	Consumption
United States	18,961
China	10,303
Japan	4,531
Russia	3,515
India	3,509
Brazil	2,998
Saudi Arabia	2,968
Canada	2,431
Germany	2,403
South Korea	2,324
Mexico	2,044
Iran	1,870
France	1,767
Indonesia	1,635
United Kingdom	1,508

Source: <http://www.eia.gov/countries/index.cfm?topL=con>.



### Current Economic Data

	Q1-'14	Q2-'14	Q3-'14	Q4-'14
<b>Growth rate</b>				
Real GDP	2.0%	1.3%	3.1%	0.4%*
<b>Inflation rate</b>				
Consumer Price Index	2.3%	1.0%	2.1%	2.2%
<b>Civilian unemployment rate</b>	8.3%	8.2%	8.0%	7.8%

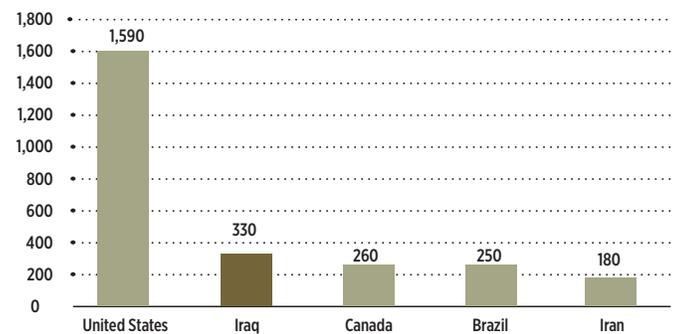
\*Third estimate.

Source: GDP, Bureau of Economic Analysis; [www.bea.gov](http://www.bea.gov);

Unemployment and consumer price index, Bureau of Labor Statistics; [www.bls.gov](http://www.bls.gov).

7. The United States was the top contributor to global oil supply growth in 2014, while Iraq was next.

Top Five Contributors to Global Oil Supply Growth in 2014  
Thousand barrels/day



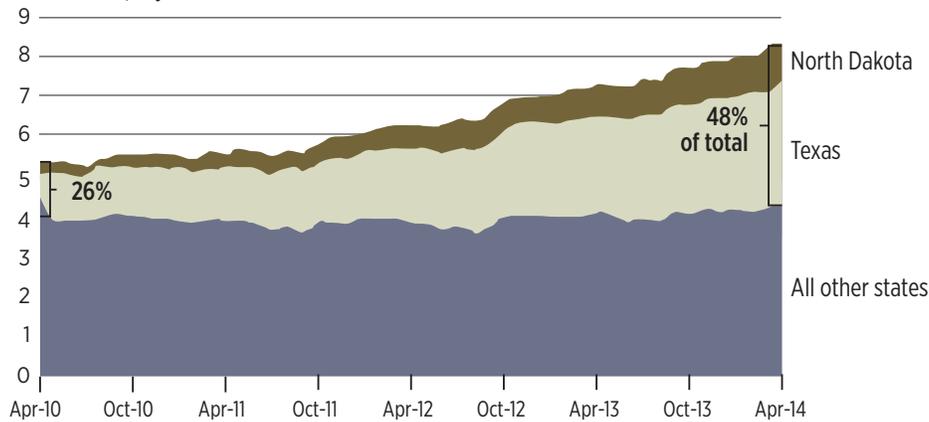
Source: U.S. EIA, Short-Term Energy Outlook. <http://www.eia.gov/todayinenergy/detail.cfm?id=19911>.



6. Texas and North Dakota produce almost half of the crude oil in the United States.

### Monthly Crude Oil Production by State (April 2010–April 2014)

Million barrels/day



Source: U.S. EIA, *Petroleum Supply Monthly*; <http://www.eia.gov/todayinenergy/detail.cfm?id=16931>.



LITTLE ROCK

**Interactive Whiteboards + Children's Books = A Great Combination**

July 8, 2015 | 8:30 a.m. – 3:30 p.m.

Little Rock Branch

**Registration:**

<https://www.stlouisfed.org/events/2015/07/lrk-eein-teractivewhiteboards>

LOUISVILLE

**KCEE Financial Summit with Murray State**

June 22, 2015 | 9:00 a.m. – 4:00 p.m. (EDT)

Murray State University—

Paducah Regional Campus, Paducah, KY

**Registration:** email [Erin.A.Yetter@stls.frb.org](mailto:Erin.A.Yetter@stls.frb.org)

**KCEE Financial Summit with Eastern Kentucky University**

June 26, 2015 | 9:00 a.m. – 4:00 p.m. (EDT)

Eastern Kentucky University—Corbin Campus,  
Corbin, KY

**Registration:** email [Erin.A.Yetter@stls.frb.org](mailto:Erin.A.Yetter@stls.frb.org)

**Interactive Whiteboards + Children's Books = A Great Combination**

(K-2) July 8, 2015 | 9:00 a.m. – 3:30 p.m. (EDT)

(3-5) July 9, 2015 | 9:00 a.m. – 3:30 p.m. (EDT)

Louisville Branch

**Registration:**

<https://www.stlouisfed.org/events/2015/07/lvl-eein-teractivewhiteboards>

MEMPHIS

**Personal Finance Training for Secondary Teachers**

March 19-20, 2015 | 8:30 a.m. – 3:30 p.m.

