ALLIANCE FOR AUTOMOTIVE INNOVATION

Cleaner. Safer. Smarter.

READING THE METER

A Look Inside A Cleaner, Safer, Smarter Auto Industry.

July 28, 2021

Contents

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Forecast Meter

Forecast Summary (Updated 7/28)

2020-2021 Sales,[1] Extended Sales Forecast[2] and Production Forecasts[3]		
	U.S. Sales & Forecasts	**North American Production**
June '20	1,103,791 (-24% YoY)	1,135,807 (-19.7% YoY)
July '20	1,227,091 (-12.1% YoY)	1,261,884 (+2.2% YoY)
August '20	1,325,144 (-19.1% YoY)	951,983 (-1.1% YoY)
September '20	1,344,310 (6.4% YoY)	1,395,830 (+2.1% YoY)
October '20	1,345,401 (0.9% YoY)	1.413.207 (+3.7% YoY)
November '20	1,193,180 (-15.4% YoY)	1,260,763 (-6.4% YoY)
December '20	1.608.875 (5.9% YoY)	1,115,542 (+2.8% YoY)
January '21	1,094,689 (-3.6% YoY)	1,175,940 (-14.0% YoY)
February '21	1,180,506 (-5.3% YoY)	1,120,200 (-22.9% YoY)
March '21	1,581,067 (+59.7% YoY)	1,376,904 (31% YoY)
April '21	1,512,186 (+111.4 YoY)	1,094,891 (-21% YoY)
May '21	1,577,941 (+41% YoY)	729,879 (+271% YoY)
June '21	1,296,517 (+17% YoY)	1,107,958 (-1.9% YoY)
July '21		1,300,000 (forecast)
1st Quarter '20	3,476,512 (-12.7% YoY)	3,754,533 (-11.7% YoY)
2nd Quarter '20	2,948,410 (-33.3% YoY)	1,371,420 (-67.6% YoY)
3rd Quarter'20	3,904,539 (-9.2% YoY)	3,989,982 (-.5% YoY)
4th Quarter'20	4,159,622 (-2.1% YoY)	3,789,512 (-2.5% YoY)
1st Quarter '21	3,869,872 (+11.3 YoY)	3,688,512 (-4.7% YoY)
2nd Quarter '21	4,386,644 (+49.9% YoY)	3,309,000 (132% YoY)
3rd Quarter '21		4,191,000 (forecast)
2020 Calendar Year	14,463,935 (-14.7% YoY)	12,905,447 (-23.1%)
2021 Full Year Estimate	16.9 million units (17% YoY)	15.8 million units (22.7% YoY)

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U.S. Light Vehicle Sales Outlook (Updated 7/28)

Wards Intelligence July Outlook[4]: "U.S. light-vehicle sales are heading for their third straight decline on a sequential basis in July and could fall again in August if production for the local market does not accelerate enough to start filling the pipeline with more shipments to dealers and fleet customers.

"After peaking at an 18.6 million-unit seasonally adjusted annual rate in April, which followed a 17.9 million total in March, the drag on deliveries caused by falling inventory kicked into high gear and pulled results down to 17.0 million in May and to 15.4 million in June.

"July is tracking toward a 14.8 million-unit SAAR, which, except for pandemic-impacted totals in 2020, will be an any-month low since 14.5 million in October 2012.

"Forecast volume for July is 1.30 million units, 5.1% above the same year-ago total. However, July has an extra selling day in 2021 over 2020, and because it ends on a weekend, includes sales through Aug. 2. Thus, the forecast daily selling rate of 48,148 – 27 selling days - is only 1.2% above like-2020's 47,563 over 26 selling days.

J.D. Power July Outlook[5]: "New-vehicle retail sales for the month of July are expected to grow from July 2020 but decline from July 2019, according to a joint forecast from J.D. Power and LMC Automotive. Retail sales of new vehicles this month are expected to reach 1,187,300 units, a 3.7% increase compared with July 2020, but an 8.7% decrease compared with July 2019 when adjusted for selling days. July 2021 has one more selling day than July 2020 and two more selling days than July 2019. Comparing the same sales volume without adjusting for the number of selling days translates to an increase of 7.7% over 2020 and a decrease of 1.4% from 2019.

"Total new-vehicle sales for July 2021, including retail and non-retail transactions, are projected to reach 1,319,300 units, a 2.7% increase from July 2020 but a 12.4% decrease from July 2019 due to the decline of less-profitable non-retail/fleet sales. Comparing the same sales volume without adjusting for the number of selling days translates to an increase of 6.7% from 2020 but a decrease of 5.3% from 2019. The seasonally adjusted annualized rate (SAAR) for total new-vehicle sales is expected to be 15.0 million units, up 0.4 million units from 2020 but down 1.9 million units from 2019."

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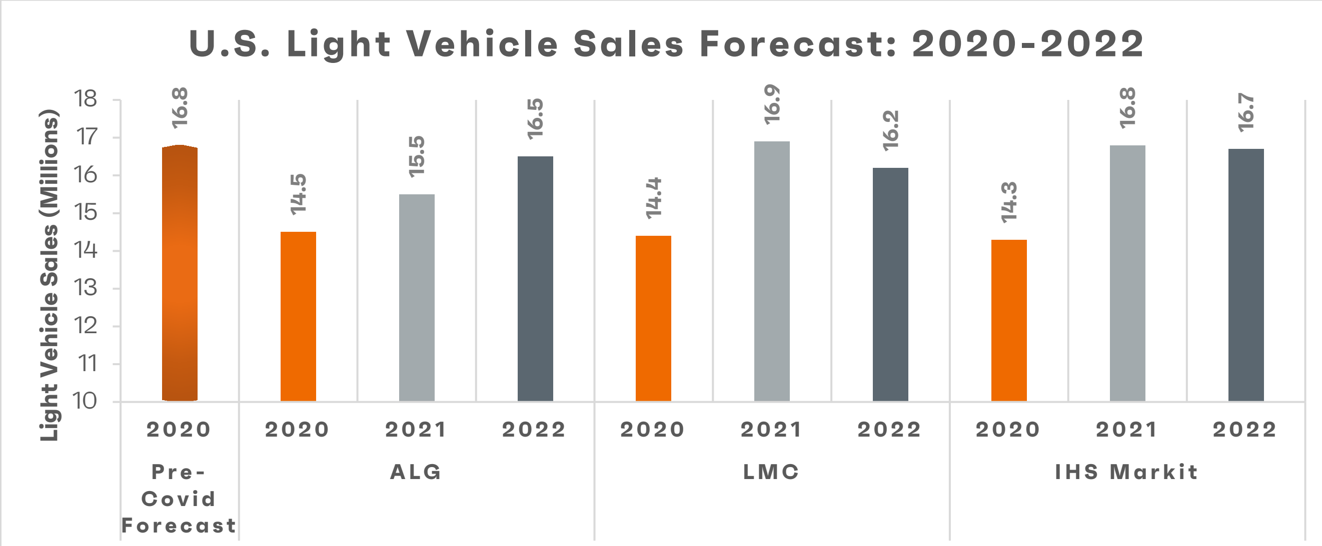


North American Production & Inventory Outlook (Updated 7/28)

Wards Intelligence Inventory Outlook[6]: "Making it a challenge for sales to reverse course in August is that inventory is forecast to decline 8.0% in July from June to 1.28 million units, an any-month low in at least four decades, 50% below year-ago and well below the 3.6 million units averaged for the month in the five years through 2019.

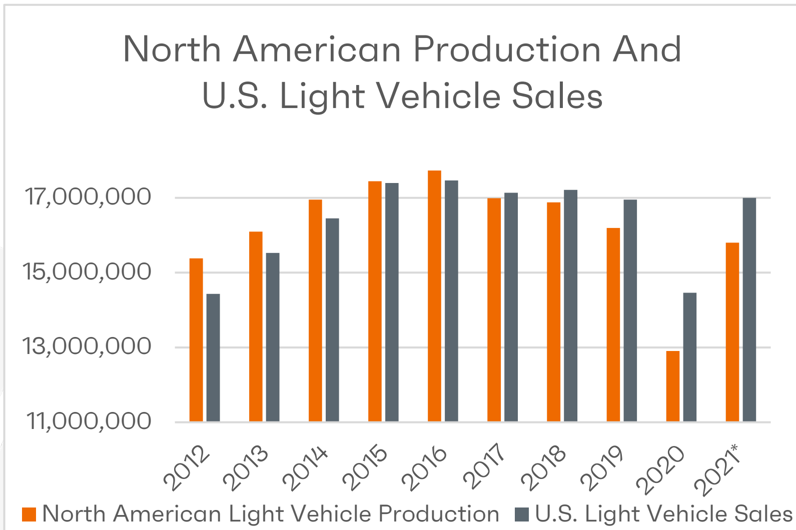
"Also, the main reason inventory is drying up – production cuts caused by the global microchip shortage – continues to heavily linger. Although leaders from automotive and microchip manufacturers generally continue to say the flow of microchips will improve in the second half of 2021, there still are enough concerns about short-term shipments - sparked further by already-announced unplanned production cuts in July - that puts a downward bias on the Q3 production outlook – and, consequently, the inventory and sales outlooks.

