

READING THE METER

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

October 27, 2021

Contents,

| | |
|---|----|
| Forecast Meter..... | 2 |
| Forecast Summary (Updated 10/27) | 2 |
| U.S. Light Vehicle Sales Outlook (Updated 10/27) | 3 |
| North American Production & Inventory Outlook (Updated 10/27) | 4 |
| Market Meter | 6 |
| U.S. Light Vehicle Sales (Updated 10/6) | 6 |
| Segments vs. Gas Prices (Updated 10/6) | 7 |
| ZEV Powertrain Sales (Updated 10/6) | 8 |
| Seasonally Adjusted Annual Rates (Updated 10/6) | 9 |
| Average Transaction Price (Updated 10/6) | 10 |
| Auto Loan Financing (Updated 10/27) | 10 |
| Crude Oil and Gas Prices (Updated 10/27) | 11 |
| Production Meter | 13 |
| U.S. Light Vehicle Production (Updated 10/27) | 13 |
| U.S. Light Vehicle Inventory and Days' Supply (Updated 10/6)..... | 13 |
| Global Meter..... | 14 |
| Global Light Vehicle Sales Outlook (Updated 10/6) | 14 |
| Recovery Meter..... | 16 |
| Roadway Travel (Updated 10/27) | 16 |
| Economic News (Updated 10/27) | 16 |
| Consumer Confidence and Sales (Updated 10/27) | 17 |
| Employment (Updated 10/27)..... | 18 |
| Sources..... | 20 |

Forecast Meter

Forecast Summary (Updated 10/27)

| 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) | 926,035 (3% YoY) |
| August '21 | 1,090,446 (-11% YoY) | 1,113,327 (-19% YoY) |
| September '21 | 1,006,875 (-25% YoY) | 907,470 (-33.4% YoY) |
| October '21 | 1,013,000 (forecast) | 1,226,500 (-16.2% YoY) (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) | 3,925,709 (-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 | 13.3 SAAR (-14% YoY) | 2,930,000 (-26.7% YoY) |
| 4th Quarter '21 | 13.2 SAAR (forecast) | 3,440,000 (-10.1% YoY) (forecast) |
| 2020 Calendar Year | 14,463,935 (-14.7% YoY) | 12,905,447 (-23.1%) |
| 2021 Full Year Estimate | 15 million units (4% YoY) | 13,130,000 (1.4% YoY) |

U.S. Light Vehicle Sales Outlook (Updated 10/27)

Wards Intelligence October Outlook (10/27)⁴: “Boosted by rising inventory at Ford and General Motors, U.S. light-vehicle sales are expected to begin the fourth quarter by ending the five-month decline in annualized rates that began in May, although the growth will be small.

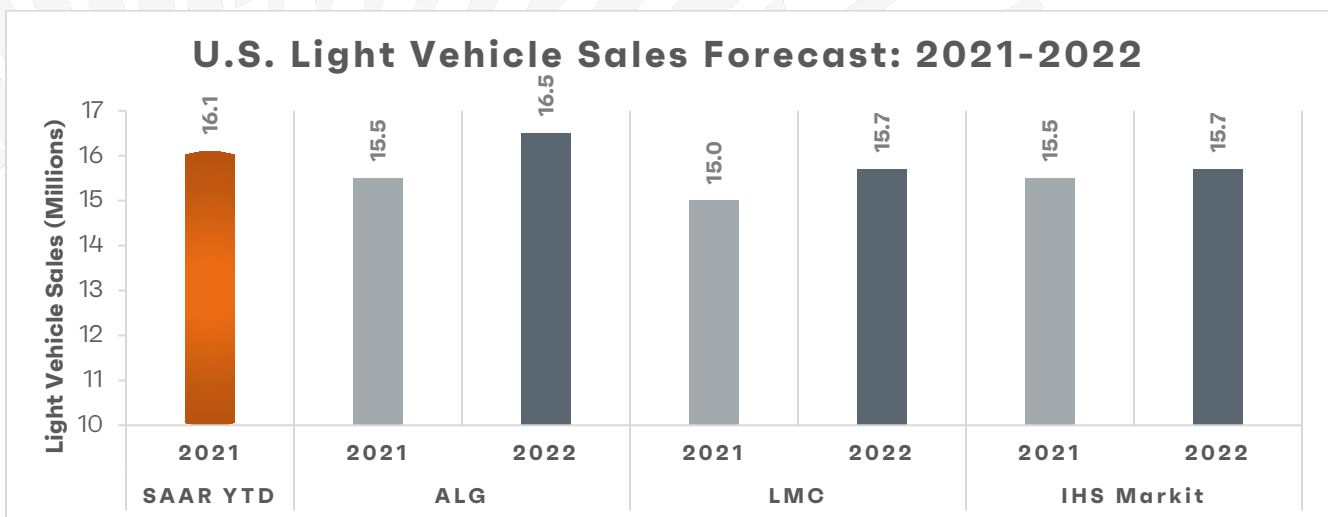
“October light-vehicle sales are forecast to total a 12.6 million-unit seasonally adjusted annual rate, up from September’s 12.2 million, and the first month-to-month increase since April, when sales rose to an 18.3 million SAAR from March’s 17.6 million.

“Even though the fourth quarter is forecast to decline to a 13.0 million-unit SAAR from Q3’s 13.3 million, sales are expected to continue rising month-over-month in November and December, marking what should be the start of a long-term period of growth as the market gradually recovers from the Covid-19 pandemic and subsequent supply-chain disruptions.

“However, though the situation seems to be improving, supply bottlenecks, especially from the global microchip shortage, still are causing lost production and keeping inventory at historic lows, and future setbacks remain a possibility. Also, some manufacturers have yet to see their inventory increase.

“Raw volume in October is forecast to total 1.013 million units, 25.5% below same-month 2020, but a slight increase from September’s 1.006 million. October’s daily selling rate of 37,504 over the month’s 27 selling days is 22.7% below like-2020’s 48,533 – 28 selling days.

“Wards Intelligence/LMC Automotive still is forecasting sales in 2021 to total 15.0 million units, followed by 15.7 million in 2022.”



J.D. Power October Forecast (10/27)⁵: “New-vehicle retail sales for the month of October 2021 are expected to decline when compared with October 2020 and October 2019, according to a joint forecast from J.D. Power and LMC Automotive. Retail sales of new vehicles this month are expected to reach 943,500 units, a 17.4% decrease compared with October 2020, and a 15.4% decrease compared

with October 2019 when adjusted for selling days. October 2021 has one fewer selling day than October 2020 but the same number of selling days as October 2019. Comparing the same sales volume without adjusting for the number of selling days translates to a decrease of 20.4% from 2020 and a 15.4% decrease from 2019.”

North American Production & Inventory Outlook (Updated 10/27)

Wards Intelligence Inventory Outlook (10/27)⁶: “Oct. 31 inventory is forecast to rise 15.8% from the prior month to 1.13 million units, but there is more downside than upside to the outlook because of additional production cuts during the month that were unknown or unplanned coming into the period. The forecast inventory is 60% below same-month 2020’s 2.83 million and 70% below pre-pandemic October 2019’s 3.63 million. Days’ supply is pegged at 30, up from the prior month’s 24 but down from like-2020’s 58 and October 2019’s 73.

“If production for the U.S. market holds even close to expectations, October could be the first month since January inventory increases month to month. If inventory declines, it could mean Q4 sales come up short of the expected 13.0 million annualized rate.”

Wards Intelligence Production Outlook (10/27)⁷: “With global supply bottlenecks refusing to ease up, expectations for Q4 North America vehicle production have been lowered, while the final total for the third quarter was 196,000 units below month-ago’s estimate.

“Production of light vehicles and medium-/heavy-duty trucks in Q4 are tracking to a total of 3.56 million units, 9.7% below like-2020’s 3.94 million. The year-ago October-December period, which was the last quarter before the microchip shortage began to significantly add to the supply-chain disruptions, also was the last quarter to record a year-over-year gain.

“The Q4 outlook is 349,900 units below month-ago’s expectations for the period.

“Light-vehicle output in Q4 is pegged at 3.44 million units, 10.1% below like-2020, and a reduction of 348,200 units from the previous update for the period.”

Wards Intelligence Outlook For 2021 (10/27)⁸: “Production for entire-2021 is tracking to 13.61 million units, 1.9% above 2020, and a meager increase considering the amount of production cut last year by slowdowns directly related to the Covid-19 pandemic. Excluding 2020, production in 2021 will be lowest for any calendar year since 13.48 million in 2011. Light-vehicle output for entire-2021 is projected at 13.13 million units, 1.4% above 2020’s 12.95 million, which – excluding 2020’s 12.96 million – was the lowest since 2011’s 13.09 million.”

