

Fuel Prices and Auto Sales

A Five-Year Perspective

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DOES THE FLUCTUATION OF RETAIL FUEL PRICES have an effect on the type of vehicles consumers purchase? In recent months, media outlets have reported that as retail fuel prices declined, sales of less fuel-efficient vehicles rose significantly. But the question remains: Is there a correlation between retail fuel price and consumer vehicle purchase behavior?

To provide clarity to this issue, this report evaluates market data pertaining to vehicle sales and retail fuel prices over the past five years (2010–2014). By analyzing the relationship between vehicle sales and retail fuel prices in smaller segments of time, we aim to better understand how consumers are making their decisions.

The cost of fuel is a highly emotional segment of consumer spending habits, but there are a variety of factors affecting consumer financial decisions. This study will focus exclusively on the relationship between retail fuel prices and the sales trends of six of the highest selling segments and those considered to be most susceptible to fuel price volatility: small cars, electric vehicles, hybrids (including plug-in hybrids), large cars, crossover utility vehicles and sport utility vehicles. At the end of this study, there will be ample evidence available to support or question the reports that fuel prices are the biggest reason behind vehicle sales trends.

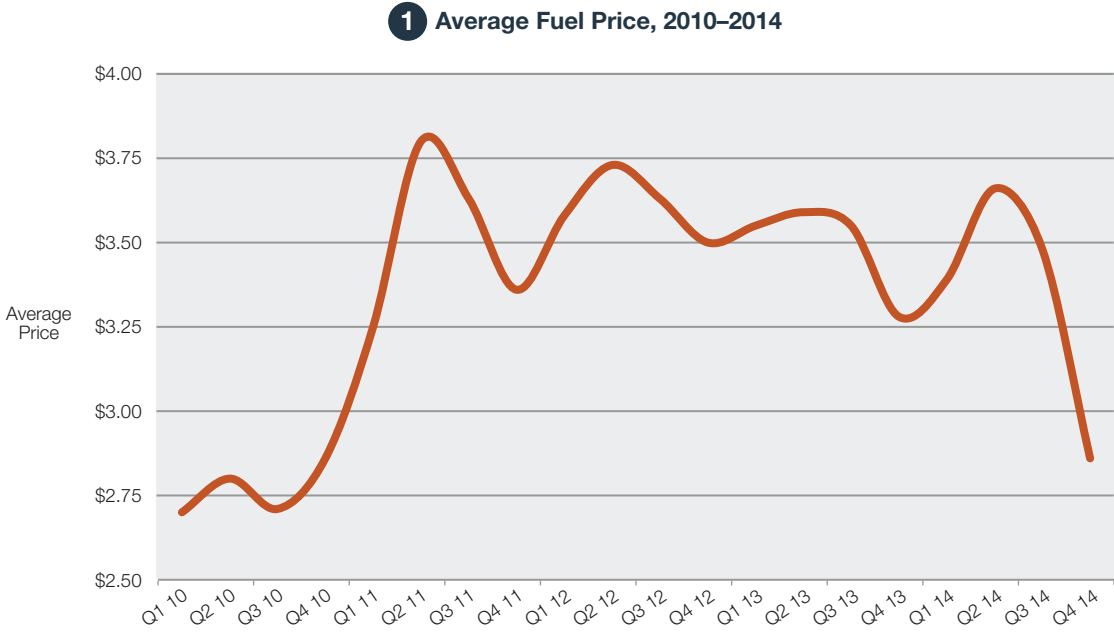
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Consumer Behavior

Price is the dominant reason why consumers select a specific retail location to buy fuel. Prices prominently displayed outside of retail stores constantly remind consumers about this portion of their monthly budgets and heightens their sensitivity to gas prices.

According to the monthly NACS Consumer Fuels Survey, 71% of consumers said they shop for gasoline based on price (January 2015). In May 2015, when fuel prices averaged \$2.60 per gallon, 85% of consumers told NACS that fuel prices have some or a great impact on their overall feelings about the economy. This correlation highlights the influence that gas prices have on consumer behavior. Whether fuel prices are trending up or down, it has an effect on consumers' feelings about the overall economy. This survey gives further evidence that with such a high percentage of consumers responding this way, it is only natural that it would have a profound effect on their behavior. Additional surveys show that although it is not the only deciding factor, the price of fuel does have an effect on how consumers shop for a vehicle.