"There also are reports from automakers that import a high mix of vehicles they sell in the U.S. indicating short-term supply problems persisting, and perhaps worsening, at their overseas plants in the third quarter. Some importers who used up much of their vehicle inventory in first-half 2021 to support strong sales could be hamstrung for stock in the second half."

Wards Intelligence Production Outlook[7]: "With more shutdowns being announced in July beyond those known to have been planned for the period a month ago, the Q3 production outlook has been slashed another 176,800 units to a projected 4.191 million. The Q3 outlook is 1.8% above the year-ago total, but heavily reliant on robust results in August and September when output is pegged to rise year-over-year 7.9% and 7.5%, respectively. July is tracking to an 11.0% decline.

"The August – 1.529 million units – and September – 1.511 million – projections are long-time highs for each month, but the level of uncertainty related to how much improvement there will be with the supply of microchips translates to significant risk in attaining those totals.

"Excluding the big trucks, Q3 light-vehicle production was reduced 176,500 units and is tracking to 4.072 million units, 1.8% above like-2020."



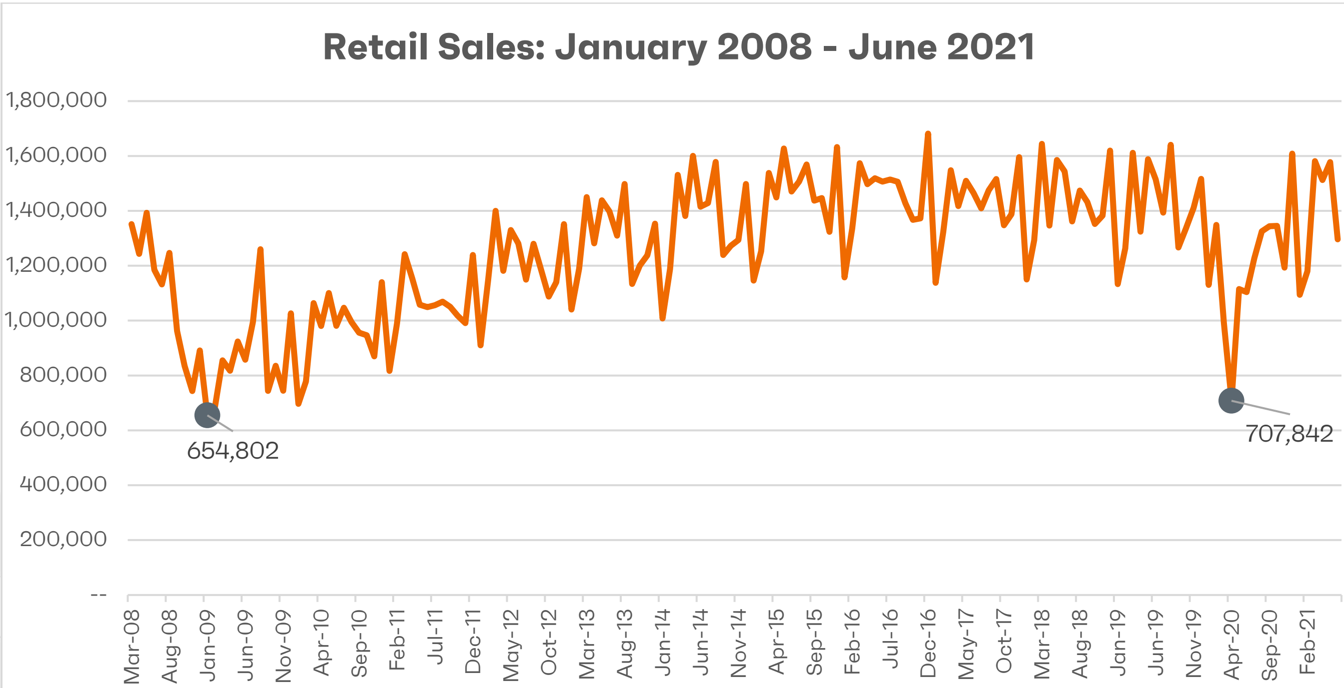
IHS Markit Outlook[8]: "The outlook for North America light vehicle production was reduced by 494,000 units and by 71,000 units for 2021 and 2022, respectively (and reduced by 48,000 units for 2023). The production outlook for 2021 was meaningfully reduced as the semiconductor issues are not improving at the pace that was previously expected. Production in the third quarter was expected to begin a marked improvement in the supply of semiconductors yet continued challenges on that front result in a forecast update that erases any increases compared to the benchmark December 2020 forecast with production revised down 284,000 units. Production in the fourth quarter shows improvement compared to the December 2020 forecast, but was also revised down on reduced supply chain improvements. Production in 2022 was revised down a marginal 0.4% to 17.03 million units with most of the reduction occurring in the first quarter as supply chain issues are expected to spill over into 2022. Further downside potential exists as the industry continues to struggle with sluggish supply chain improvements. There is growing concern that the lack of industry wide inventory will begin to affect overall US vehicle demand with a June 2021 sales rate that came in at a lower than expected 15.37 million units on a seasonally adjusted annual rate (SAAR) basis pointing to possibly more constrained demand. With production also crimped in other key markets, US inventory is expected to remain severely constrained through 2022."

Market Meter

U.S. Light Vehicle Sales (Updated 7/7)

Monthly Sales (Updated 7/7)

This chart helps to put into context the monthly retail sales due to the COVID pandemic and showing the relative drop in sales compared to the 2008 financial crisis.



June Sales (Updated 7/7)

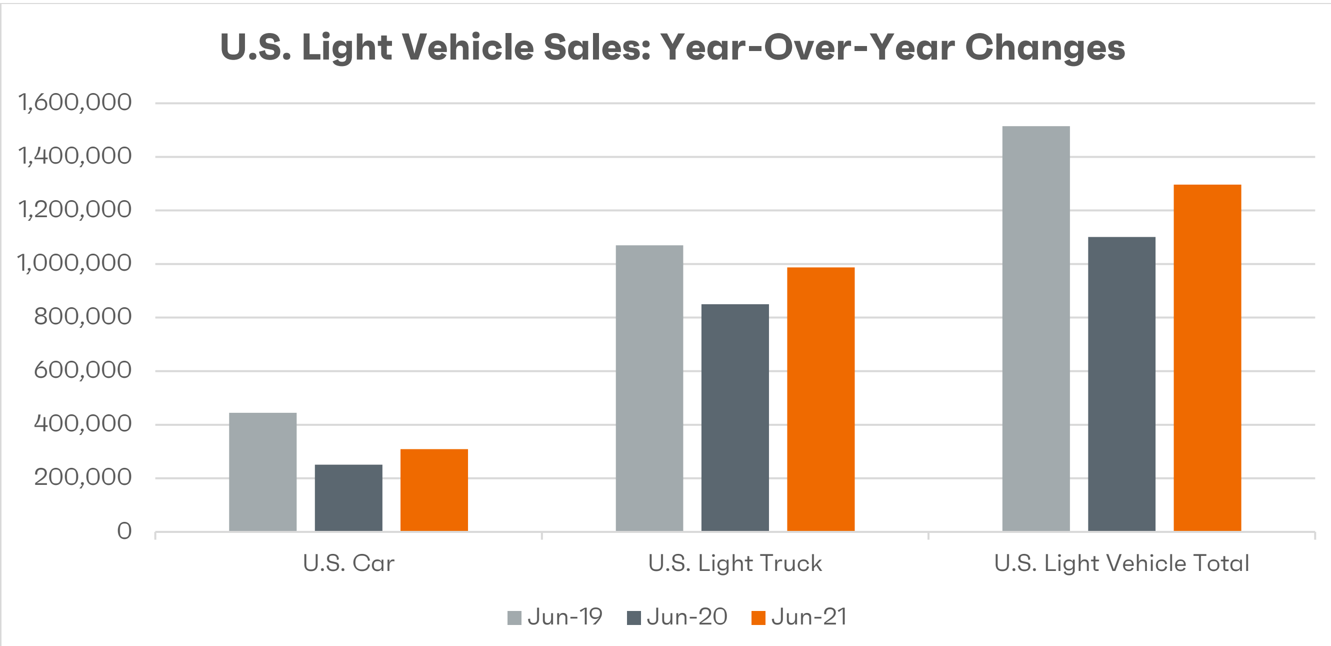
WardsIntelligence: "As expected, U.S. light-vehicle sales sharply fell a second straight month in June, even finishing slightly lower than forecast after mostly topping projections during the first five months of 2021. In a market where enough product availability could mean annualized sales of 18 million units, June sales totaled a 15.4 million-unit seasonally adjusted annual rate, a steep drop from May's revised 17.1 million and the combined March-April peak of 18.3 million. Lack of inventory has culled volume from total sales since the beginning of the year, but June's results marked the second straight month sales significantly dropped below current demand, albeit even more severe than May's falloff.

