

READING THE METER

*A look inside a cleaner, safer,
smarter auto industry.*



ALLIANCE FOR AUTOMOTIVE INNOVATION

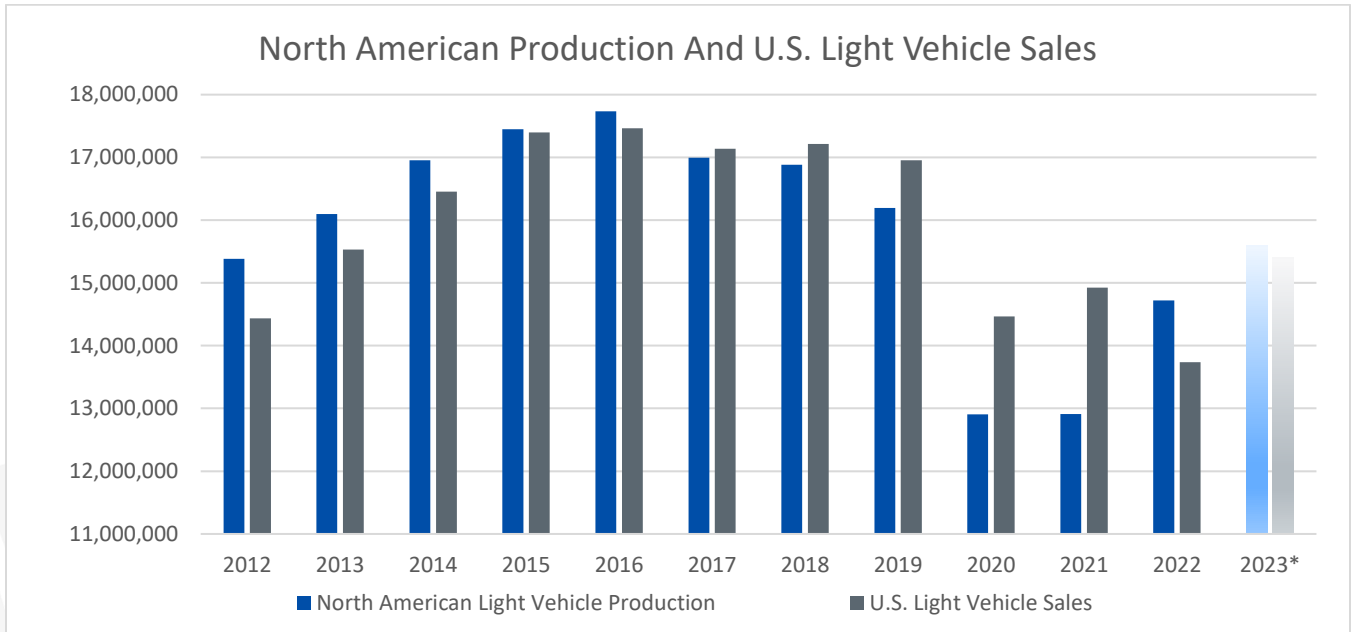
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Forecast Meter

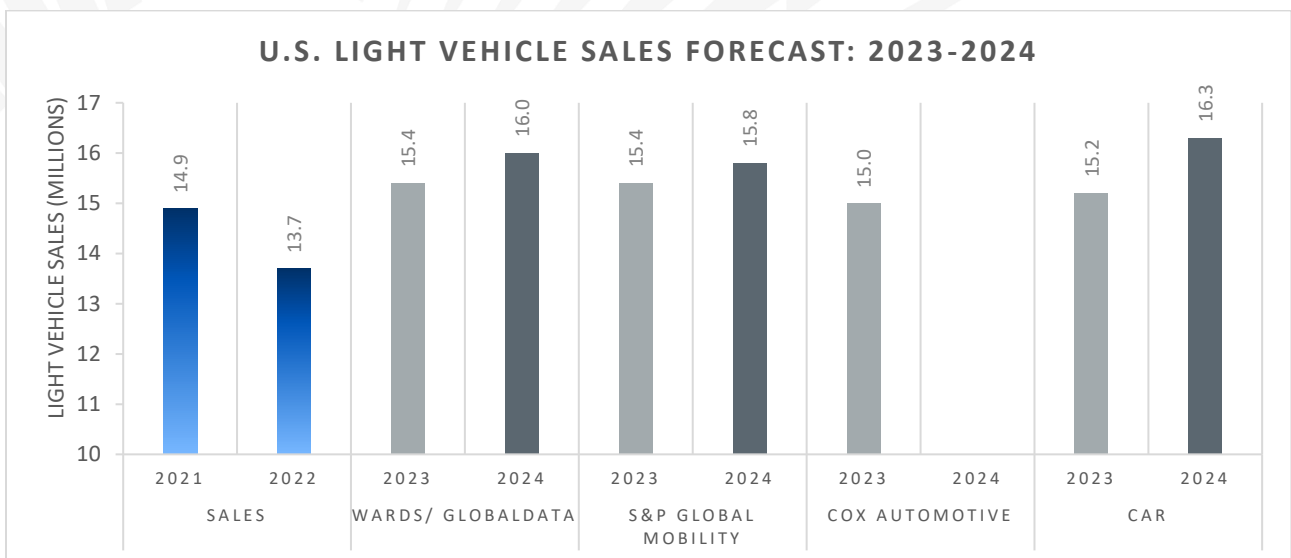
Sales & Production Summary and Forecast (Updated 11/3)

2022-2023 Sales,¹ Extended Sales Forecast,² and Production Forecasts.³		
	U.S. Sales & Forecasts	North American Production
January '22	991,156 (-10% YoY)	1,111,390 (-4% YoY)
February '22	1,052,524 (-11.8% YoY)	1,112,429 (-1% YoY)
March '22	1,246,336 (-22% YoY)	1,350,102 (-.1% YoY)
April '22	1,226,950 (-22% YoY)	1,177,851 (+8% YoY)
May '22	1,104,993 (-23.8% YoY)	1,215,000 (+20.4% YoY)
June '22	1,126,724 (-16.8% YoY)	1,259,515 (+13.8% YoY)
July '22	1,129,371 (-8.4% YoY)	977,485 (+7% YoY)
August '22	1,128,200 (-.7% YoY)	1,413,262 (+29 %)
September '22	1,112,245 (+3.9% YoY)	1,258,501 (+38% YoY)
October '22	1,151,774 (+13.8% YoY)	1,299,707 (+12.4% YoY)
November '22	1,120,067 (+6% YoY)	1,200,244 (+5.5% YoY)
December '22	1,263,268 (+4.9% YoY)	1,074,938 (+3.4% YoY)
January '23	1,033,002 (+4.2% YoY)	1,195,548 (+12.9% YoY)
February '23	1,136,332 (+8.7% YoY)	1,257,482 (+15% YoY)
March '23	1,365,966 (+8.6% YoY)	1,442,991 (+6.7% YoY)
April '23	1,347,159 (+13.1% YoY)	1,281,626 (+8.6% YoY)
May '23	1,362,019 (+18.0% YoY)	1,462,273 (+25.5% YoY)
June '23	1,370,976 (+19.9% YoY)	1,387,090 (+13.8% YoY)
July '23	1,299,199 (+19.9% YoY)	1,173,342 (+15.6 YoY)
August '23	1,328,526 (+12.8% YoY)	1,467,284 (+4.5% YoY)
September '23	1,331,952 (+13.9% YoY)	1,353,072 (+7.6% YoY)
October '23	1,200,286 (+5.7% YoY)	
2022 Full Year	13,734,203 (-8.1% YoY)	14,721,053 (+9.8% YoY) (U.S. 10,019,791)
2023 Estimate	15.4 million units (WardsIntelligence)	15.6 million units (WardsIntelligence)



U.S. Light Vehicle Sales Outlook (Updated 11/3)

Wards Intelligence Outlook (11/3)⁴: “Sales are expected to continue growing in November and December with double-digit year-over-year gains. After a 15.5 million-unit SAAR in October, the SAAR is forecast to total 15.4 million over the final two months of the year, with entire-Q4 finishing at the same level. Wards Intelligence partner GlobalData expects sales for the entire year to end at 15.4 million units, followed by 16.0 million in 2024.”



North American Production & Inventory Outlook (Updated 11/3)

Wards Intelligence Inventory Outlook (11/3)⁵: “Sales are expected to continue growing in November and December with double-digit year-over-year gains. After a 15.5 million-unit SAAR in October, the SAAR is forecast to total 15.4 million over the final two months of the year, with entire-Q4 finishing at the same level. Wards Intelligence partner GlobalData expects sales for the entire year to end at 15.4 million units, followed by 16.0 million in 2024. Inventory is projected to rise in November from October and remain relatively flat in December.

Wards Intelligence Production Outlook (10/25)⁶: “Wards Intelligence’s tracker puts October North America production, including light vehicles and medium-/heavy-duty trucks, at 1.283 million units, 161,200 below month-ago’s projection for the period.

“The October and entire Q4 totals assume plants currently closed related to strikes by the United Auto Workers union continue through the end of the month and reopen Nov. 1. Other plants could close before the end of October, or later in Q4, if negotiations at a combination of or all the effected manufacturers continue indefinitely, but there is no adjustment for potential additional shutdowns.

“Of the October cuts from month-ago expectations, 141,700 units are attributable to strike losses. Accounting for the remainder were cuts at other plants at Ford, General Motors and Stellantis, which, though unknown, could in some cases be related to the strike shutdowns. October production at other automakers – especially Kia and Mercedes – also was pared.

“Including upward revisions to November and December from month-ago’s tracker of 6,200 and 6,100 units, respectively, Q4 production has been cut 148,900 units from month-ago’s revision.

“Fourth-quarter 2023 production is pegged at 3.736 million units, 0.8% above like-2022’s 3.706 million. However, if the UAW closes more plants, or some plants not targeted by the union close indirectly because of the targeted closures – as is the case with GM’s Fairfax plant – Q4 production is likely to fall further.”