Teaching and Learning Academy, Memphis, TN

**Registration:**

email [jeannette.n.bennett@stls.frb.org](mailto:jeannette.n.bennett@stls.frb.org).

**Rock and “Rolling” with Economics**

June 4, 2015 | 8:30 a.m. – 3:30 p.m.

Itawamba Community College, Belden, MS

**Registration:** 662-407-1500 or [rakelly@iccms.edu](mailto:rakelly@iccms.edu)

**Focus on the Economy: Outside the Box**

June 15-16, 2015 | 8:00 a.m. – 5:00 p.m.

MS Braves Stadium, Pearl, MS

**Registration:** [mscee.org/workshop-signup/](http://mscee.org/workshop-signup/)

**Interactive Whiteboards + Children's Books = A Great Combination**

July 8, 2015 | 8:30 a.m. – 3:30 p.m.

Memphis Branch

**Registration:**

<https://www.stlouisfed.org/events/2015/07/mem-eeinteractivewhiteboards>

**Personal Finance Training for Secondary Teachers**

July 9-10, 2015 | 8:30 a.m. – 3:30 p.m.

Federal Reserve Bank of Atlanta—  
Nashville Branch

**Registration:**

email [jeannette.n.bennett@stls.frb.org](mailto:jeannette.n.bennett@stls.frb.org)

July 16-17, 2015 | 9:00 a.m. – 4:00 p.m.

Agricenter International, Memphis, TN

**Registration:** <http://agweb.ag.utk.edu/extension/FCS/hsfpp/index.asp>

July 21-22, 2015 | 9:00 a.m. – 4:00 p.m.

West Tennessee Research and AG Center  
Jackson, TN

**Registration:** <http://agweb.ag.utk.edu/extension/FCS/hsfpp/index.asp>

August 20-21, 2015 | 8:30 a.m. – 3:30 p.m.

Middle Tennessee State University  
Murfreesboro, TN

**Registration:**

email [jeannette.n.bennett@stls.frb.org](mailto:jeannette.n.bennett@stls.frb.org)

Note: All times are central daylight time unless otherwise indicated.

## ST. LOUIS

**Get Money Smart!**

April 23, 2015 | 3:30 p.m. – 7:30 p.m.

Federal Reserve Bank of St. Louis

**Registration:** <https://www.stlouisfed.org/events/2015/04/ee-getmoneysmart>

**AP Economics Conference**

June 16, 2015 | 4:00 p.m. – 8:00 p.m.

Pre-conference workshop and dinner

June 17, 2015 | 7:30 a.m. – 6:00 p.m.

June 18, 2015 | 7:30 a.m. – 3:15 p.m.

June 19, 2015 | 7:30 a.m. – 3:00 p.m.

Federal Reserve Bank of St. Louis

**Registration:**

<https://www.stlouisfed.org/events/2015/06/eeapecon>

**Global Economic Forum  
Teacher Workshop**

June 29, 2015 | 8:00 a.m. – 4:00 p.m.

June 30, 2015 | 8:00 a.m. – 3:30 p.m.

Federal Reserve Bank of St. Louis

**Registration:**

<https://www.stlouisfed.org/events/2015/06/eeglobaleconforum>

**Interactive Whiteboards +  
Children's Books = A Great Combination**

July 8-9, 2015 | 8:30 a.m. – 2:30 p.m.

Federal Reserve Bank of St. Louis

**Registration:** <https://www.stlouisfed.org/events/2015/07/eeinteractivewhiteboards>

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Scott Wolla

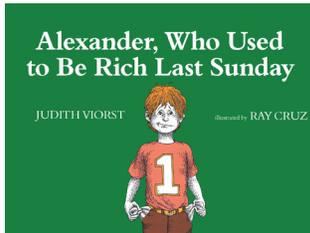
314-444-8624

[scott.a.wolla@stls.frb.org](mailto:scott.a.wolla@stls.frb.org)

New this Spring!

