

READING THE METER

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

September 16, 2021

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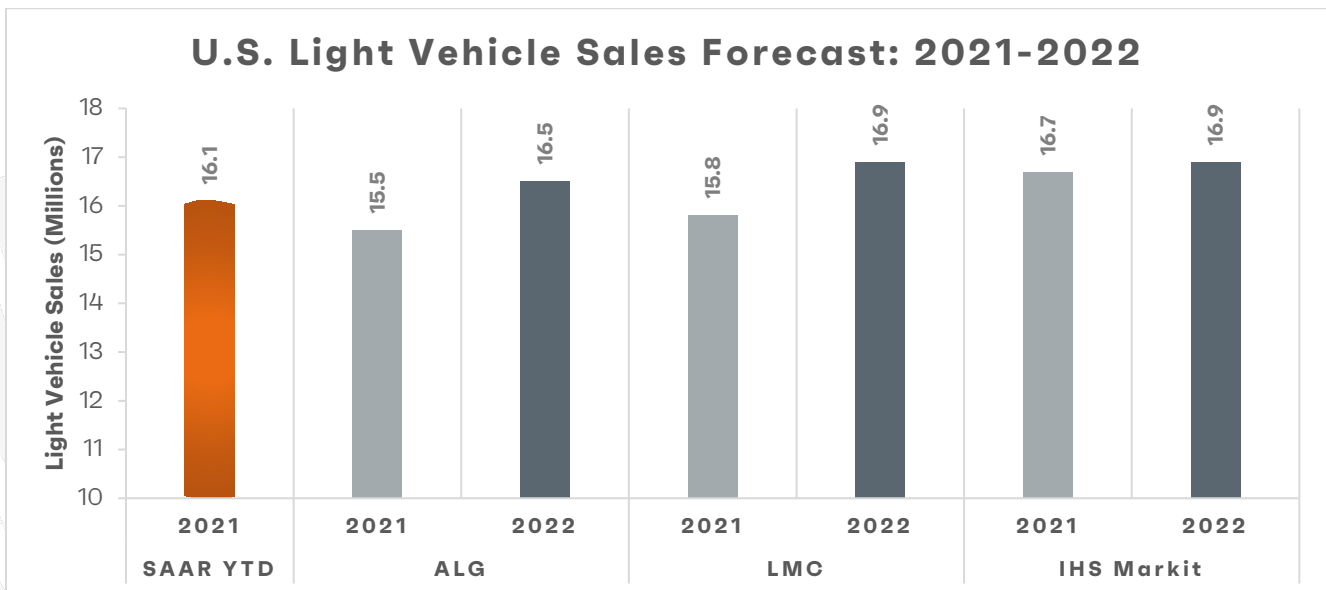
Forecast Meter

Forecast Summary (Updated 9/9)

2020-2021 Sales,¹ Extended Sales Forecast² and Production Forecasts³		
	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	1,288,494 (-7.9% YoY)	1,300,000 (forecast)
August '21	1,090,446 (-11% YoY)	
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	4,153,855 (+20.2% YoY)	3,309,000 (132% YoY)
3rd Quarter '21	13.6 SAAR (forecast)	3,808,000 (-7.5% YoY)
4th Quarter '21	15.8 SAAR (forecast)	
2020 Calendar Year	14,463,935 (-14.7% YoY)	12,905,447 (-23.1%)
2021 Full Year Estimate	15.8 million units (9% YoY)	14,611,185 (13% YoY)

U.S. Light Vehicle Sales Outlook (Updated 9/2)

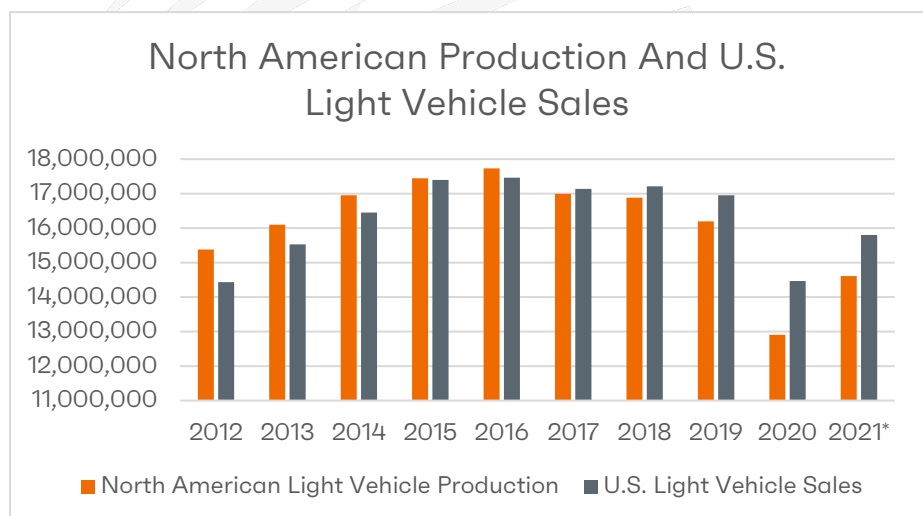
Wards Intelligence Outlook⁴: “The year-to-date SAAR through August is 16.1 million units, well above 8-month 2020’s 13.5 million. However, with the magnitude of the global microchip shortage not expected to improve much over the rest of the year, the to-date SAAR is expected to continue a downward trend over the final four months of the year. . . . The resulting hit to inventory also caused a cut to forecast U.S. light-vehicle sales for entire-2021 to 15.8 million units, and to 16.9 million in 2022, from month-ago’s expectations of 16.6 million and 17.3 million, respectively.”



North American Production & Inventory Outlook (Updated 9/19)

IHS Markit Outlook (9/16)⁵:

“North America: The outlook for North America light vehicle production was sharply reduced by 733,000 units and by 1,991,000 units for 2021 and 2022, respectively (and reduced by 63,000 units for 2023). The production outlook was meaningfully reduced in the near-term as the semiconductor supply chain is not improving at the pace that was expected with renewed



COVID-19 restrictions adding further weight to an already hamstrung global supply chain. Production in Q3-2021 was revised down 8.3% or 279,000 units with Q4 production revised down 12.3% or 453,000 units amid expectations for disruptions to continue for a more protracted period that extends through 2022. More significantly, production in 2022 was revised sharply lower by 11.6% to total 15.2 million units with reductions more heavily weighted in the first half as expectations are for the supply of semiconductors to improve steadily throughout the year, but at a reduced rate than previously forecast. Opportunities exist for manufacturers to outperform these reduced volumes based on their ability to secure the needed components and resources to support vehicle production. This is expected to vary by manufacturer and by vehicle program within a given manufacturer with volatility and visibility into weekly planning and scheduling to remain challenging over the coming months. The longer term forecast horizon now accounts for production to outpace sales for a time as inventory is replenished.”

Wards Intelligence Outlook For 2021 (9/2)⁶: “Wards Intelligence partner LMC Automotive has slashed the North America production forecast by several hundred thousand units over the remainder of this year and in 2022, nearly all related to the relentless impact of the microchip shortage.”

Wards Inventory Outlook (9/2)⁷: “The global microchip shortage, which mostly is responsible for the production slowdowns and stoppages that led to 2021’s inventory drain, is not expected to improve much, if at all, in the next few months, and the outlook for a major rebound in vehicle availability by the end of this year is nearly nil.

Wards Intelligence expects inventory levels to begin rising month-to-month in September, but not enough to create much optimism for the remainder of 2021. The initial outlook for September’s SAAR is for it to repeat August’s results, which would mean Q3 totals a 13.6 million-unit SAAR. The fourth quarter is pegged at a 15.8-million-unit annualized rate, leaving the entire-year total at 15.8 million units.

However, there remains a high level of uncertainty related to the supply-chain disruptions, and there is more downside than upside to the sales outlook for the rest of 2021.”

Wards August Production Outlook (8/25)⁸: “Although still greatly limited from the parts shortages, North America production is expected to pick up strongly in August from last month and inventory is forecast to rise 9.4% from July for the first month-to-month increase since January. That calculation includes estimated import shipments in August to the U.S., which could be lower than expected due depending on how much disruption there is from recent increases in plant closures in Asia and Europe caused by the microchip shortage.

“Despite the month-to-month increase, August inventory is projected to total a paltry 1.23 million units, 52% below the same period in 2020, and lowest for the month in several decades. Days’ supply is pegged at 26, compared with the year-ago month’s 51 and prior-month’s 24.

“After averaging 3.8 million per month in the five years through 2019 when annual sales averaged over 17 million – a level that could be reached in 2021 if enough inventory was on hand – inventory is not likely to even reach 2 million units by the end of this year.