IHS Markit North American

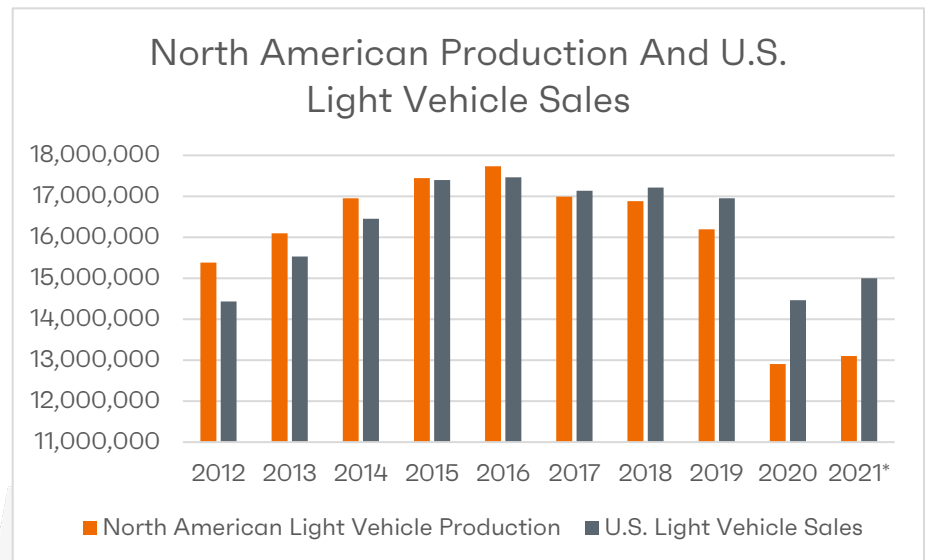
Outlook (10/27)⁹: “The outlook for North America light vehicle production was reduced by 120,000 units and increased by 5,000 units for 2021 and 2022, respectively (and increased by 94,000 units for 2023). The forecast revisions for 2021 were primarily driven by semiconductor challenges taking a greater toll on production at Toyota and Honda than previously expected. Conversely, Ford continued to show marked

improvements, which are expected to continue into the fourth quarter. Production in 2022 remains largely unchanged following the significant reductions implemented for the September 2021 forecast release. The October 2021 forecast continues to reflect those reductions more heavily weighted in the first half as expectations are for the supply of semiconductors to improve steadily throughout the year. While production is projected to improve over the low bases of 13.0 million in 2020 and 2021, it will remain constrained not only by the shortage of semiconductors and their long lead times, but other supply chain, logistics and labor related issues hampering a return to more normalized production levels. Nevertheless, opportunities remain for manufacturers to outperform the reduced volumes in 2022 based on their ability to secure the needed components and resources to maintain vehicle production. This is expected to vary by manufacturer with volatility and visibility into weekly planning and scheduling expected to remain problematic over the coming months.”

IHS Global Outlook (9/22)¹⁰: “The IHS Markit light vehicle production forecast has been cut by 6.2% or 5.02M units in 2021, and by 9.3% or 8.45M units in 2022, to stand at 75.8M units and 82.6M units, respectively. For 2023 we have reduced the forecast by 1.05M units or 1.1% to 92.0M units; this is a front-loaded adjustment and from the second quarter we expect output levels will be able to accelerate as supply chains return to normal. If this is the case then strong pent-up demand and the pressure to rebuild stock levels is expected to support elevated levels of production in 2024 and 2025, with 2024 now forecast to hit 97.3M units, up 3.2% compared to the previous forecast and 2025 forecast at 98.9M units an increase of 2.4%.

“This is the largest single adjustment to the outlook in what has been a turbulent past nine months.

“We estimate that 1.44 million units of production were lost in Q1 and a further 2.60 million units in Q2; currently Q3 losses are running at 3.1 million units and rising. The outlook for Q4 now reflects heightened risk as challenges to the supply chain - primarily semiconductors - remain entrenched.”

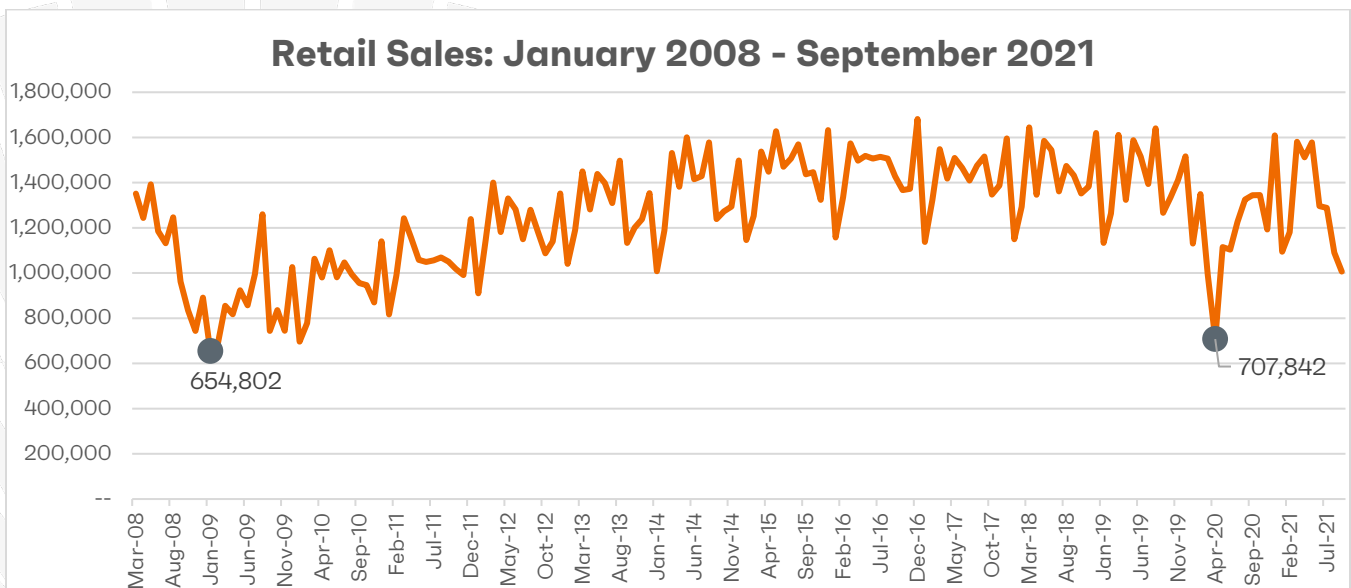


Market Meter

U.S. Light Vehicle Sales (Updated 10/6)

Monthly Sales (Updated 10/6)

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.

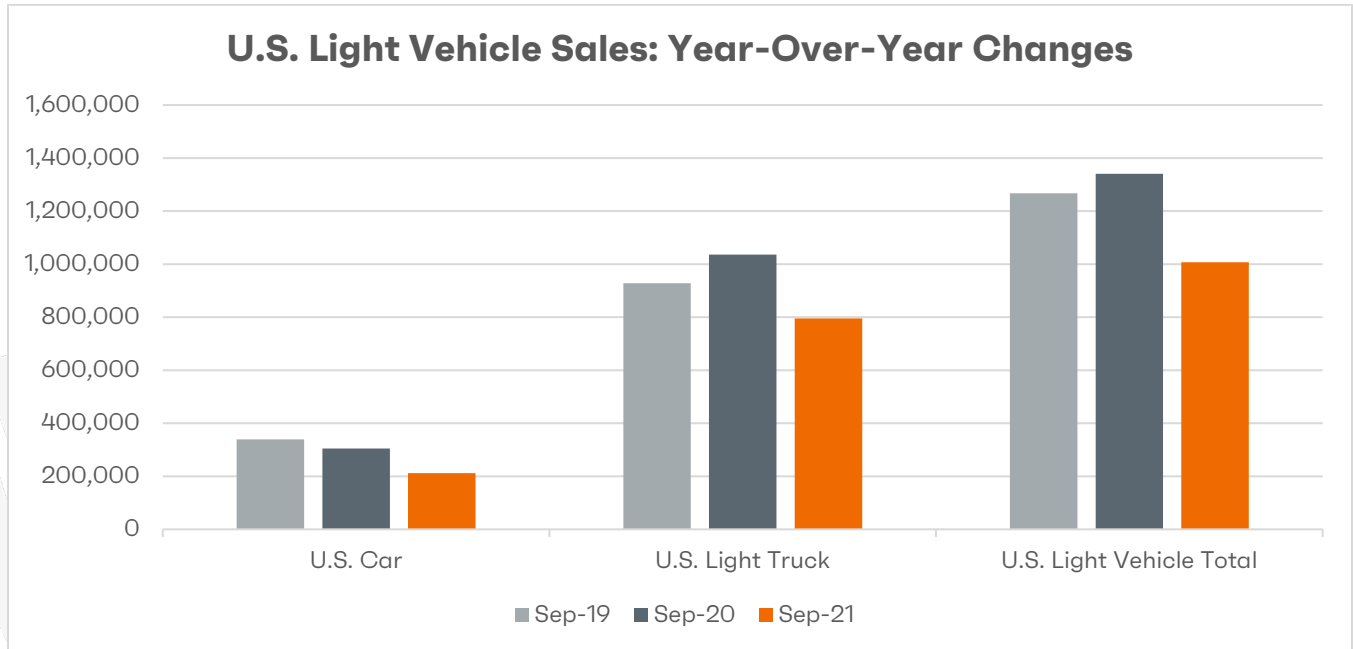


September Sales (Updated 10/6)

WardsIntelligence: “U.S. new-vehicle sales slumped for a fifth straight month in September, as the record deterioration of inventory in 2021 continued to plague the market. Supply-chain disruptions, mainly from a global shortage of microchips, continue to cause massive production cuts, with the situation not likely to improve much, if at all, over the remainder of this year.

“Thus, in a market with enough underlying demand to support 12-month volume of 17 million units or more, U.S. light-vehicle sales dropped to a 12.2 million-unit seasonally adjusted rate in September, well below like-2020’s 16.3 million, and lowest for the month since 11.7 million in 2010. It also was the fifth straight month-to-month decline since April’s peak SAAR of 18.3 million units.

“Raw volume, which totaled 1.01 million units in September, has declined month-to-month since May, and also was an 11-year-low for the period. September’s daily selling rate totaled 40,275, 24.9% below like-2020’s 53,644 – 25 selling days both periods.”¹¹



Fleet Sales (Updated 10/6)

TrueCar¹²: “Fleet sales for September 2021 are expected to be down 19% from a year ago and down 5% from August 2021 when adjusted for the same number of selling days.”