Over the past five years the average price per gallon of regular unleaded gasoline has fluctuated dramatically (Figure 1), and some media outlets suggest that when prices escalate, consumers shift to purchasing more fuel-efficient vehicles. Conversely, when gas prices drop, consumers return to purchasing less fuel-efficient vehicles—but does the data support that?



(Source: OPIS)

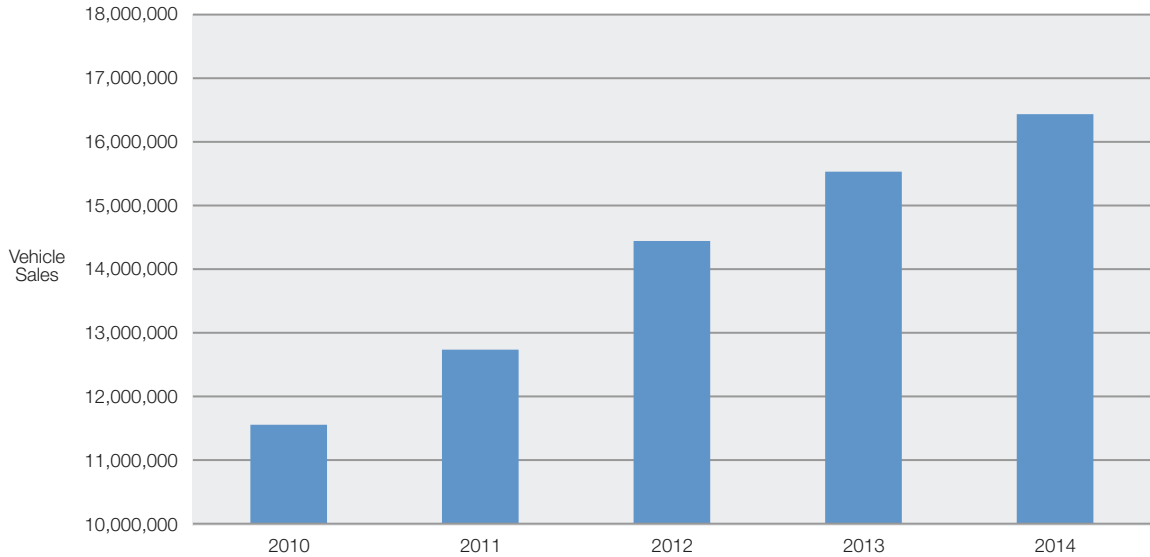
Vehicle Sales

In 2014, the light passenger vehicle market continued to rebound from the aftermath of the Great Recession, with total vehicle sales eclipsing 16.4 million units for the first time since 2006 (Figure 2). Conversely, the shift in overall vehicle sales did not follow the volatile pattern observed with retail fuel prices during that same time period.

Figure 3 shows that during Q2 2011, when the retail fuel price peaked at \$3.80 per gallon, sales of total light passenger vehicles increased by 213,147 units from Q1 2011. At the same time, the price per gallon did not slow the resurgence in vehicle sales. Since Q3 2011, overall light passenger vehicle sales have not dropped below 3.1 million units sold in any quarter during the timeframe of this analysis.

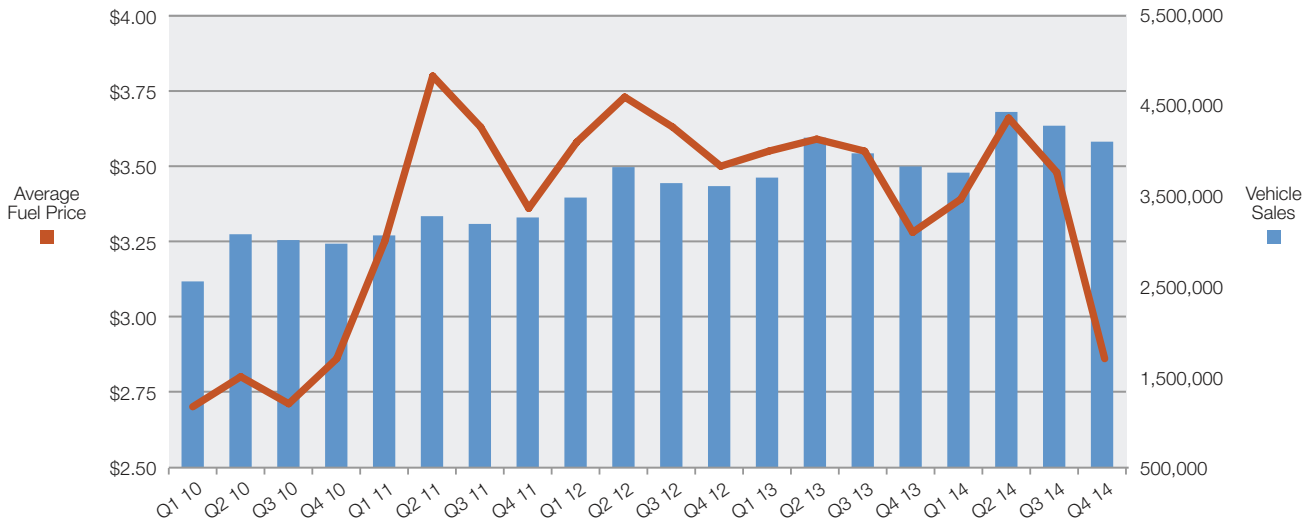
By looking at the number of overall vehicle sales compared to retail fuel prices, fuel prices have not discouraged new vehicle sales. Yet, are fuel prices influencing the types of vehicles consumers are purchasing?