Wards Intelligence Third Quarter Outlook (8/25)⁹: “Third-quarter North America production is tracking to 3.808 million units, a 7.5% year-over-year decline. Year-to-date production through September is tracking to 10.8 million units, up 14.7% from 9-month 2020’s 9.4 million. Light-vehicle production in the third quarter is pegged at 3.69 million units, 7.8% below same-period 2020’s total of 4.00 million. The Q3 projection is a 9-year low for the period.”

Wards Intelligence Global Production Outlook (8/18)¹⁰: “Global light-vehicle production is forecast to end 2021 about 3.75 million units lower because of the shortage of microchips to the automotive industry, which has caused major cutbacks in vehicle output in all regions. Wards Intelligence partner LMC Automotive expects production to end 2021 at 83.2 million units but output could have totaled close to 87 million if not for the chip shortage. The estimated cuts exclude losses due to other unusual disruptions to the supply chain, meaning production ultimately could have topped 87 million in 2021. Forecast 2021 output still represents a big gain of 11.6% from 2020’s pandemic-slammed total of 74.6 million units, which was 15.9% below 2019’s 88.7 million and 21.5% below the record year of 2017 when production totaled 95.1 million.

“By region, North America is forecast to lose the most output – 1.46 million units – from the chip shortage, followed by 938,000 in Europe. Combined, the two regions account for 64% of the estimated global losses. China, geographically the biggest volume manufacturer of light vehicles, is expected to account for 16% - 615,000 units - of the 2021 chip-related losses.”

IHS Global Production Outlook (8/25)¹¹: “The global forecast for light vehicle production in 2021 now stands at 80.78 million units with our latest August release. This represents an 8.3% increase over 2020 levels.

“Output lost to disruption to the semiconductor supply chain is estimated to have reached 1.44 million units in Q1 and 2.60 million units in Q2. Visible downtime in Q3 now stands at 1.60 million units underlining the assessment that Q3 will continue to see disruption, and this is becoming more significant. While we do not expect to see levels of disruption like those in Q2, it now seems highly likely that the impact will be in the range of 1.8 to 2.1 million units for the quarter if the rate of downtime that we currently see was to continue through September. We expect Q4 will be exposed to ongoing disruption and this disruption is now expected to spill over into Q1 2022. Q2 2022 may be the point at which we look for the stabilization of supply, with recovery efforts now starting only from H2 2022.

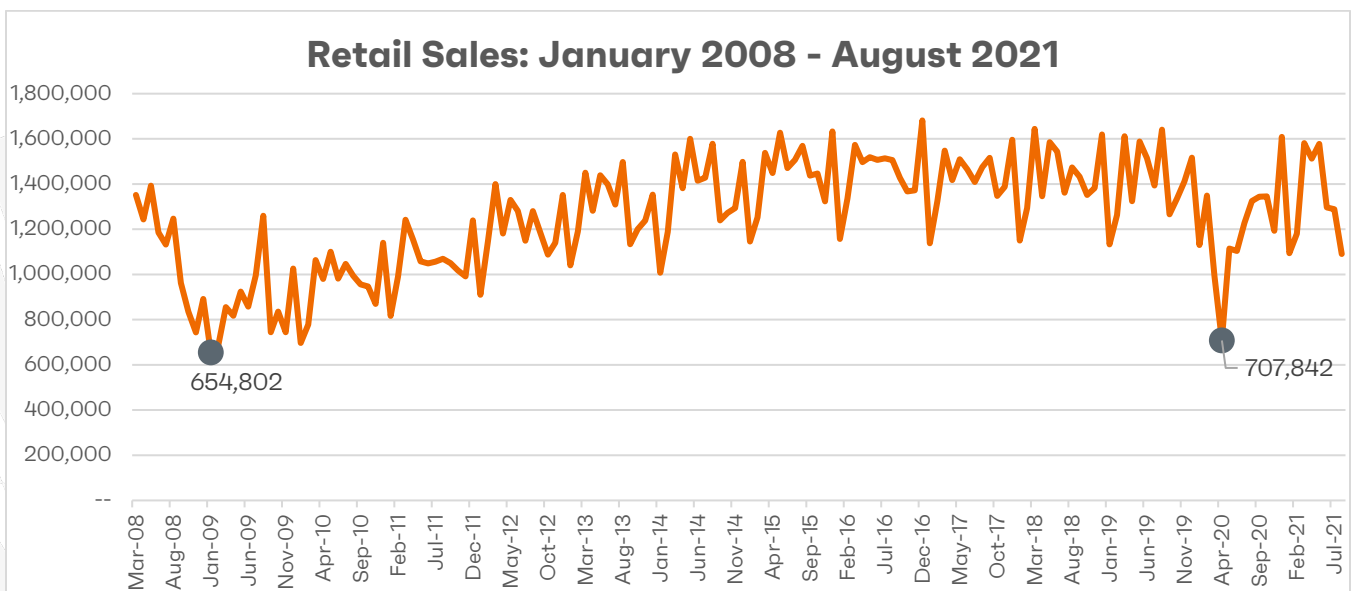
“Across the full year, taking the estimates for Q3 and Q4, in addition to the losses already identified in the first half of the year, this would put the full-year risk associated with semiconductor shortages between 6.3 million to 7.1 million units globally, according to IHS Markit estimates.” - Mark Fulthorpe, Executive Director, global light vehicle forecasting, IHS Markit”

Market Meter

U.S. Light Vehicle Sales (Updated 9/2)

Monthly Sales (Updated 9/2)

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.

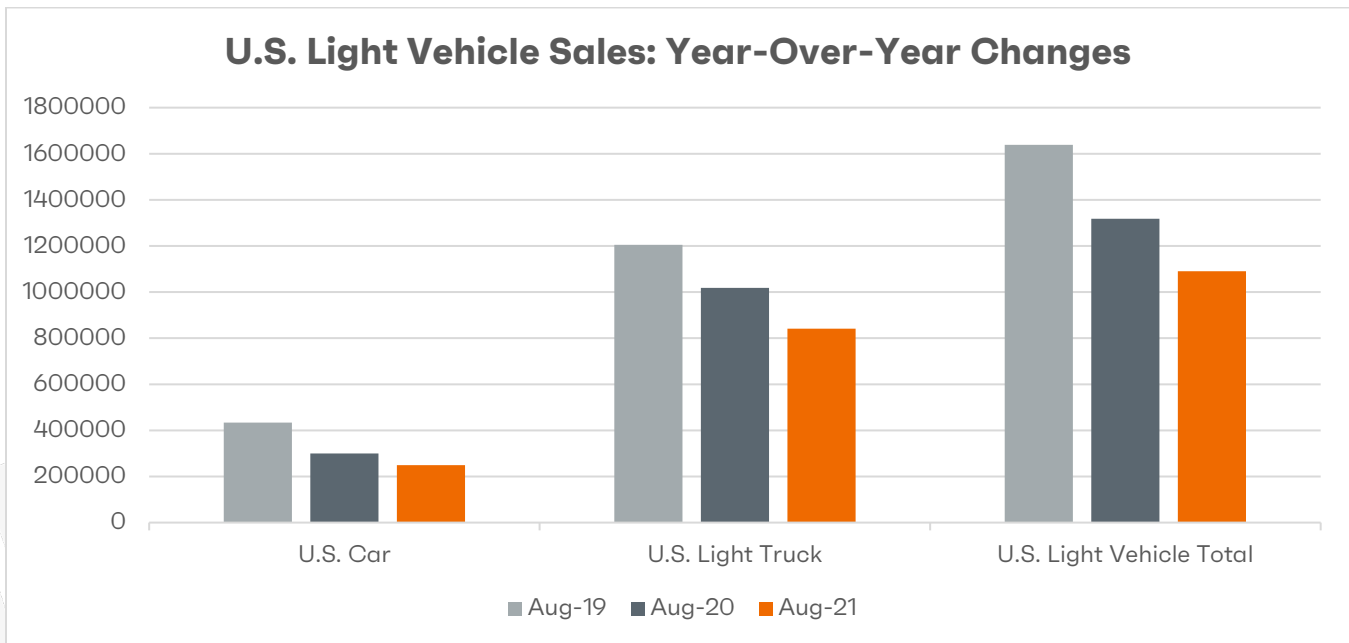


August Sales (Updated 9/2)

WardsIntelligence: “U.S. light-vehicle sales continued to slide month-to-month, with deliveries falling even further than expected, as inventory continues to tank from the production slowdowns caused by critical parts shortages.