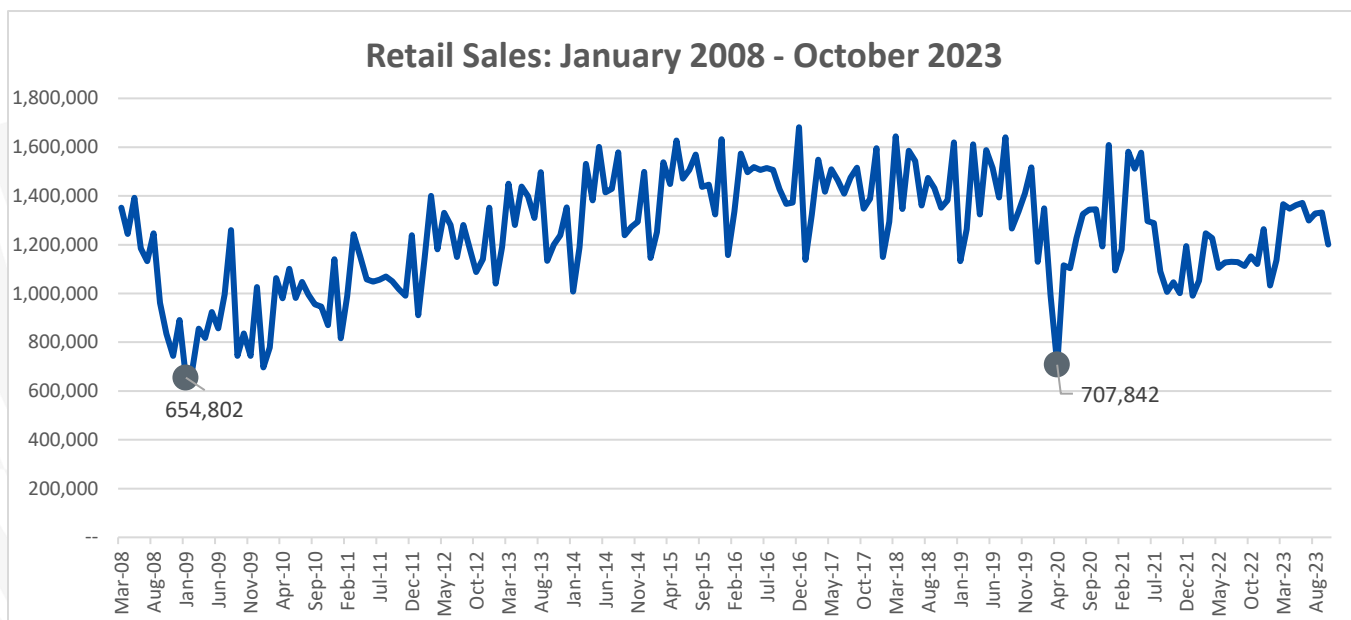
S&P Global Mobility Outlook (10/25)⁷: “North America: The outlook for North America light vehicle production was increased by 52,000 units and reduced by 32,000 units for 2023 and 2024, respectively (and increased by 24,000 units for 2025). Near-term production continues to be impacted by the ongoing UAW strike, targeting specific sites to keep manufacturers uncertain about their next moves. The September forecast reflected a more aggressive strike scenario that has not transpired, though the UAW is beginning to increase the pressure with the recent strike announcement of Ford’s largest plant in the region, Kentucky Truck. The October forecast features a heavily revised strike scenario. The latest forecast release includes a continuation of the strike at already announced plants through Thanksgiving in the US with production forecast to resume starting the week of November 27. Unlike the September forecast, the revised outlook does not attempt to call out the next strike targets given the inherent unpredictability. Instead, the forecast features reduced output across UAW plants in the US and UAW-supported plants in Canada and Mexico in the months of October and November. Volume recovery extends into 2024 with production for the Detroit 3 revised 22,000 units higher. Overall, production in 2024 was adjusted downward modestly to 16.29M units with revised launch timings for numerous Hyundai Motor programs the primary driver of the reduced outlook. Production upside exists in 2024 surrounding not only the strike recovery process for the Detroit 3 but also as the Asian manufacturers work to restock their heavily depleted inventory levels.

Market Meter

U.S. Light Vehicle Sales (Updated 11/3)

Monthly Sales (Updated 11/3)

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.



October Sales (Updated 11/3)

WardsIntelligence⁸: “October U.S. light-vehicles sales finished below expectations as some weakness set in at the end of the month. Sales totaled a 15.5 million-unit seasonally adjusted annual rate, well below the 16.0 million forecasted for the month and down from September’s 15.7 million. October’s SAAR was an increase from like-2022’s 14.7 million.

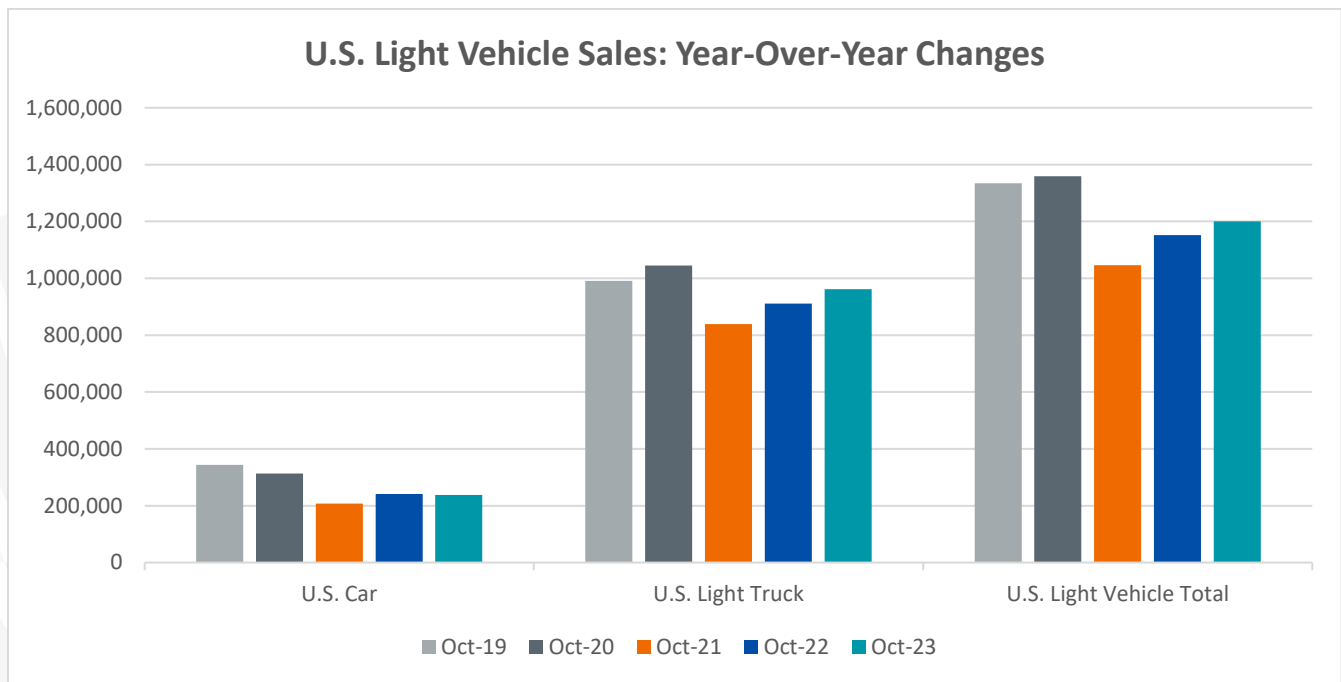
“Raw volume in October totaled 1.200 million units, up 1.6% from same-month 2022’s 1.182 million. The daily selling rate was 48,011 over 25 selling days, 5.7% above October 2022’s 45,444 – 26 selling days. By DSR, October’s year-over-year gain marked the 14th consecutive increase.

“Calendar year-to-date through October, the SAAR stands at 15.5 million units, up from like-2022’s 13.7 million. Wards Intelligence partner GlobalData is projecting the year to end at 15.4 million units.

“The weaker-than-expected results were mostly across the board by automaker, thus can’t be blamed on underestimating impacts from the strike-related plant shutdowns in the U.S. and Canada over the past two

months, though that might have played some part with October deliveries at Ford, General Motors and Stellantis, as each came in below forecast.

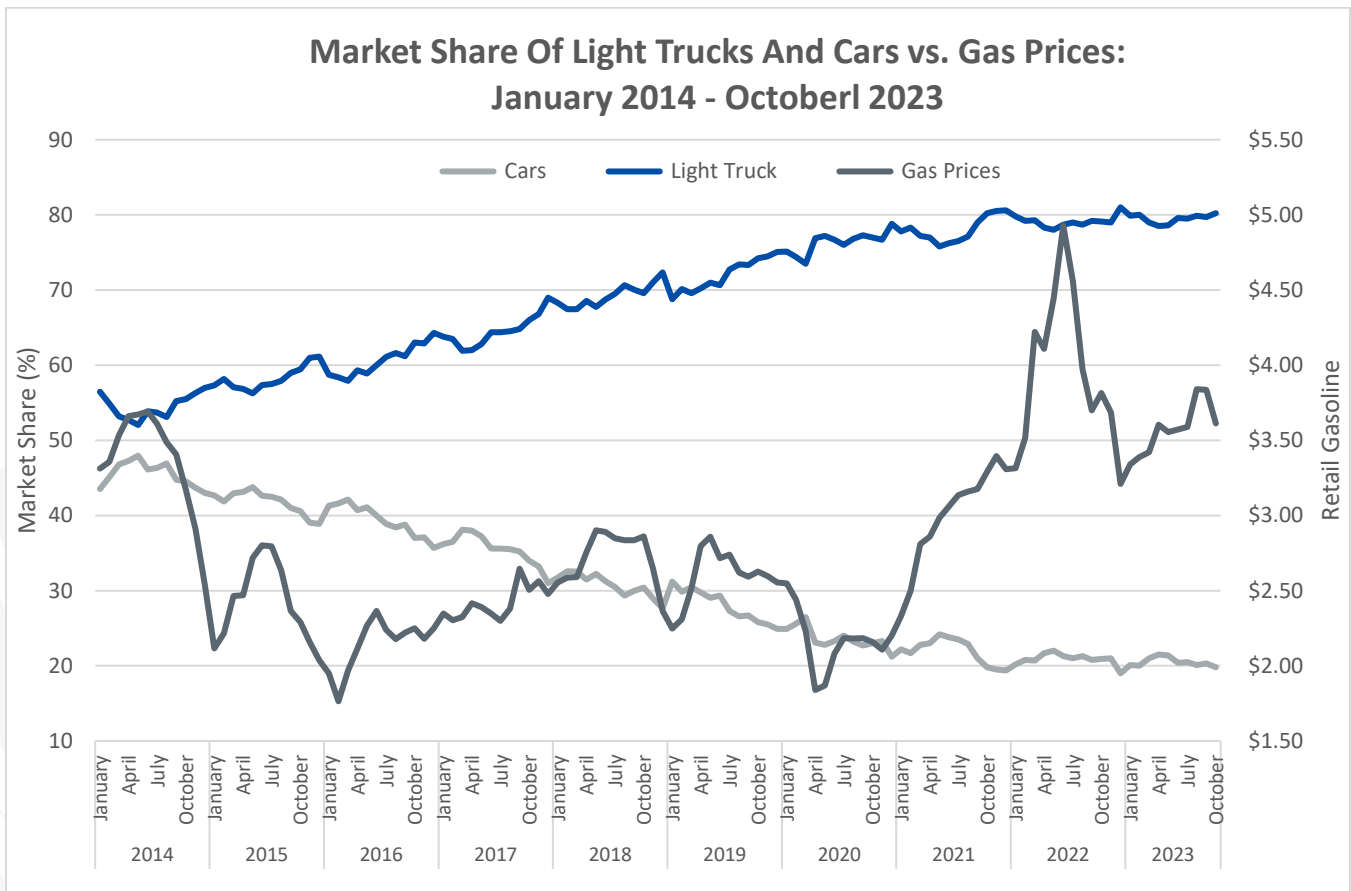
“Fleet deliveries, largely related to the strikes, were expected to be low, which means retail – mainly sales to consumers – mostly were behind the industry’s unanticipated softness. Still, estimated splits between both retail volume and fleet deliveries finished stronger than year-ago by 6.6% and 7.1%, respectively, based on DSRs.