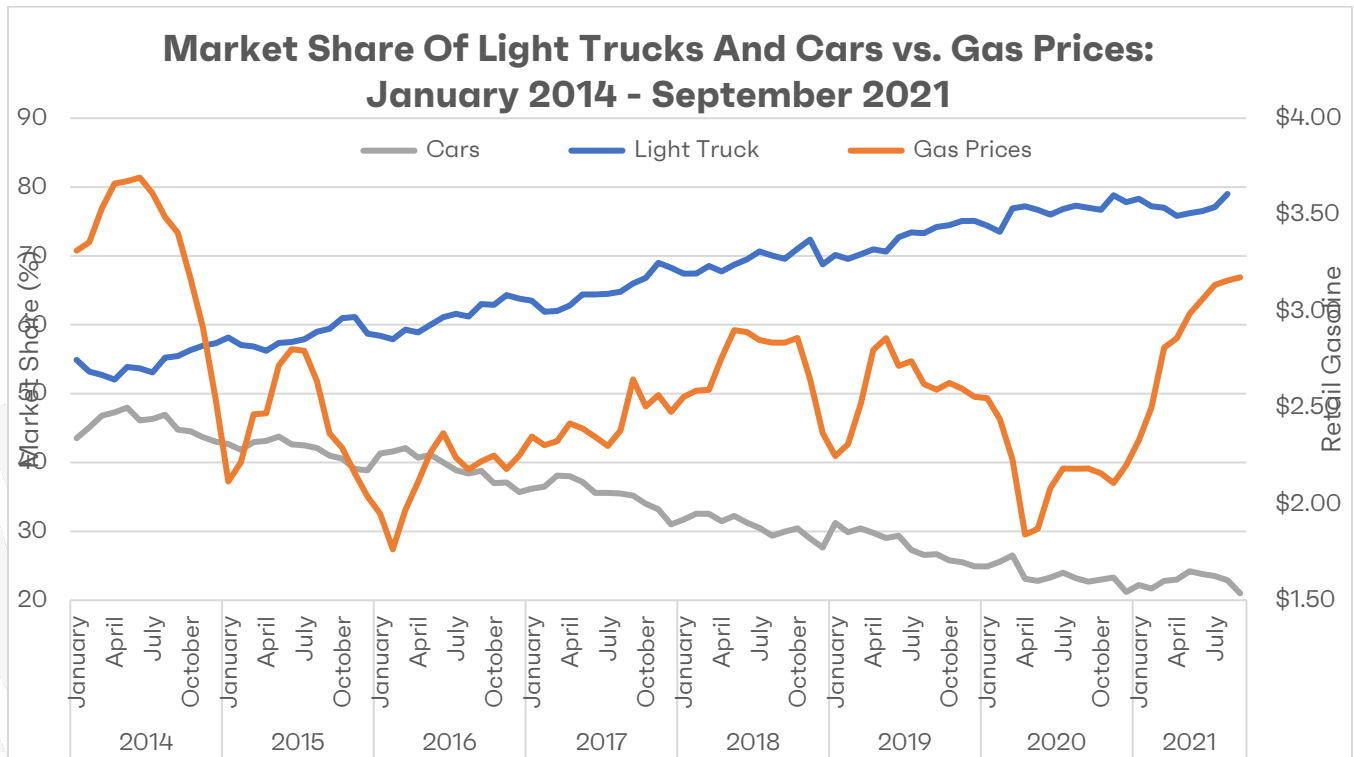
J.D. Power¹³: “Fleet sales are expected to total 120,500 units in September, down 22.1% from September 2020 and down 55.8% from September 2019 on a selling day adjusted basis. Fleet volume is expected to account for 12% of total light-vehicle sales, flat from 12% a year ago.”

Segments vs. Gas Prices (Updated 10/6)

Monthly Sales For September: Light trucks accounted for 79% of sales in September, a 1.7% increase in market share from a year ago. Compared to 2020, sales of cars are down more than 93,000, and down more than 127,000 from September 2019, when cars comprised 27% of the market as opposed to the 21% of the market passenger cars have now.

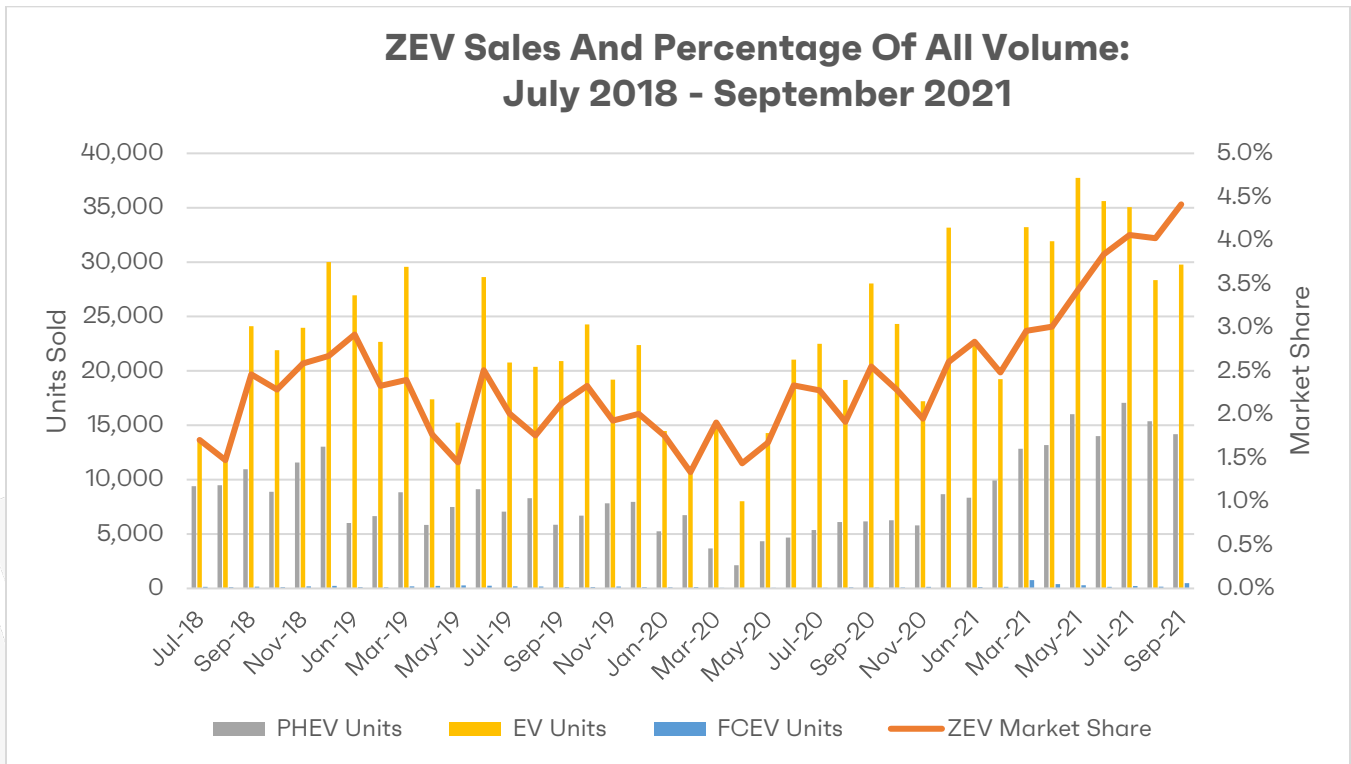
Historic Perspective: The upward trend in the popularity of light trucks over cars has been steady since 2013, when only 2% of annual market share separated the two segments¹⁴ and gas was over \$3.00¹⁵ a gallon. As fuel prices dropped below the \$3.00 mark in mid-September 2014, light truck sales began 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.¹⁶



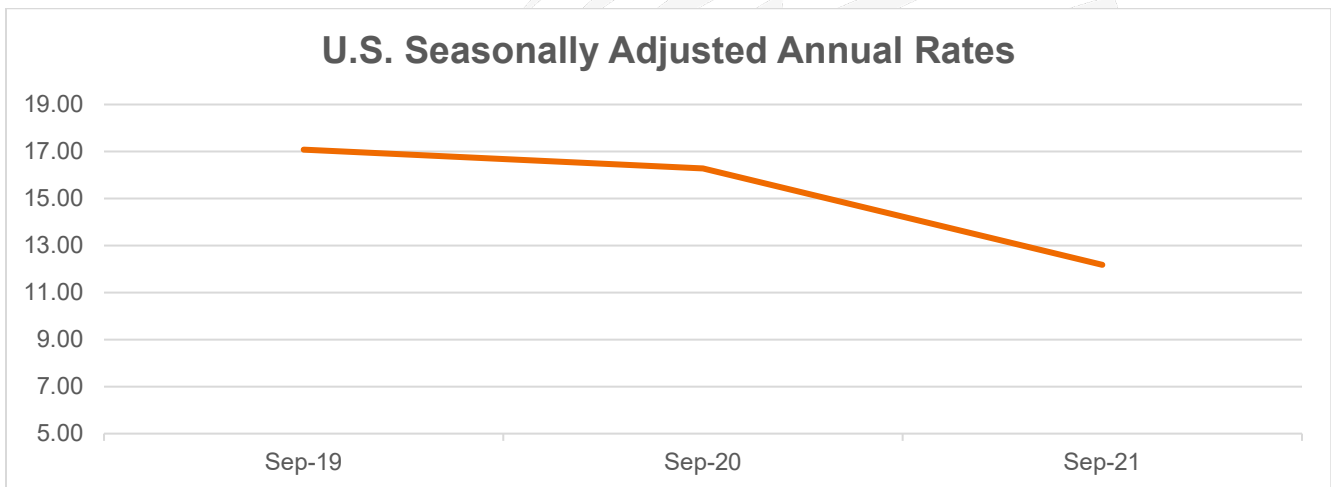
ZEV Powertrain Sales (Updated 10/6)

