

## APPENDIX

### D. Peer Reviewed Assignment

In peer review, students are given an article to be analyzed and instructions. They are then asked calibration questions based on the three calibration essays written by the instructor. We present these latter components, with the correct calibration answers and the correct score.

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*New York Times*, January 4, 2017

### **Record 2016 for U.S. Auto Industry; Long Road Back May Be at End**

By BILL VLASIC

DETROIT — Unexpectedly strong sales of new vehicles in the United States in December propelled the industry to another record figure in 2016: 17.55 million sold.

That is the good news. The bad news, though, is that the late push to beat the previous record, 17.47 million vehicles sold in 2015, came at a steep cost, as companies piled on higher sales incentives to lure consumers to their showrooms.

And with the American market tilting more than ever toward sales of pickup trucks and sport utility vehicles, companies are cutting production of passenger cars to reduce big inventories of slow-selling models.

As a result, there is little expectation that the sales will continue on this upward trajectory — at least not without cutting deep into profits. That means the numbers released Wednesday could be the high-water mark for the industry's impressive comeback from the depths of the recession, when annual sales fell below 11 million vehicles and General Motors and Chrysler needed government bailouts to survive.

Most major automakers are making big profits these days, as consumers replace aging cars and trucks with new models, loaded with technology, that last year sold for an average sticker price above \$35,000. Demand had steadily grown year after year as consumers took advantage of easy credit and better economic conditions to replace aging vehicles.

Demand, however, has leveled off, and companies are falling back on old habits to move excess inventories. Analysts reported that sales incentives were about 25 percent higher in the fourth quarter of 2016 than in the same period a year earlier, even though overall sales were flat.

That is partly because of a sustained slump in sales of small and midsize cars, which has offset the increased demand for trucks and S.U.V.s. But it forces automakers to rely on discounts to sell

less popular models, adjust production plans on the fly and lay off workers at some of their factories.

General Motors, the nation's largest automaker, has announced plans to cut shifts of workers at three assembly plants that build cars in Michigan and Ohio, and analysts expect more adjustments across the industry as companies try to better match supply with demand.

"We do expect production will likely be cut, particularly in the compact and midsize segments," said Alec Gutierrez, an analyst with the research firm Kelley Blue Book.

Sales of trucks and S.U.V.s accounted for nearly two-thirds of the sales volume during December as consumers continue to turn to the larger vehicles over cars. Analysts expect the trend toward larger vehicles to continue as long as gas prices remain low.

G.M. said its sales in December increased 10 percent, to 319,000 vehicles, although its annual sales for all of 2016 fell 1.3 percent, to 3.04 million vehicles.

The company benefited from strong demand for pickups and its biggest S.U.V.s, such as the Chevrolet Tahoe, whose sales rose nearly 17 percent last year. But G.M. exemplified the market's split personality, as several of its smaller cars experienced sharp declines.

G.M. is expanding its S.U.V. lineup and will unveil new models at the coming Detroit auto show. Moreover, the company expects the industry to achieve near-record levels again in 2017. "Key economic indicators, especially consumer confidence, continue to reflect optimism about the U.S. economy," said Mustafa Mohatarem, G.M.'s chief economist.

Ford Motor, the second-biggest American automaker, said it sold 237,000 vehicles in December, a slight gain from the same month in 2015. For the year, Ford reported sales of 2.61 million vehicles in the United States — essentially the same total as in 2015.

The company's cornerstone product, the F-Series pickup, was once again the top-selling vehicle in the American market, with 820,000 trucks sold last year. But sales of Ford's car models fell about 12 percent in 2016 from a year earlier, with products like the Focus and the Fusion posting double-digit declines.

The third major American automaker, Fiat Chrysler, reported one of its weaker months in December, as sales fell 10 percent, to 192,000 vehicles. For the full year, the company said it sold 2.24 million vehicles, a decline of less than 1 percent from the previous year.

Fiat Chrysler has substantially reduced its production of passenger cars and is busy converting car factories into truck plants. Last year, sales of its cars such as the Dodge Dart and the Chrysler

200 dropped precipitously as the company concentrated on beefing up its lineup of S.U.V.s, particularly its hot-selling Jeep models.

While the industry's health appears closely tied to the continued demand for larger vehicles, some automakers have placed big bets on electric cars, which remain a tiny niche in the market.

In one of the most closely watched introductions in the segment, G.M. said it sold 579 Chevrolet Bolts, a new battery-powered sedan, in December, its first month of sales. By contrast, the company sold more than 54,000 Silverado pickups, its most popular product.

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We'll apply demand and supply analysis to a real issue in the news: car and truck sales in the United States. Here are excerpts of a recent article (January 4) from the *New York Times*, titled "Record 2016 for U.S. Auto Industry; Long Road Back May Be at End."

Read the article about the 2016 auto sales. You can find it here: "Record 2016 for U.S. Auto Industry; Long Road Back May Be at End."