2 Total Light Vehicle Sales, 2010–2014



(Source: WardsAuto.com)

3 Total Light Vehicle Sales vs Average Fuel Price, 2010–2014

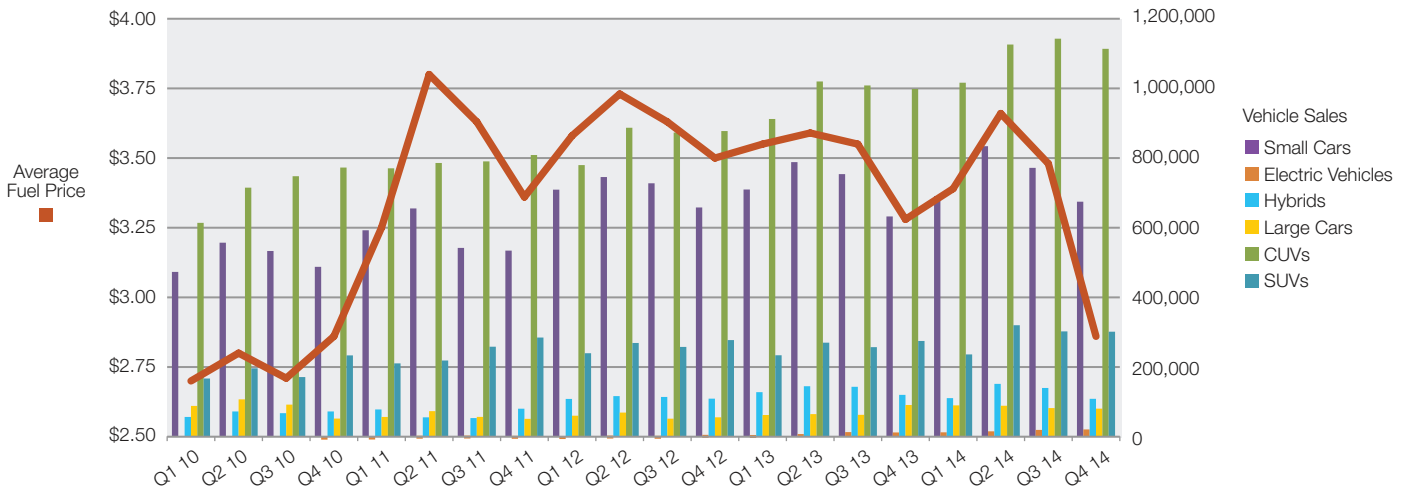


(Source: WardsAuto.com)

Let's examine sales trends for the following vehicle segments (Figure 4):

- Small Cars (Ex: Honda Civic, Volkswagen Jetta)
- Electric Vehicles (Ex: Nissan Leaf)
- Hybrids, including Plug-In Hybrids (Ex: Ford C-Max, Toyota Prius)
- Large Cars, not including Luxury segment (Ex: Chrysler 300, Ford Taurus)
- Crossover Utility Vehicles (Ex: Honda CRV, Toyota Rav4)
- Sport Utility Vehicles (Ex: Ford Expedition, Nissan Pathfinder)

4 Vehicle Segment Sales vs. Average Fuel Price, 2010–2014



(Source: WardsAuto.com)