Sales of zero emission vehicles (BEV, PHEV, & Fuel Cell) accounted for 4.4% of total vehicle sales in September 2021, up 1.8 pp from a year ago and up .4 from August 2021. Sales of battery electric vehicles led the way for ZEVs, accounting for 3% of total sales, up .9 pp from September 2020. Plug-in hybrids accounted for 1.41%, more than three times the amount from the same time last year.¹⁷



Seasonally Adjusted Annual Rates (Updated 10/6)

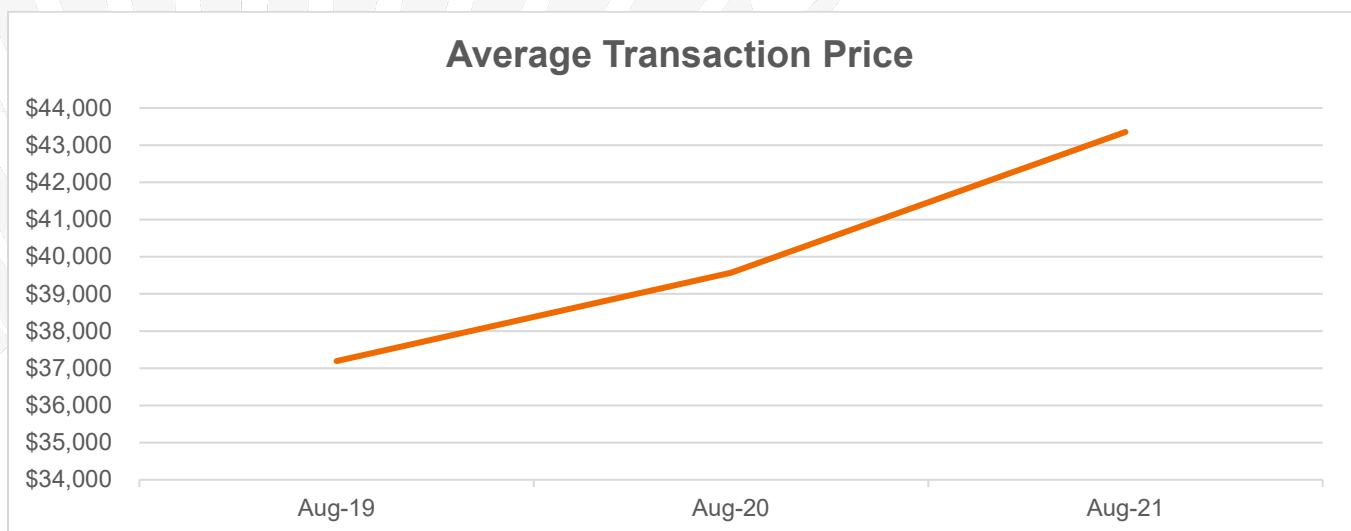
WardsIntelligence: “[I]n a market with enough underlying demand to support 12-month volume of 17 million units or more, U.S. light-vehicle sales dropped to a 12.2 million-unit seasonally adjusted rate in September, well below like-2020’s 16.3 million, and lowest for the month since 11.7 million in 2010. It also was the fifth straight month-to-month decline since April’s peak SAAR of 18.3 million units.”¹⁸



Average Transaction Price (Updated 10/6)

J.D. Power¹⁹: “In September 2021, average transaction prices are expected reach an all-time high of \$42,802, the fourth consecutive month over \$40,000. For context, average transaction prices are trending to be 18.6% higher in September 2021 than they were in September 2020 when prices broke the \$36,000 level for the first time ever. This is partially due to continued compression of manufacturer incentives. The average manufacturer incentive per vehicle is on pace to be \$1,755, a decrease of \$2,037 from a year ago and the lowest amount on record. . . . Despite retail volumes in September being down significantly, the higher prices mean that consumers are on track to spend \$38.0 billion on new vehicles this month, the fourth highest on record for the month of September.”

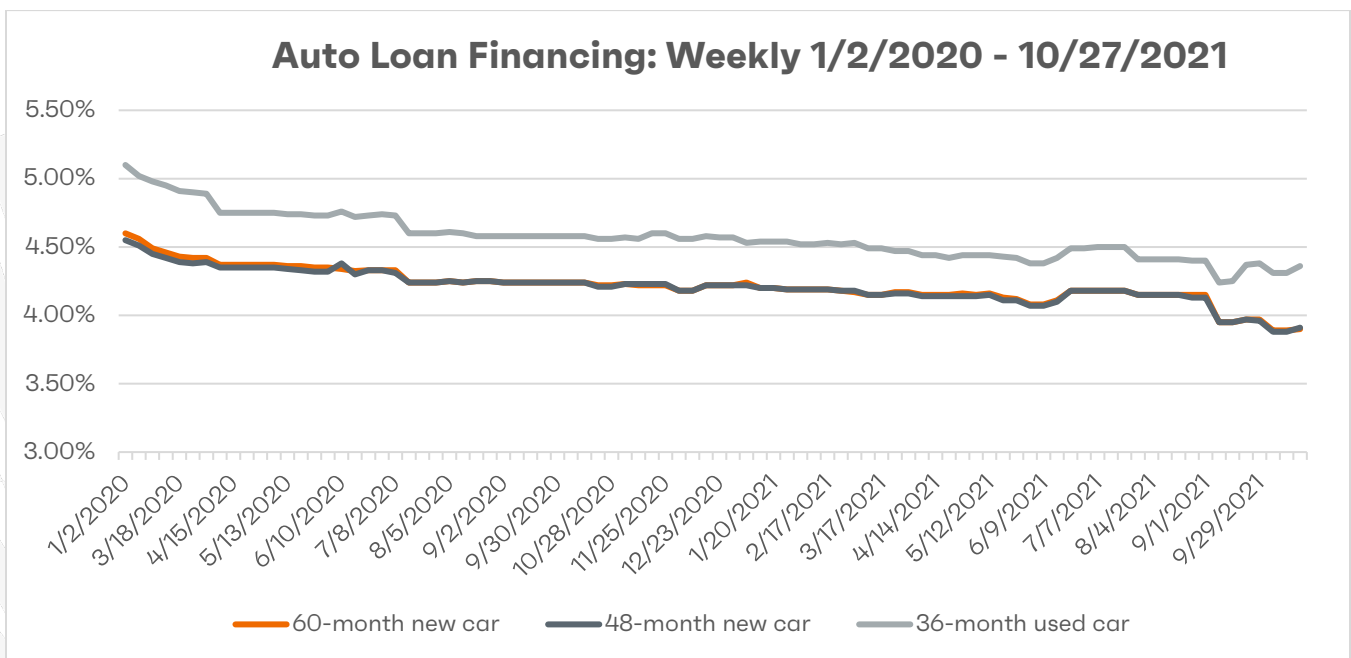
Kelley Blue Book: “According to a new report from Kelley Blue Book, new-vehicle prices hit another all-time high in August 2021, marking the fifth straight record-setting month. At \$43,355, the average transaction price (ATP) for a new vehicle was up nearly 10% (\$3,789) from one year ago in August 2020, and up 1.6% (\$685) from July 2021. . . . Incentive spending continued to fall as well, dropping to 5.6% of ATP last month, a decrease from 5.9% in July 2021 and well below the 10.1% of ATP recorded in August 2020. Porsche, Genesis, Land Rover and Subaru had among the lowest incentive spend last month, all less than 4% of ATP. On the other hand, Alfa Romeo, Buick and Infiniti each had incentive levels at more than twice the industry average.”²⁰



Auto Loan Financing (Updated 10/27)

Interest Rates Remain Near Year-Long Low: Interest rates for new cars are currently just above the lowest level in more than a year at 3.90%. Rates also remained near a year-long low on the 36-month used car loan at 4.36%. Since the beginning of last year, rates are down 0.70%, and down 0.32% since the same time a year ago.²¹

| Dates | 60-month new car | 48-month new car | 36-month used car |
|---------------------|------------------|------------------|-------------------|
| 1/2/2020 | 4.60% | 4.55% | 5.10% |
| 10/21/2020 | 4.22% | 4.21% | 4.56% |
| 10/13/2021 | 3.89% | 3.88% | 4.31% |
| 10/20/2021 | 3.90% | 3.91% | 4.36% |
| One Week Change | 0.01% | 0.03% | 0.05% |
| Two Week Change | 0.01% | 0.03% | 0.05% |
| Change since 1/3/20 | -0.70% | -0.64% | -0.74% |
| One Year Change | -0.32% | -0.30% | -0.20% |



