

READING THE METER

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



ALLIANCE FOR AUTOMOTIVE INNOVATION

Contents – April 6, 2022

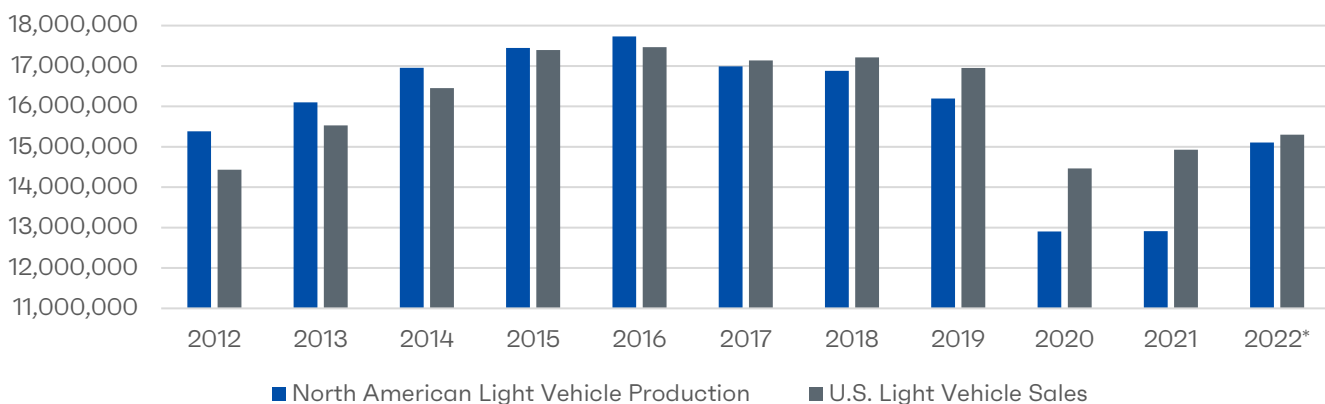
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Forecast Meter

Sales & Production Summary and Forecast (Updated 4/6)

2021-2022 Sales, ¹ Extended Sales Forecast ² and Production Forecasts ³		
	U.S. Sales & Forecasts	North American Production
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	1,046,282 (-20% YoY)	1,140,383 (-22.1% YoY)
November '21	1,001,351, (-20% YoY)	1,168,245 (-9% YoY)
December '21	1,194,313 (-22.9% YoY)	1,029,501 (-13.8% YoY)
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)	
1st Quarter '22	14.8 million-unit SAAR (forecast)	3,584,445 (-0.4% YoY) (forecast)
2021 Full Year	14,926,933 (+3.1% YoY)	8,899,632 (+4% YoY)
2022 Full Year Estimate	15.3 million units	15,107,419 (+17% YoY)

North American Production And U.S. Light Vehicle Sales



U.S. Light Vehicle Sales Outlook (Updated 4/6)

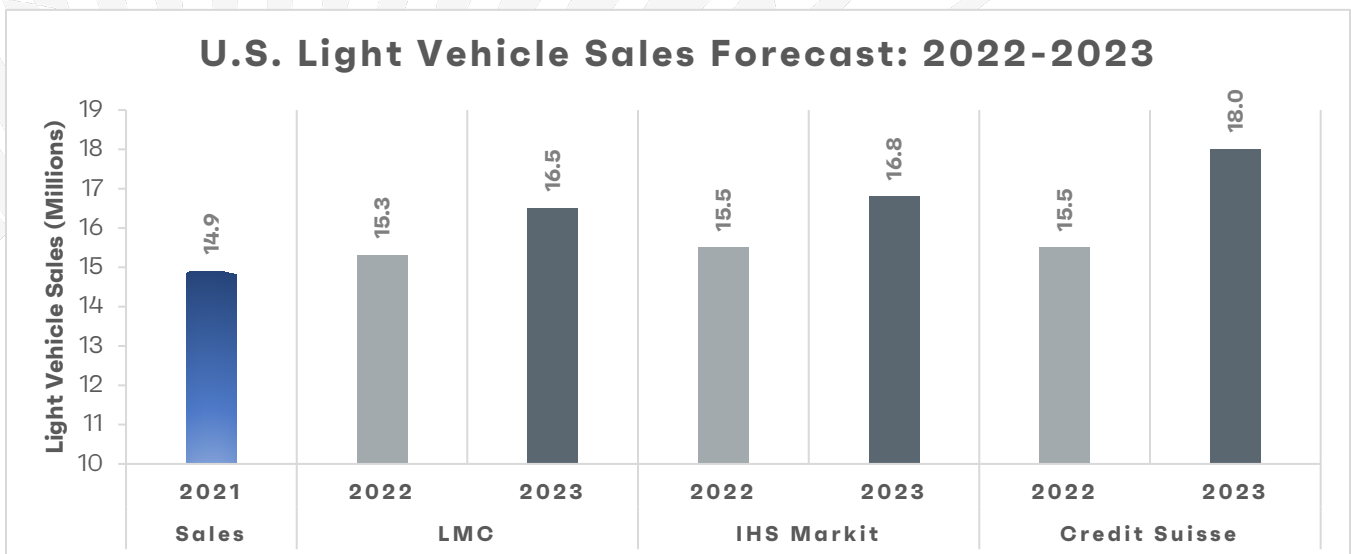
Wards Intelligence Outlook (4/6)⁴: “U.S. light-vehicle inventory in March recorded its strongest month-to-month gain since the pandemic slammed the market in Q1-2020, boding well for continued sales growth over the remainder of the year.