Segments vs. Gas Prices (Updated 11/3)

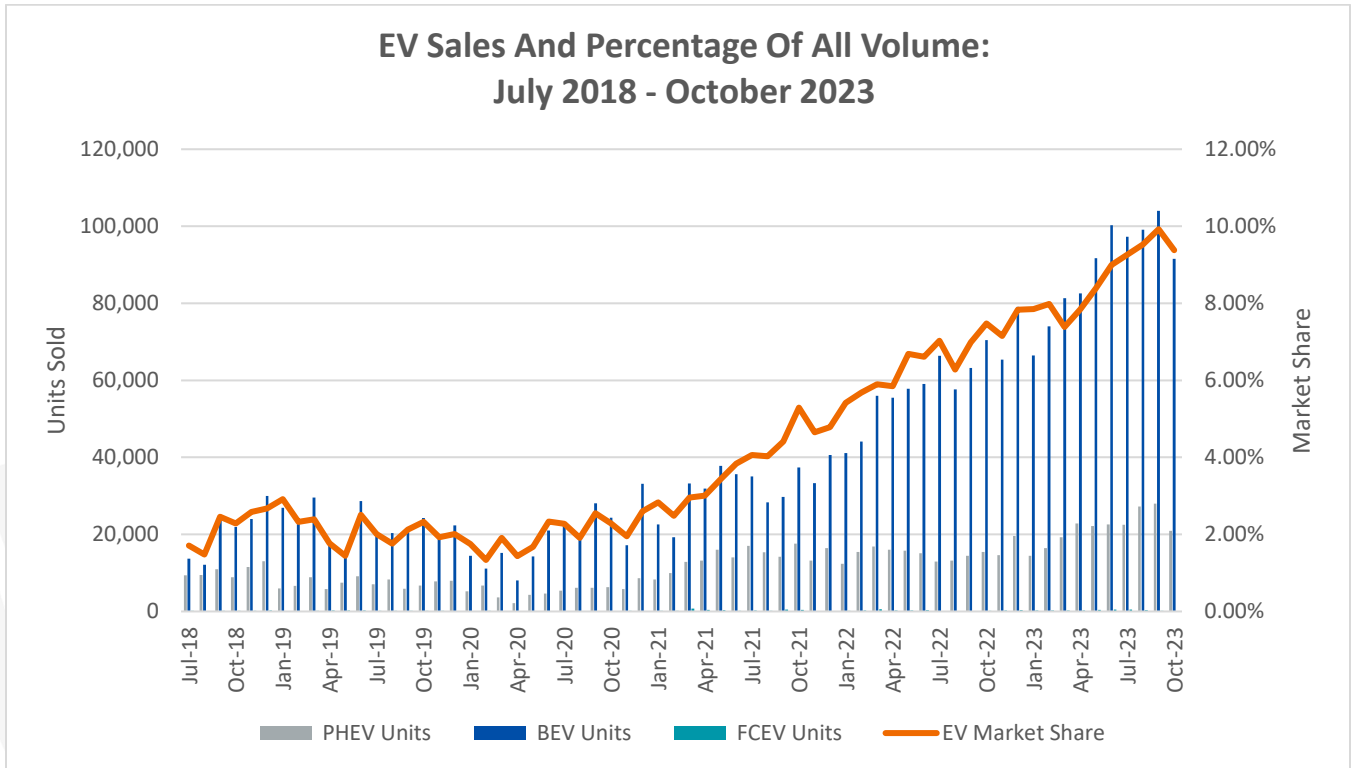
Monthly Sales For October: Light trucks accounted for 80.2 percent of sales in October, nearly flat with the market share a year ago. Compared to the same period in 2022, sales of cars are down 2,738, and down more than 105,000 from October 2019, when cars comprised 26% of the market as opposed to the 20 percent 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 segments...⁹ and gas was over \$3.00...¹⁰ 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 \$2.83 a gallon (through December 2022) 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...¹¹



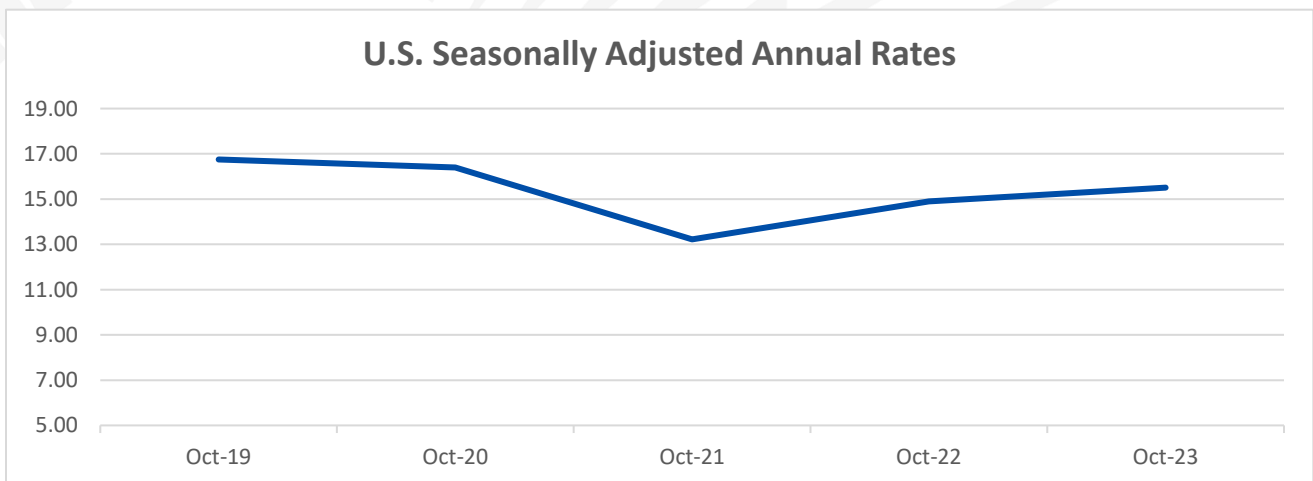
EV Powertrain Sales (Updated 11/3)

Sales of electric vehicles (BEV, PHEV, & Fuel Cell) accounted for 9.4 percent of total vehicle sales in October 2023 (112,563), per Wards estimates. Market share decreased 0.5 percentage points (pp) from September 2023. October's EV market share is up 1.9 pp from a year ago. Sales of battery electric vehicles led the way for EVs, accounting for 7.6 percent of total sales, up 1.5 pp from October 2022. Plug-in hybrids accounted for 1.7 percent, up 0.4 pp from the same time last year...¹²



Seasonally Adjusted Annual Rates (Updated 11/3)

WardsIntelligence¹³: “Sales totaled a 15.5 million-unit seasonally adjusted annual rate, well below the 16.0 million forecasted for the month and down from September’s 15.7 million. October’s SAAR was an increase from like-2022’s 14.7 million.”



Average Transaction Price (Updated 11/3)

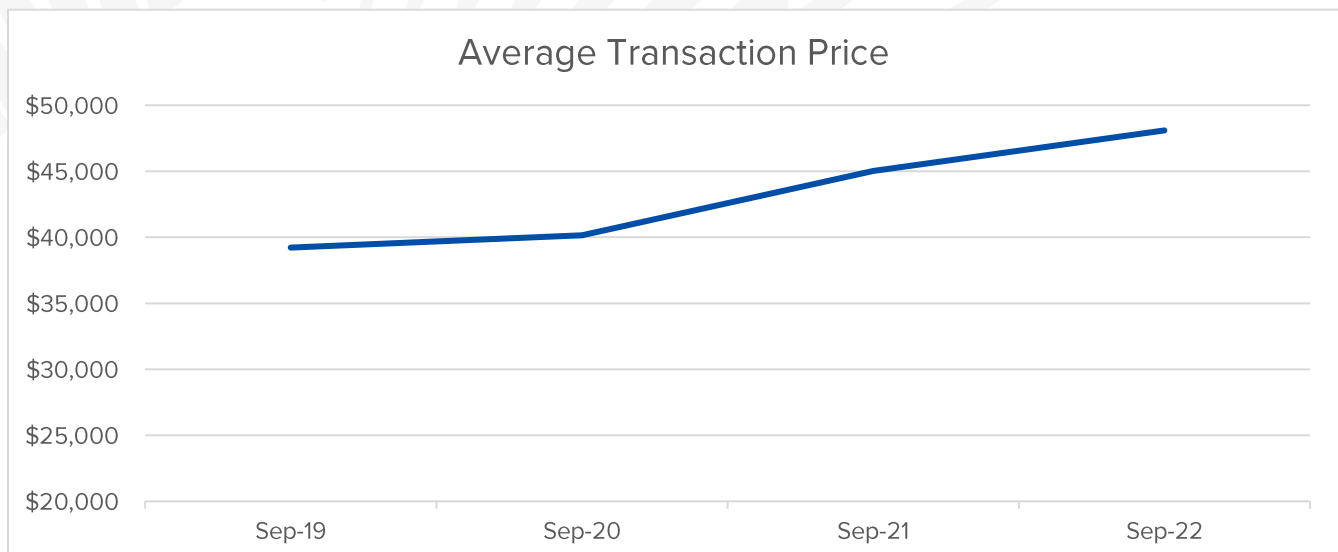
J.D. Power (Updated 11/3)¹⁴: “As inventory and sales volumes improve, the average new-vehicle retail transaction price is declining modestly, trending down \$451—or 1%—from October 2022, to \$45,651.”

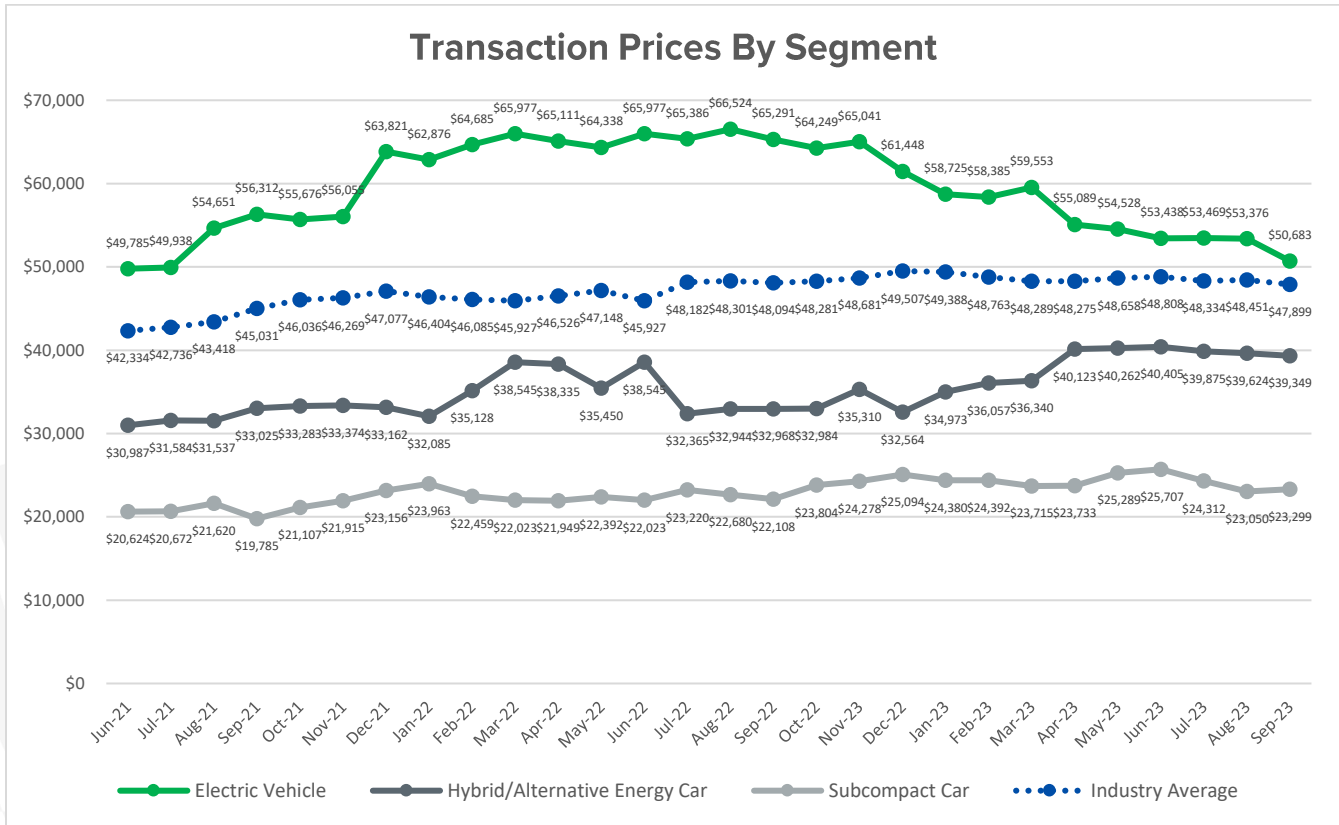
Kelley Blue Book (August) (Updated 10/25)¹⁵: “The average price Americans paid for a new vehicle in September 2023 was down 3.4% from the start of the year, as higher inventory levels and increased incentives continued to put downward pressure on pricing. The average transaction price of a new vehicle in September was \$47,899, down \$360 from one year ago (0.7%), according to Kelley Blue Book, a Cox Automotive company. Prices decreased by \$227 (0.5%) from August's downwardly revised ATP of \$48,126.