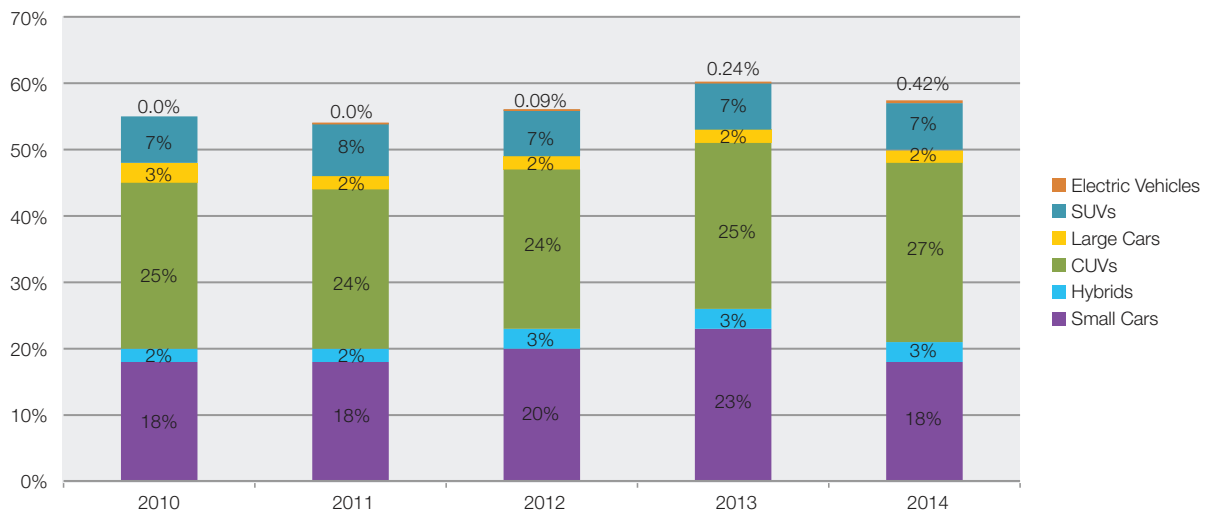
Small Car Segment Sales

Over the past five years, sales within the small and electric car segments have increased. Since 2010, the small car segment has represented an average of 19% of all light vehicle sales (Figure 5), and as retail fuel prices increased in 2011, light vehicle sales continued to rise from 18% to a peak of 23% in 2013 (Figure 6).

The average fuel economy for the small car segment is 31.6 miles per gallon (combined city/highway)—typical for this vehicle segment. As Figure 6 shows, small car sales rise when gas prices increased (Q2 2011–Q2 2012 and Q1 2014) and dropped when gas prices declined (Q4 2010, Q4 2011 and Q4 2013).

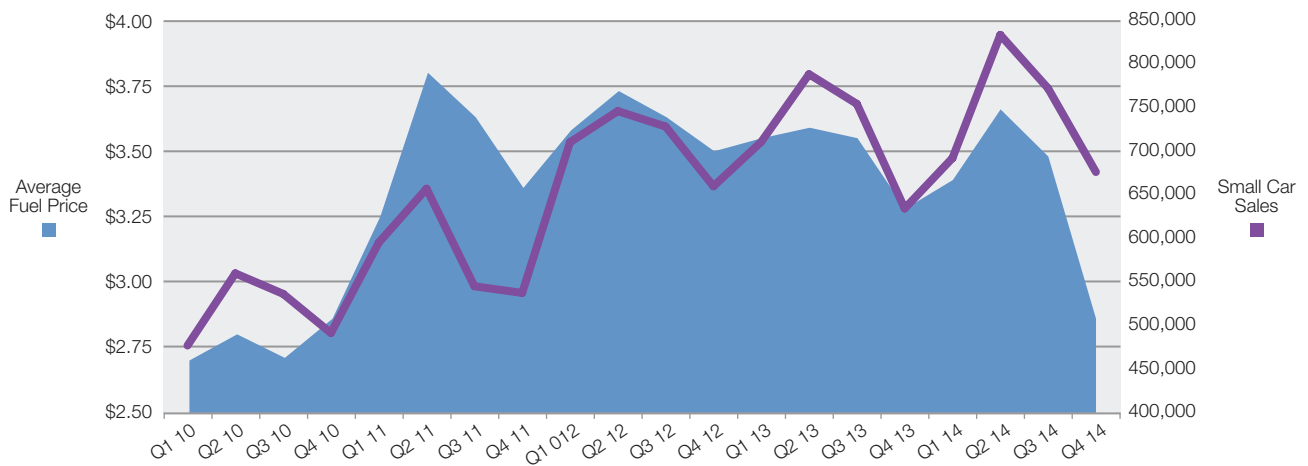
For the small car segment, the arguments presented by some media outlets are accurate, but is the relationship a correlation or causation? To understand the direct effect on consumer purchasing behavior, we also need to understand the performance of other vehicle segments.