“However, the outlook for new-vehicle availability over the next three quarters from Q1 still calls for only modest gains thanks to an increase in expected production slowdowns caused by myriad impacts on the global supply chain.

“Thus, the light-vehicle sales outlook for the year has been ratcheted down again, now forecast by Wards Intelligence partner LMC Automotive at 15.3 million units, pushing it further below both underlying and pre-pandemic, or pre-2020, demand of roughly 17 million units annually.

“Despite elevated risk due to the ongoing assault on the supply chain ranging from geopolitics to Covid 19 to inflation, each quarter over the remainder of the year is expected to show continuous improvement over the prior period.

“Following a Q1 SAAR of 14.0 million units, Wards Intelligence expects the remainder of 2022 to rollout with a Q2 SAAR of 14.4 million units, 16.1 million in Q3 and 16.4 million in October-December.”



North American Production & Inventory Outlook (Updated 4/6)

Wards Intelligence Inventory Outlook (4/6)⁵: “Based on forecast production for the U.S. and the aforementioned sales projections, inventory is forecast to enter 2023 37% above the total heading into January of this year. That makes for a hefty year-over-year increase, but the forecast end-of-year total of 1.54 million units is less than half the total in December 2019, three months before the pandemic tore into the U.S. market.

“The inventory mix of higher-price vehicles points to manufacturers still leaning toward producing them over more affordable cars and trucks when supply-chain disruptions force a choice. Inventory of luxury-segment vehicles totaled 200,131 units, while dealer stocks of non-luxury fullsize trucks – which often sell for \$50,000 or more – totaled 403,265. Together, the two groups accounted for 49% of March inventory, which is roughly the same level those vehicles have been running at beginning with last August. By comparison, in the five years prior to the pandemic in 2020, the combined mix of the two groupings averaged 36%.

“Production bias toward more profitable vehicles likely is slightly capping total sales volumes. Inventory turnover of higher-priced vehicles is high, which justifies keeping the inventory mix heavily bent toward them, but lack of affordable vehicles is keeping some consumers out of the market or turning more new-vehicle intenders to used vehicles.”

S&P Global Mobility Outlook 2022 (3/17)⁶: “The outlook for North America light vehicle production was reduced by 480,000 units and by 549,000 units for 2022 and 2023, respectively (and reduced by 249,000 units for 2024). Amid the backdrop of the Russia/Ukraine conflict, the March 2022 forecast update for North America reflects broad based reductions spanning virtually every automaker amid the potential for the conflict and subsequent sanctions to impact the production of semiconductors in the second half of 2022. Further, lingering supply chain, labor and logistics challenges remain material concerns. Production cuts are most pronounced spanning the five quarters from second quarter 2022 through second quarter 2023 with 912,000 units being cut from the forecast over that period due to expectations of continued supply chain issues. Disruptions are expected to continue well into 2023 with production revised down 3.2% to total 16.7 million units. Production in 2024 was revised down 1.4% to total 17.5 million units with downside pressure amid elevated oil prices and ongoing inflation concerns. Long-term implications of the Russia/Ukraine conflict were incorporated across the forecast horizon with production between 2025 and 2028 being revised down an average of 2.1% per year with larger reductions occurring in 2025 and 2026.”

Wards Intelligence Production Outlook (3/3)⁷: “As has been the case since last spring, the uncertainty around the flow of microchips continues to destabilize production plans. Even though manufacturers are accounting for known chip shortages in their production schedules, unexpected disruptions in the supply chain seem to pop up every month, further cutting output below capacity.

“North America plants, which source close to 80% of the vehicles sold in the U.S., built 77,800 fewer vehicles than expected in January, and estimated output for February has been cut 51,500 units – nearly all of that attributed to unexpected disruptions to the supply chain.

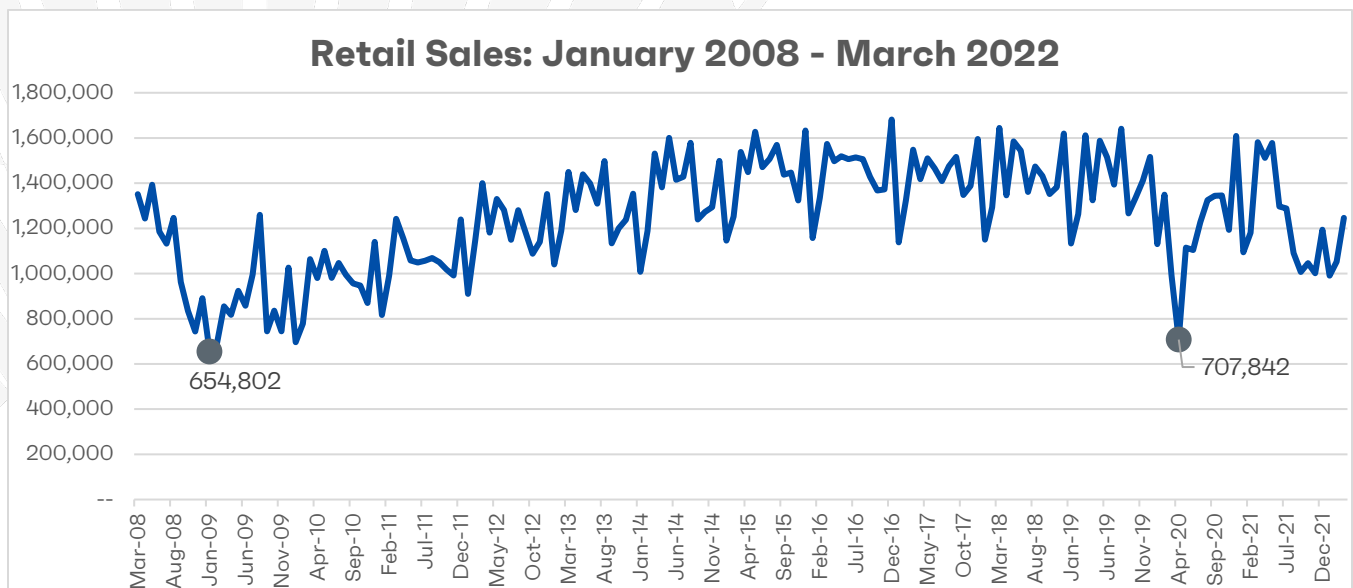
“Furthermore, the Russia-Ukraine conflict could add more unexpected disruptions to the March outlook, although it’s more likely in Q2 before it significantly impacts the U.S. light-vehicle market – if it does.”