"After new-vehicle prices peaked at nearly \$50,000 at the start of 2023, we're seeing average transaction prices dip below \$48,000 for the first time in more than a year," said Rebecca Rydzewski, research manager at Cox Automotive. "Dealers and automakers are feeling price pressure, and with auto loan rates at record highs and growing inventory levels, new-vehicle prices continue to ease. Assuming the UAW strike is short-lived, current inventory levels are healthy enough to prevent any significant impact on consumer prices."

"EV prices continue to fall, led again by market leader Tesla. In September, the average price paid for an electric vehicle was \$50,683, down from \$52,212 in August and down from more than \$65,000 one year ago. Incentives for EVs in September were 9.8% of ATP, or \$4,991.

"At the start of October, EV availability, as measured by days' supply, was well above the industry average as product availability and EV production rapidly increases. EV and internal combustion engine (ICE) inventory started the year off at about 52 days' supply. Since then, EV days' supply dramatically increased while ICE remained consistent between 52 and 58 days. EV supply at the start of October was 97 days, down from the peak inventory of around 111 days during early July.



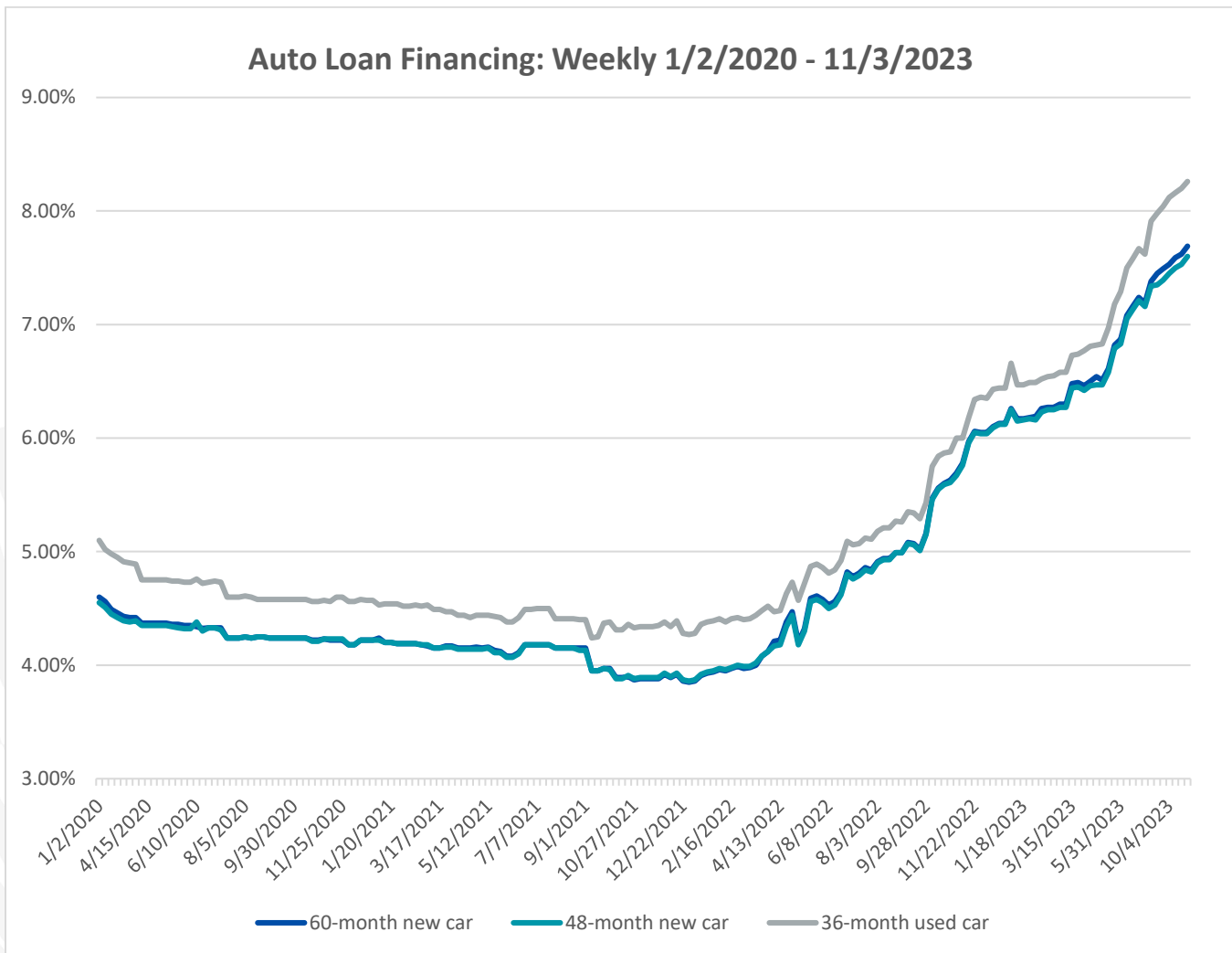


Auto Loan Financing (Updated 11/3)

Interest Rates (updated 11/3): Interest rates continued their steady increase on the 60-month, 48-month and 36-month used car loans. Rates now stand at 7.69%, 7.60%, and 8.26%, respectively. Since the beginning of 2020, 60-month rates are up 3.09 pp, and are up 2.0 pp since the same time a year ago...¹⁶

JD Power (11/3)¹⁷: “Elevated pricing, combined with rising interest rates, are contributing to the escalation of monthly loan installments. The average monthly finance payment in October is on pace to be \$728, up \$11 from September 2022. That translates to a 1.5% increase in monthly payments from a year ago. The average interest rate for new-vehicle loans is expected to be 7.5%, an increase of 140 basis points from a year ago. Although, the month-to-month pace of rate increases are tempered when compared with the prior year.”

Dates	60-month new car	48-month new car	36-month used car
1/2/2020	4.60%	4.55%	5.10%
11/2/2022	5.69%	5.67%	6.00%
10/18/2023	7.62%	7.53%	8.20%
11/1/2023	7.69%	7.60%	8.26%
Two Week Change	0.07%	0.07%	0.06%
Change since 1/3/20	3.09%	3.05%	3.16%
One Year Change	2.00%	1.93%	2.26%



Crude Oil and Gas Prices (Updated 11/3)

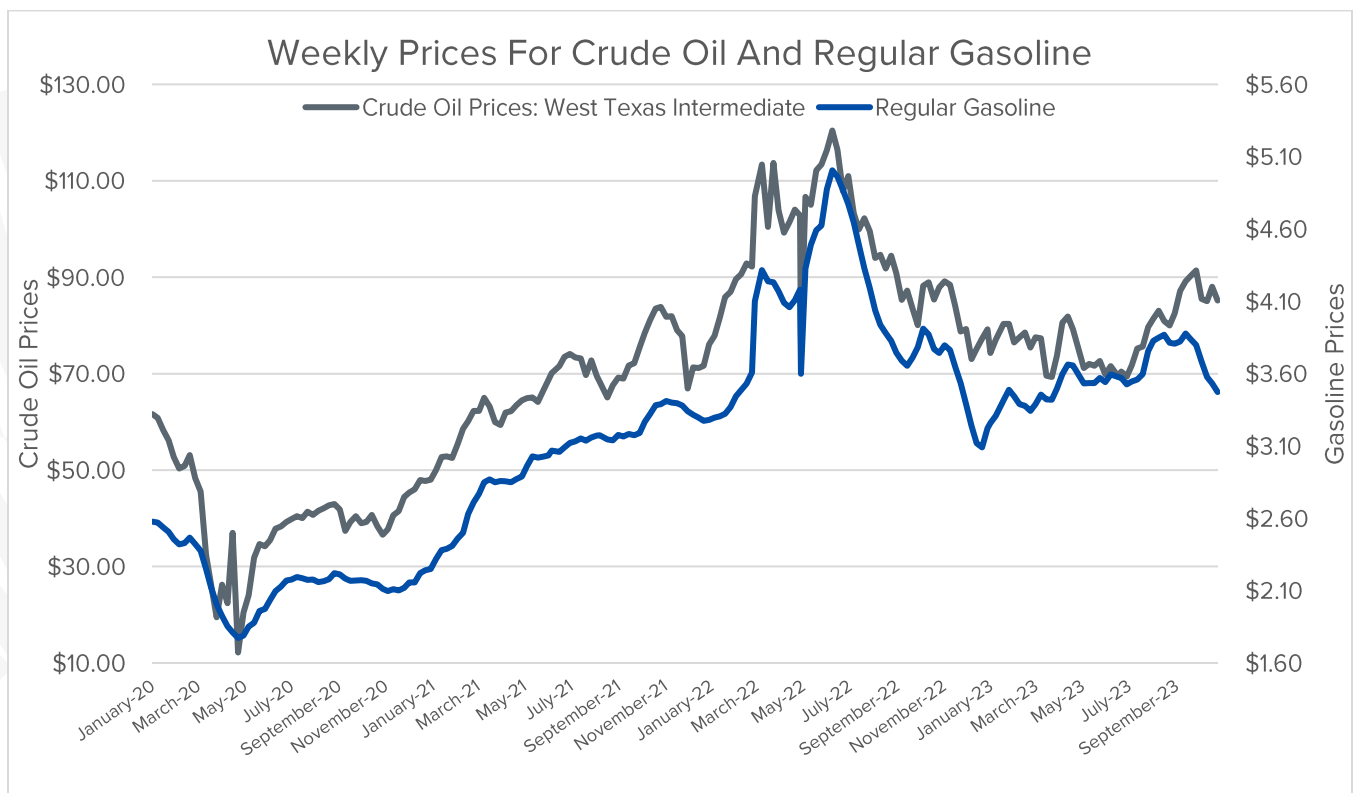
Gas And Oil Remain Elevated (11/3): Oil prices, as benchmarked at West Texas Intermediate decreased \$2.83 to \$85.20 a barrel over the last week. Since election day 2020, oil prices are \$49 a barrel higher. Gas prices are down \$0.06 from last week. Gas is 35% higher than the beginning of 2020.¹⁸

EIA Outlook For Oil (9/21): Crude oil prices. We expect the Brent crude oil price to average \$93 per barrel (b) during 4Q23, up from \$86/b in August. A decline in global oil inventories in the coming months supports the Brent price in our forecast. The price eases to an average of \$87/b by the second half of 2024 because we expect global oil inventories to rise during that period.¹⁹

EIA Outlook For Gasoline (9/21):²⁰ “We reduced our vehicle miles traveled (VMT) forecast—which directly affects motor gasoline consumption—following the release of new population estimates from the U.S. Census Bureau. The revision increased the share of the U.S. population over 65, which reduced our forecast for VMT and gasoline consumption because it decreased our estimate of the working-age population commuters. In

our September STEO forecast, the share of the U.S. population that will be over 65 is 18.2% in 2024, up from our August STEO forecast of 18.0%. This seemingly small increase adds 0.7 million individuals to the population of adults over 65. Although the total population remained unchanged, the U.S. Census Bureau revised the population under the age of 15 down by 0.5 million and the working-age population down by 0.2 million people. We define the working-age population as ages 15–64 because this group accounts for the bulk of the workforce and regular commuting.