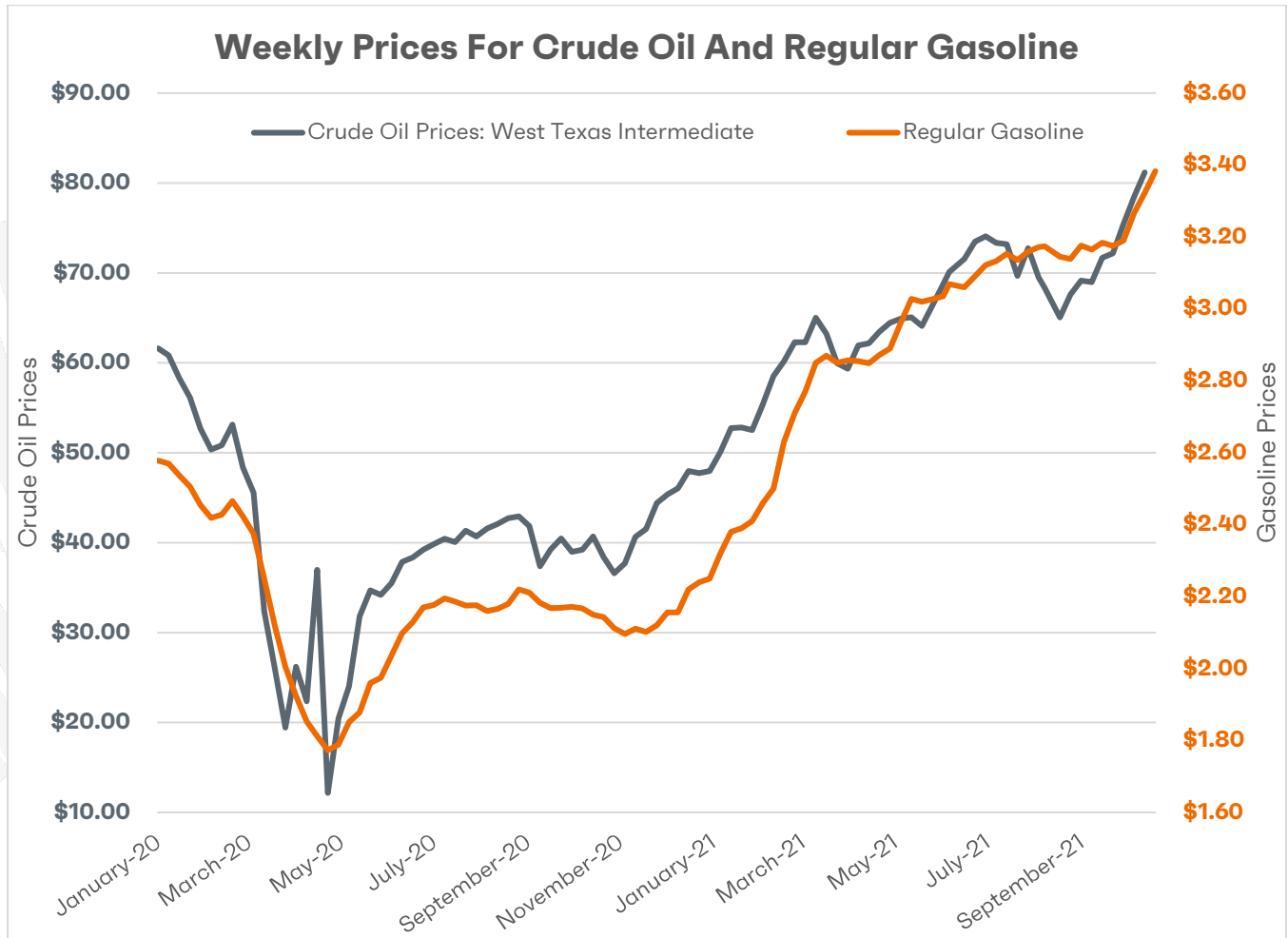
Crude Oil and Gas Prices (Updated 10/27)

EIA Outlook For Gasoline (10/27)²²: “U.S. regular gasoline retail prices averaged \$3.18 per gallon (gal) in September, up 2 cents/gal from August and almost \$1/gal higher than in September 2020. Recent gasoline price increases reflect increasing crude oil prices outweighing falling gasoline wholesale margins. We forecast that retail gasoline prices will average \$3.21/gal in October before falling to \$3.05/gal in December.”

EIA Outlook For Oil (10/27)²³: “Brent crude oil spot prices averaged \$74 per barrel (b) in September, up \$4/b from August and up \$34/b from September 2020. Brent spot prices have risen from their September average to more than \$80/b in early October. Oil prices have increased over the past year as result of steady draws on global oil inventories, which averaged 1.9 million barrels per day (b/d) during the first three quarters of 2021. In addition to sustained inventory draws, prices increased after

the October 4 announcement by OPEC+ that the group would keep current production targets unchanged.”

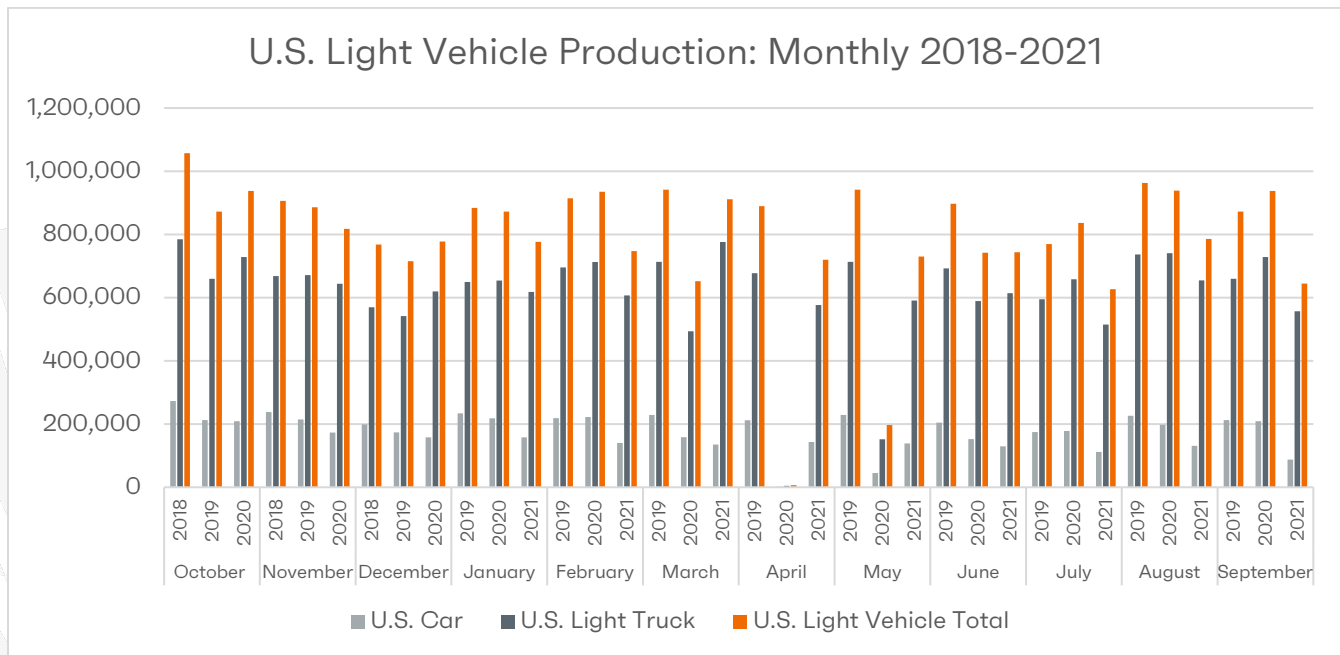
Gas and Oil Hit New Multi-Year Highs: Oil prices, as benchmarked at West Texas Intermediate, have raised to over \$81 a barrel, highest since 2014. Since election day, oil prices have climbed nearly \$44 a barrel. Gas prices rose to \$3.338, highest since October 2014. Gas is 31% higher than the beginning of 2020.²⁴



Production Meter

U.S. Light Vehicle Production (Updated 10/27)

U.S. Light vehicle production for September 2021 fell month-over-month, totaling 644,520 (87,777 cars, 556,743 light trucks) down 17% from August and 29% from the same period in 2020.



25

U.S. Light Vehicle Inventory and Days' Supply (Updated 10/6)

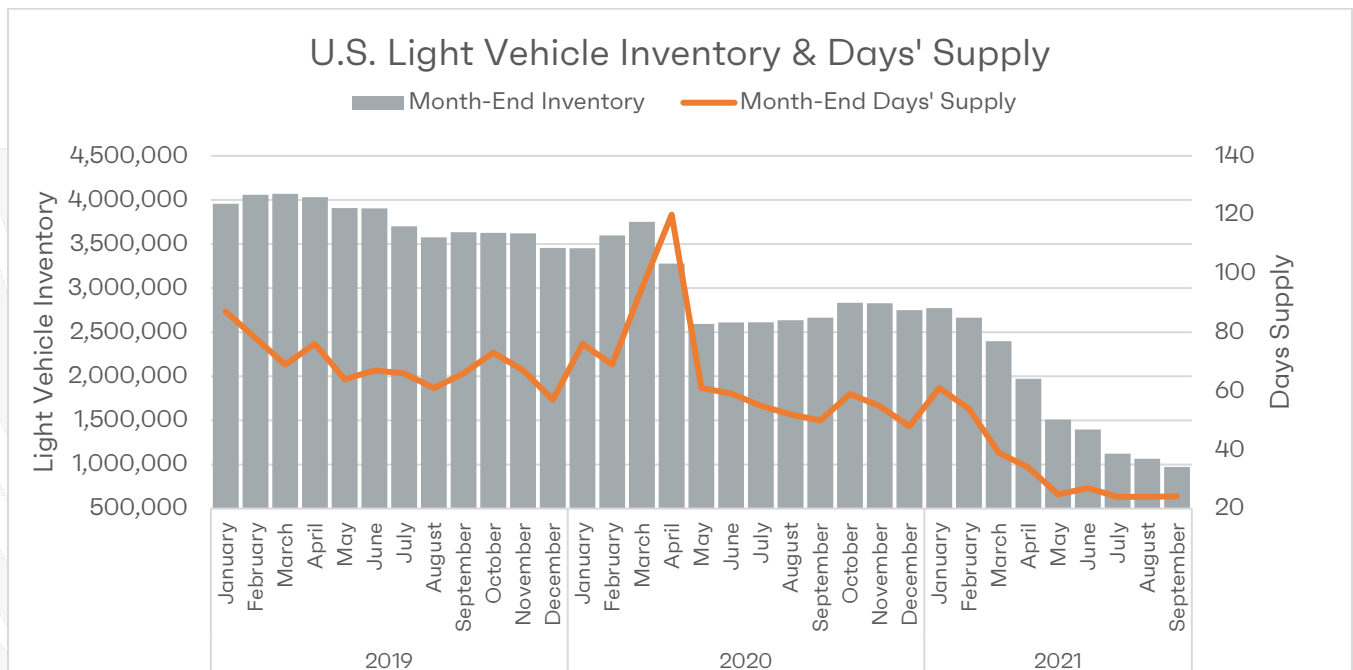
WardsIntelligence Inventory Update (10/6)²⁶: “Light-vehicle inventory reported by U.S. automakers fell below one million units for the first time in decades at the end of September, indicating that the on-going supply chain disruptions – mainly from a shortage of semiconductors – worsened over the past month.