Market Meter

U.S. Light Vehicle Sales (Updated 4/6)

Monthly Sales (Updated 4/6)

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.



March Sales (Updated 4/6)

WardsIntelligence[®]: “U.S. light-vehicle sales weakened for the second straight month on an annualized basis in March, while first-quarter results, though well below year-ago, were an improvement over the past two three-month periods.

“Depleted inventory remains the overarching reason deliveries still are well below demand and year-ago levels.

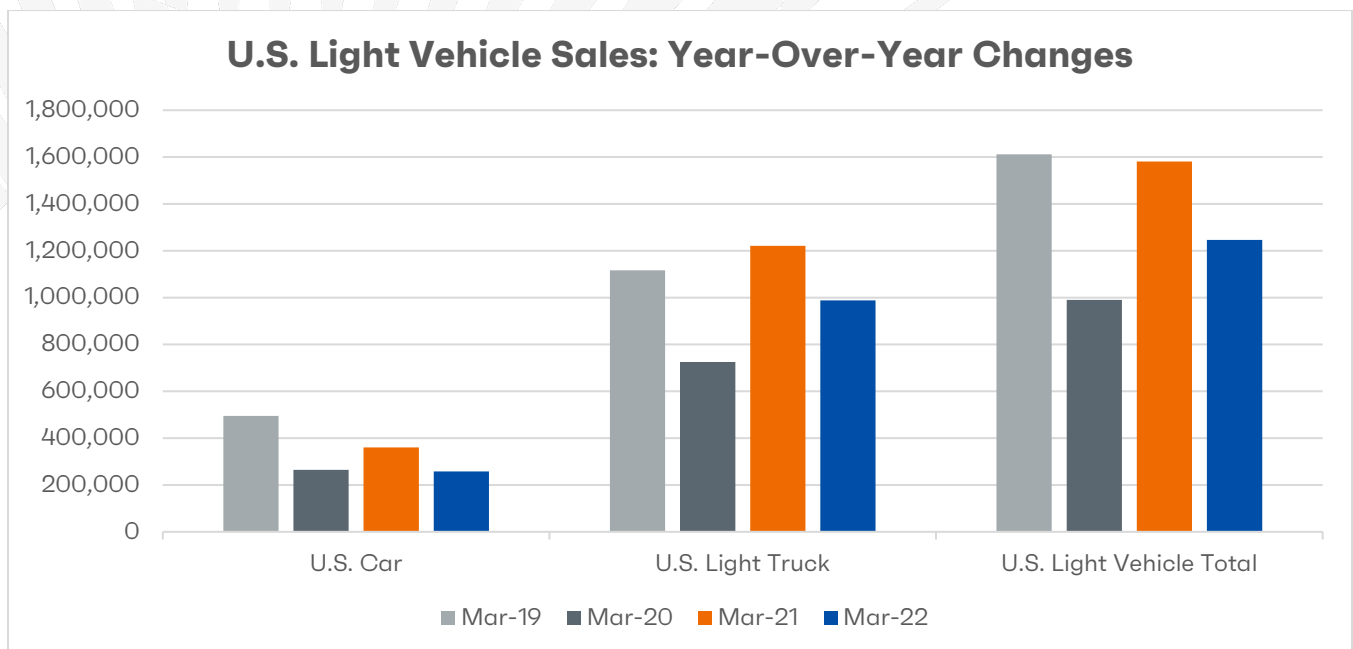
“March’s seasonally adjusted annual rate totaled 13.3 million units, down from February’s 14.0 million and January’s 15.0 million. The March 2021 SAAR, when inventory still had not gone into a complete nosedive due to the production slowdowns caused mostly by the global semiconductor shortage, was 17.6 million units.

“However, the Q1 SAAR of 14.0 million units, though down from like-2021’s 16.8 million, was an increase from Q4-2021’s 12.8 million, and highest since Q2-2021’s 16.9 million – midway through Q2-2021 was the point sales began a sharp descent to the rock-bottom results recorded in the final five months of the year due to the drain on inventory caused by supply-chain disruptions.

“Raw volume in March totaled 1.246 million units, down 22.0% from like-2021, but the highest total for any month since July 2021’s 1.28 million. March’s daily selling rate over its 27 selling days of 46,161 was 24.9% below same-month 2021’s 61,429 – 26 selling days.

“The first quarter totaled 3.28 million units, down 15.8% from Q1-2021’s 3.90 million. January-March’s volume was the lowest for the period since 3.06 million units in 2011. However, Q1 volume was slightly higher than Q4-2021’s 3.27 million units – Q1 volumes usually decline from the prior quarter.

“Although its volume and mix of total sales were expected to be well below pre-Covid totals, there was anecdotal evidence that fleet deliveries perked up in March, and that their percent of total sales might have improved vs. what fleet mix has been pacing at – about 12% vs. pre-pandemic levels of 19-20% - since Q1-2021.”