“August sales sank to a 13.1 million-unit seasonally adjusted annual rate, continuing a downturn that began after May peaked at an 18.3-million annualized rate. It’s a 14% drop from July’s revised 14.6 million-unit SAAR and well below like-2020’s pandemic-influenced 15.2 million. Except for Covid-19-impacted results in 2020, it was the lowest monthly SAAR since 13.0 million units in September 2011.

“The month’s raw volume totaled 1.09 million units, 17.2% below the year-ago period’s 1.32 million. The month’s daily selling rate over 25 selling days of 43,618 was a lesser 14.0% below August 2020’s 50,695 – 26 selling days. . . . Through the first two-thirds of August, sales were tracking to just above a 14 million-unit SAAR. As the inventory drained worsened, deliveries nosedived at the end of the month, which, accordingly, does not bode well for the upcoming Labor Day weekend, when sales usually get a boost from holiday deals.”¹²



Fleet Sales (Updated 9/2)

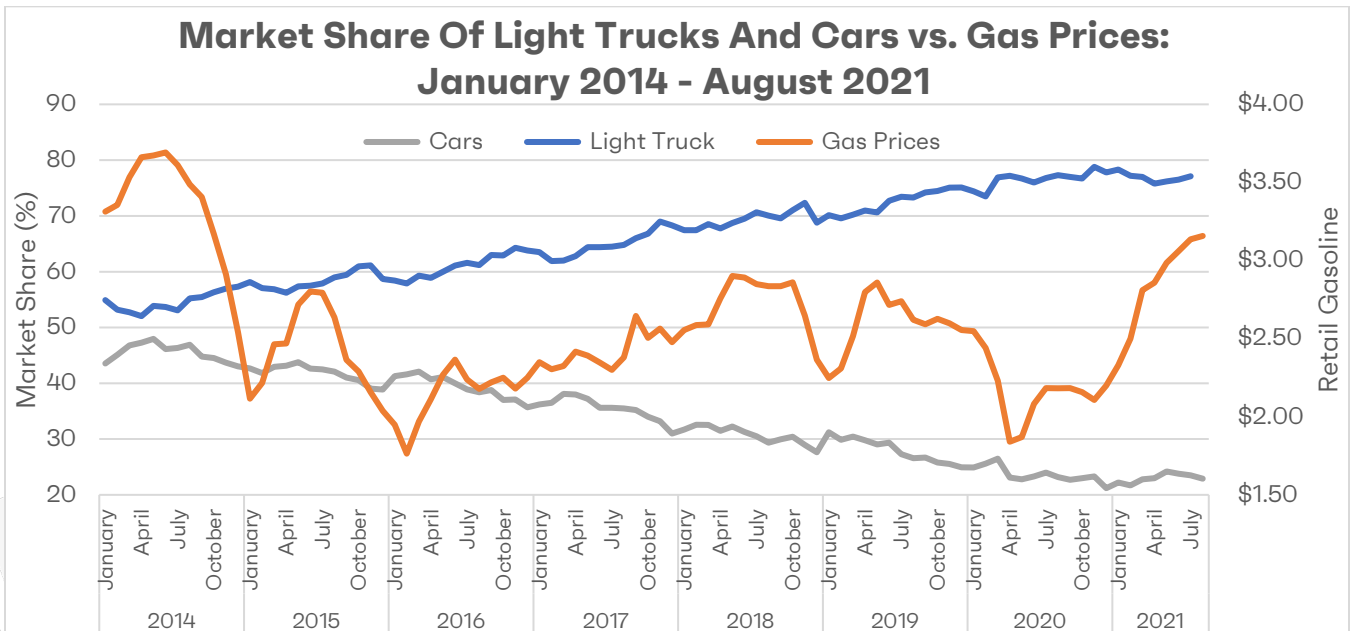
TrueCar¹³: “Fleet sales for August 2021 are expected to be up 30% from a year ago and up 9% from July 2021 when adjusted for the same number of selling days.”

J.D. Power¹⁴: “Fleet sales are expected to total 107,387 units in August, down 7.4% from August 2020 and down 48.0% from August 2019 on a selling day adjusted basis. Fleet volume is expected to account for 10% of total light-vehicle sales, up from 9% a year ago.”

Segments vs. Gas Prices (Updated 9/2)

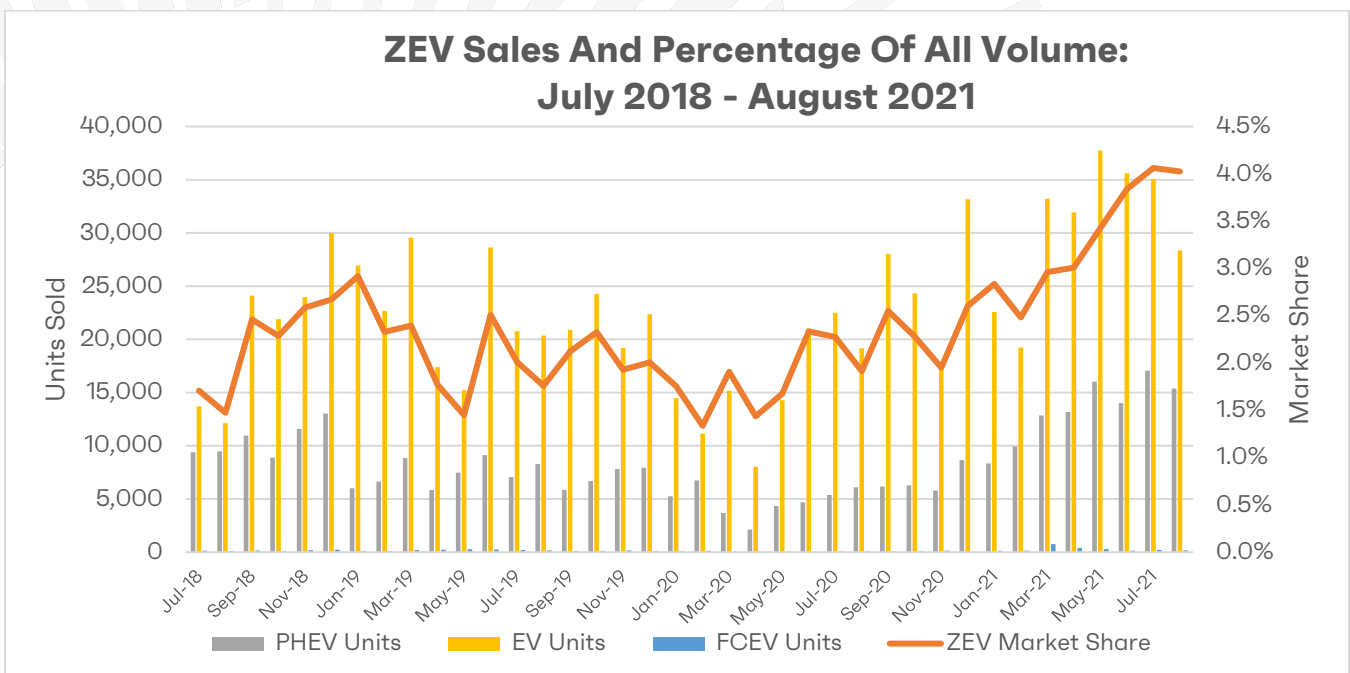
Monthly Sales For August: Light trucks accounted for 77.1% of sales in August, a .2% decrease in market share from a year ago. Compared to 2020, sales of cars are down more than 50,000, but down nearly 186,000 from August 2019, when cars comprised 26% of the market as opposed to the 22.9% of the market passenger cars have now.