“In our September STEO, we forecast U.S. gasoline consumption will average 8.9 million barrels per day (b/d) in 2023 and 8.7 million b/d in 2024 (down from our August STEO forecast of 8.9 million b/d in 2024). As a result of the revisions, we forecast that gasoline consumption will decline by 1.6% in 2024 compared with this year.”



Production Meter

U.S. Light Vehicle Inventory and Days' Supply (Updated 11/3)

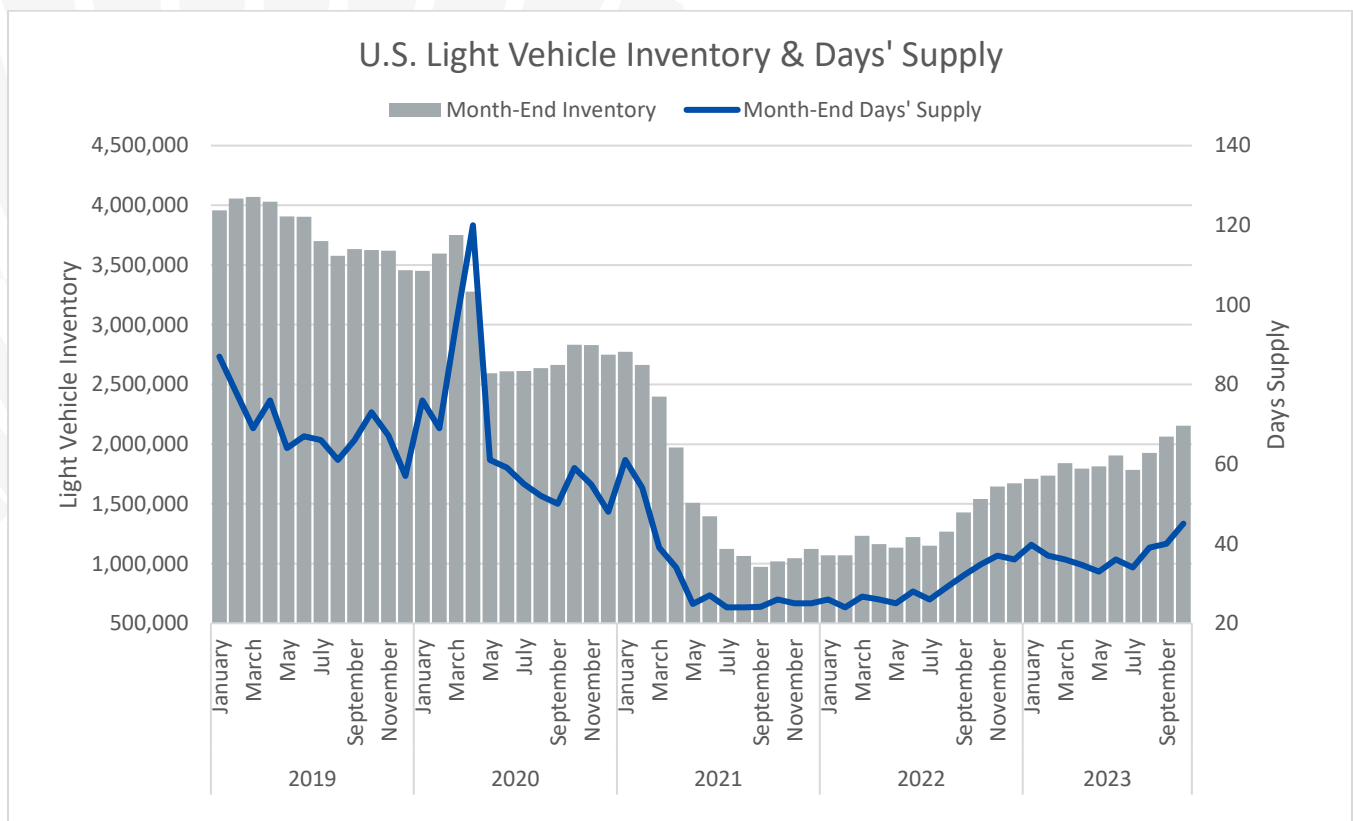
WardsIntelligence Inventory Update (10/6)²¹: “U.S. light-vehicle inventory rose 4.4% from the prior month in October, despite slowed production for the U.S. because of labor walkouts in the U.S. and Canada.

Oct. 31 inventory totaled 2.154 million units, up 40.1% year-over-year, and highest total for the month since 2.825 million in 2020. Days' supply rose to 45 from September's 40 and like-2022's 34. It was the highest days' supply for any month since 54 in February 2021.

In total, strike-related lost production in October at the Detroit 3 totaled an estimated 157,000 units. Excluding 2,000 medium-duty trucks at Ford, light-vehicle production losses totaled 155,000 units. An estimated 90% of that total – 139,000 – would have been designated for the U.S. market.

The 139,000 units of lost output for the U.S. market does not directly mean inventory would have been that much higher without the strikes. Reduced sales acted as a partial offset because fewer deliveries meant less stock was pulled from the pool.

In typical years, inventory for each of the Detroit 3 rises from September to October. With the strike losses, inventory remained relatively flat from the prior month at all three. There will be some sluggishness in production in the first part of the month as closed plants ramp back up, but output should bounce back fast enough that sales return to normal levels by the end of the year for the three.



North American Production (Updated 10/25)

Wards Intelligence²²: “Production in September totaled 1.404 million units, 6.9% above same-month 2022. Thanks to overbuilds at other automakers, the total was 52,300 units above expectations for the month.

The month-ago outlook for September took estimated strike losses into account. September’s total was down an estimated 40,100 units from the strikes, including 10,800 at Ford, 17,500 at GM and 11,800 at Stellantis. Despite the strike shutdowns, Ford ended September building 32,700 units above expectations thanks to throughput at other factories. GM ended the month nearly spot-on with expectations, while Stellantis fell short 20,300 units.

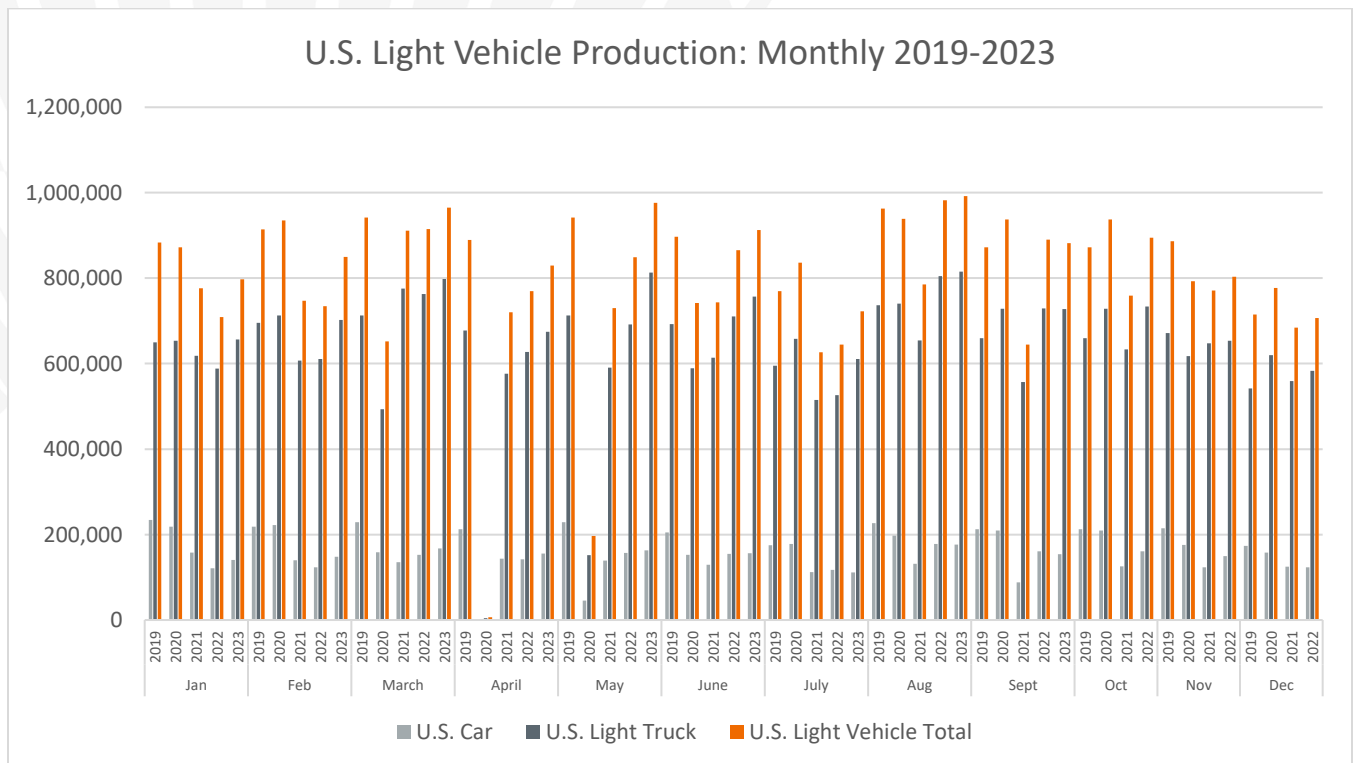
“Several other manufacturers, such as BMW, Nissan, Toyota and Volkswagen, reported September output above month-ago’s projections for the period.