5 Annual Market Share of Light-Duty Vehicle Sales, 2010–2014



(Source: WardsAuto.com)

6 Small Car Sales vs. Average Fuel Prices, 2010–2014



(Source: WardsAuto.com)

Alternative Fuels Vehicle Sales

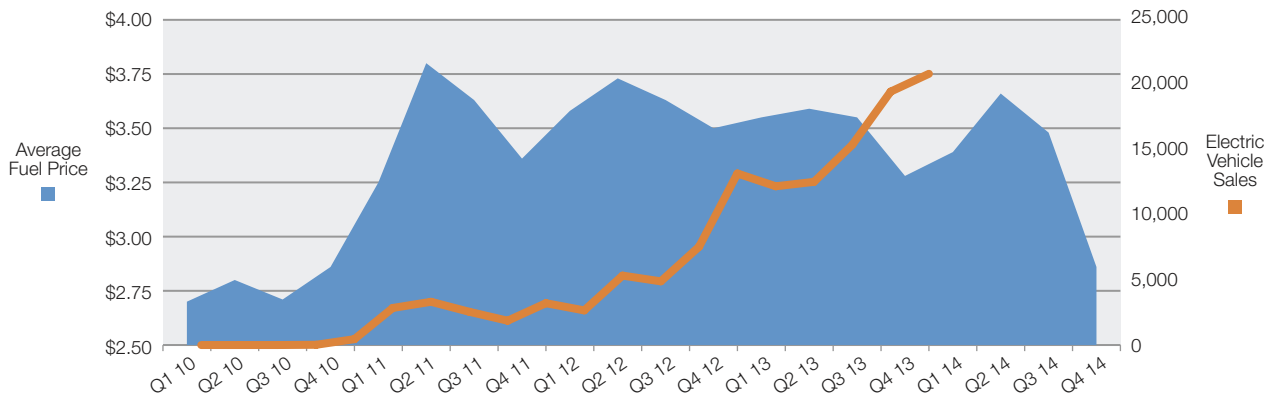
Another vehicle segment that experienced growth each year over the past five years is the electric vehicle (EV). As highlighted in Figure 7, EV sales significantly increased (631%) from Q1 2011–Q2 2011. This also coincided with a dramatic increase (17%) in retail fuel prices.

While there is evidence that the price per gallon had an effect on EV sales during early development of EV technology, this pattern changes after Q3 2012, when retail fuel price volatility began to run a separate pattern. Here we see an increase in EV sales even as fuel prices drop. This disconnect was evident in Q4 2014 when EVs recorded their highest sales numbers at a time when fuel prices recorded their lowest levels in the timeframe.

Although EVs have steadily grown each year, these vehicles still only represented 0.42% of all light vehicle sales in the United States in 2014 (Figure 5), making it apparent that EV market growth is independent of retail fuel prices.

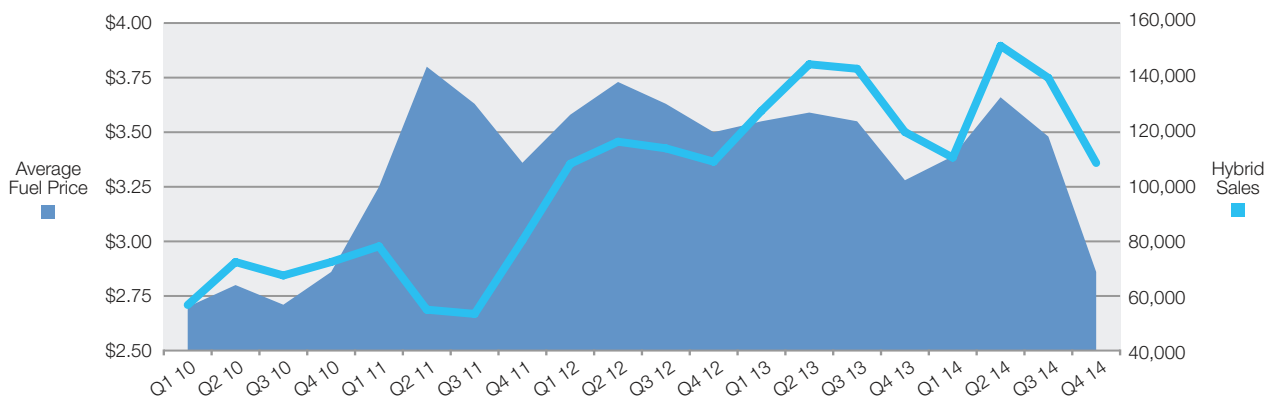
Meanwhile, hybrids have experienced more of a roller coaster in terms of sales over the past five years. Hybrid sales recorded a significant jump (67.6%) from 2011–2012, but suffered a 4.9% loss from 2013–2014 (Figure 8) despite retail fuel prices reaching some of the highest levels from 2010–2014. Over the past five years, with the notable exception of 2011, hybrid sales have tracked consistently with retail fuel prices. When fuel prices increased, hybrid sales also increased. Conversely, when fuel prices dropped, hybrid sales suffered.