"June's SAAR was well above like-2020's pandemic-skewed 13.0 million units, but prior to the year-ago total, lowest for the month since 14.1 million in 2012. In fact, excluding 2020, it was the lowest SAAR for any month since 15.3 million units in January 2014. The deep sales drawdown due to waning inventory is expected to continue well into the summer before it starts to improve.

"Second-quarter 2021 totaled a 17.0 million-unit SAAR, a slight improvement on Q1's 16.9 million, and nearly even with same-period 2019's pre-pandemic 17.1 million. The first-half SAAR totaled 17.0 million, compared with like-2020's 13.0 million.

"June's raw volume totaled 1.297 million units and was 17.8% above like-2020's pandemic-impacted 1.101 million. The daily selling rate equates to 51,864, compared with June 2020's 44,039 – 25 selling days both periods.

"After posting year-over-year declines every month since 2012, car penetration increased for the second straight period in June, rising to 23.8% from like-2020's 22.8%. The year-long inventory-drain to traditionally strong segments, such as CUVs, pickups and SUVs, is dragging down deliveries of those vehicles enough so that penetration is being boosted for weaker sellers."[9]



Fleet Sales (Updated 6/3)

Wards Intelligence: "Estimated fleet volume in May, although up 95% from year-ago's pandemic downward-skewed total, accounted for just 10% of the month's volume after averaging 16% in the first four months of 2021 and well below its pre-pandemic mark of close to 20%."[10]

Segments vs. Gas Prices (Updated 7/7)

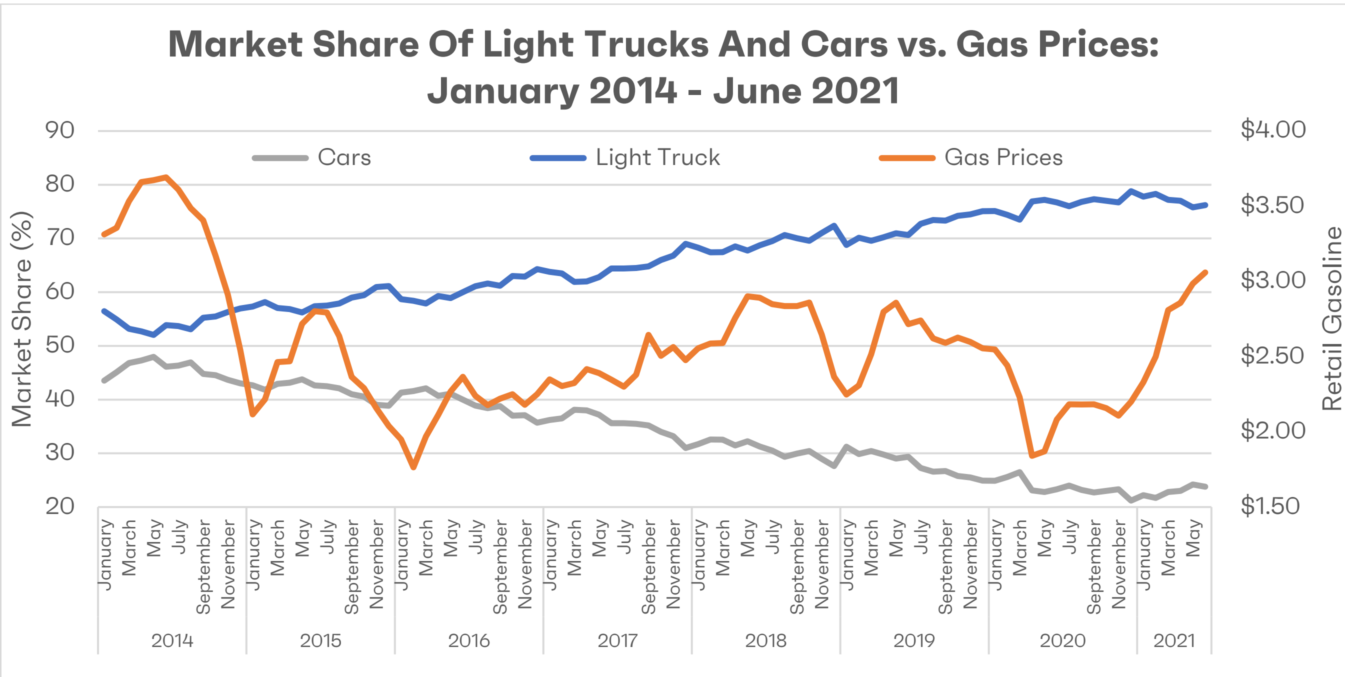
Monthly Sales For June: Light trucks accounted for 76.2% of sales in June, a 1% drop in market share from a year ago. Compared to 2020, sales of cars are up more than 57,763, but down nearly 136,000 from June 2019.

WardsIntelligence: "After posting year-over-year declines every month since 2012, car penetration increased for the second straight period in June, rising to 23.8% from like-2020's 22.8%.

"The year-long inventory-drain to traditionally strong segments, such as CUVs, pickups and SUVs, is dragging down deliveries of those vehicles enough so that penetration is being boosted for weaker sellers.

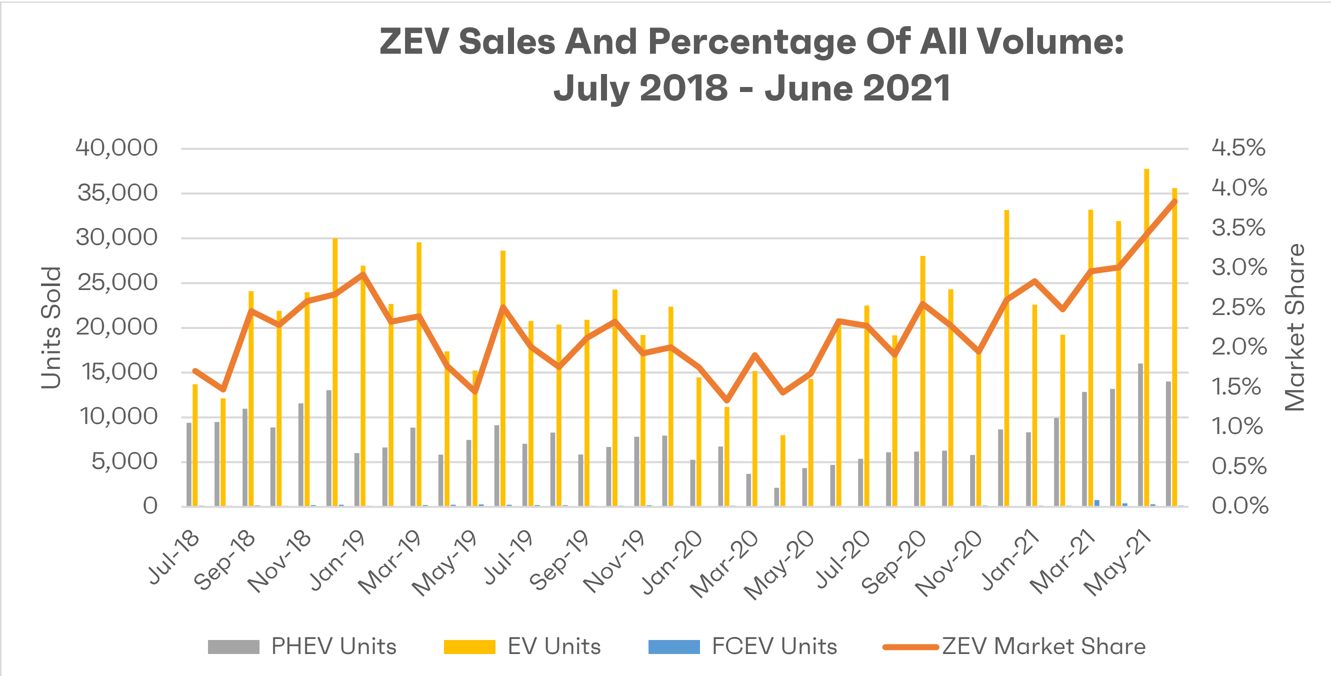
"June market share for pickups fell year-over-year a fourth straight month and SUVs were down a third consecutive period. CUV share rose in June – 46.5% from 45.1% - but the gap in percentage points was the smallest for the segment group in several months."[11]