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 segments¹⁵ and gas was over \$3.00¹⁶ 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 \$2.57 a gallon (through August 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.¹⁷



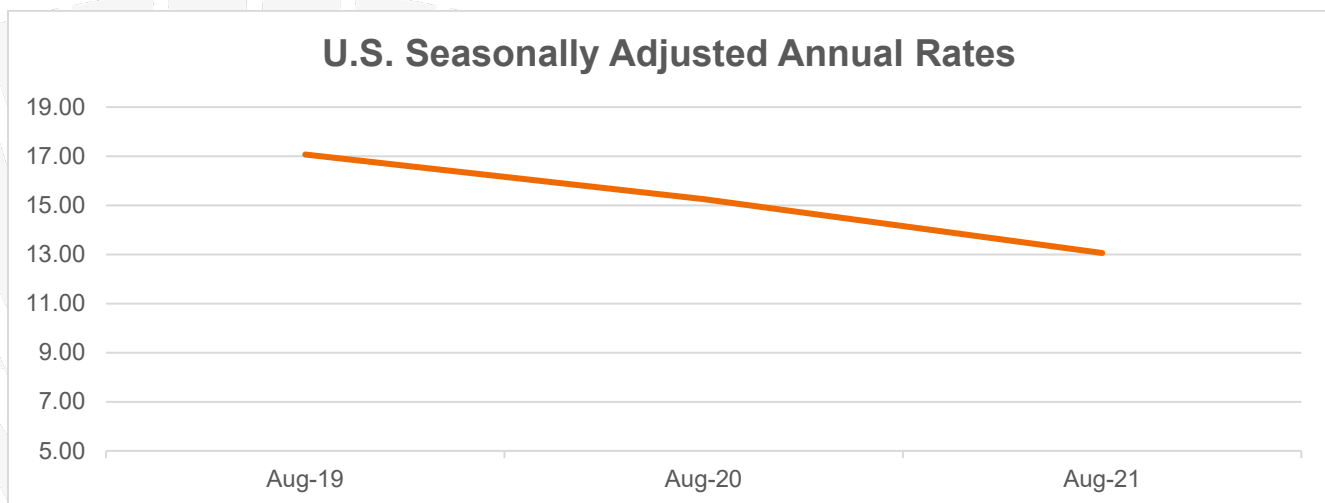
ZEV Powertrain Sales (Updated 9/2)

Sales of zero emission vehicles (BEV, PHEV, & Fuel Cell) accounted for 4% of total vehicle sales in August 2021, up 2.1% from a year ago and down .1 from July 2021. Sales of battery electric vehicles led the way for ZEVs, accounting for 2.6% of total sales, up 1.15% from August 2020. Plug-in hybrids accounted for 1.41%, more than three times the amount from the same time last year.¹⁸



Seasonally Adjusted Annual Rates (Updated 9/2)

WardsIntelligence: “August sales sank to a 13.1 million-unit seasonally adjusted annual rate, continuing a downturn that began after May peaked at an 18.3-million annualized rate. It’s a 14% drop from July’s revised 14.6 million-unit SAAR and well below like-2020’s pandemic-influenced 15.2 million. Except for Covid-19-impacted results in 2020, it was the lowest monthly SAAR since 13.0 million units in September 2011. . . . The year-to-date SAAR through August is 16.1 million units, well above 8-month 2020’s 13.5 million. However, with the magnitude of the global microchip shortage not expected to improve much over the rest of the year, the to-date SAAR is expected to continue a downward trend over the final four months of the year.”¹⁹

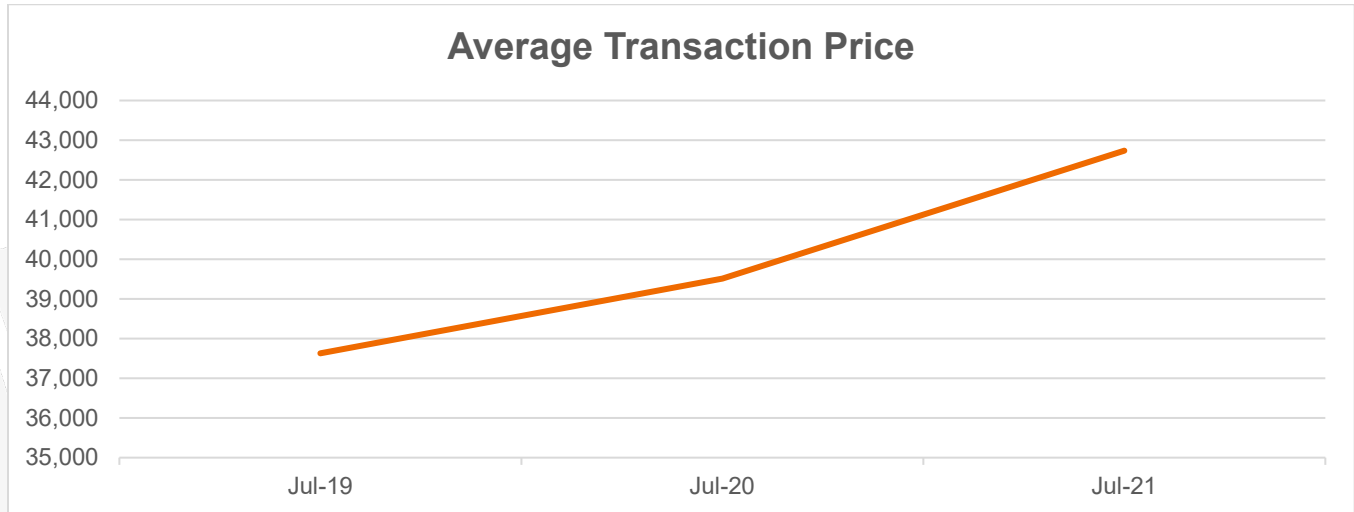


Average Transaction Price (Updated 9/2)

J.D. Power²⁰: “For August 2021, average transaction prices are expected reach an all-time high of \$41,378, and the first time above the \$41,000 level. For context, average transaction prices are trending to be over 16% higher in August 2021 than they were in August 2020. This is partially due to the continued retraction in manufacturer incentives. The average manufacturer incentive per vehicle is on pace to be \$1,823, a decrease of \$2,132 from a year ago and the lowest amount on record for the month of August. Expressed as a percentage of the average vehicle MSRP, incentives for August 2021 are trending toward a record low of 4.3%, down nearly 5.3 percentage points from a year ago and the second consecutive month below 5%.

“Despite the supply constrained retail sales pace, total aggregate retailer profits from new-vehicle sales are projected to be \$4.4 billion, the fourth-highest on record and up a remarkable 133% from August 2019. August is on track to be the fourth consecutive month for aggregate retailer profits on new vehicle sales to exceed \$4 billion.”

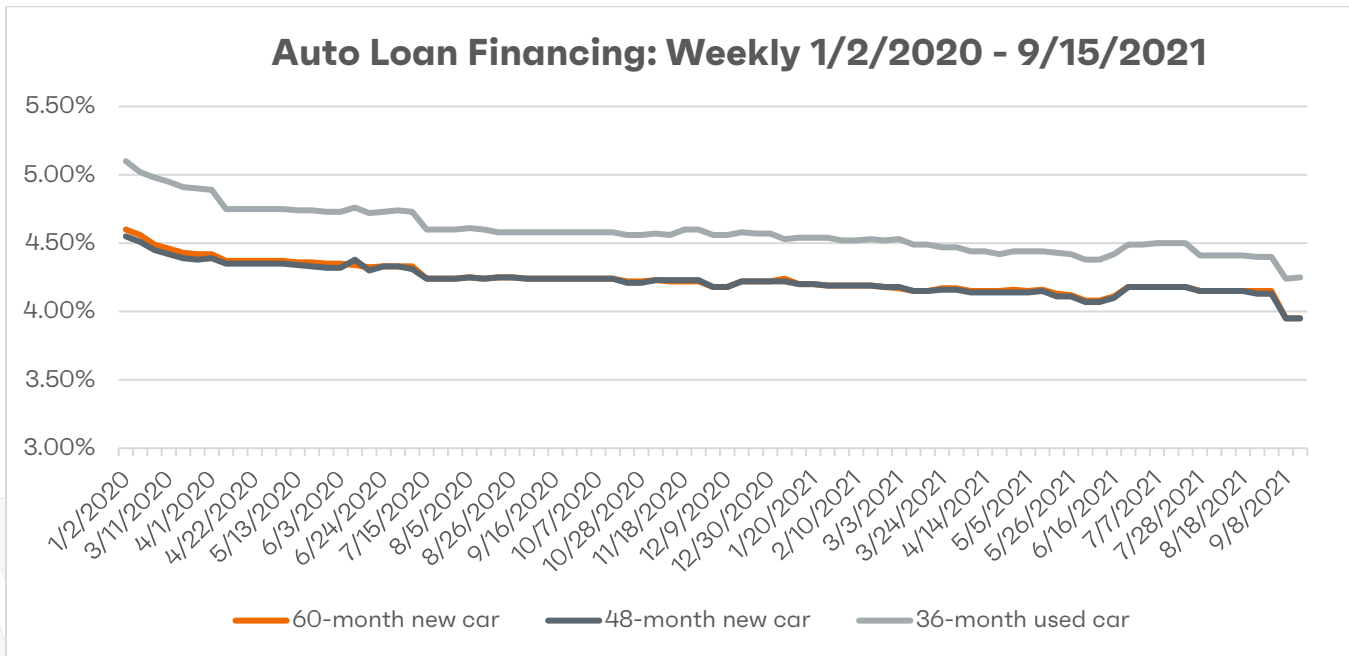
Kelley Blue Book: “The average transaction price (ATP) for a new automobile in July 2021 hit a new record high in the United States at \$42,736, according to the analysts at Kelley Blue Book. Transaction prices were up \$3,223 (8.2%) from July 2020 and increased \$402 (0.9%) from June 2021. New-vehicle transaction prices have increased – and set new records – for four straight months. A tight supply of new vehicles and a market shift toward more expensive SUVs and pickup trucks are among the main drivers of higher ATPs.”²¹