To analyze this article, consider:

- The article title mentions the "long road back." Back from what? Use demand and supply to analyze what caused the auto industry comeback. Consider the effects of economic recovery and low interest rates ("easy credit").
- Consider not just the price of a vehicle, but the cost to operate it. That cost includes the price of gasoline. Use demand and supply to explain the changes in sales of big vehicles like SUV's and trucks, which use lots of gasoline, and the sales of small cars, which use less gasoline. You could mention "substitute goods."
- Use demand and supply to analyze what has happened to the selling price of smaller cars, including the sales incentives and discounts.
- How are automakers changing their production of smaller cars? What's the effect on employment in factories? Consider the effect of demand changes on the "quantity supplied" of smaller cars.

A good essay will include the following:

1. It will use demand and supply to explain why vehicle sales have increased since the Great Recession.
2. It will use demand and supply to explain the effect of low gasoline prices on sales of big and small vehicles.
3. It will use demand and supply to explain why the selling price of smaller cars has decreased.

4. It will use “quantity supplied” to explain what is happening to the production of smaller cars.

### *Evaluation Questions*

1. Does the essay use demand and supply to explain why vehicle sales have increased since the Great Recession?
  - a. The essay mentions at least two factors that affect demand, like rising incomes, lower interest rates, replacing older cars or rising consumer confidence.
  - b. The essay mentions only one factor that affects demand.
  - c. The essay does not mention any factors that affect demand or supply, or analyzes the factors wrong.
2. Does the essay use demand and supply to explain the effect of low gasoline prices on sales of big and small vehicles?
  - a. The essay explains that low gas prices means that the cost of operating big vehicles has fallen more than the cost of small vehicles, so consumers have substituted to big vehicles.
  - b. The essay mentions of the effect of low gas prices, but has an incomplete analysis using demand and supply.
  - c. The essay does not explain the effects of gasoline prices, or gets the explanation wrong.
3. Does the essay use demand and supply to explain why the selling price of smaller cars has decreased?
  - a. The essay explains that big inventories mean that there is an excess supply of cars, so price must fall.
  - b. The essay offers a partial explanation of the drop in car prices.
  - c. The essay ignores the drop in car prices, or uses demand and supply incorrectly.
4. Does the essay use “quantity supplied” to explain what is happening to the production of smaller cars?
  - a. The essay explains that production and employment are decreasing, because decreases in demand and price decrease the quantity of smaller cars supplied.
  - b. The essay explains how production and employment are changing, but does not use “quantity supplied.”
  - c. The essay ignores production changes, or uses “quantity supplied” wrong.

### *Evaluated Essay Examples*

**AAAA.** Sales of cars and trucks in the United States set a record in 2016, with about 17.47 million sold. This is a terrific comeback from the Great Recession, when sales fell below 11 million. The recovery increased incomes. Sales increased because cars are normal goods. Interest rates have been low too, so the cost of a loan for a car has been low. People also wanted to

replace their old cars. Sales of SUV's and trucks have increased a lot, but sales of smaller cars are down. Low gasoline prices are the reason. With lower gas prices, the cost to drive a big vehicle goes down a lot, while the cost to drive a small vehicle goes down only a little. Since SUV's are substitutes for small cars, the big drop in their price caused an increase in demand for SUV's, and a decrease in demand for small cars. There are big inventories of small cars, which means excess supply. That made prices fall. Auto companies offered more discounts and sales incentives, which were up 25 percent in the fourth quarter. Lower prices for cars causes decreases in quantity supplied, so auto companies cut production of small cars, and laid off workers. This must mean increased production and more jobs in SUV factories.

**ABBC 6.** U.S. car and truck sales hit a record high last year. Sales were only 11 million during the Great Recession, but since then they have increased to more than 17 million. That's a really big increase. The reason for the increase is the economic recovery, which increased the incomes of consumers. Income is a determinant of demand. When it increases, so does the demand for cars and trucks. Sales of big vehicles like SUV's and pickup trucks have increased the most, and lately the sales of smaller cars have decreased. As the article says, "Analysts expect the trend toward larger vehicles to continue as long as gas prices remain low." Gas prices are the reason that sales of big vehicles are increasing, and small vehicles are decreasing. The prices of small cars are falling, if you include discounts and incentives as part of price. Incentives were up 25% at the end of last year, which means the prices that buyers paid were especially low. Automakers are trying to sell off their big inventories of small cars, which are there because cars aren't selling. The supply of small cars is decreasing. It might be because production costs are rising, since that's a determinant of supply. The factories are cutting workers, so unemployment is increasing.

**BCCC 2.** The government bailed out the auto companies, which saved them during the Great Recession. Since then car and truck sales have increased, because of the economic expansion. More consumers have been able to replace their old cars with new ones. Gasoline and vehicles are complementary goods. To drive a car you must buy gasoline. When the price of a complementary good goes up, the demand for the first good goes down. That makes the price of the first good rise. Suppose cars are the complementary good and gasoline is the first good. The price of cars went to \$35,000 in 2016, which is really high. That caused a drop in car sales, and that meant that people needed to buy less gasoline, which is probably why the price of gasoline fell. "Quantity supplied" is the term used in economics when the change in supply is an effect, not a cause. When a determinant of demand changes, demand shifts, and there is a change in quantity supplied. It looks like a move along a fixed supply curve on the demand and supply diagram. So an increase in price would cause a decrease in quantity supplied, which is why the production of cars is down. This was a really interesting article for anyone who drives!