Historic Perspective: The upward trend in the popularity of light trucks over cars has been steady since 2013, when only 2% of annual market share separated the two segments.[12] and gas was over $3.00.[13] a gallon. As fuel prices dropped below the $3.00 mark in mid-September 2014, light truck sales began to take off. Gas prices since have averaged only $2.67 a gallon (through June 2021) and when combined with increased fuel economy for light trucks, an increase of 4 mpg since 2013, the perfect conditions existed to continue fueling light truck market growth.[14]



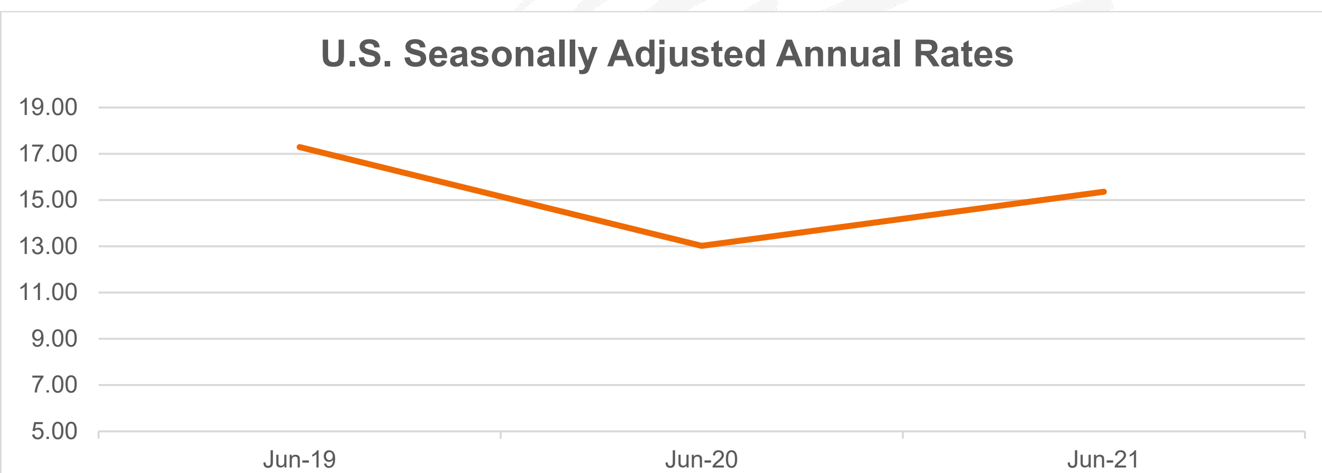
ZEV Powertrain Sales (Updated 7/7)

Sales of zero emission vehicles (BEV, PHEV, & Fuel Cell) accounted for 3.8% of total vehicle sales in June 2021, up from 1.5% from a year ago and up .4% from May 2021. Sales of battery electric vehicles led the way for ZEVs, accounting for 2.75% of total sales, up .83% from June 2020. Plug-in hybrids accounted for 1.08%, more than double the amount from the same time last year.[15]



Seasonally Adjusted Annual Rates (Updated 7/7)

WardsIntelligence: "June's SAAR was well above like-2020's pandemic-skewed 13.0 million units, but prior to the year-ago total, lowest for the month since 14.1 million in 2012. In fact, excluding 2020, it was the lowest SAAR for any month since 15.3 million units in January 2014. The deep sales drawdown due to waning inventory is expected to continue well into the summer before it starts to improve. Second-quarter 2021 totaled a 17.0 million-unit SAAR, a slight improvement on Q1's 16.9 million, and nearly even with same-period 2019's pre-pandemic 17.1 million. The first-half SAAR totaled 17.0 million, compared with like-2020's 13.0 million."[16]

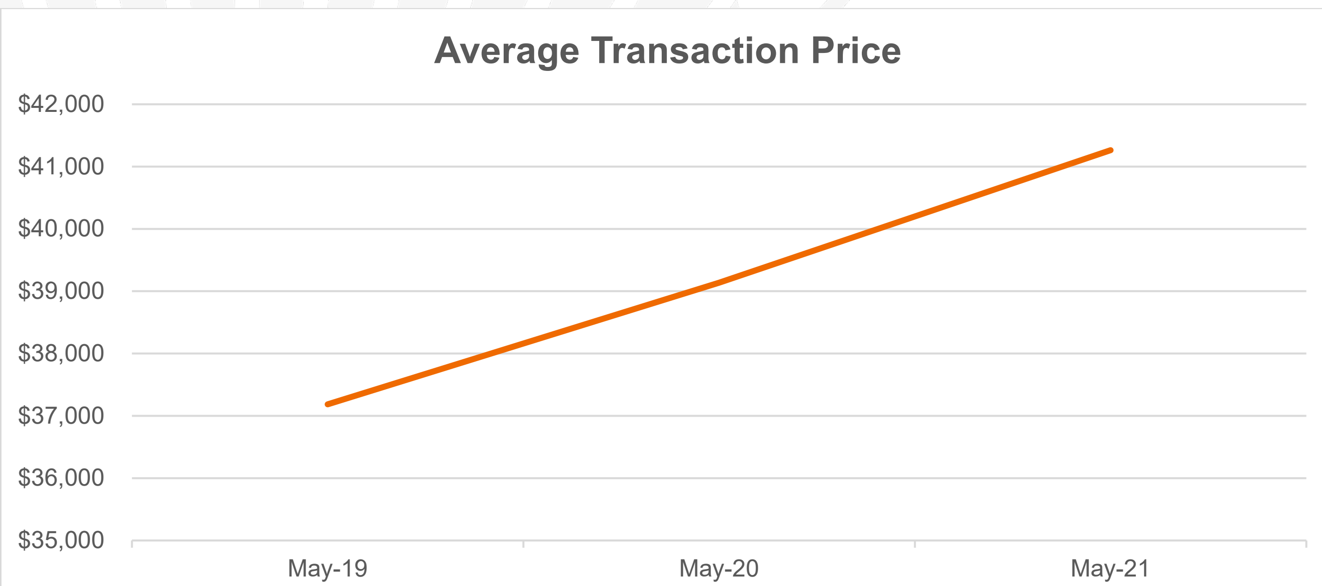


Average Transaction Price (Updated 7/7)

J.D. Power[17]: "For June 2021, average transaction prices are expected reach a record high $40,206, the first time above the $40,000 level. For context, average transaction prices are trending to be 14.9% higher in June 2021 than they were in June 2020 when prices broke the $35,000 level for the only the second month on record. This is partially due to retraction in manufacturer incentives. The average manufacturer incentive per vehicle is on pace to be $2,492, a decrease of $1,857 from a year ago and the second-lowest amount on record for the month of June. Expressed as a percentage of the average vehicle MSRP, incentives for June 2021 are trending toward a record low of 5.8%, down nearly five percentage points from a year ago, and the first time ever under 6%.

"The combination of strong retail volumes and higher prices means that consumers are on track to spend $45.6 billion on new vehicles this month, the highest on record for the month of June. Consumer expenditures on new vehicles is expected to reach a Q2 record of $149.7 billion, up 60.7% from 2020 and up 27.9% from 2019."

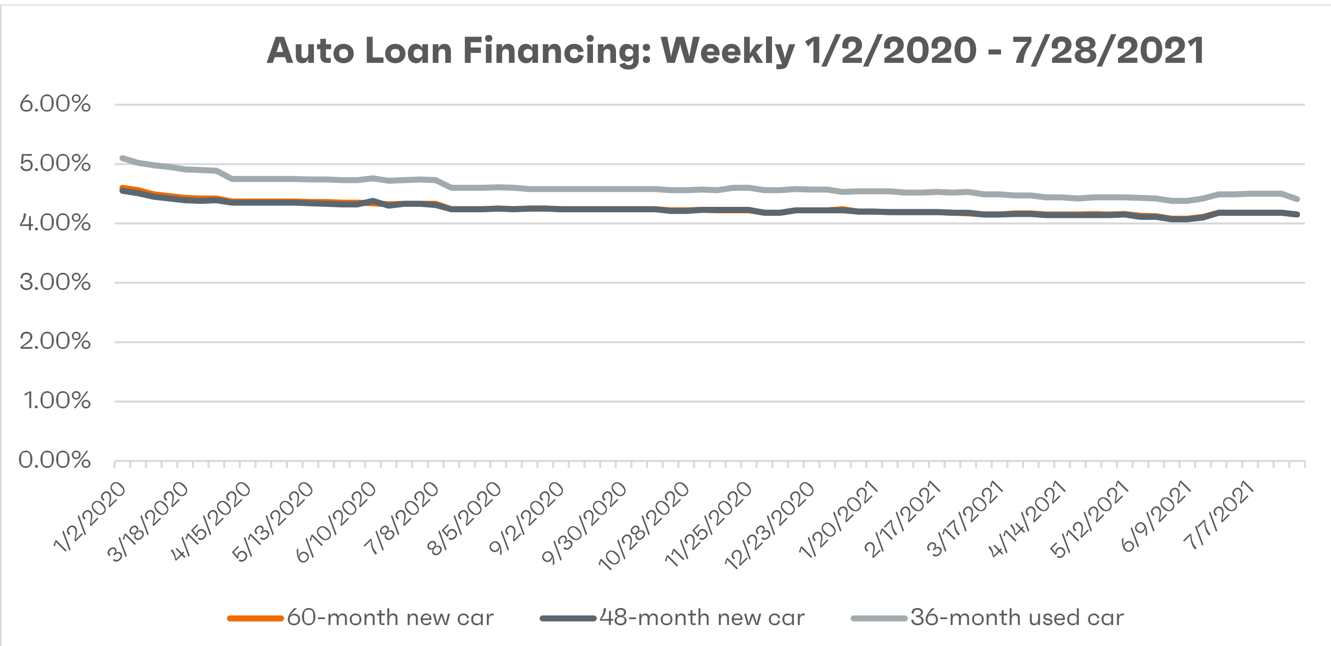
Kelley Blue Book: "The estimated average transaction price for a light vehicle in the United States was $41,263 in May 2021, according to the analysts at Kelley Blue Book. New-vehicle prices increased $2,125 (up 5.4%) from May 2020, while increasing $493 (up 1.2%) from April 2021."[18]