Fleet Sales (Updated 4/6)

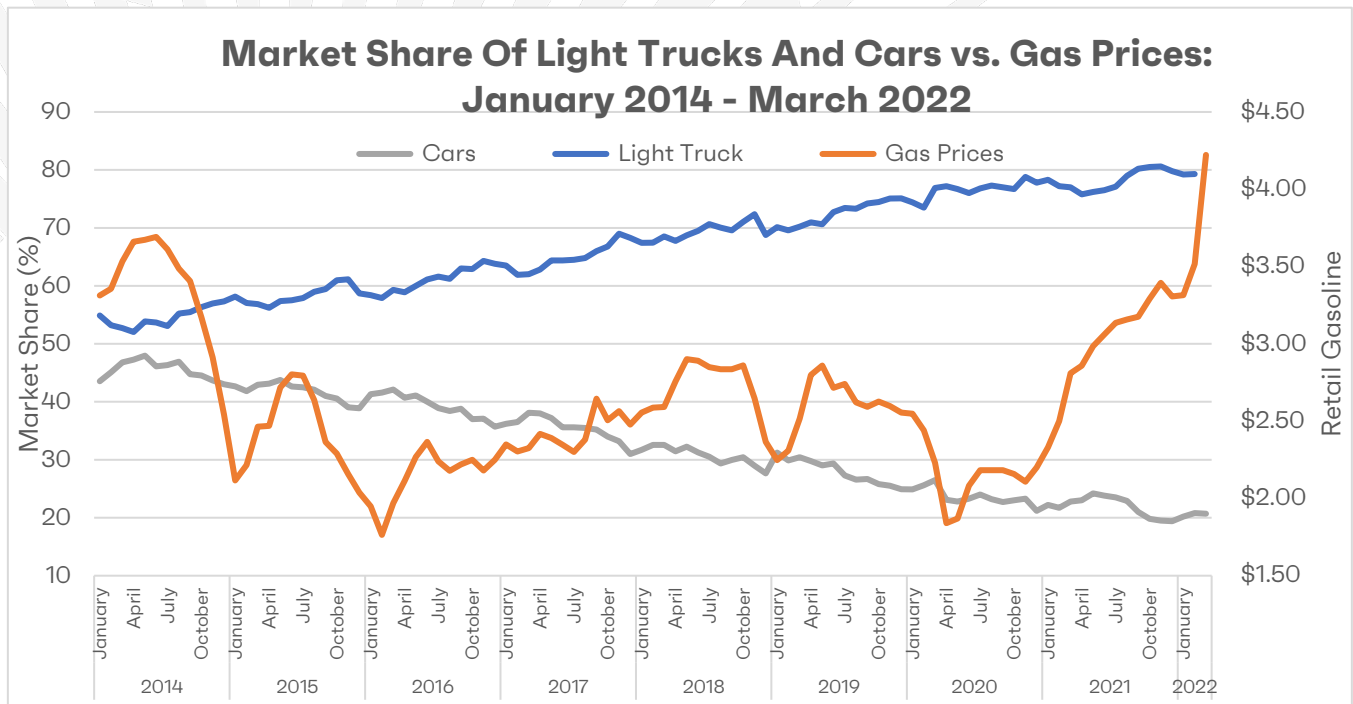
TrueCar⁹: “Fleet sales for March 2022 are expected to be down 30% from a year ago and up 31% from February 2022 when adjusted for the same number of selling days.”

J.D. Power¹⁰: “Fleet sales are expected to total 143,800 units in March, down 35.9% from March 2021 on a selling day adjusted basis. Fleet volume is expected to account for 12% of total light-vehicle sales, down from 13% a year ago.”

Segments vs. Gas Prices (Updated 4/6)