ENGAGING LESSONS BASED ON BOOKS

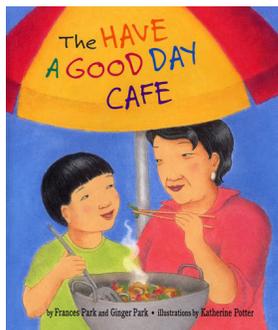
**Alexander, Who Used To Be Rich Last Sunday (Grades K-2)**



In the story, Alexander receives a dollar from his grandparents that he plans to save, but he spends it all, a little at a time. In this lesson, students count by 2's to fill a container with 100 pennies. They are

asked whether 100 pennies is the same amount of money as one dollar. They listen to the story, and as Alexander spends his money, students come up and remove the correct number of pennies from a container. At the end of the story, students are again asked if 100 pennies is the same amount of money as one dollar. Students discuss the choices Alexander made and give advice on how he could save his money to reach his goal of buying a walkie-talkie. (Book written by Judith Viorst / ISBN: 0-689-71199-9)

**The Have a Good Day Cafe (Grades 3-5)**



In this lesson, students learn how businesses use advertising to influence the choices consumers make. Using magazines, students see that advertisements combine facts and opinions to influence consumers' tastes and preferences. Students also listen to a story about a Korean-American family that owns a food

cart. They learn how the business changes as a result of competition and how business owners can influence consumers. Working in groups, students create print advertisements for the food cart in the book to see firsthand how advertisements can influence consumers' choices through tastes and preferences. (Book written by Frances Park and Ginger Park / ISBN: 978-1-60060-358-7)

NEW RESOURCES

**Video: What Makes Something Useful as Money? (Grades 2-5)**

This third video in the Exploring Economics animated series shows items that have been used as money in the past. It further explains why something used as money should be relatively scarce, generally acceptable, portable, durable, and divisible.

**Tools for Teaching Economics Using Lawn Boy (Grades 6-8)**



This six-session curriculum corresponds to the book *Lawn Boy* by Gary Paulsen (ISBN: 978-0-553-49465-5). Each session integrates economic content from specific chapters of the book. Topics include capital markets, circular flow, demand, diversification, supply, markets, opportunity cost, productivity, and risk.

**Tools for Teaching GeoFRED®: Creating and Analyzing a Binary Map (Grade 6 through adult)**



If you've never used GeoFRED® or if it's been a while since

you did, you will be amazed at this tool's ability to map domestic and/or international time-series data from the Federal Reserve's FRED® database. This activity demonstrates how easy it is to master this mapping tool and walks users through the steps for creating a binary map. Even the most dispassionate student will be interested in creating images using the extensive GeoFRED® database.

## PAGE ONE ECONOMICS NEWSLETTER

**(Grade 8 through college)****January 2015 Issue (Classroom Edition): “Would a Gold Standard Brighten Economic Outcomes?”**

Historically, money was made of either valuable commodities, such as gold or silver coins, or pieces of paper (bills) representing these commodities. The United States severed its last official monetary link to gold in 1971. This issue describes some of the advantages and disadvantages of the gold standard.

**March 2015 Issue (Classroom Edition):****“Is a Strong Dollar Better than a Weak Dollar?”**

“Strong” is usually preferred over “weak.” But for the value of a country’s currency, it’s not that simple. “Strong” isn’t always better, and “weak” isn’t always worse. This issue explores some ups and downs of exchange rates between currencies.

**Video: Bank Supervision and Regulation (Grades 9-12)**

Episode 8 in the Fed Explained series explores how the Fed makes sure banks are operating safely and providing fair and equitable services to their communities. Other videos in this series discuss the role and responsibilities of the Federal Reserve. Each video is contained within our Instructor Management Panel and includes a multiple-choice quiz that students may take repeatedly to improve their score. To view the videos with the quiz, use your account on the EconLowdown Instructor Management Panel to view the videos with the quizzes, or simply view the videos.

**Historical Inquiry with 75 Years of American Finance (Grades 8-12)**

*75 Years of American Finance: A Graphic Presentation, 1861-1935*, is an 85-foot-long detailed timeline compiled by L. Merle Hostetler in 1936 and available for viewing on FRASER®. The timeline presents key financial-related events of a given year, condensed on a single page, including innovations, agricultural prices, constitutional amendments, legislation, elections, congressional sessions, and even events abroad. This classroom activity explains the layout of the timeline and provides historical inquiry questions to evaluate any year within the timeline. The questions are divided into these four topics: observe, reflect, question, and analyze.

**Bring Your Students to Our New Museum!****(Grade 6 through adult)**

The economy. Students hear about it every day, but how much do they actually know about it? The *Inside the Economy*® Museum will immerse them in a one-of-a-kind experience that explains the economy—and their role in it—in a fun and interactive way. The museum is at the Federal Reserve Bank of St. Louis and is free and open to the public. Bring your class! Reserve your spot today.



The Institute for Financial Literacy has chosen to honor the St. Louis Fed as the 2015 Nonprofit Organization of the Year in its ninth annual Excellence in Financial Literacy Education (EIFLE) awards.

The Award recognizes and honors the classroom tools produced by the Bank’s Economic Education department, with support from Public Affairs, to help teachers teach and students understand economics and personal finance.

“This award is a wonderful affirmation of the great work done by the District’s Economic Education team,” says Mary Suiter, assistant vice president, Economic Education. “The award recognizes the quality of the materials we develop and the extent of our outreach across the country. I am grateful to leadership at the Bank for their support of our work.”





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*Inside the Vault* is written by economic education staff at the Federal Reserve Bank of St. Louis, P.O. Box 442, St. Louis, Mo., 63166.

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