Auto Loan Financing (Updated 7/14)

Financing Dips Slightly: Interest rates for new cars and used cars dipped .03% after holding steady for five weeks in a row. The interest rate for 60 months currently stands at 4.15%. Rates dipped more significantly for a 36-month used car loan, lowering .09% to 4.41%. Since the beginning of last year, rates are down 0.45%, and down 0.09% since the same time a year ago.[19]

Dates	60-month new car	48-month new car	36-month used car
7/30/2020	4.24%	4.24%	4.60%
1/2/2020	4.60%	4.55%	5.10%
7/21/2021	4.18%	4.18%	4.50%
7/28/2021	4.15%	4.15%	4.41%
One Week Change	-0.03%	-0.03%	-0.09%
Two Week Change	-0.03%	-0.03%	-0.09%
Change since 1/3/20	-0.45%	-0.40%	-0.69%
One Year Change	-0.09%	-0.09%	-0.19%

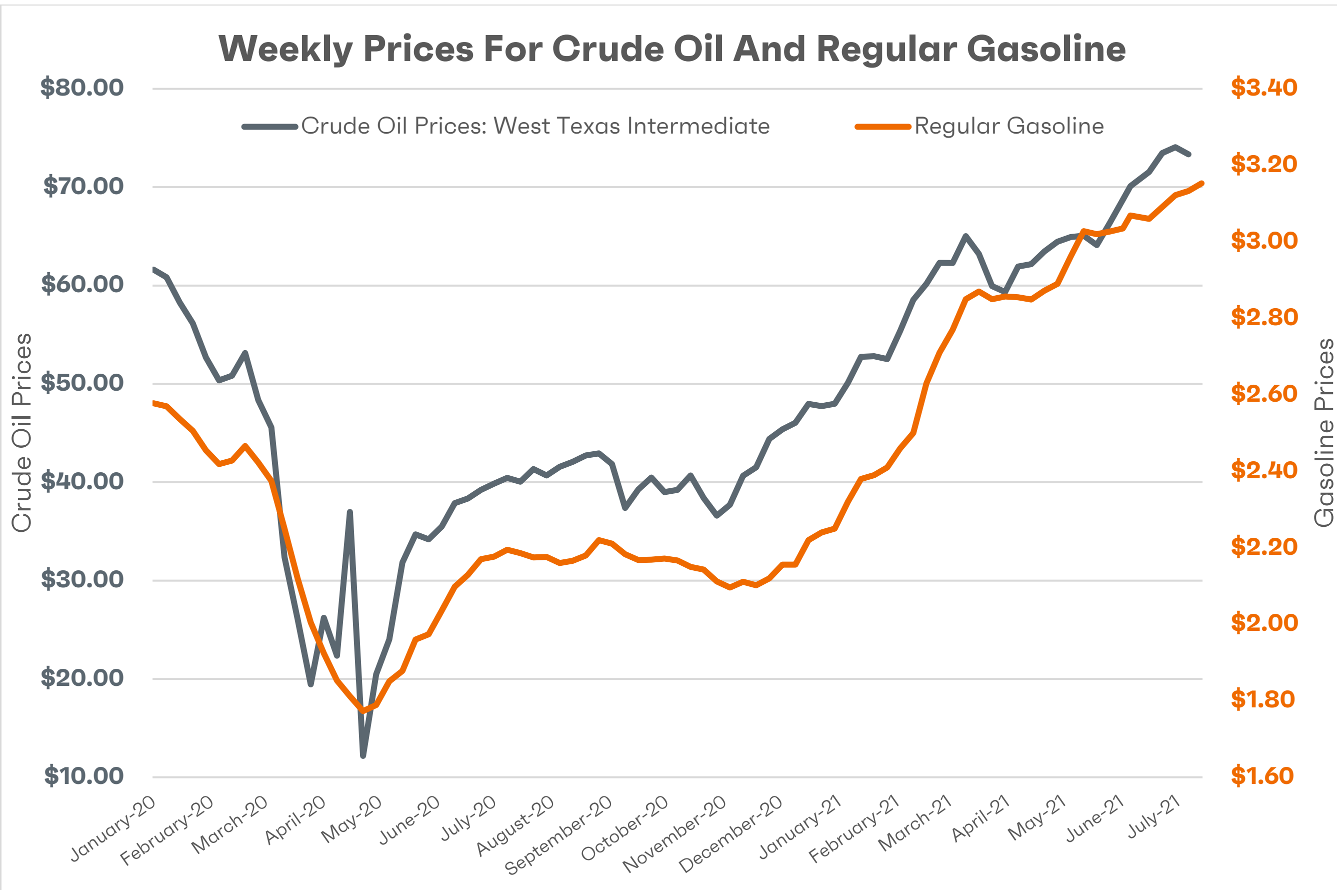


Crude Oil and Gas Prices (Updated 7/21)

EIA Outlook For Gasoline[20]**:** "U.S. regular gasoline retail prices averaged $2.78per gallon (gal)in 1H21, compared with an average of $2.20/gal in 1H20. In June, monthly retail gasoline prices averaged $3.06/gal, the first time the monthly average was more than $3.00/gal since October."

EIA Outlook For Oil[21]**:** "Brent crude oil prices averaged $73/b in June 2021, up $5/b from May. June was the first month when Brent crude oil prices averaged more than $70/b since May 2019. The increase likely reflected market expectations of continuing near-term tightness in global oil markets, which were evident in ongoing declines in global oil inventories. As vaccination rollouts have continued to ramp up in parts of the world, personal travel and mobility have been rising during much of 2021.Increasing oil consumption combined with production restraint from OPEC+ and relatively flat crude oil output in the United States have kept global oil consumption above global oil supply, draining inventories. Although global oil inventories during May and June fell at a slower rate than earlier in the year, the inventory draws of 1.2 million b/d over the past two months indicate the oil market was still in a structural deficit. Crude oil prices received additional support from increasing global economic activity and decreasing global COVID-19 cases. These factors have also contributed to rising prices across a wide range of assets including equities and other commodities."

Gas Prices Continue To Climb, Remail Above $3 A Gallon: Oil prices, as benchmarked at West Texas Intermediate, fell less than a dollar a barrel in mid-July to $73.35, remaining near three year highs. Since election day, oil prices have climbed over $36 a barrel. Gas prices rose again this week to $3.15, the highest mark since October 2014. Gas is 22 percent higher than the beginning of 2020.[22]