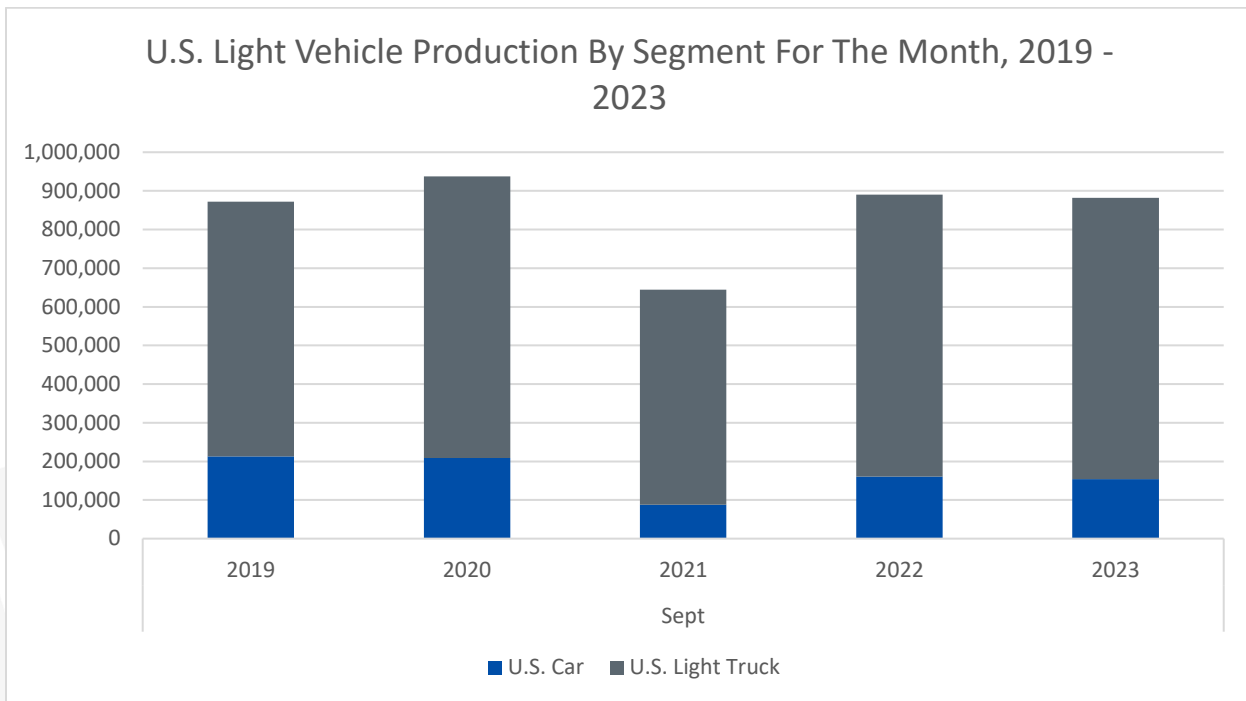
“Assuming no change in the current shutdown status, accumulated production losses since the first plants closed Sept. 15 will total 197,400 units at the end of October.”

U.S. Light Vehicle Production (Updated 10/25)

Monthly Production (Updated 10/25)

U.S. Light vehicle production for September 2023 decreased month-over-month by 12.3 percent, totaling 881,877 vehicles (154,315 cars, 727,562 light trucks), year-over-year, production is down 1.0 percent from 2022. ...²³





Global Meter

Global Light Vehicle Sales (Updated 11/3)

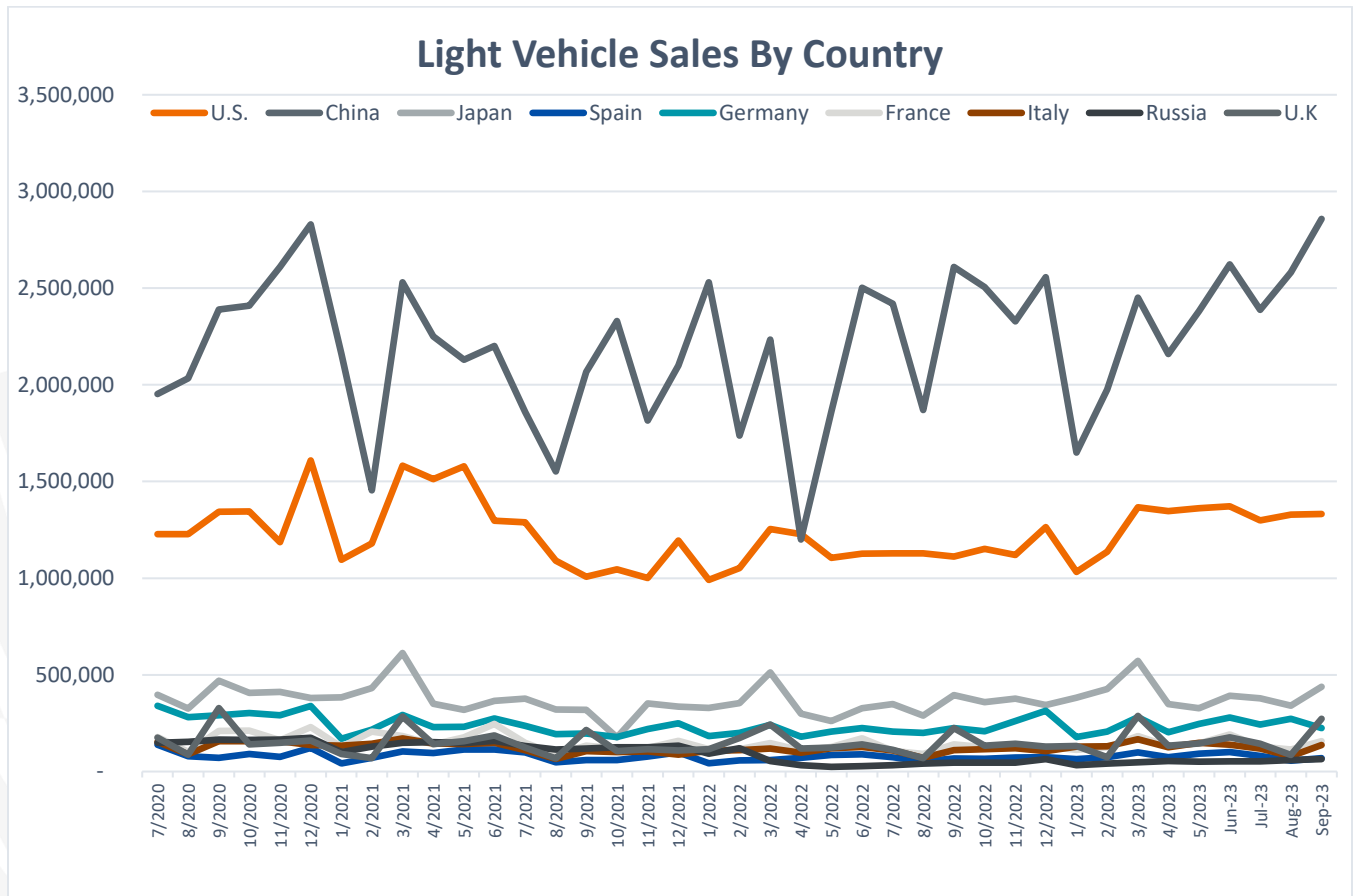
Wards Intelligence²⁴: “Global deliveries of light vehicles and medium-/heavy-duty trucks in September totaled 8.28 million units, up 9.9% from the prior year’s 7.53 million. September’s results were bolstered by a 19.6% year-over-year increase in North America and a rise of 17.0% in Europe. The Asia-Pacific region posted a slightly weaker 6.4% increase, while volume in South America declined 5.5%, the region’s second straight decrease.

“China continued to rebound from its decline in July with a year-over-year increase of 9.2%. Sales in China in the first nine months of 2023 totaled 21.60 million units, up 7.8% from like-2022’s 20.05 million. Australia, the fifth-largest market in AP, posted a year-over-year increase of 18.3%, the largest of the region in September. AP countries with double-digit declines included Indonesia, Pakistan, Singapore, Thailand and Vietnam. The only other double-digit gain was posted by Japan.

“September sales in Europe rose 17.0% year-over-year to 1.58 million units. Year-to-date volume through September was up 19.8% to 12.92 million. While the U.K. saw a 22.4% increase in deliveries from like-September 2022, Germany sales only rose by 0.6%.

“North America came out on top as the highest-performing region, with September deliveries up 19.6% year-over-year. Year-to-date deliveries were up 14.5%.

“Calendar year-to-date global volume for all vehicles through September was 67.59 million units, 10.6% above like-2022’s 61.12 million. Light-vehicle sales were up 10.5% to 65.09 million.”



Global Light Vehicle Production (Updated 10/25)

S&P Global Mobility Forecast (10/25)²⁵: “Light vehicle production continues to outperform in the near-term with output increasing in several regions further building on implied inventory gains. Moreover, the release of pent-up demand continues to play a role in supporting production. The state of consumer demand remains a key consideration given elevated vehicle pricing and still challenging credit conditions; yet, consumers remain fairly well-engaged in the light vehicle market in many regions. Looking beyond 2023, as inventory levels approach equilibrium in several markets, we continue to see a general production outlook that is shifting toward a more traditional demand-driven model yet in the context of a “higher for longer” interest rate environment, among other influences. The October 2023 forecast update reflects some noteworthy upgrades in the near-term, particularly for Greater China given ongoing strength in export activity and Japan/Korea and South America with continued production recovery supporting demand, as well as inventory backfill. This was only partially offset by somewhat more modest revisions elsewhere. In addition, some positive adjustments were made to the near-term North American outlook even as the nature and expected trajectory of the UAW strike actions develop. S&P Global Mobility continues to release a weekly tracker to help clients navigate the ongoing impacts of strike actions as they evolve. The more noteworthy regional adjustments with the latest forecast update are detailed below:

“Europe: The outlook for Europe light vehicle production was reduced by 114,000 units and by 94,000 units for 2023 and 2024, respectively (and reduced by 73,000 units for 2025). Europe is turning rather rapidly into a demand influenced market. As the sales backlog continues to shrink, we are starting to see some consequences in the form of targeted price cuts (especially on EVs) and production stoppages that are no longer due to a lack of parts but instead due to a lack of orders. The results for the third quarter came 79,000 units under our previous estimate. The forecast for the fourth quarter was cut by 41,000 units with risk identified to be on the downside. Volume downgrades are largely focused on Volkswagen (especially the MEB platform), Mercedes-Benz (mainly the MFA platform) and Stellantis. With regards to industry indicators, the Europe output index of the PMI survey for Autos and Auto Parts is at a one-year low, and the Orders on Hand Index of the IFO survey on German passenger car manufacturing shows a fairly meaningful contraction over the last six months, suggesting that the pace of the backlog reduction will accelerate in the coming months. Looking ahead, the nearly 2% reduction in volumes for 2024 relative to 2023 has been maintained as we expect the aforementioned order backlogs to fade further. The sequential downward cadence from 2024 to 2025 remains largely intact with the October 2023 forecast update.

“Greater China: The outlook for Greater China light vehicle production was increased by 966,000 units and by 102,000 for 2023 and 2024, respectively (and reduced by 138,000 units for 2025). Robust export activity continues to be a strong driver of light vehicle production growth in the region. In addition, further support is provided by resilient domestic demand driven by price reductions and other promotion activity. With the ongoing strength in exports and stronger domestic demand, we upgraded August and September by 230,000 units and 350,000 units, respectively. Further, Q4-2023 has been upgraded by 360,000 units on expectations for continued automotive strength and industrial expansion. Overall Greater China light vehicle production now reflects growth of 5.6% for 2023 (3.7 percentage points higher than the September release). Given expectations for continued strength in consumption on robust government incentives and resilient economic activity, the production outlook remains constructive for 2024 and 2025 with post-COVID gains of 0.6% and 4.4%, respectively.

“Japan/Korea: Full-year 2023 and 2024 Japan production volumes were increased by 67,000 units and 74,000 units, respectively. Given stronger ICE export demand, primarily for Toyota, and generally more robust production plans for many Japanese OEMs in the near-term, we made focused upgrades to the production forecast over the next six months through the end of the fiscal year in March 2024. The longer-term forecast was also upgraded by around 55,000 units per year particularly due to the fact we added back the Subaru Crosstrek to support domestic production volumes which was previously removed last month. Full-year 2023 production in South Korea was modestly increased by 9,000 units relative to the previous forecast. Exports are slowing but remain solid, primarily due to steady shipments to the United States. This trend is expected to continue at least until the first quarter of next year, so the production volume for 2024 has been raised by about 17,000 units. Meanwhile, end of production extensions for the Hyundai Sonata and the Kia K5 have boosted output in 2025 by 36,000 units. Longer-term output revisions were mixed for the October 2023 update. End of production extensions for the Hyundai Sonata and the Kia K5 and higher global demand for the Kia EV5 increased production by 140,000 units on average in 2026 and 2027. However, the removal of the Hyundai Ioniq 3 and lower global demand for the Ioniq 4 reduced production by 92,000 units on average from 2028 to 2031.