Auto Loan Financing (Updated 9/16)

Interest Rates At Lowest Level In More Than A Year: Interest rates for new cars are currently at the lowest level in more than a year at 3.95%. Rates also remained near a year-long low on the 36-month used car loan at 4.25%. Since the beginning of last year, rates are down 0.65%, and down 0.29% since the same time a year ago²²

Dates	60-month new car	48-month new car	36-month used car
9/16/2020	4.24%	4.24%	4.58%
1/2/2020	4.60%	4.55%	5.10%
9/8/2021	3.95%	3.95%	4.24%
9/15/2021	3.95%	3.95%	4.25%
One Week Change	0.00%	0.00%	0.01%
Two Week Change	-0.20%	-0.18%	-0.15%
Change since 1/3/20	-0.65%	-0.60%	-0.85%
One Year Change	-0.29%	-0.29%	-0.33%



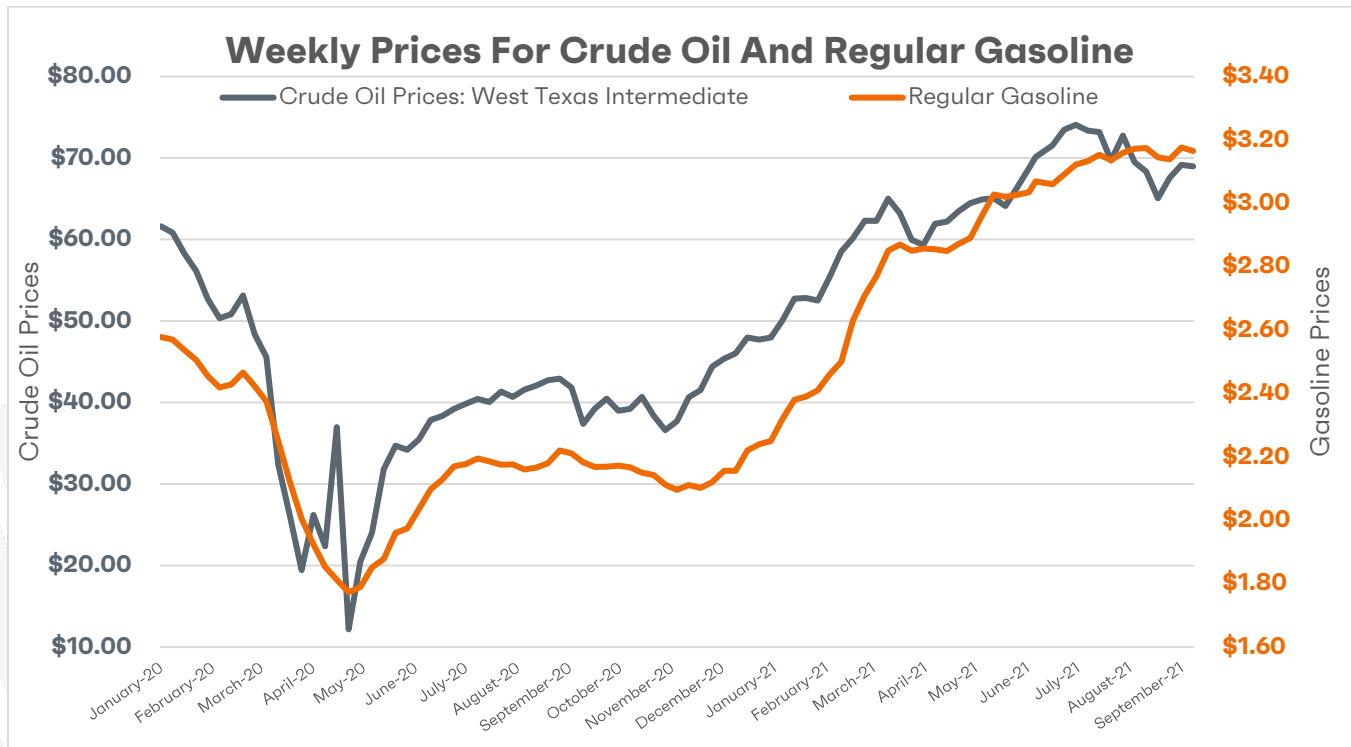
Crude Oil and Gas Prices (Updated 9/16)

EIA Outlook For Gasoline²³: “U.S. regular gasoline retail prices averaged \$3.16 per gallon (gal) in August, the highest monthly average price since October 2014. Recent gasoline price increases reflect rising wholesale gasoline margins amid relatively low gasoline inventories. In addition, recent impacts from Hurricane Ida on several U.S. Gulf Coast refineries are adding upward price pressures in the near term. Estimated gasoline margins surpassed 70 cents/gal in late August. We expect margins will remain elevated in the coming weeks as refining operations as U.S. Gulf Coast remain disrupted. We forecast that retail gasoline prices will average \$3.14/gal in September before falling to \$2.91/gal, on average, in 4Q21. The expected drop in retail gasoline prices reflects our forecast that gasoline margins will decline from currently elevated levels, both as a result of rising refinery runs as operations return in the first half of September following Hurricane Ida and because of typical seasonality.”

EIA Outlook For Oil²⁴: “Brent crude oil spot prices averaged \$71 per barrel (b) in August, down \$4/b from July but up \$26/b from August 2020. Brent prices have risen over the past year as result of steady draws on global oil inventories, which averaged 1.8 million barrels per day (b/d) during the first half of 2021 (1H21). We expect Brent prices will remain near current levels for the remainder of 2021, averaging \$71/b during the fourth quarter of 2021 (4Q21). In 2022, we expect that growth in production from OPEC+, U.S. tight oil, and other non-OPEC countries will outpace slowing growth in global oil consumption and contribute to Brent prices declining to an annual average of \$66/b.”

Gas Prices Holding Above \$3 A Gallon: Oil prices, as benchmarked at West Texas Intermediate, are still holding near \$70 a barrel, remaining near three year highs. Since election day, oil prices have

climbed nearly \$32 a barrel. Gas prices dipped slightly this week to \$3.17, remaining near the highest mark since October 2014. Gas is 23% higher than the beginning of 2020.²⁵

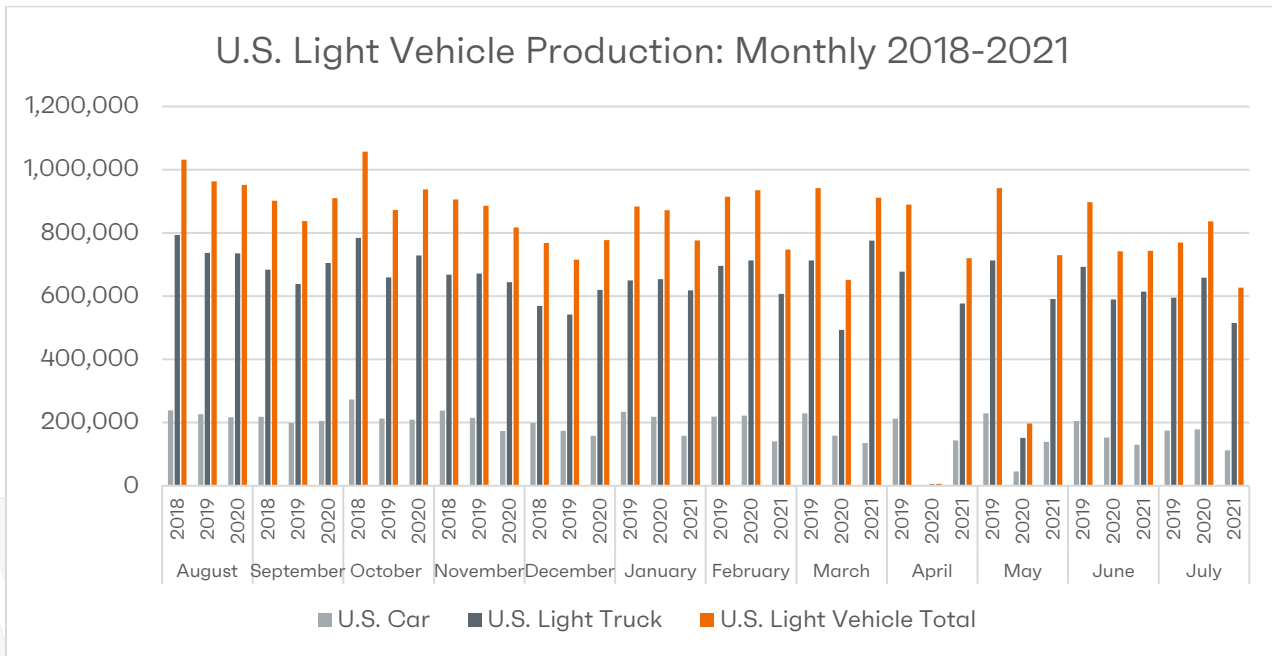


Production Meter

U.S. Light Vehicle Production (Updated 8/25)

Wards Intelligence Analysis²⁶: “Total production in July – including light vehicles and medium-/heavy-duty trucks – fell 186,100 units short of expectations due to previously unplanned plant shutdowns and slowdowns that were added by automakers during the month. Furthermore, including input from Wards Intelligence partner LMC Automotive, the production outlook has been lowered for both August and September from month-ago’s projections. Including July’s shortfall, the tracking for Q3 production has been cut 382,700 units from month-ago’s expectations. Looking beyond Q3, LMC Automotive reports there already are planned shutdowns related to the chip shortage in Q4. . . . July production totaled 965,100 units, 25.4% below like-2020’s 1.293 million – a total negatively impacted from production losses related to Covid-19 restrictions last year. Total light-vehicle output in July was 926,051, 26.4% below like-2020 and lowest for the month since 831,740 in 2011.