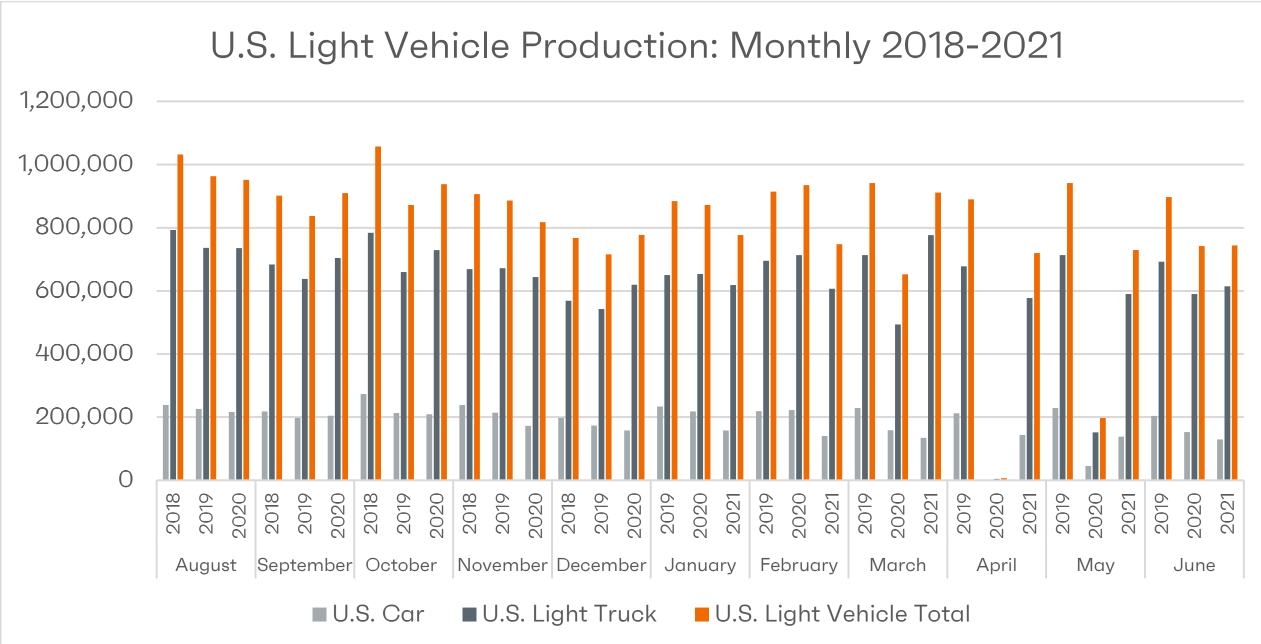


Production Meter

U.S. Light Vehicle Production (Updated 7/21)

WardsIntelligence[23]: "Combined production of light-vehicles and medium-/heavy-duty trucks in June fell short of expectations to the tune of 134,000 units, finishing at 1.147 million units. The total even was 1.6% below like-2020's pandemic-caused downward-skewed total of 1.166 million units. . . . June light-vehicle output totaled 1.108 million units, 1.9% below same-month 2020, which capped a Q2 tally of 3.309 million – 132% above Q2-2020's Covid-impacted 1.427 million."

U.S. Light vehicle production for June 2021 totaled 743,550, down 17% from 2019:



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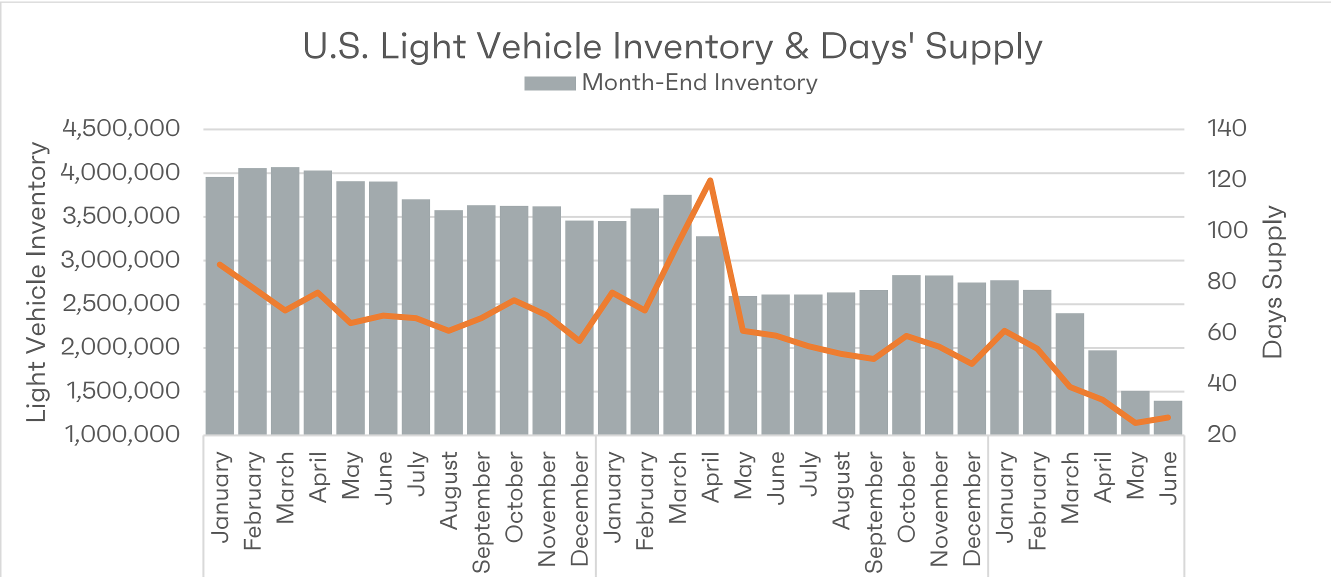
U.S. Light Vehicle Inventory and Days' Supply (Updated 7/7)

WardsIntelligence Inventory Update[25]: "U.S. light-vehicle inventory fell 7.5% in June from May, portending sales will not improve – and likely weaken – on last month's 15.4 million-unit seasonally adjusted annual rate anytime soon.

"Though there could continue to be other disruptions - such as slowdowns in parts deliveries to vehicle assembly plants due to backups in trans-ocean shipping - the shortage of microchips is mainly what continues to hinder manufacturers in their attempts to re-stock U.S. dealers with enough inventory to meet demand. Inventory ended June at 1.40 million units, or about 35% of what manufacturers normally would be carrying when demand is running at or above 17 million-unit annualized rates.

"The total is 46% below like-2020's 2.58 million units, which was an 8-year low due to major production stoppages caused by the onset of the Covid-19 pandemic in North America in the spring. In the five years prior to 2020, June inventory averaged 3.9 million units. June 30 days' supply of 27 was well below like-2020's 58 and the 67 averaged for the month in the five years through 2019. Inventory has been plummeting since the beginning of they year, but it is only in the past two months that sales volumes began to sharply fall along with it."



Global Meter

Global Light Vehicle Sales Outlook (Updated 7/21)

Wards Intelligence Outlook: "Global vehicle sales reached 7.15 million in May, jumping 34.6% over year-ago's 5.31 million. Despite the growth, sales for the month fell 8% compared to May 2019's 7.78 million.

"Improvement in vehicle sales was seen in every region, with South America recording the highest increase (+158.3%). Several countries across all regions experienced three-digit gains in sales.

"Through the first five months of 2021, world light-vehicle sales jumped 34.9% to 34.91 million, compared to year-ago's 25.88 million. The recovery in vehicle sales is visible since the market is slowly approaching 2019's levels.

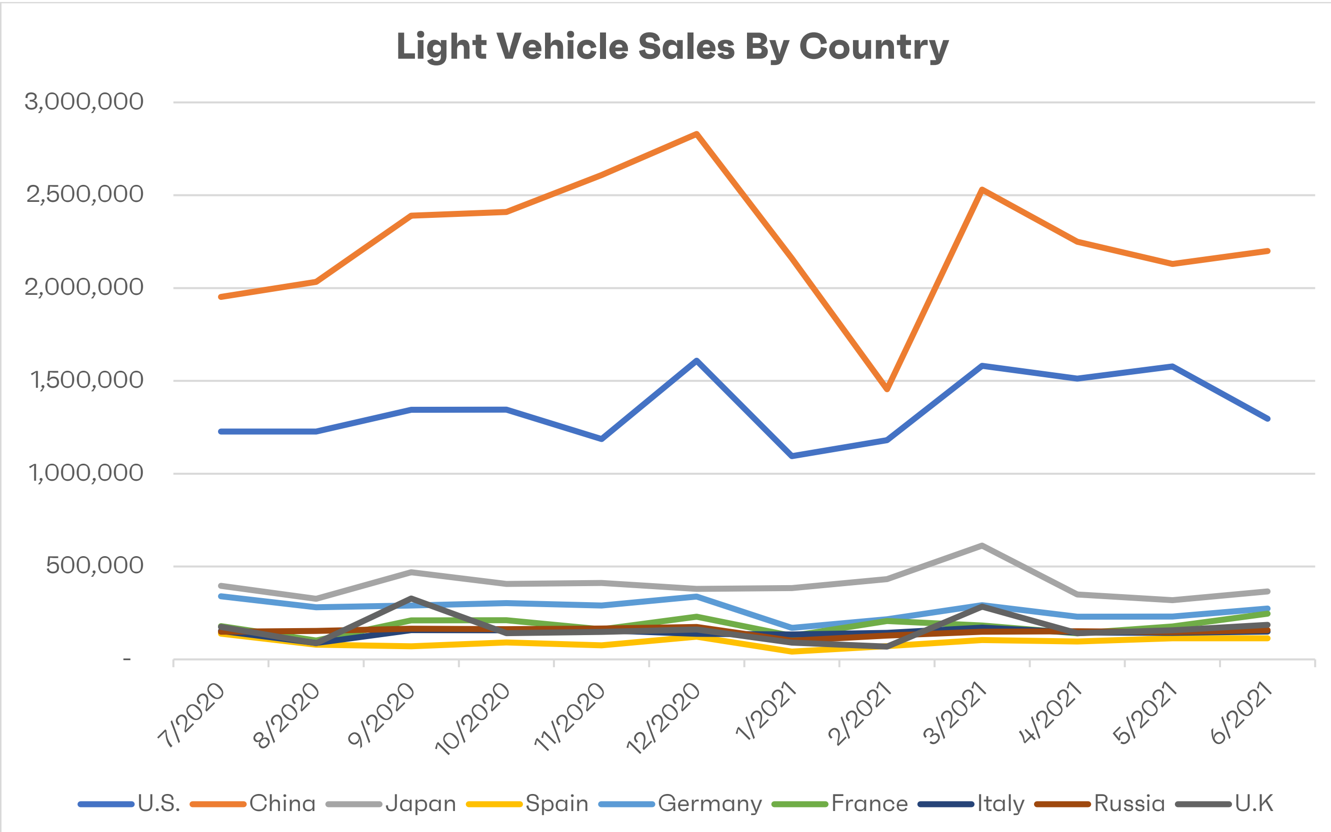
"Vehicle sales in Asia-Pacific saw an 8.1% year-on-year increase, reaching 3.15 million. But May deliveries were 12.5% lower than prior month. Most countries saw a strong uptake in total vehicle sales except for China and South Korea.