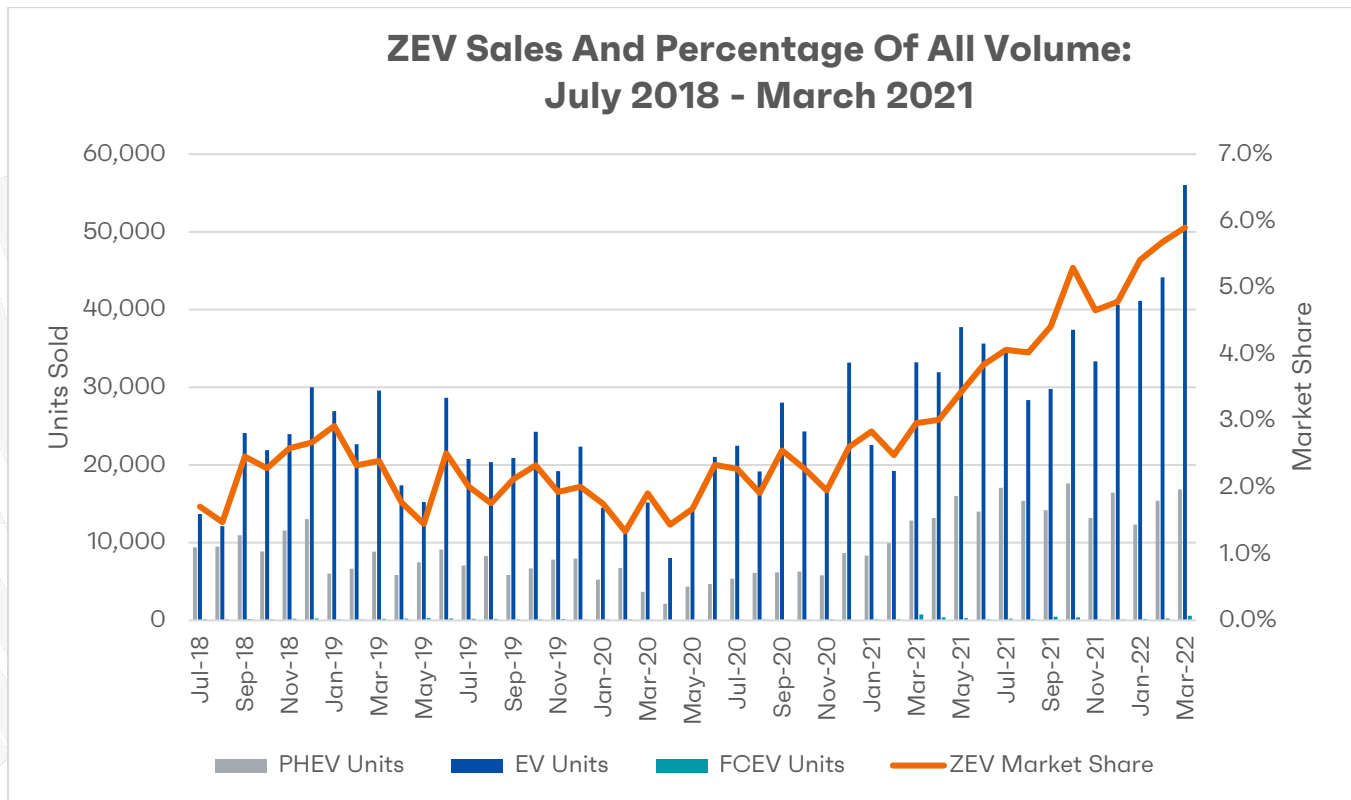
Monthly Sales For March: Light trucks accounted for 79.3% of sales in March, a 2.0 pp increase in market share from a year ago. Compared to the same period in 2021, sales of cars are down more than 102,000, and down more than 236,000 from March 2019, when cars comprised 31% of the market as opposed to the 20.7% 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 segments¹¹ and gas was over \$3.00¹² 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 \$2.61 a gallon (through January 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.¹³



ZEV Powertrain Sales (Updated 4/6)

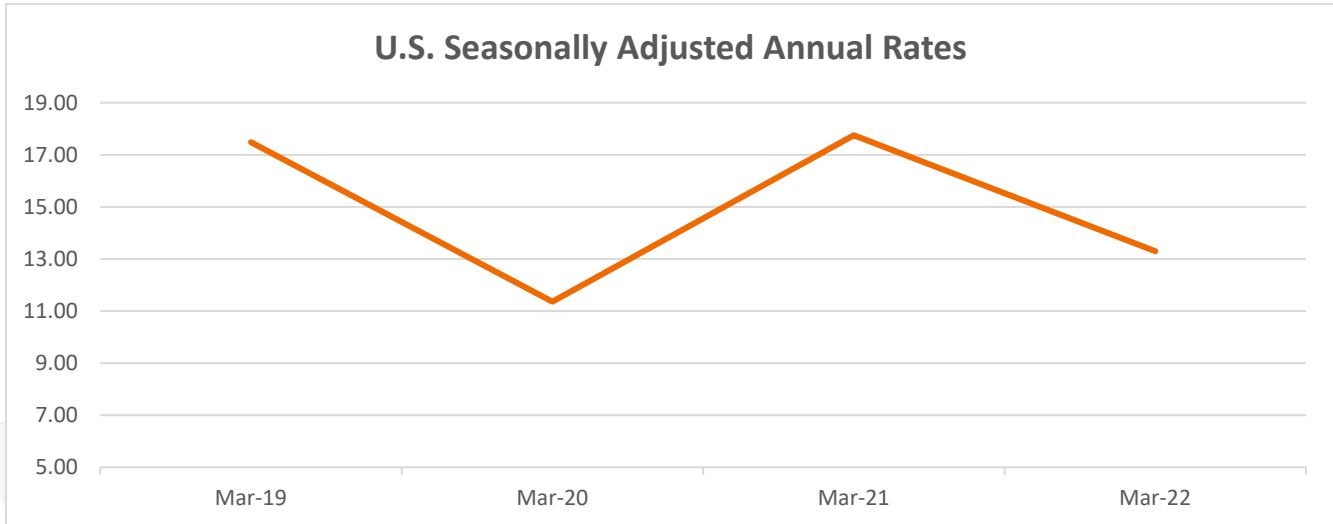
Sales of zero emission vehicles (BEV, PHEV, & Fuel Cell) accounted for 5.9% of total vehicle sales in March 2022 (73,501 units, the highest volume ever), up 2.9 pp from a year ago and up 0.2 pp from February 2022. Sales of battery electric vehicles led the way for ZEVs, accounting for 4.5% of total sales, up 2.4 pp from March 2021. Plug-in hybrids accounted for 1.35%, 0.54 pp higher than the same time last year.¹⁴



Seasonally Adjusted Annual Rates (Updated 4/6)

WardsIntelligence: “March’s seasonally adjusted annual rate totaled 13.3 million units, down from February’s 14.0 million and January’s 15.0 million. The March 2021 SAAR, when inventory still had not gone into a complete nosedive due to the production slowdowns caused mostly by the global semiconductor shortage, was 17.6 million units.