“North America: The outlook for North America light vehicle production was increased by 52,000 units and reduced by 32,000 units for 2023 and 2024, respectively (and increased by 24,000 units for 2025). Near-term production continues to be impacted by the ongoing UAW strike, targeting specific sites to keep manufacturers uncertain about their next moves. The September forecast reflected a more aggressive strike scenario that has not transpired, though the UAW is beginning to increase the pressure with the recent strike

announcement of Ford's largest plant in the region, Kentucky Truck. The October forecast features a heavily revised strike scenario. The latest forecast release includes a continuation of the strike at already announced plants through Thanksgiving in the US with production forecast to resume starting the week of November 27. Unlike the September forecast, the revised outlook does not attempt to call out the next strike targets given the inherent unpredictability. Instead, the forecast features reduced output across UAW plants in the US and UAW-supported plants in Canada and Mexico in the months of October and November. Volume recovery extends into 2024 with production for the Detroit 3 revised 22,000 units higher. Overall, production in 2024 was adjusted downward modestly to 16.29M units with revised launch timings for numerous Hyundai Motor programs the primary driver of the reduced outlook. Production upside exists in 2024 surrounding not only the strike recovery process for the Detroit 3 but also as the Asian manufacturers work to restock their heavily depleted inventory levels.

“South America: The outlook for South America light vehicle production was increased by 50,000 units and by 18,000 units for 2023 and 2024, respectively (and increased by 8,000 units for 2025). The near-term outlook for the region was boosted based on stronger production results for Brazil and Argentina. Our general production outlook continues to reflect an earlier return to inventory normalization and consequently is more reliant on demand fundamentals going forward. The production upgrade for 2024 is related to a stronger outlook for Brazil and Colombia output. This is primarily the result of an advanced start of production for the Brazilian-built Toyota Yaris Cross now starting in late 2023 instead of late 2024 and an improved outlook for the Renault Kardian produced in Colombia, yet with a more cautious ramp-up in Brazil in 2024.

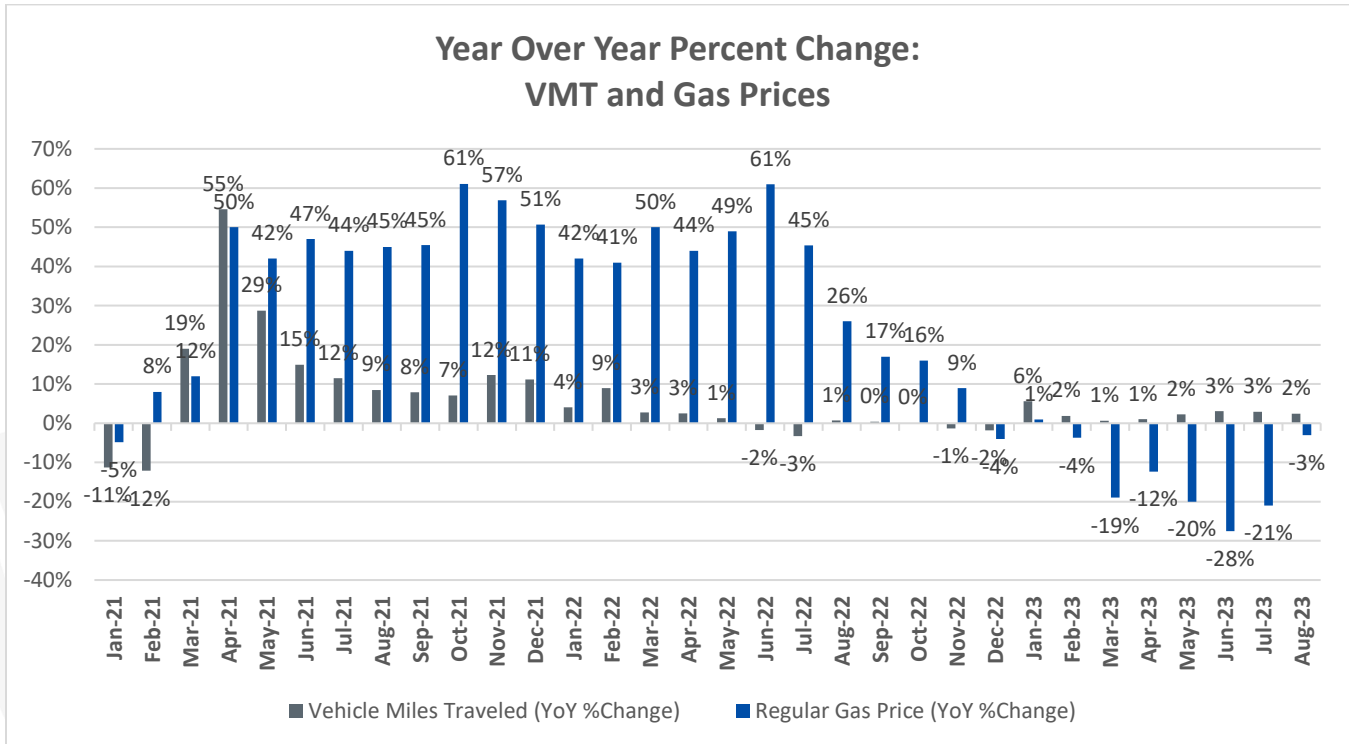
“South Asia: The outlook for South Asia light vehicle production was reduced by 13,000 units and by 1,000 units for 2023 and 2024, respectively (and reduced by 43,000 units for 2025). In the near-term, India subcontinent production was reduced by 28,000 units exclusively on continued weakness in output for Pakistan impacted by falling foreign exchange reserves and exchange rate volatility, among other factors. Looking beyond 2023, production for the subcontinent was revised only modestly for 2024 as Pakistan production weakness is offset by modestly improved expectations for India. With regard to the ASEAN market, upgrades are focused solely on an improved outlook for Malaysia as automakers ramp-up production to deliver on outstanding order backlogs and support ongoing resilient demand. Production strength for Malaysia is partially offset by recent weakening in Thailand and Indonesia in the wake of inflation and interest rate hikes impacting the general market environment and outlook for those countries.”

Recovery Meter

Roadway Travel (Updated 10/6)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in August increased 2.4 percent from the same time a year ago. The cumulative travel estimate for 2023 is 2,154.6 billion vehicle miles.²⁶

- Travel on all roads and streets changed by +2.4% (+6.8 billion vehicle miles) for August 2023 as compared with August 2022. Travel for the month is estimated to be 288.4 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for August 2023 is 271.2 billion miles, a 2.40% (6.3 billion vehicle miles) change over August 2022. It also represents a 0.4% change (0.9 billion vehicle miles) compared with July 2023.
- Cumulative Travel for 2023 changed by +2.4% (+49.9 billion vehicle miles). The cumulative estimate for the year is 2,154.6 billion vehicle miles of travel.



Economic News (Updated 11/3)

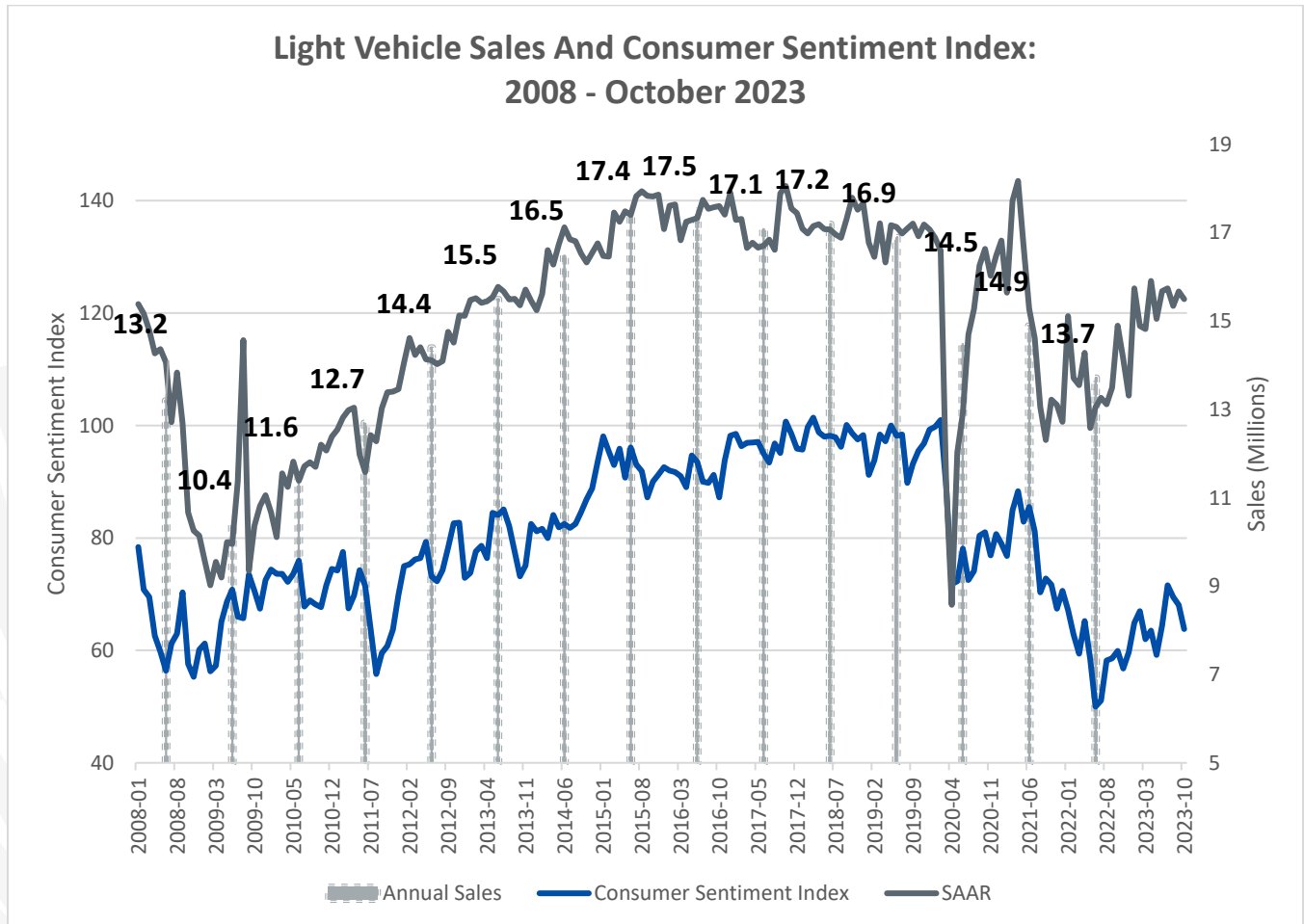
The ISM Index Drops to 46.7 Percent In October – Twelfth Consecutive Month of Contraction. “Economic activity in the manufacturing sector contracted for the 12th consecutive month in October. According to the latest Manufacturing ISM Report On Business, the Manufacturing PMI registered 46.7%, down 2.3 percentage points from the previous month. This contraction followed a brief period of weak expansion and preceded nine months of contraction, indicating a return to economic contraction after a 30-month expansion phase. Anything below 50% indicates contraction..”²⁷

Consumer Confidence and Sales (Updated 11/3)

Surveys of Consumers Director Joanne Hsu²⁸: “Consumer sentiment confirmed its early-month reading, falling back about 6% this October following two consecutive months of very little change. This decline was driven in large part by higher-income consumers and those with sizable stock holdings, consistent with recent weakness in equity markets. Across all consumers, one-year expected business conditions plunged 16% and expectations over consumers’ own personal finances in the year ahead fell 8%, reflecting ongoing concerns about inflation and, to a lesser degree, uncertainty over the implications of negative news both domestically and abroad.