"In Europe, all countries saw vehicle sales increase in May, raising the region's global market share to 21.1%. Total deliveries jumped 76.9% to 1.51 million. The U.K. and Ireland experienced the biggest jumps in vehicle sales at 554.6% and 264.5%, respectively.

"South America experienced the highest growth at 158.3% reaching 279,000 vehicle sales in May. Brazil, Chile, and Venezuela deliveries increased more than 200%. Year-to-date sales were up 37.7% to 1.39 million for the region.

"World sales saw slower growth in May compared to prior month, while year-to-date deliveries were down 4% compared to 2019."[26]

Sales in select countries around the globe, raw volume by month:



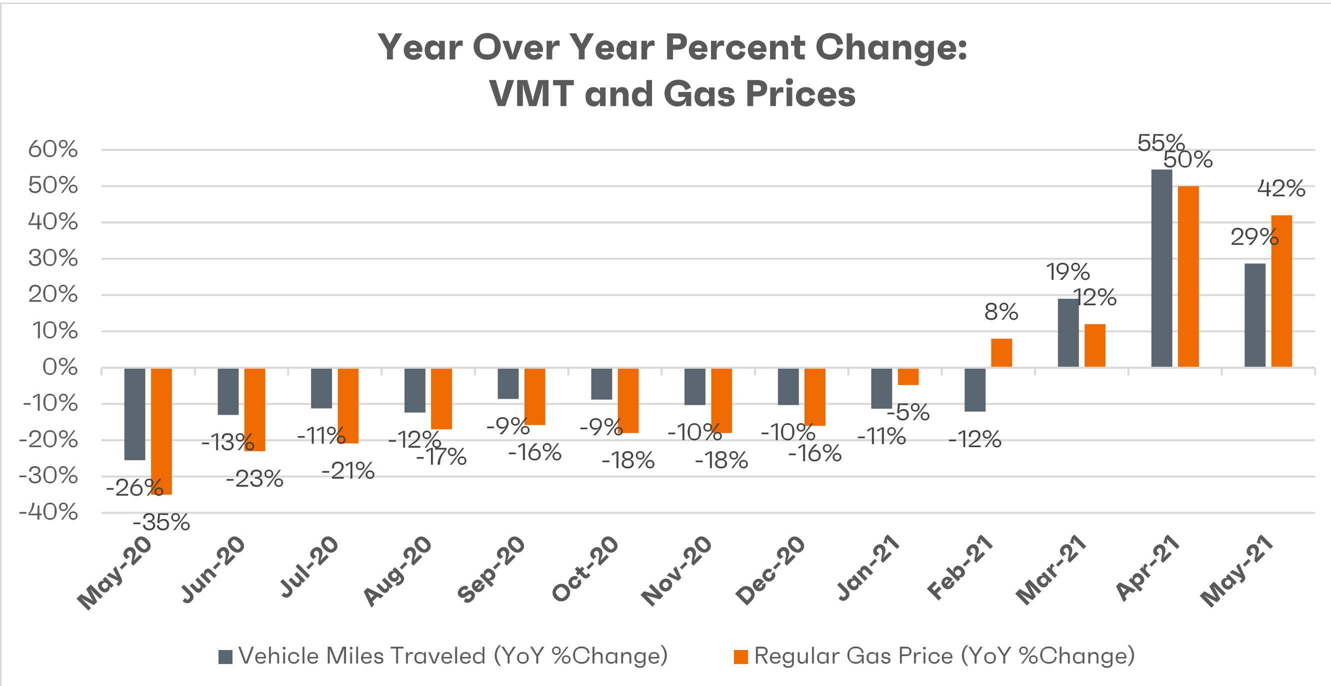
Recovery Meter

Roadway Travel (Updated 7/14)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in May rose 31.1 percent from the same time a year ago. The cumulative travel estimate for 2021 is 1,222.2 billion vehicle miles.[27]

- Travel on all roads and streets changed by 28.7% (61.2 billion vehicle miles) for May 2021 as compared with May 2020. Travel for the month is estimated to be 273.9 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for May 2021 is 259.7 billion miles, a 31.1% (61.6 billion vehicle miles) increase over May 2020. It also represents 3.2% increase (8.1 billion vehicle miles) compared with April 2021.

- Cumulative Travel for 2021 changed by (137.1 billion vehicle miles). The cumulative estimate for the year is 1,222.2 billion vehicle miles of travel.



Economic News (Updated7/7)

Manufacturing Added 15,000 Jobs In June. "Manufacturing added 15,000 jobs in June, the U.S. Bureau of Labor Statistics said today. But the manufacturing employment picture was mixed. Durable goods industries added 18,000 jobs, according to a breakdown by industry issued by the bureau. Non-durable goods industries cut 3,000 jobs. Within durable goods, results varied. Job gainers included fabricated metal products (up 5,700), primary metals (up 3,100), furniture (up 8,500) and miscellaneous manufacturing (up 3,300)." [28]

Motor Vehicles And Parts Were Down 12,300 (Seasonally Adjusted). "Holding the sector back was motor vehicles and parts, down 12,300. The auto industry continues to cope with a global shortage of semiconductors. That has resulted in reduced production of vehicles and temporary plant shutdowns."[29]

- **Motor Vehicle And Parts Manufacturing 11,400 Jobs In June (Not Seasonally Adjusted).[30]**

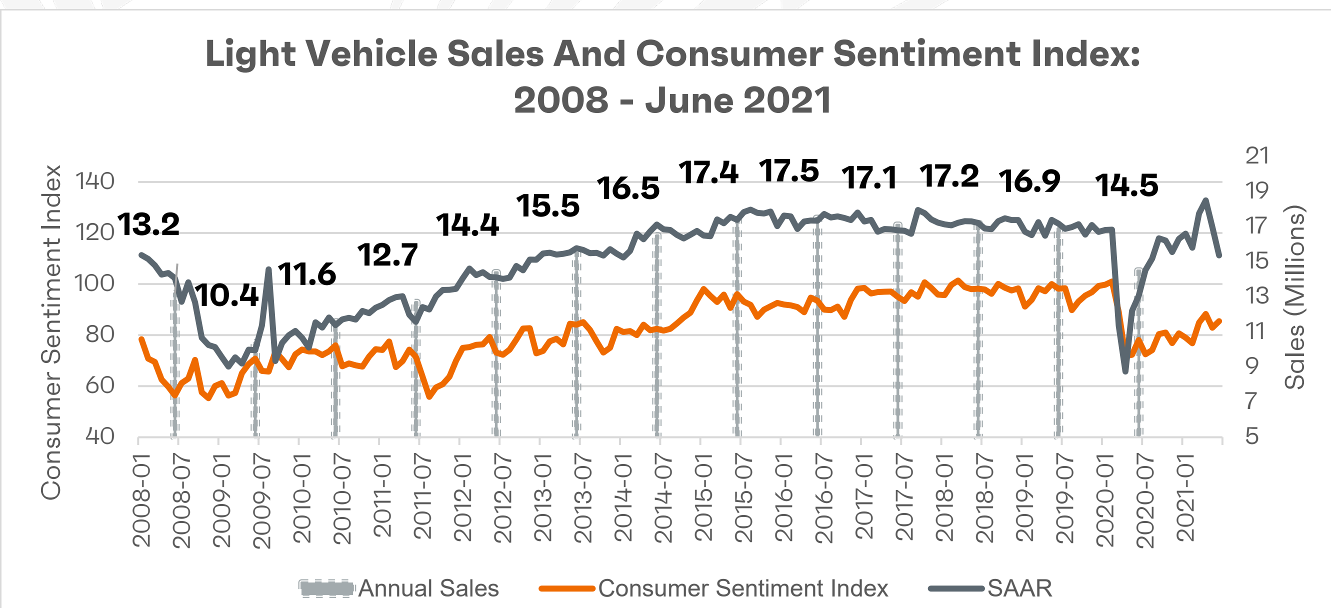
For June, The ISM Ticked Down To 60.6 From 61.2 In May. "Growth in U.S. manufacturing slowed slightly in June, as supply chain problems persist and businesses say they are still struggling to find workers to keep up with demand. The Institute for Supply Management, a trade group of purchasing managers, said Thursday that its index of manufacturing activity ticked down in June to a reading of 60.6 from 61.2 in May."[31]