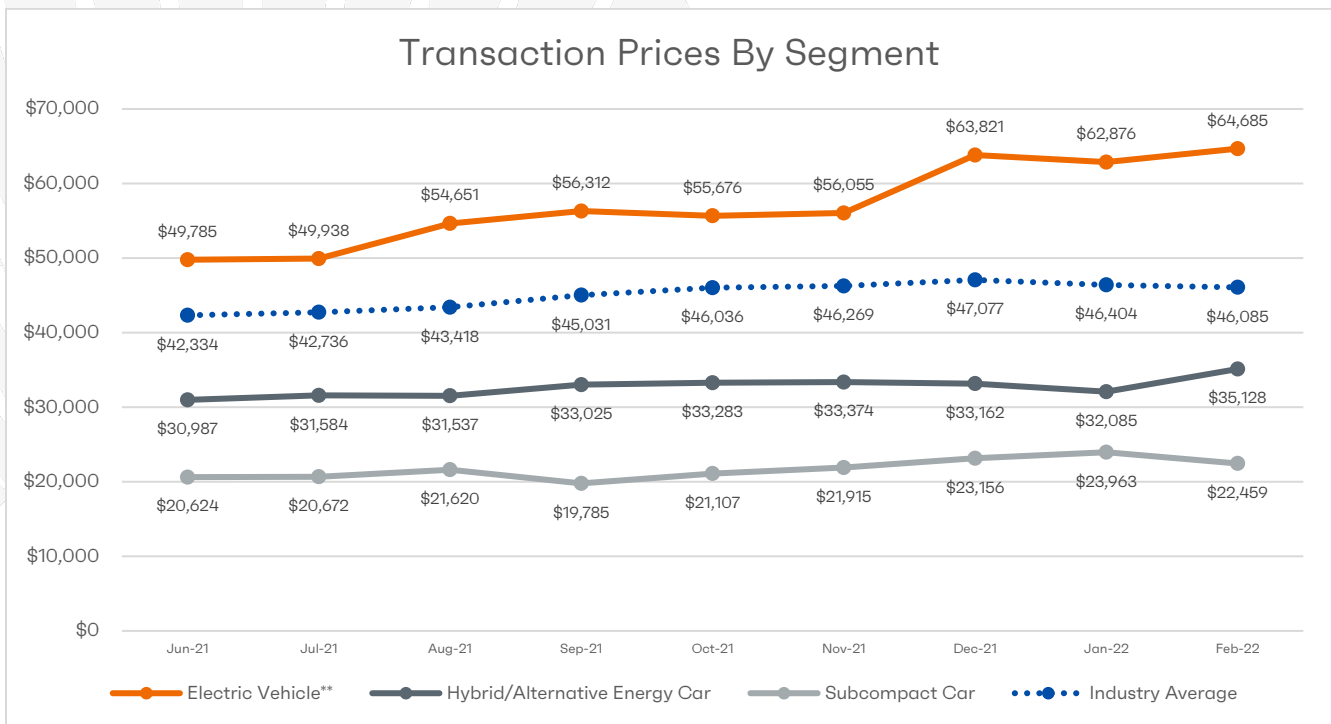
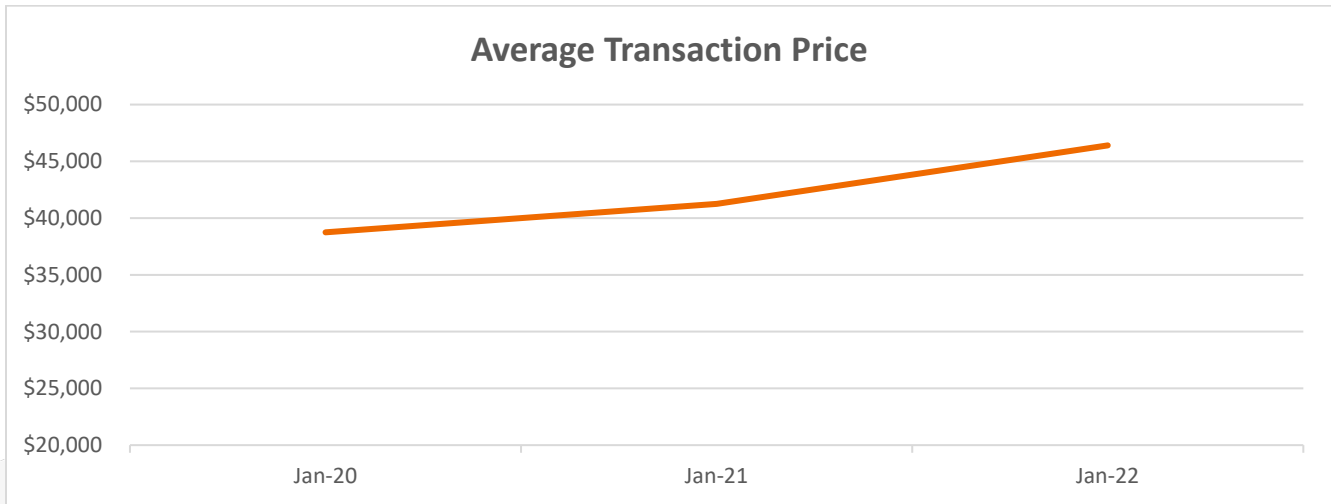
“However, the Q1 SAAR of 14.0 million units, though down from like-2021’s 16.8 million, was an increase from Q4-2021’s 12.8 million, and highest since Q2-2021’s 16.9 million – midway through Q2-2021 was the point sales began a sharp descent to the rock-bottom results recorded in the final five months of the year due to the drain on inventory caused by supply-chain disruptions.”¹⁵



Average Transaction Price (Updated 4/6)

J.D. Power (Updated 4/6)¹⁶: “For March, incentive spend per vehicle expressed as a percentage of the average vehicle MSRP is trending toward an all-time low of 2.3%, down 5.4 percentage points from March 2021 and the third consecutive month below 3.0%. From an absolute value standpoint, average incentive spend per vehicle is on pace to reach an all-time low of \$1,044, a decrease of 68.7% from a year ago. . . . With consumer demand for new vehicles remaining robust, new-vehicle prices continue to maintain their record levels. Average transaction prices are expected to reach a March record of \$43,737, a 17.4% increase from a year ago. For Q1 2022, average transaction prices are expected to reach \$44,129, an 18.0% increase from Q1 2021.