U.S. Light vehicle production for July 2021 totaled 626,718, down 25% from 2020:



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U.S. Light Vehicle Inventory and Days' Supply (Updated 9/2)

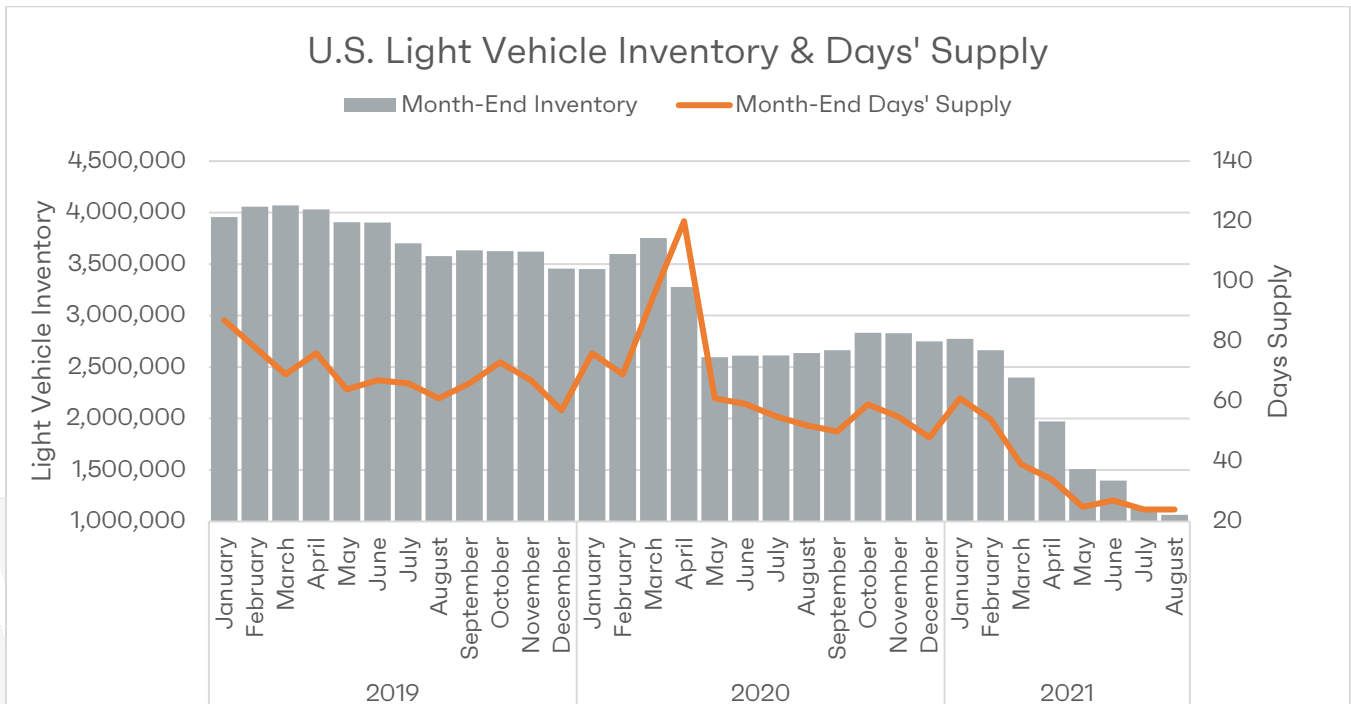
WardsIntelligence Inventory Update²⁸: “The inventory situation in the U.S. continues to get bleaker.

“August U.S. light-vehicle sales fell 15% from July’s volume, and to a 10-year low for the month, yet that was still enough to cut inventory from the prior month’s total to a barely subsistent 1.06 million units.

“Furthermore, August’s light-vehicle inventory total replaced July’s 1.12 million units as the lowest in Wards Intelligence’s database history, which begins in 1985. The last time it was lower for any month probably was years and maybe decades before that.

“The inventory total is less than the 1.1 million vehicles sold in August, which equated to a practically rock-bottom 13.0 million-unit seasonally adjusted annual rate in a market with underlying demand that could support 17-million-unit annual sales. The month-to-month decline in inventory bodes ill for a possible turnaround in sales in September, and further dampens the outlook for the rest of the year. . . .

“August’s inventory was 58.6% below same-month 2020’s 2.57 million units. Days’ supply totaled 24, same as July but below year-ago’s 51. In the five years prior to pandemic-impacted 2020, August days’ supply averaged 63 – in fact, in the five years through 2019, August averaged inventory of 3.6 million units and sales volumes of 1.5 million for an inventory-to-sales ratio of 2.4. August 2021’s ratio was 1.01.”



Global Meter

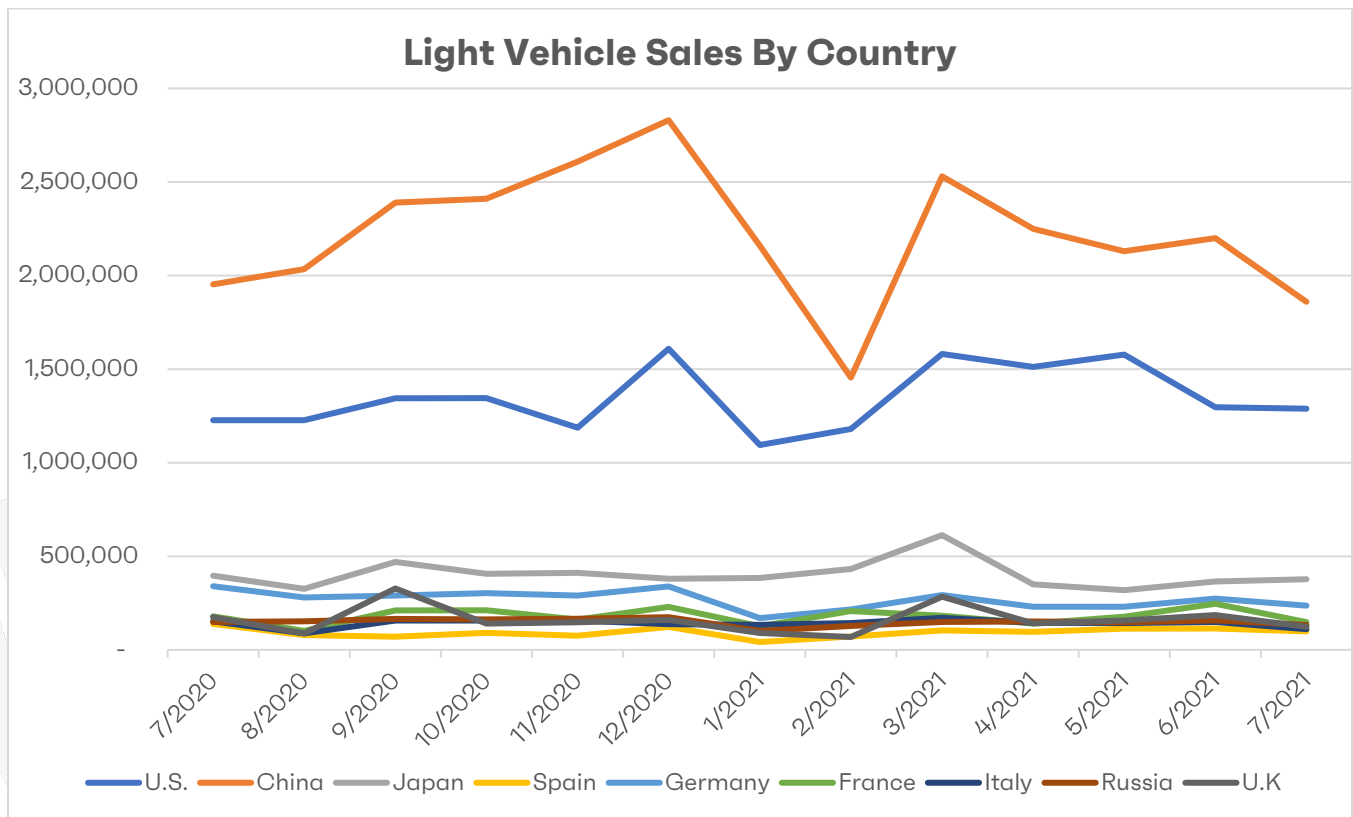
Global Light Vehicle Sales Outlook (Updated 9/2)

Wards Intelligence Outlook: “World vehicle sales in July were down 6.3% year-over-year at 6.68 million, marking the first monthly decline for 2021, with COVID-19 and the global shortage of semiconductors continuing to negatively impact the market.