7 Electric Vehicle Sales vs. Average Fuel Prices, 2010–2014



(Source: WardsAuto.com)

8 Hybrid Car Sales vs. Average Fuel Prices, 2010–2014



(Source: WardsAuto.com)

Price of Fuel and Consumer Spending

Although there have been slight changes in sales of certain vehicle segments, American consumers are more pragmatic about making vehicle purchasing decisions based solely on gas prices. At times, media outlets report information based on consumer comments and not their actual final decision. NACS surveys have shown that on many occasions consumers respond one way but act another when actually making their purchase.

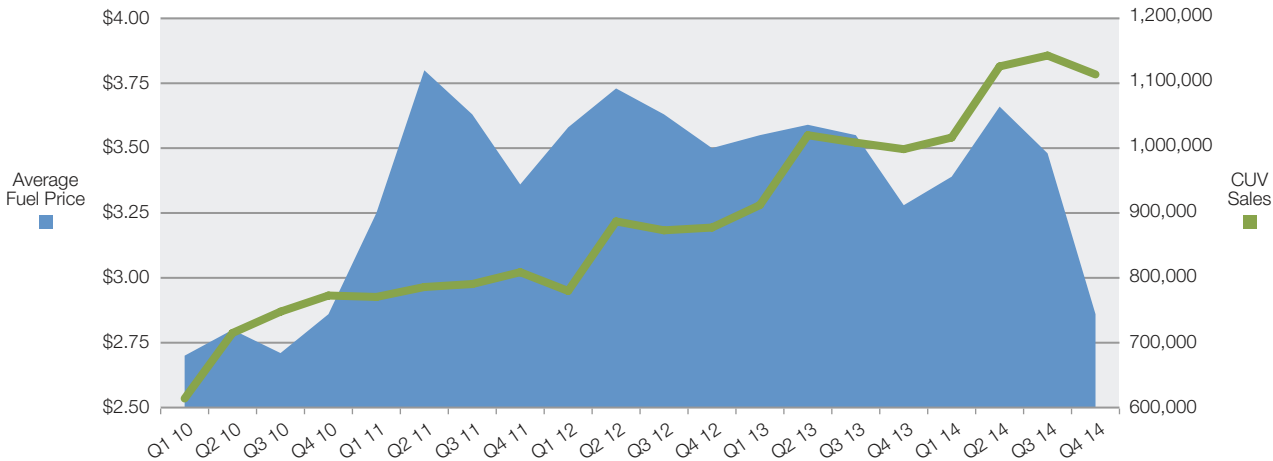
There are numerous factors other than the price of fuel, including but not limited to the cost of the vehicle, discounts offered by the dealer and the appeal of the car. The price of fuel is a driving force; however, it is not the only consideration for consumers. Looking at sales of smaller vehicles tells only one part of the story. To complete the story, we need to review larger vehicle segments and the data available from 2010–2014.

Have consumers stopped purchasing larger vehicles in favor of smaller options, or are smaller vehicles simply benefiting from their lower price point or an improved light-duty market? Let’s look at three larger vehicle segments to better understand this situation: crossover utility vehicles (CUV), sport utility vehicles (SUV) and large car sales.

Sales of CUVs have increased significantly from 2010–2014 (Figure 9), and segment growth has been independent of fuel prices. The highest increase in retail gasoline prices (32.9%) occurred from Q4 2010–Q2 2011; however, during this time CUV unit sales increased by 1.7%. As retail fuel prices steadily moved downward, CUV sales continued to increase. Further analysis shows that in 2011 and 2012, when retail fuel costs spiked to the highest overall average (\$3.56 per gallon), this segment represented 24% of all light vehicle sales (Figure 5). Finally, as retail prices continued on their downward spiral in 2014, CUV sales continued to grow and represented 27% of all light vehicle sales (Figure 5). The data shows that CUV segment sales were not significantly influenced by retail fuel prices, indicating that consumers consider other more influential factors during the sales process.