“Inventory was expected to rise from August’s 1.06 million units, but until production data for September is available later this month, it will be nearly impossible to gauge how much of the decline vs. other reasons was due to production cuts not already accounted for in month-ago’s expected output for the period.

“There could have been a surge in partially built vehicles, or vehicles built without all their required microchips, which are not included in inventory data until they are considered a saleable unit. But, as throughout the year, even when September production data is published, it mostly will remain unclear how many of those vehicles exist.

“Inventory ended September at 972,278 units, 8.8% below August and 64% below like-2020. Days’ supply dropped to 24 from August’s 25 and same-month 2020’s 50. Prior to 2020, days’ supply ranging from 60 to 65 was normal for September.

“Inventory of both North America-built and import vehicles fell from August, with imports dropping a whopping 18.1% - domestically built inventory dropped a lesser 5.9%. Through August, import inventory had been holding up better than domestically built models, and that translated to higher sales penetration.”



Global Meter

Global Light Vehicle Sales Outlook (Updated 10/6)

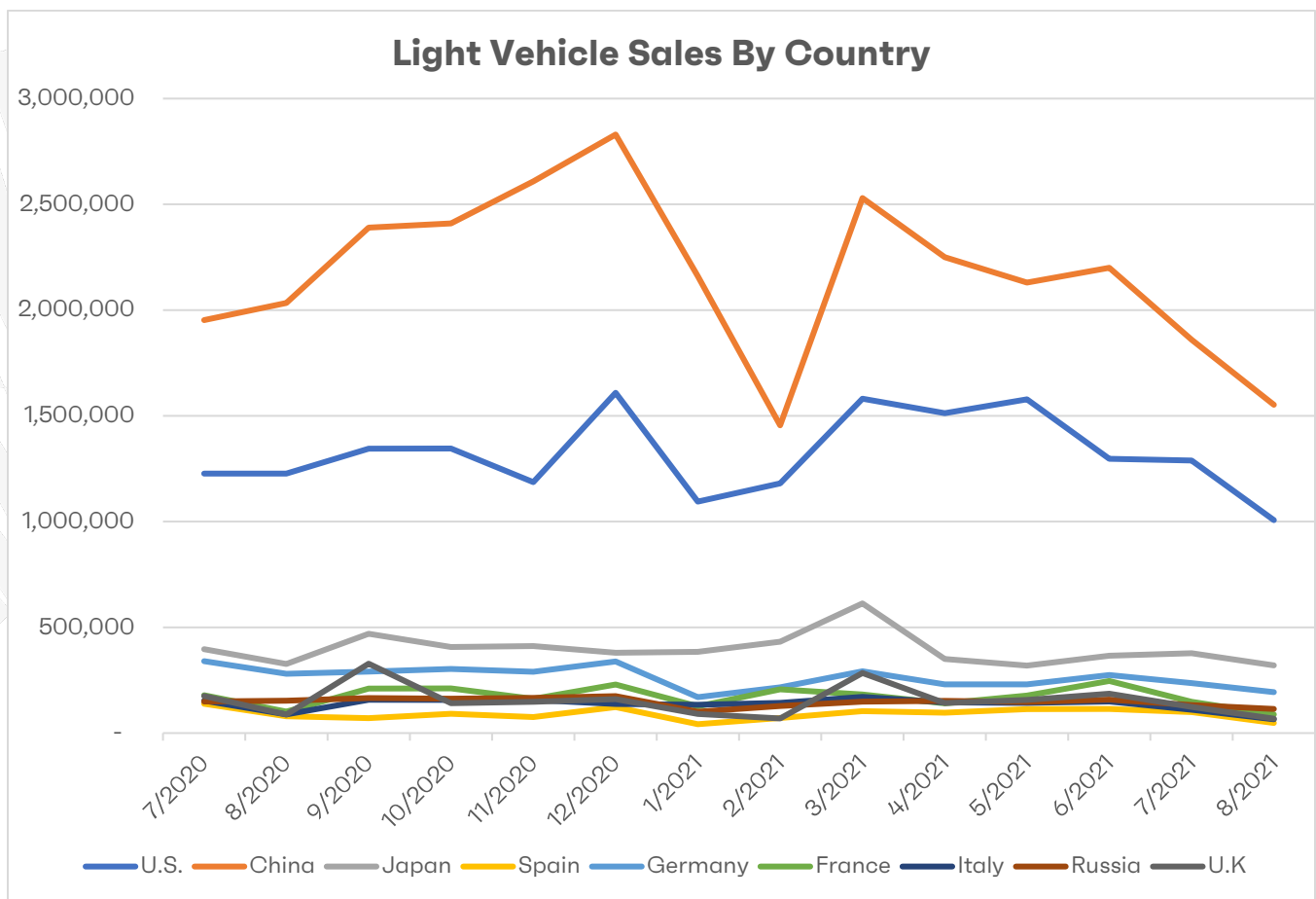
Wards Intelligence Outlook: “World vehicle sales in August were down 10.9% year-over-year at 6.03 million. August marked the second consecutive month of losses, as the global microchip shortage continued hampering the industry’s recovery. The biggest drop for the month was in North America, where sales tumbled 15.8% to 1.35 million, compared to 2020’s 1.61 million. The region’s market share slightly dropped to 22.5% from year-ago’s 23.8%.

“The U.S. saw a 16.8% decline in vehicle sales to 1.13 million units for the month from like-2020’s 1.35 million. Sales in Canada fell 15.7% to 145,704, while sales in Mexico slightly improved (+2.0%) as light-truck deliveries accounted for the gain. The region’s 8-month total was up 18.7% to 12.84 million.

“The picture was similar in Europe, where sales shrank 15.2% to 1.06 million for the month. Russia (-14.2%), France (-14.6%), and the U.K. (-16.6%) experienced declines in August. The drop in vehicle sales was even higher for Germany (-21.8%), Italy (-25.4%) and Spain (-28.7%).

“Year-to-date vehicle sales for Europe were up 16.1% to 11.51 million. In Asia Pacific, regional vehicle sales dropped 11.8% to 2.95 million compared to August 2020’s 3.35 million. In China vehicle sales shrank 17.6% to 1.88 million compared to last year’s 2.28 million, although year-to-date sales improved 13.5% to 17.21 million. Sales in Japan (-2.1%) and South Korea (-2.9) slightly declined, reaching 319,600 and 130,000 deliveries, respectively.”²⁷

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

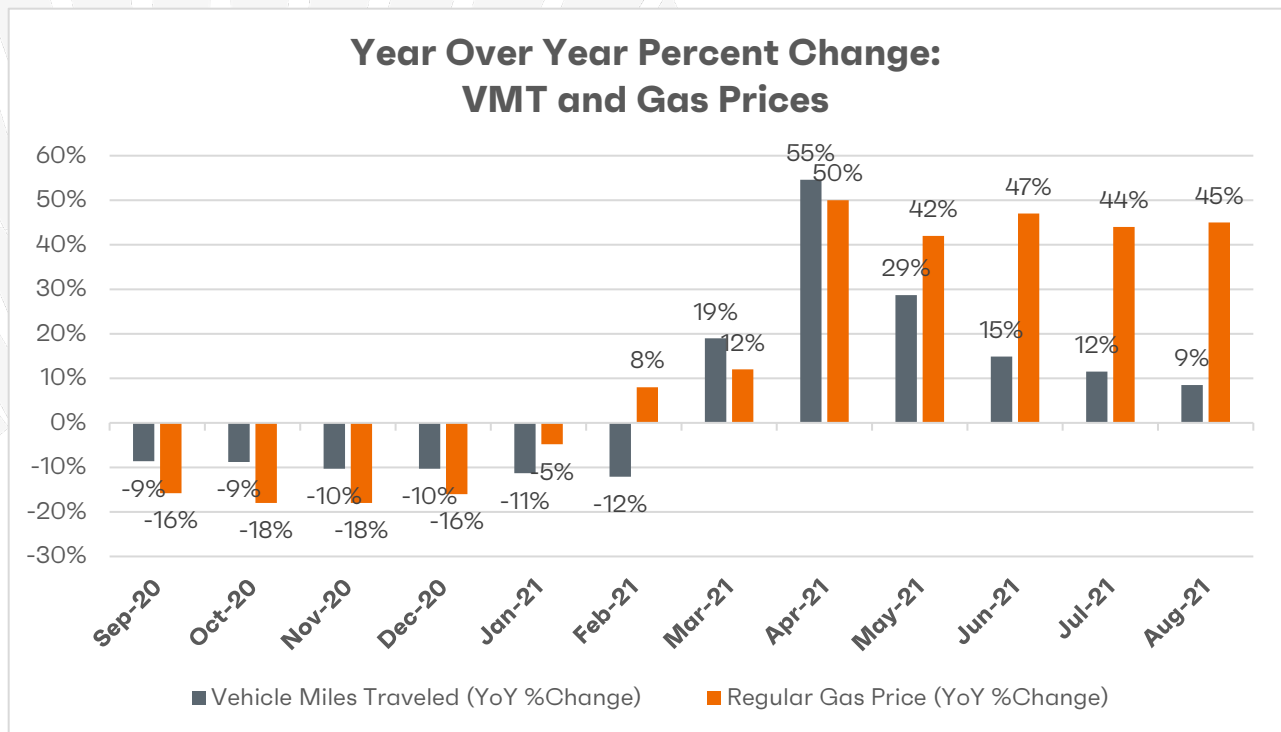


Recovery Meter

Roadway Travel (Updated 10/27)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in August rose 8.5% from the same time a year ago. The cumulative travel estimate for 2021 is 224.4 billion vehicle miles.²⁸

- Travel on all roads and streets changed by 8.3% (21.0 billion vehicle miles) for August 2021 as compared with August 2020. Travel for the month is estimated to be 273.8 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for August 2021 is 261.1 billion miles, an +8.5% (+20.4 billion vehicle miles) increase over August 2020. It also represents -2% decline (-5.2 billion vehicle miles) compared with July 2021.
- Cumulative Travel for 2021 changed by 12.2% (224.4 billion vehicle miles). The cumulative estimate for the year is 2,068.8 billion vehicle miles of travel.