Year-ahead inflation expectations rose from 3.2% last month to 4.2% this month, the highest reading since May 2023. Long-run inflation expectations edged up from 2.8% last month to 3.0% this month, again staying

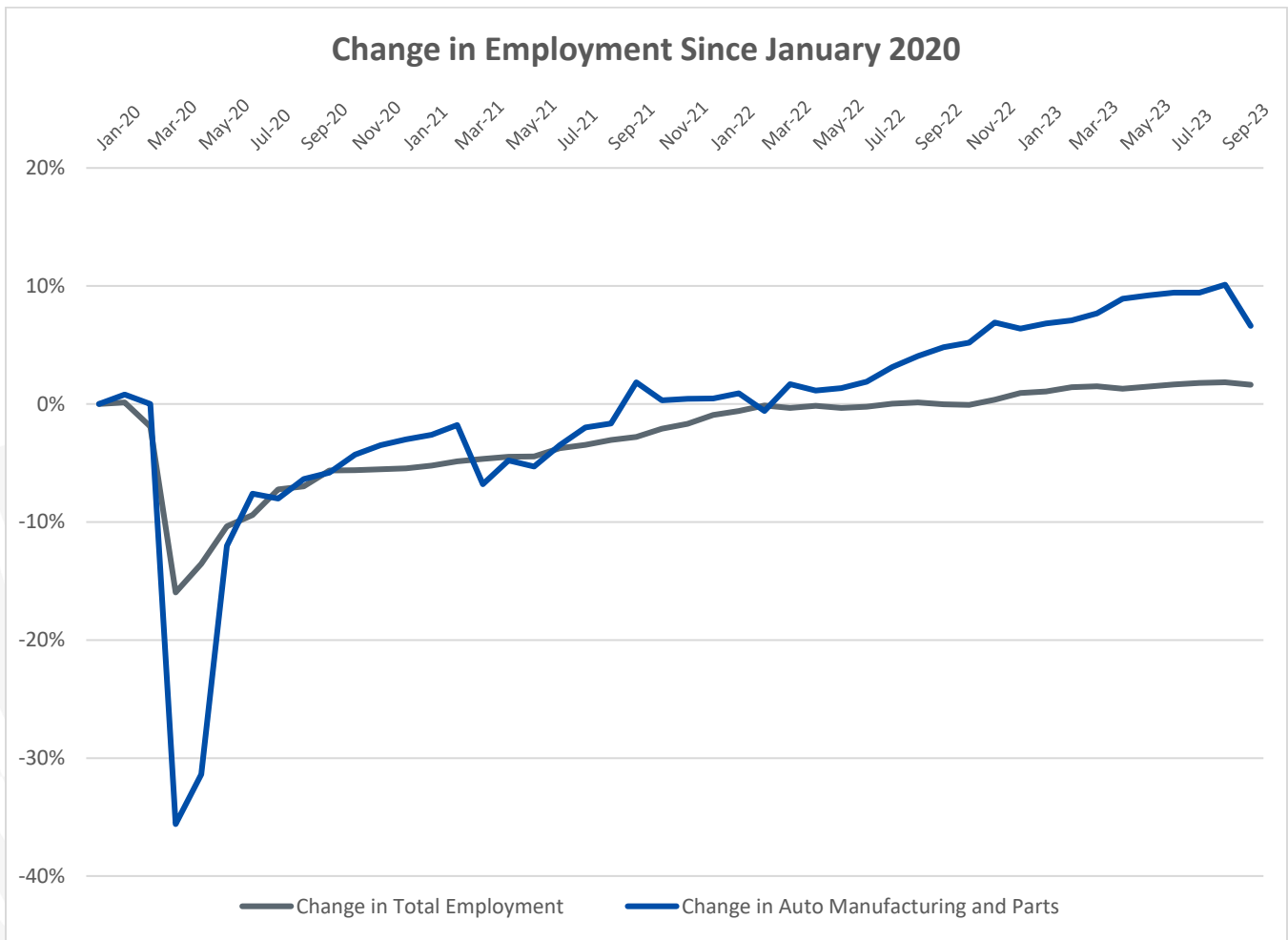
within the narrow 2.9-3.1% range for 25 of the last 27 months. Long-run inflation expectations remained elevated relative to the 2.2-2.6% range seen in the two years pre-pandemic.”



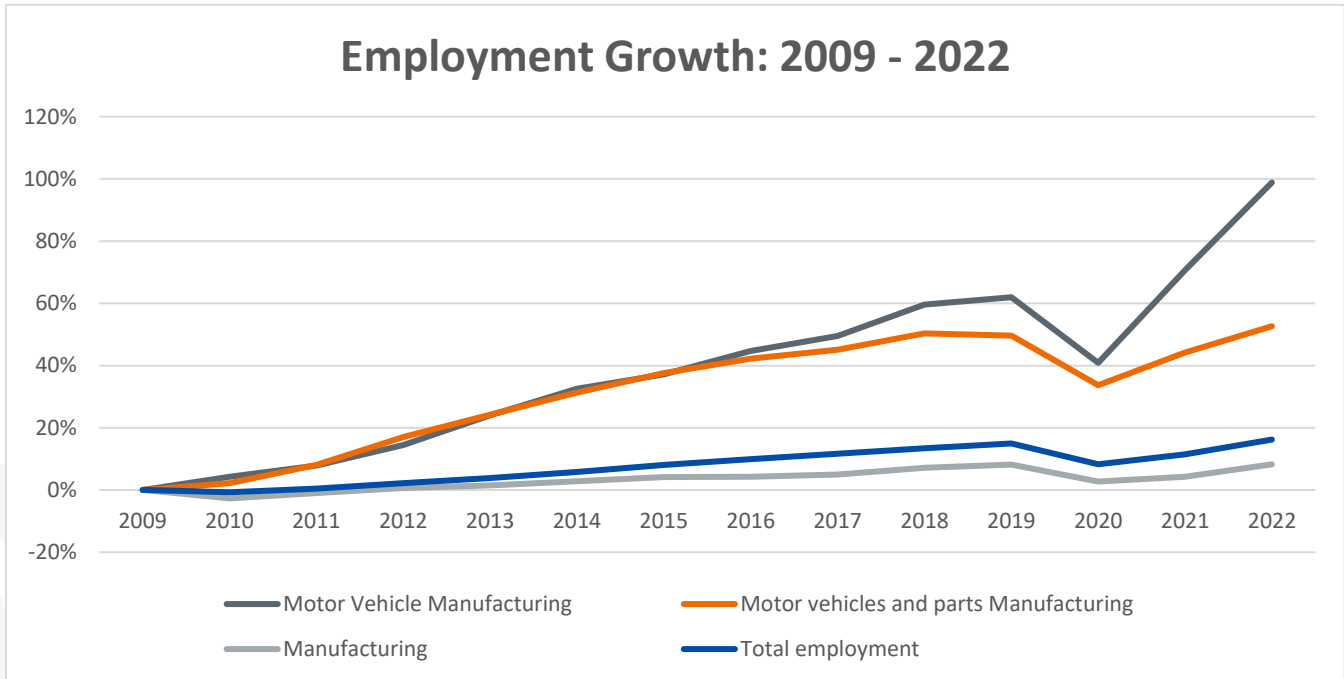
Employment (Updated 11/3)

Motor Vehicle And Parts Manufacturing Lost 34,000 Jobs In October.

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.²⁹



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.³⁰ 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, January 2021 – June 2023
- ² WardsIntelligence, North America Production, January 2021 – June 2023
- ³ WardsIntelligence, North America Platform by Plant Production Forecast, Q1
- ⁴ Haig Stoddard, "October U.S. Light-Vehicle Sales Miss Expectations but Still Record 6% Increase," *WardsIntelligence*, 11/1/23
- ⁵ Haig Stoddard, "Strike-Impacted October U.S. Light-Vehicle Inventory Rises 4% from September," *WardsIntelligence*, 11/2/23
- ⁶ Haig Stoddard, "Strikes Put Dent in September, Q4 North America Production," *WardsIntelligence*, 10/19/2023
- ⁷ S&P Global Mobility, email, "S&P Global Mobility Monthly Automotive Update – September 2023," 9/15/23
- ⁸ Haig Stoddard, "October U.S. Light-Vehicle Sales Miss Expectations but Still Record 6% Increase," *WardsIntelligence*, 11/1/23
- ⁹ WardsIntelligence, U.S. Light Vehicle Sales, January 2013 – June 2023
- ¹⁰ U.S. Energy Information Administration, Weekly Retail Gasoline and Diesel Prices, Regular price per gallon, including taxes
- ¹¹ WardsIntelligence, Fuel Economy Index, December 2013 & 2019
- ¹² WardsIntelligence, U.S. Light Vehicle Sales, June 2022 - 2023
- ¹³ Haig Stoddard, "October U.S. Light-Vehicle Sales Miss Expectations but Still Record 6% Increase," *WardsIntelligence*, 11/1/23
- ¹⁴ J.D. Power, Press Release, "New-Vehicle Sales Projected to Increase 6.6% in October Amid Record Consumer Spending," 10/26/2023
- ¹⁵ Kelley Blue Book, Press Release, "New-Vehicle Transaction Prices Decline Further in September, Led by Price Cuts at Tesla, According to Kelley Blue Book Report," 10/11/23
- ¹⁶ Bankrate, "[Current Car Loan Interest Rates](#)," Accessed 11/3/2023
- ¹⁷ J.D. Power, Press Release, "New-Vehicle Sales Projected to Increase 6.6% in October Amid Record Consumer Spending," 10/26/2023
- ¹⁸ U.S. Energy Information Administration, Regular Gasoline, www.eia.gov, Accessed 11/3/23; U.S. Energy Information Administration, Weekly Cushing, OK WTI Spot Price, www.eia.gov, Accessed 11/3/23
- ¹⁹ EIA, "[Short-Term Energy Outlook](#)," 10/2023
- ²⁰ EIA, "[Short-Term Energy Outlook](#)," 10/2023
- ²¹ Haig Stoddard, "Strike-Impacted October U.S. Light-Vehicle Inventory Rises 4% from September," *WardsIntelligence*, 11/2/23
- ²² Haig Stoddard, "Strikes Put Dent in September, Q4 North America Production," *WardsIntelligence*, 10/19/2023
- ²³ WardsIntelligence, "North America Production, November," 2019, 2020, 2021, 2022
- ²⁴ Haig Stoddard, "Global Sales Up 9.9% in September," *WardsIntelligence*, 10/31/23
- ²⁵ S&P Global Mobility, email, "S&P Global Mobility Monthly Automotive Update – June 2023," 6/19/23
- ²⁶ U.S. Department of Transportation, https://www.fhwa.dot.gov/policyinformation/travel_monitoring/21septvt/, Accessed 6/22/2023
- ²⁷ Hillary Cargo, "Manufacturing Contraction Deepens," *SME*, 11/1/23
- ²⁸ University of Michigan, Survey of Consumers, <http://www.sca.isr.umich.edu/>, Accessed 6/22/23

²⁹ Bureau of Labor Statistics, Current Employment Statistics, Accessed 6/22/2023

³⁰ Jerry Hirsch, "[Auto Industry Has Soared Since 2010, Leading Economic Recovery](#)," *Los Angeles Times*, 1/3/14