It is worth noting that original equipment manufacturers (OEM) continue to develop the CUV segment and are introducing new compact crossover vehicles. Faced with fuel economy regulations that mandate the sale of more fuel efficient vehicles, contrasted with the consumers’ strong interest in larger vehicles, these newer vehicles seek to satisfy both facets of the market. The combination of space and sufficient fuel economy continues to make this segment a top seller regardless of fuel prices. The data confirms this fact as CUV sales have enjoyed an upward sales trajectory since 2010—during a period of volatile retail fuel prices.

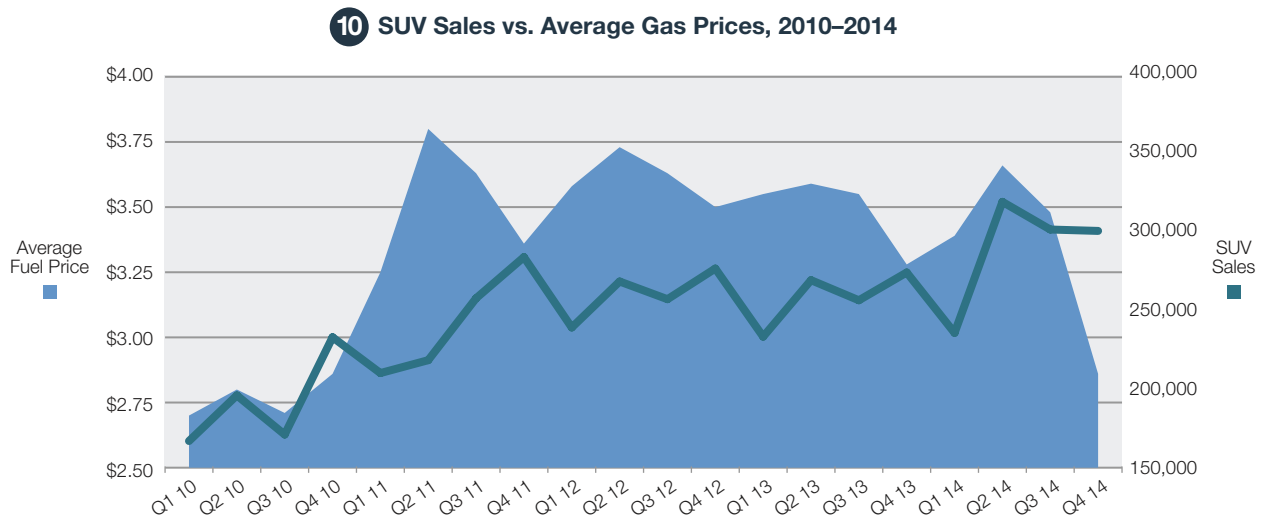
9 CUV Sales vs. Average Fuel Prices, 2010–2014



(Source: WardsAuto.com)

Meanwhile, the data does not support assertions that lower retail fuel prices are leading consumers to trade in their alternative fuel vehicles for SUVs.

Sales for SUVs have increased 51% from 2010–2014 and have been relatively stable despite fuel price volatility (Figure 10). SUV sales increased 26% in 2011 and another 7% in 2012, a time period when retail fuel prices hit five-year highs, which shows that the price per gallon does not dissuade consumers who want or need the capabilities of an SUV. But it is important to note that SUVs represented only 7.8% of total light vehicle market sales in 2011 and 7.2% in 2012 (Figure 5). This is a significant change from a decade ago (2005) when SUV sales represented 14.5% of all light vehicle sales in the United States.