Economic News (Updated 10/27)

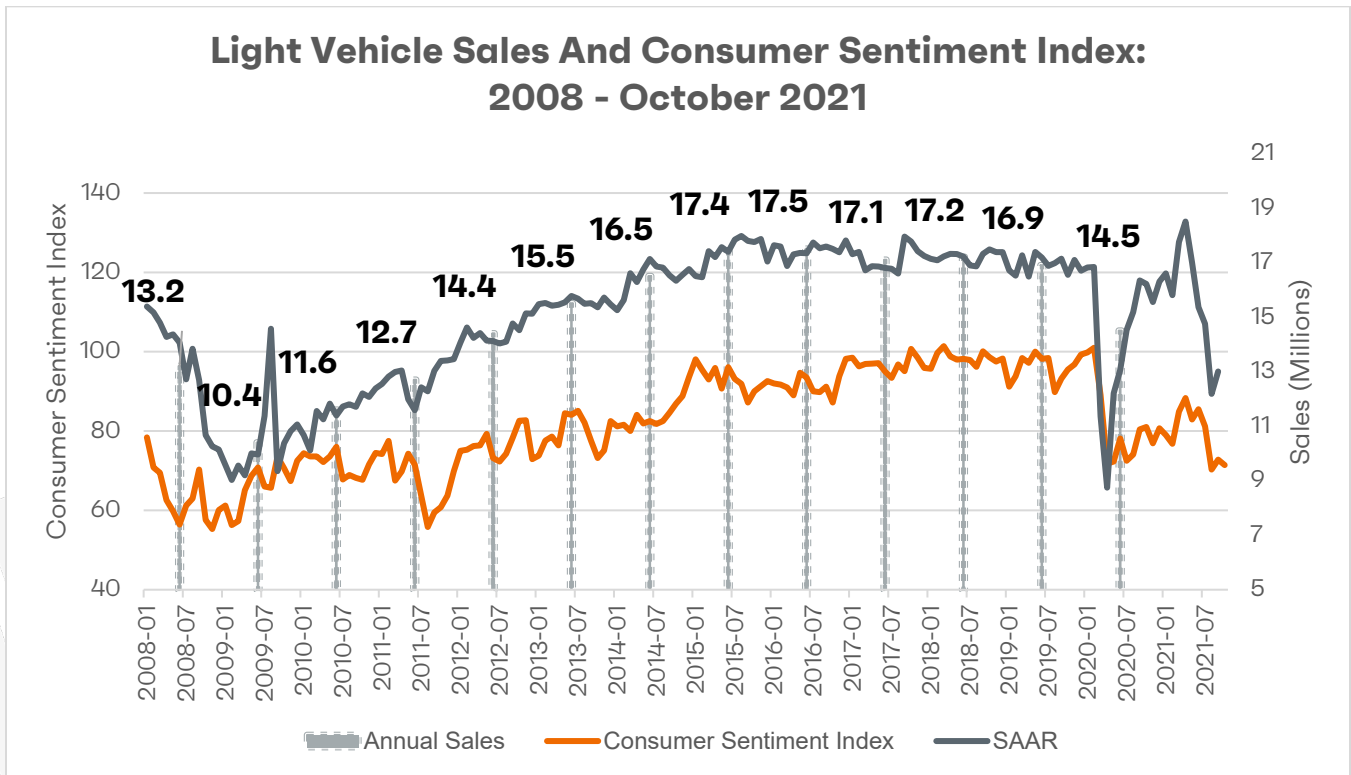
Durable Manufacturing Added 16,000 Jobs In September, But Further Gains Were Offset By A Drop In Motor Vehicles And Parts Employment By 6,000 “Durable goods manufacturing netted 16,000 new employees. About half of them, 8,200 by the Bureau’s estimate, went to work for fabricated metal products companies. A further 6,000 joined machinery workforces, and roughly 2,000 joined wood products and electronics companies each. Those gains were offset by a drop of 6,000 workers in motor vehicles and parts manufacturing, the largest industry in the durable goods manufacturing sector.”²⁹

For September, The ISM Ticked Up To 61.1% From 59.9 In August. “The Institute for Supply Management’s U.S. manufacturing index rose to 61.1% in September from 59.9% in the prior month, the trade group said Friday. The reading was the highest since May.”³⁰

The Index Of Prices For Raw Materials Rose To 81.2 After Falling To An Eight-Month Low. “That was underscored by a rebound in the survey’s measure of prices paid by manufacturers to a reading of 81.2 from an eight-month low of 79.4 in August.”³¹

Consumer Confidence and Sales (Updated 10/27)

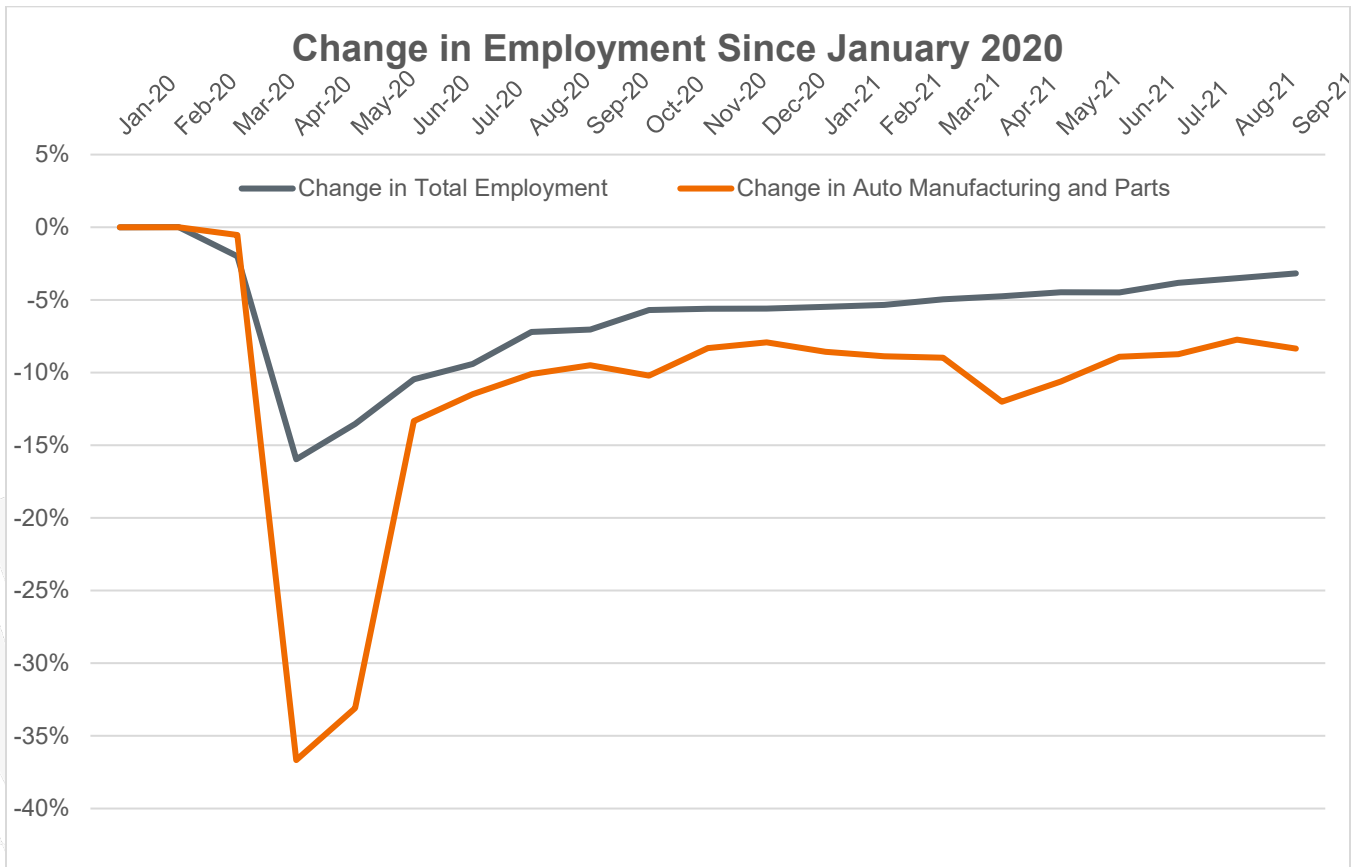
“Consumer sentiment has remained for the past three months at the lows first recorded in response to last year’s shutdown of the economy. The Delta variant, supply chain shortages, and reduced labor force participation rates will continue to dim the pace of consumer spending into 2022. There is another, less tangible factor that has contributed to the slump in optimism: confidence in government economic policies has significantly declined during the past six months. To be sure, the DC logjam, including the debates on the debt ceiling and the \$3.5 trillion social infrastructure program did not help, but the staged drama was largely ignored by most consumers. Consumers in the past were more attentive to the debates about extending the debt ceiling, passing major spending programs, or the face-off at the “fiscal cliff” (which may again happen in December). Unlike past debates, just 3% of consumers mentioned these policy debates when asked about recent news they had heard. Consumers presumably thought that these policies were important, but they largely ignored the dire partisan claims of an ensuing calamity. Consumers have much more basic concerns over policy. The adage “never let a crisis go to waste” mirrors the range and scale of Biden’s progressive proposals, but consumers see it as too risky a strategy. When asked about their confidence in economic policies, favorable evaluations fell to 19% in early October from Biden’s honeymoon high of 31% in April, while unfavorable policy evaluations rose to 48% in early October from 32% in April (see the chart). The decline in confidence in economic policies was recorded across all age, income, and education subgroups as well as among Democrats, Independents, and Republicans.”³²