Kelley Blue Book (February): “New-vehicle average transaction prices (ATPs) decreased to \$46,085 in February 2022 after reaching a record high in December 2021, according to new data released by Kelley Blue Book, a Cox Automotive company. Prices fell 0.5% (\$253) month over month due to fewer luxury vehicles being sold in February, but prices remain elevated compared to one year ago, up 11.4% (\$4,719) from February 2021.”¹⁷

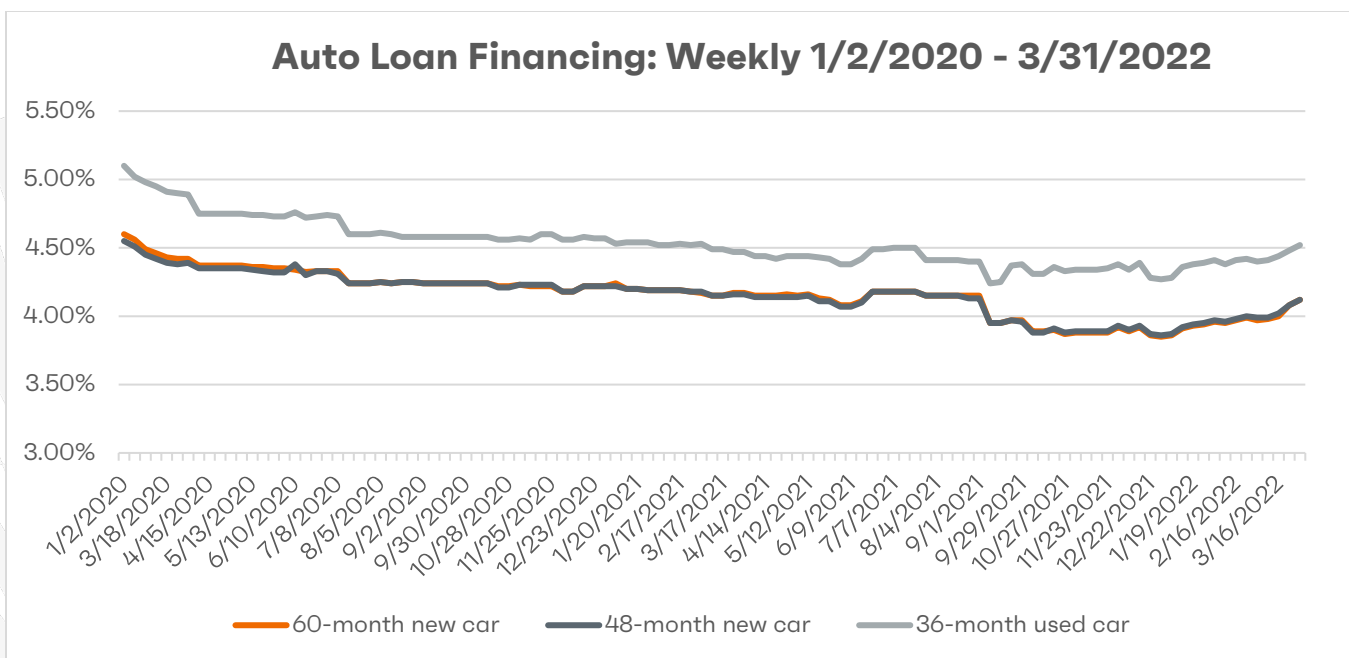


**Due to reporting errors with Tesla Motors, the Electric Vehicle ATP is likely higher than Kelley Blue Book estimates.

Auto Loan Financing (Updated 4/6)

Interest Rates Rise: Interest rates for new cars rose 0.04 pp and now stand at 4.12%. Rates also rose 0.04 pp on the 36-month used car loan and now stand at 4.52%. The 48-month new car loan also rose to 4.12. Since the beginning of 2020, 60-month rates are down 0.48 pp, and down 0.05 pp since the same time a year ago.¹⁸

Dates	60-month new car	48-month new car	36-month used car
1/2/2020	4.60%	4.55%	5.10%
3/31/2021	4.17%	4.16%	4.47%
3/23/2022	4.08%	4.08%	4.48%
3/30/2022	4.12%	4.12%	4.52%
One Week Change	0.04%	0.04%	0.04%
Two Week Change	0.12%	0.10%	0.08%
Change since 1/3/20	-0.48%	-0.43%	-0.58%
One Year Change	-0.05%	-0.04%	0.05%