The Index Of Prices For Raw Materials Increased To 92.1, A Level Not Seen Since 1979 During The Oil Crisis. "The index of prices paid for raw materials increased to 92.1, a level not seen since the 1979 Iranian revolution and oil crisis. Logistics challenges, elevated commodities prices and shortages of various supplies continue to pressure manufacturers. Shortages of semiconductors have been particularly disruptive to the auto industry, where production earlier this year was restrained because of the lack of supply."[32]

Auto Sales Make Big Contribution To Increase In GDP In The First Quarter. "In the first months of 2021, what was good for the auto industry was decidedly good for the American economy. Spending on motor vehicles and parts rose almost 13 percent in the first quarter, making a big contribution to the increase in gross domestic product, the Commerce Department reported Thursday. .. In fact, demand in the first quarter was robust enough that the auto industry was able to post healthy results despite a shortage of computer chips that forced temporary shutdowns of many auto plants."[33]Consumer

Confidence and Sales (Updated 7/14)

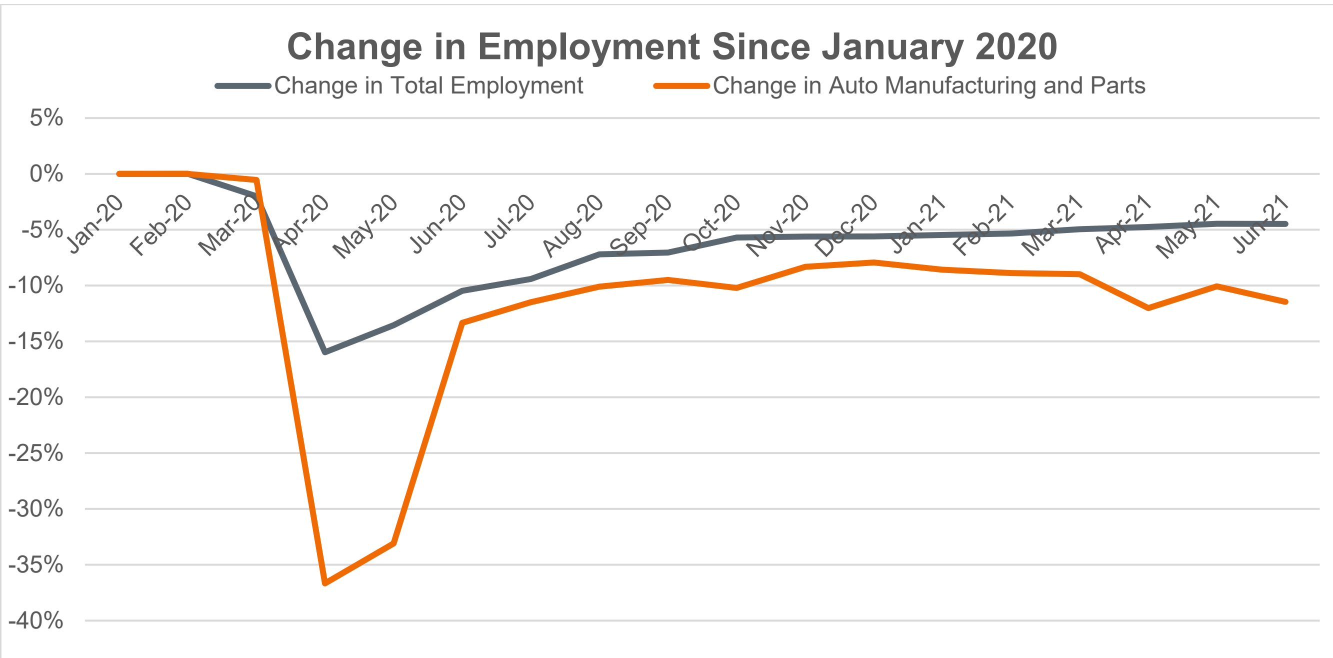
"Although consumer sentiment slipped in late June, it still remained 3.1% above the May reading, and the second highest since the start of the pandemic. All of the June gain was among households with incomes above $100,000, and mainly in the way they judged future economic prospects. Consumers continued to pay close attention to three critical factors: inflation, unemployment, and interest rates. Not only did year-ahead inflation expectations fall slightly to 4.2% in June from May's decade peak of 4.6%, consumers also believed that the price surges will mostly be temporary. Declines in unemployment rate in the year ahead were expected by 56% of consumers, the largest proportion ever recorded in the history of the surveys. The growing strength in the economy meant that nearly three-quarters of all consumers expected rising interest rates during the year ahead, the highest proportion since 2018 when the economy was near its last peak."[34]



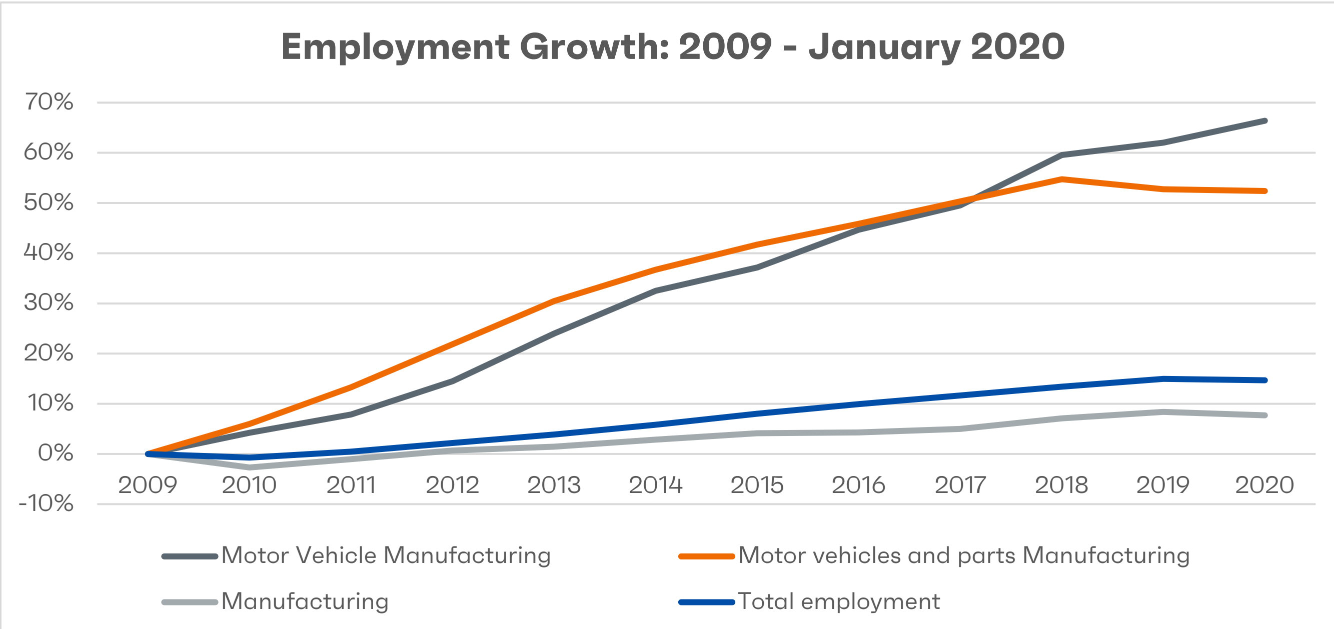
Employment (Updated 7/7)

After a loss of nearly 350,000 employees (about 35% of the workforce) in the height of the pandemic, employment in the Automobile Manufacturing and Parts sectors raced back but is now fighting losses due to supply chain disruptions with semiconductors. Employment in motor vehicles and parts is down 100,000 since January 2020.[35]

- **Motor Vehicle And Parts Manufacturing 11,400 Jobs In June (Not Seasonally Adjusted).[36]**



After the recession in 2009, the auto industry was credited with being on the leading edge of the recovery, which began a ripple effect through other parts of the country.[37] Additionally, the chart below shows how the recovery of jobs in motor vehicle manufacturing alone and motor vehicle and parts manufacturing far outpaced the recovery of manufacturing and total jobs.



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