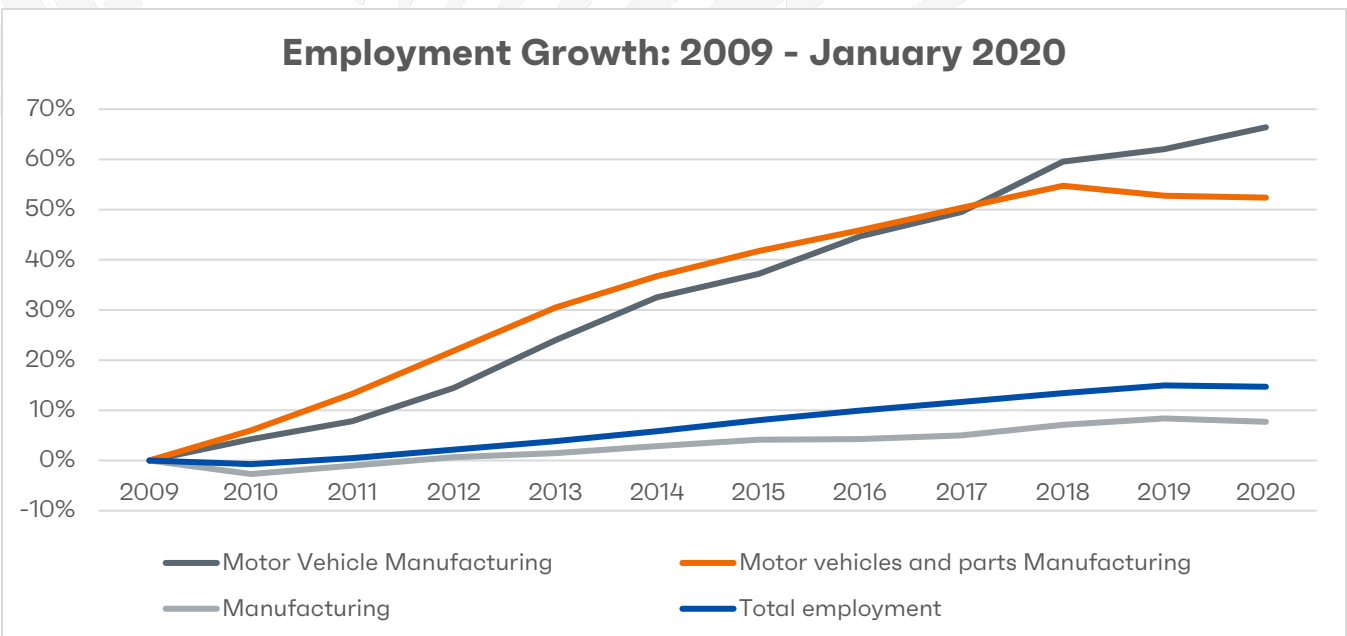
Employment (Updated 10/27)

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 69,400 jobs since January 2020.³³

- **Motor Vehicle And Parts Manufacturing Lost 6,100 Jobs In September.**³⁴



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.³⁵ 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.

Sources

- ¹ WardsIntelligence, "U.S. Light Vehicle Sales, April," 5/1/20; WardsIntelligence, "U.S. Light Vehicle Sales, May 2020," 6/2/20; WardsIntelligence, "U.S. Light Vehicle Sales, June 2020," 7/1/20; WardsIntelligence, "U.S. Light Vehicle Sales, July 2020," 8/3/20; WardsIntelligence, "U.S. Light Vehicle Sales, August 2020," 9/1/20; WardsIntelligence, "U.S. Light Vehicle Sales, September 2020," 10/1/20; WardsIntelligence, "U.S. Light Vehicle Sales, October 2020," 11/3/2020; WardsIntelligence, "U.S. Light Vehicle Sales, November 2020," 12/1/2020; "U.S. Light Vehicle Sales, December 2020," 1/5/2021
- ² Haig Stoddard, "COVID-19 Impact Will Tank March, Second-Quarter U.S. Light-Vehicle Sales," *WardsIntelligence*, 3/25/20; Haig Stoddard, "March 25 COVID-19 Update: 2020 North America Production, U.S. Sales Forecasts," *WardsIntelligence*, 3/30/20; Haig Stoddard, "U.S. Light-Vehicle Sales Start on the Road Back in May," *WardsIntelligence*, 5/21/20
- ³ Haig Stoddard, "COVID-19's Toll on North America Vehicle Production in March, Q2," *WardsIntelligence*, 3/30/20; Haig Stoddard, "North America Platform by Plant Production Forecast - 2020-2022," *WardsIntelligence*, 1/8/21
- ⁴ Haig Stoddard, "October U.S. Light-Vehicle Sales Forecast to Show First Month-to-Month Improvement Since April," *Wards Intelligence*, 10/25/21
- ⁵ J.D. Power, Press Release, "Inventory Constraints Still Inhibiting New-Vehicle Sales As Prices and Profits Increase to Record Highs," 10/27/21
- ⁶ Haig Stoddard, "October U.S. Light-Vehicle Sales Forecast to Show First Month-to-Month Improvement Since April," *Wards Intelligence*, 10/25/21
- ⁷ Haig Stoddard, "Supply Bottlenecks Continue Assault on North America Production," *Wards Intelligence*, 10/20/30
- ⁸ Haig Stoddard, "Supply Bottlenecks Continue Assault on North America Production," *Wards Intelligence*, 10/20/30
- ⁹ IHS Markit, email, "IHS Markit Monthly Automotive Update - October 2021," 10/15/21
- ¹⁰ Mark Fulthorpe, "Major Revision For Global Light Vehicle Forecast, Production Impacted Well Into 2022," *IHS Markit*, 9/16/21
- ¹¹ Haig Stoddard, "U.S. Light-Vehicle Sales Bottom-Out Again in September," *Wards Intelligence*, 10/1/21
- ¹² TrueCar, Press Release, "TrueCar Forecasts Fifth Consecutive Month of Slowing Vehicle Sales Across the Industry for September 2021September New Car Days Supply," 9/29/21
- ¹³ J.D. Power, Press Release, "Lack of Inventory Severely Constrains September New-Vehicle Sales As Per-Vehicle Prices and Profits Reach All-Time High," 9/28/21
- ¹⁴ WardsIntelligence, U.S. Light Vehicle Sales, January 2013 – June 2021
- ¹⁵ U.S. Energy Information Administration, Weekly Retail Gasoline and Diesel Prices, Regular price per gallon, including taxes
- ¹⁶ WardsIntelligence, Fuel Economy Index, December 2013 & 2019
- ¹⁷ WardsIntelligence, U.S. Light Vehicle Sales, June 2020; U.S. Light Vehicle Sales, June, 2021
- ¹⁸ Haig Stoddard, "U.S. Light-Vehicle Sales Continue Downward Slide in July," *WardsIntelligence*, 8/4/21
- ¹⁹ J.D. Power, Press Release, "Lack of Inventory Severely Constrains September New-Vehicle Sales As Per-Vehicle Prices and Profits Reach All-Time High," 9/28/21
- ²⁰ Kelley Blue Book, Press Release, "New-Vehicle Prices Surge to Record Highs for Fifth Straight Month, According to Kelley Blue Book," 9/14/21
- ²¹ Bankrate, "[Current Car Loan Interest Rates](#)," Accessed 10/27/21; Internet Archive, Bankrate, "Current Car Loan Interest Rates, cached image from 12/4/19
- ²² EIA, "[Short-Term Energy Outlook](#)," 10/27/21
- ²³ EIA, "[Short-Term Energy Outlook](#)," 10/27/21
- ²⁴ U.S. Energy Information Administration, Regular Gasoline, www.eia.gov, Accessed 10/27/21; U.S. Energy Information Administration, Weekly Cushing, OK WTI Spot Price, www.eia.gov, Accessed 10/27/2021
- ²⁵ WardsIntelligence, "North America Production, November 2019," 12/18/19; WardsIntelligence, "North America Production, November 2020," 12/17/20
- ²⁶ Haig Stoddard, "Supply-Chain Crisis Worsens and U.S. Light-Vehicle Inventory Falls Again in September," *WardsIntelligence*, 10/4/21
- ²⁷ Olympia Fotiadi Mouzala, "World Sales Dropped 10.9% in August," *WardsIntelligence*, 10/1/21

-
- ²⁸ U.S Department of Transportation, https://www.fhwa.dot.gov/policyinformation/travel_monitoring/20novvtv/, Accessed 10/27/2021
- ²⁹ Ryan Secad, "September Sees Slightly Slower Manufacturing Jobs Growth," *Industry Week*, 10/8/2021
- ³⁰ Greg Robb, "ISM Manufacturing Index Stays Strong In September Despite Supply-Chain Stress," *Market Watch*, 10/1/2021
- ³¹ "U.S. manufacturing expands further in September; shortages, prices rising-ISM," *Reuters*, 10/1/2021
- ³² Surveys of Consumers, University of Michigan, <http://www.sca.isr.umich.edu/>, 10/27//21
- ³³ Bureau of Labor Statistics, Current Employment Statistics, Accessed 10/27/2021
- ³⁴ Bureau of Labor Statistics, Table B-1. Employees on nonfarm payrolls by industry sector and selected industry detail, September 2021
- ³⁵ Jerry Hirsch, "[Auto Industry Has Soared Since 2010, Leading Economic Recovery](#)," *Los Angeles Times*, 1/3/14