“The sharpest drop for the month came from Europe, where sales fell 21.5% to 1.36 million compared to year-ago’s 1.73 million, yet year-to-date sales grew 20.6% to 10.45 million.

“Turkey (-44.4%), Belgium (-37.7%) and Spain (-29.4%) reported the sharpest drops in the region, whereas Ireland (+22.1%) and Ukraine (+22.8%) saw gains compared to last year. Sales in Russia experienced a slight 1.4% year-over-year downturn to 154,275. Sales in North America increased 3.7% year-over-year to 1.56 million. The U.S. (+4.4%) and Mexico (+12.2%) saw modest improvements while Canada (-6.2%) reported losses for July. In Asia Pacific, regional vehicle sales dropped 6.0% to 3.14 million compared to July 2020’s 3.34 million. However, year-to-date sales for the January-July period were 31.0% higher at 26.10 million. In China vehicle sales shrank 12.4% to 1.93 million compared to last year’s 2.20 million, while year-to-date sales were up 34% at 17.26 million. . . . World sales went up 28.0% through July to 52.62 million, compared to same-period 2020’s 41.12 million.”²⁹

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

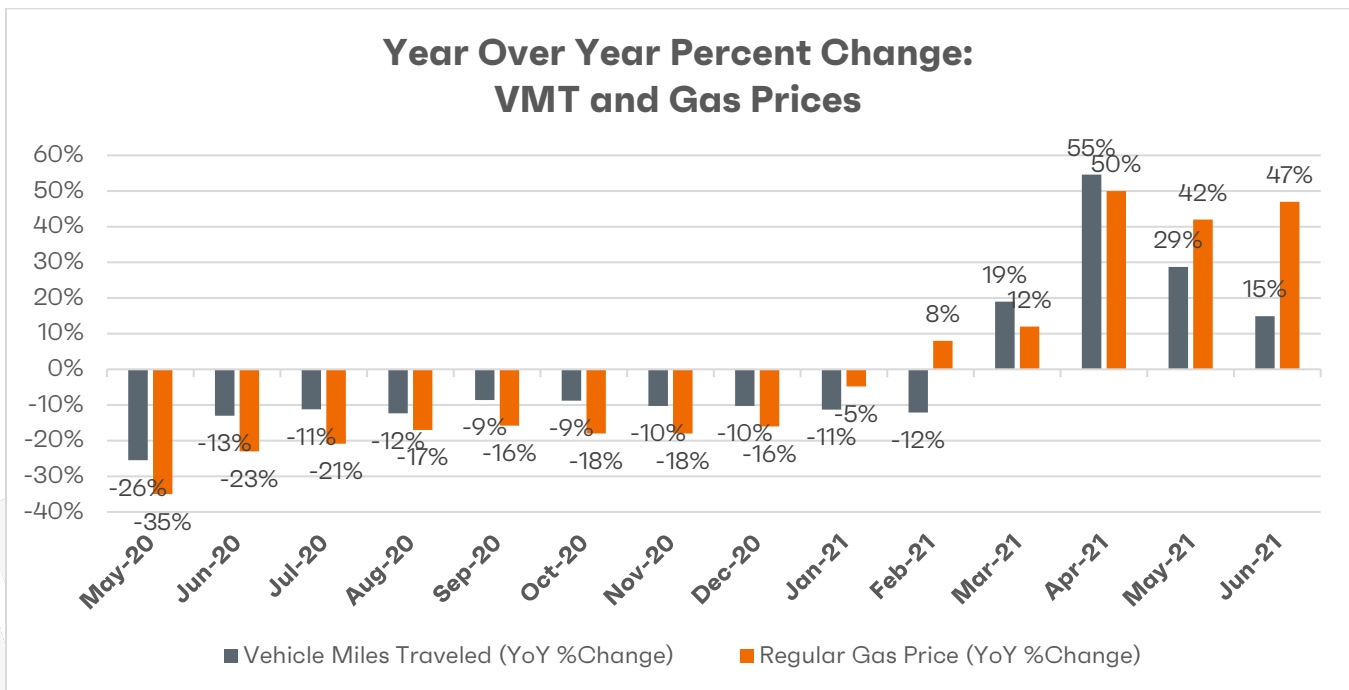


Recovery Meter

Roadway Travel (Updated 8/12)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in June rose 14.9% from the same time a year ago. The cumulative travel estimate for 2021 is 1,504.6 billion vehicle miles.³⁰

- Travel on all roads and streets changed by 14.5% (35.7 billion vehicle miles) for June 2021 as compared with June 2020. Travel for the month is estimated to be 282.5 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for June 2021 is 267 billion miles, a 14.9% (34.7 billion vehicle miles) increase over June 2020. It also represents 1.7% increase (4.5 billion vehicle miles) compared with May 2021.
- The cumulative estimate for the year is 1,504.6 billion vehicle miles of travel.



Economic News (Updated 9/9)

Manufacturing Added 37,000 Jobs In August, Led By Motor Vehicles And Parts. “Manufacturing employment increased by 37,000 jobs last month, with motor vehicles and parts leading the way. The figures were included in a breakdown by industry issued today by the U.S. Bureau of Labor Statistics.”³¹

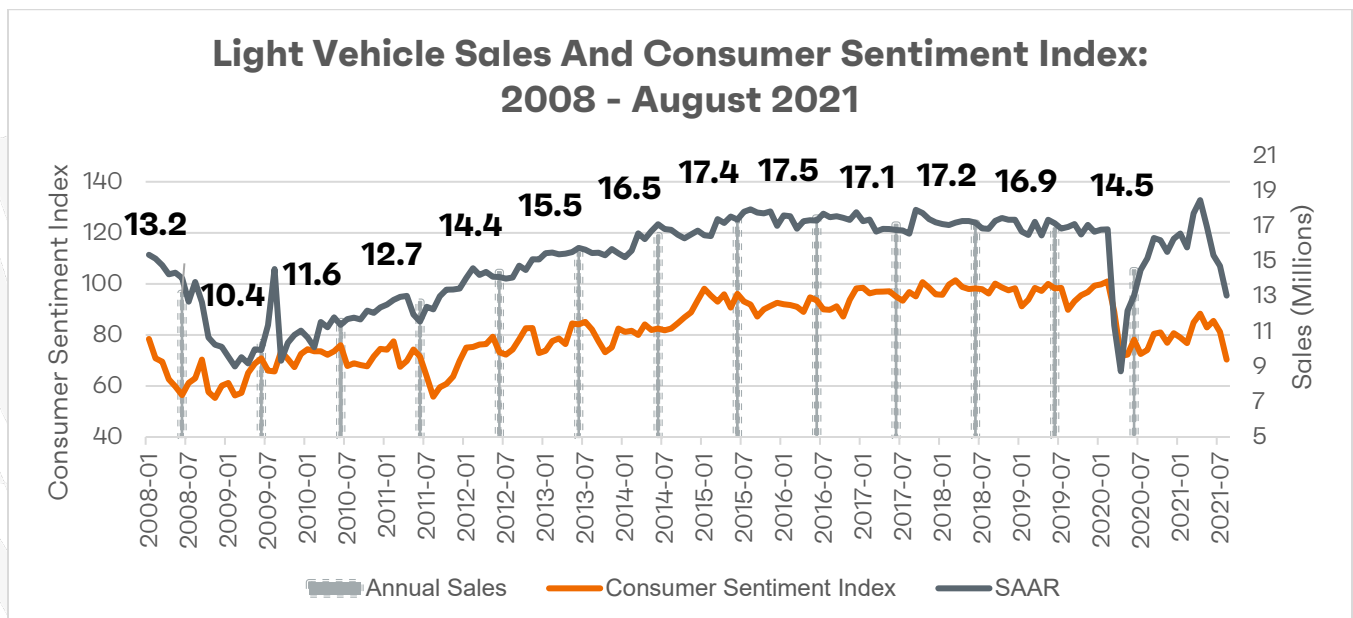
Motor Vehicles And Parts Added 24,100 Jobs In August. “The motor vehicles and parts category added 24,100 jobs in August. Auto industry employment has been erratic this year, affected by temporary plant shutdowns due to a global shortage of semiconductors.”³²