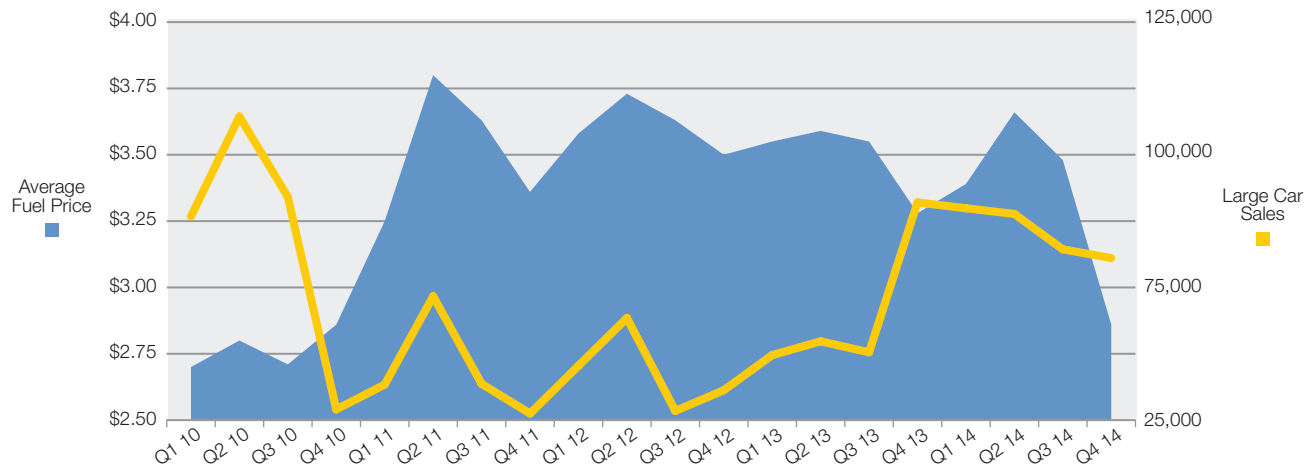
(Source: WardsAuto.com)

While the data shows that CUV and SUV sales have grown over the past five years, the large car segment has declined. But it is unclear to what extent fuel prices have influenced this decline.

During the highest peak in retail fuel prices from Q4 2010–Q2 2011, large car segment sales increased 41%. Although a significant increase, the segment only represented 2.1% of total light vehicle sales (Figure 5) during this timeframe. The increase in large vehicle sales from Q4 2010–Q2 2011 followed a significant drop—a loss of more than 50,000 units from the previous quarter—in sales from Q2 2010–Q4 2010. Although retail fuel prices increased 6% (\$2.70–\$2.86) during this time frame (Figure 1), this was not the largest spike during the five-year analysis. We’ve determined that there must be another significant reason for this decline, unrelated to retail fuel prices and outside of the scope of this research.

With numerous fluctuations in retail fuel prices over the past five years, the large car segment has been hit harder than the other vehicle segments (Figure 11). The partial recovery at the end of 2013 coincides with a drop in fuel prices, but that growth was not replicated when gas prices dropped in 2014. Increases in retail fuel prices from 2010–2011 pushed consumers to abandon the large car segment. This timing coincides with a significant increase in small car purchases, and the continued depression in large car sales contrasts with the steady growth of CUVs. These trends indicate a potential change in consumer preference that could be driven by improved fuel efficiency in vehicles that have similar utility as large cars.

11 Large Car Sales vs. Average Gas Prices, 2010–2014



(Source: WardsAuto.com)

Summary

The American consumer pays close attention to retail fuel prices, but they are not basing vehicle purchasing decisions solely on the price per gallon. What's more influential is a balance between necessary vehicle utility and fuel economy.

The improved sales numbers of more fuel efficient vehicle segments could represent a shift in consumer attitudes, or they could be attributed to the promotion of more fuel efficient vehicles in response to federal mandated efficiency standards. For example, as gas prices have increased to some of their highest levels of the past decade, the CUV segment is outpacing sales of all other passenger vehicle segments. Consumers are either looking for improved efficiency in their utility vehicle, they're waiting for the introduction of more compelling CUV options by the OEMs, or it's a combination of the two.

The data presented in this analysis shows that a mass exodus from alternative fuel vehicles to less efficient vehicles in response to lower fuel prices is an overstated assertion. While sales of SUVs continue to increase to their pre-Great Recession numbers, SUV sales still represent less than a 3% of the overall vehicle market. Meanwhile, large cars continue to perform below their historic levels.

While consumers and the media have reported that making a decision on which vehicle to purchase is simply based on economics, the decision is far from that simple. The data we have discussed shows there are factors that can't easily be explained by the simple answer of the price of fuel. There is not solely a direct relation to the price of fuel and the size of vehicle consumers are purchasing. It is clear that there is a relationship, but it isn't as large as some reports would lead you to believe.

The American consumer has made vehicle purchasing decisions based more on needs and wants while also demanding that OEMs provide the type of vehicle to meet those needs. This trend will likely remain unchanged for the near future.

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