Summer 2012 Fuel Economy Analysis
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July 2012

The first half of 2012 has resulted in a record high in fuel efficiency for new vehicles. From January to June of 2012, the sales-weighted average fuel economy of new passenger vehicles was 23.8 mpg, breaking the record set in 2011 by over 1 mpg of 22.7 mpg and the same reading during the first six months of 2011. These results were calculated based on fuel economy figures from monthly results provided by the University of Michigan Transportation Research Institute and sales figures from Ward's Automotive.

First Six Months	Sales in Millions	MPG	Change
2008	7.4	21.0	
2009	4.8	21.2	0.2
2010	5.6	22.1	0.9
2011	6.3	22.7	0.6
2012	7.2	23.8	1.1

Full Year	Sales in Millions	MPG	Change
2008	13.2	20.9	
2009	10.4	21.6	0.7
2010	11.6	22.1	0.5
2011	12.7	22.7	0.5

While there have been periodic increases in fuel economy in the past (primarily as a result of higher gas prices), the results this year are unique. While overall sales are increasing (which is in fact somewhat unusual in the face of higher gas prices), the increase in fuel economy is not primarily driven by an increase in small car sales. This year, consumers have more choices across the product spectrum to obtain higher fuel efficiency.

Our projected sales total for 2012 is 14.2 million units, an increase of 1.5 million from last year. But unlike in the past, the year-to-date (through June) increase in market share of small cars and crossovers vs. 2011 is just 0.4 percentage points. This fact indicates that consumers now have the opportunity, and are indeed buying fuel efficient vehicles in every market segment - small cars, midsize cars, minivans, CUVs/SUVs, and pickups.

The table below illustrates the increase in availability of models with high fuel efficiency over the last three years across a variety of key market segments.

Number of Popular* Nameplates with Improved Efficiency*		
	Model Year 2009	**Model Year 2012/2013**
Compact/Subcompact > 30 mpg	5	16
Midsize > 25 mpg	6	10
Crossovers > 20 mpg	17	34
Total	**28**	**60**

* "Popular" nameplates are defined as having sales of at least 30,000 units annually. Fuel economy levels are combined city and highway window sticker values based on EPA ratings.

Illustrating the dramatic break from historical trends we are seeing this year, previous years of major increases in fleet fuel efficiency were generally marked by rapid decreases in vehicle sales. The three year period from 1980 to 1982 saw increases of 3.3, 1.3 and 0.6 MPG respectively, but vehicle sales declined by 2.5 million, 750,000, and 820,000, respectively. Similarly, over the two year period from 2007 to 2009, fleet fuel efficiency jumped 1.8 MPG, but annual vehicle sales dropped by over 5.7 million. The change this year was due in large part to much greater availability of vehicles with higher fuel economy.

Furthermore, previous years of increased sales have mostly corresponded with minor increases or even decreases in fleet fuel efficiency, but never major jumps like we are seeing thus far in 2012. For example, 1984's economic recovery saw an increase in sales of 3.7 million vehicles over 1983, but fleet fuel efficiency remained flat. 1993 saw an increase of 1 million vehicles sold, and an increase in efficiency of 0.1 mpg, while 1997 sales increased 1.3 million, but efficiency declined 0.3 mpg over the previous year. 2012 is the first year where both metrics have experienced not only marginal increases, but major jumps.

Let's take a look at key years in the past when fuel economy increased to understand the importance of today's trends. We also should understand major factors that occur in periods where the economy is in decline or in periods of recovery from such periods.

1. Household Wealth Effect: In recessions (and early phases of a recovery), consumers tend to buy less expensive vehicles, which are smaller and tend to be more fuel efficient.
2. Effect of Increasing Gas Prices: Tends to increase demand for fuel-efficient cars which in the past mostly meant smaller cars.
3. Rightsizing of the Market: A recent trend where automakers and customer actions that result in a smaller market that enables automakers to increase profit because new car customers tend to be wealthier, which allows them to spend money for fuel efficiency which results in net cost savings due to less fuel usage.

1) 1976-78 (Factor 2)

Fuel economy increased an average of 0.9 miles per gallon per year. This trend was driven by relatively stable, but high oil prices. This period followed the first oil embargo of 1973-75 and oil stabilized at about $53 per barrel (real dollars) compared to $17 in the early 1970s. However, the large annual increases in mpg were driven by a shift in consumer preferences to smaller front wheel drive cars. This period also saw the auto market recover from the 1975 trough of 10.9 million units but unlike the current period, there was a wholesale and dramatic shift in market segmentation to small cars (average weight dropped from 4060 pounds in 1975 to 3715 pounds in 1978).

2) 1980-1982 (Factors 1 and 2)

Fuel economy increased an average of 1.7 mpg for three years, with sales declining due to the recession. This three-year period of sustained higher annual average fuel economy was driven by high oil prices induced by the second oil crisis following the hostage crisis in Iran in 1979. Oil prices averaged almost $90 per barrel, while annual sales dropped by 3.6 million units from 1979 to 1982. This period saw a continuation of the trend to smaller and lighter cars (3605 pounds in 1979 to 3202 pounds in 1982). Starting in 1980, there was a huge shift from rear wheel drive to lighter, more fuel-efficient front wheel drive (9.2% in 1979 to 32% in 1982) vehicles. During this period, vehicles were less powerful, with the horsepower-to-weight ratio dropping by 4.5%.

3) 2008-2009 (Factors 1 in both years and 2 in 2008 only)

Fuel economy increased strongly, with sales declining due to the recession. This two year period saw large increases in annual mpg in the face of high, sustained oil prices, averaging almost $100 per barrel in 2008. By 2009, the auto market bottomed out with 5.7 million fewer sales than 2007. The large increase in fuel economy from 2008 to 2009 (0.7 mpg) was driven by a collapse in the market for pickups and true SUVs (and to a lesser extent, minivans). The big winners in the market place were crossover vehicles, which saw their absolute sales increase while all others dropped by about 20% and gained 3.2 points of market share. Small vehicles (cars and crossovers) also gained market share, but the big gains in fuel economy were driven by the replacement of sport utility vehicles with crossovers, and the decrease in pickup sales (primarily due to the collapse in the housing market).

4) 2011-2012 YTD (Factors 2 and 3)

Fuel economy increased by 1.1 miles per gallon from 2011 to 2012, with sales increasing at a greater rate than the economy. The large increase in fuel economy is not driven by large shifts in market share. Midsize cars were the biggest winner, gaining 1.2 points of market share. Small car and small crossover market share grew only slightly, by 0.4 points. Midsize crossovers did take a slight hit, losing 0.6 points of market share. With no large shifts in segmentation, the increase in fuel economy is driven by increases across the board. Furthermore, a new development as described by Factor 3 is now in play. New car buyers tend to be of higher income and are willing to pay for higher fuel economy and options to which they have become accustomed. Automakers are comfortable with this approach, because less capacity and changes in their cost structure have led to higher profits with fewer vehicle sales.

The information in this note is based upon Baum and Associates Automotive Sales and Production Forecast. For more details, please contact Alan L. Baum at (248) 202-2629 or abaumcons@gmail.com. Additional information is also available at www.baum-assoc.com.