For August, The ISM Ticked Up To 59.9 From 59.5 In July. “U.S. manufacturing activity unexpectedly picked up in August amid strong order growth, but a measure of factory employment dropped to a nine-month low, likely as workers remained scarce. The Institute for Supply Management (ISM) said on Wednesday its index of national factory activity inched up to 59.9 last month from a reading of 59.5 in July.”³³

The Index Of Prices For Raw Materials Fell To 79.4, An Eight-Month Low. “The survey's measure of prices paid by manufacturers fell to an eight-month low of 79.4 from a reading of 85.7 in July. This measure has dropped from a record 92.1 in June. It was the latest indication that inflation has probably peaked. Data last week showed the Federal Reserve's preferred inflation measure recorded its smallest monthly gain in five months in July.”³⁴

Consumer Confidence and Sales (Updated 9/9)

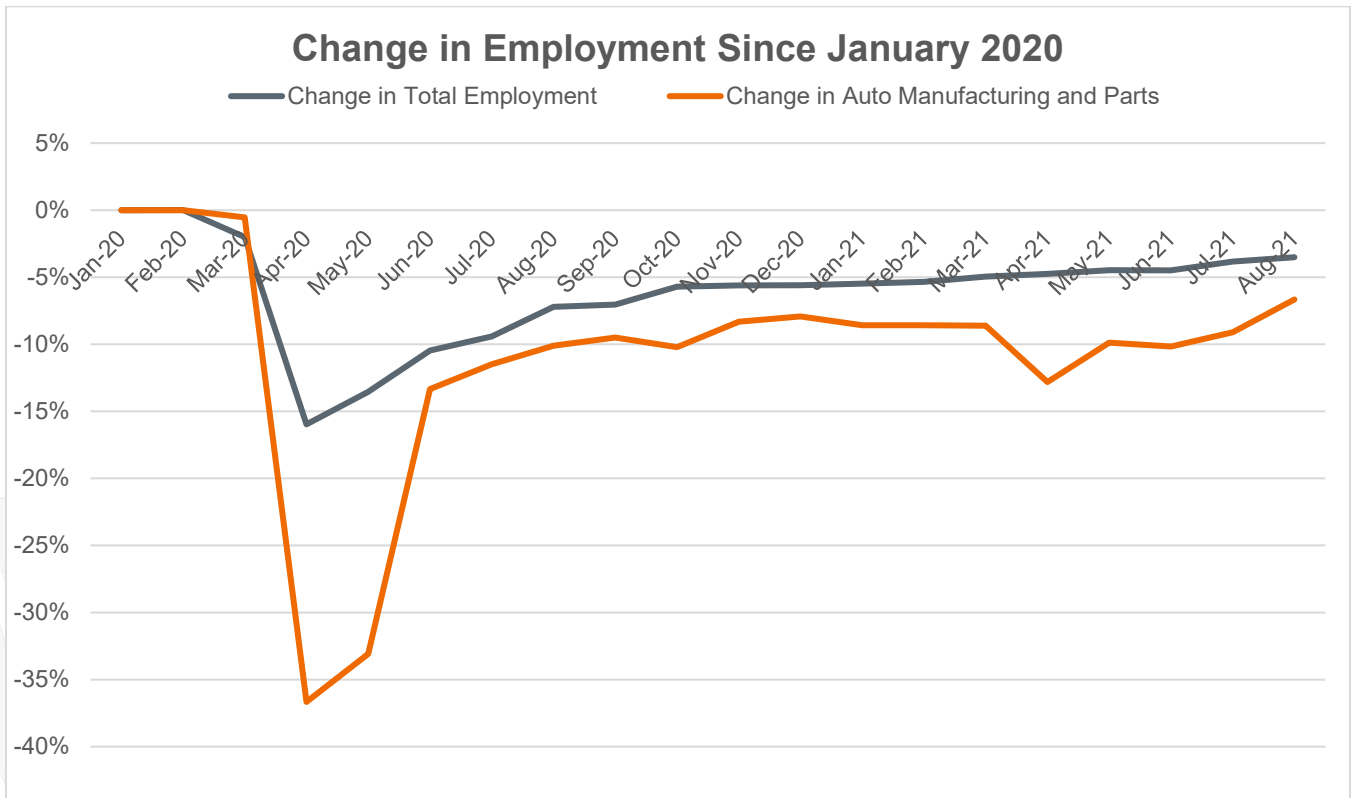
“The Consumer Sentiment Index fell by 13.4% from July, recording the least favorable economic prospects in more than a decade. The Sentiment Index has only recorded larger losses in six other monthly surveys since 1978. The losses were especially large in the Expectations Index, and widespread across all demographic groups, regions, and the outlook for the economy. Personal financial prospects continued to worsen due to smaller income gains amid higher inflationary trends (see the chart). Consumers' extreme reactions were due to the surging Delta variant, higher inflation, slower wage growth, and smaller declines in unemployment. The extraordinary falloff in sentiment also reflects an emotional response, from dashed hopes that the pandemic would soon end and lives could return to normal.”³⁵



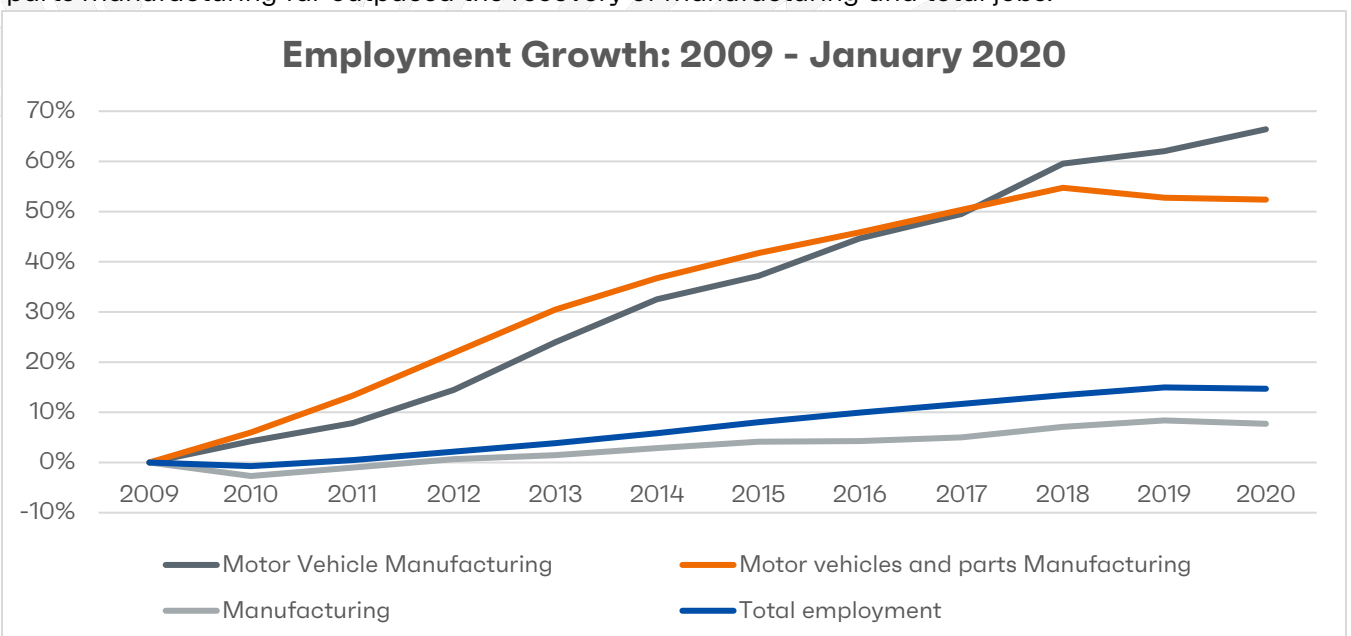
Employment (Updated 9/9)

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 52,700 jobs since January 2020.³⁶

- **Motor Vehicle And Parts Manufacturing Added 24,100 Jobs In July.**³⁷



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.³⁸ 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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