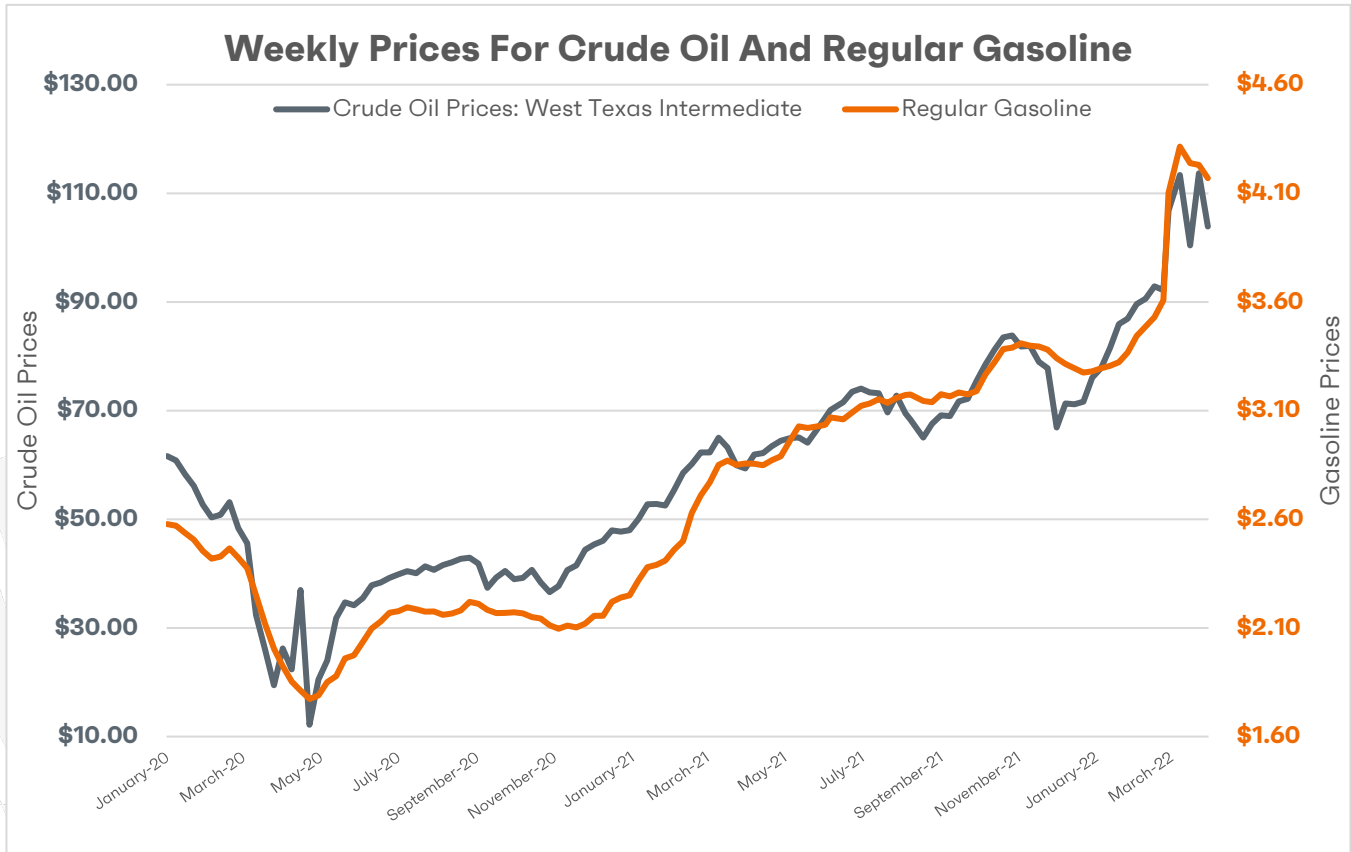
Crude Oil and Gas Prices (Updated 4/6)

EIA Outlook For Gasoline (3/8)¹⁹: “U.S. regular gasoline retail prices averaged \$3.52 per gallon (gal) in February, up 20 cents/gal from January and up \$1.02/gal from February 2021. Retail diesel prices averaged \$4.03/gal in February—the highest average price (not adjusted for inflation) for any month since March 2013. Product prices have risen compared with year-ago levels because of rising crude oil prices and high refining margins. We expect crude oil price increases will push the U.S. average gasoline price to \$4.10/gal on average in 2Q22, which would be the first time that gasoline prices (not adjusted for inflation) have reached at least \$4/gal in any month since July 2008. We expect diesel prices will average \$4.43/gal during 2Q22. Gasoline and diesel prices are closely tied to crude oil prices. We forecast gasoline prices will average \$3.71/gal in 2H22, and we forecast diesel prices will average \$4.04/gal over the same period. However, actual prices could be significantly affected by the same factors that affect crude oil prices.”

EIA Outlook For Oil (3/8)²⁰: “Brent crude oil spot prices averaged \$97 per barrel (b) in February, an \$11/b increase from January. Daily spot prices for Brent closed at almost \$124/b in the first week of March as the further invasion of Ukraine by Russia and subsequent sanctions on Russia and other actions created significant market uncertainties about the potential for oil supply disruptions. These events are occurring against a backdrop of low oil inventories and persistent upward oil price pressures. Global oil inventories have fallen steadily since mid-2020, and inventory draws averaged 1.8 million barrels per day (b/d) from the third quarter of 2020 (3Q20) through the end of 2021. We estimate that oil inventories fell further in the first two months of 2022 and that commercial inventories in the OECD ended February at 2.64 billion barrels, which is the lowest level since mid-2014.

We expect the Brent price will average \$117/b in March, \$116/b in 2Q22, and \$102/b in the second half of 2022 (2H22). We expect the average price to fall to \$89/b in 2023. However, this price forecast is highly uncertain. Actual price outcomes will be dependent on the degree to which existing sanctions imposed on Russia, any potential future sanctions, and independent corporate actions affect Russia’s oil production or the sale of Russia’s oil in the global market. In addition, the degree to which other oil producers respond to current oil prices, as well as the effects macroeconomic developments might have on global oil demand, will be important for oil price formation in the coming months. Although we reduced Russia’s oil production in our forecast, we still expect that global oil inventories will build at an average rate of 0.5 million b/d from 2Q22 through the end of 2023, which we expect will put downward pressure on crude oil prices. However, if production disruptions—in Russia or elsewhere—are more than we forecast, resulting crude oil prices would be higher than our forecast.

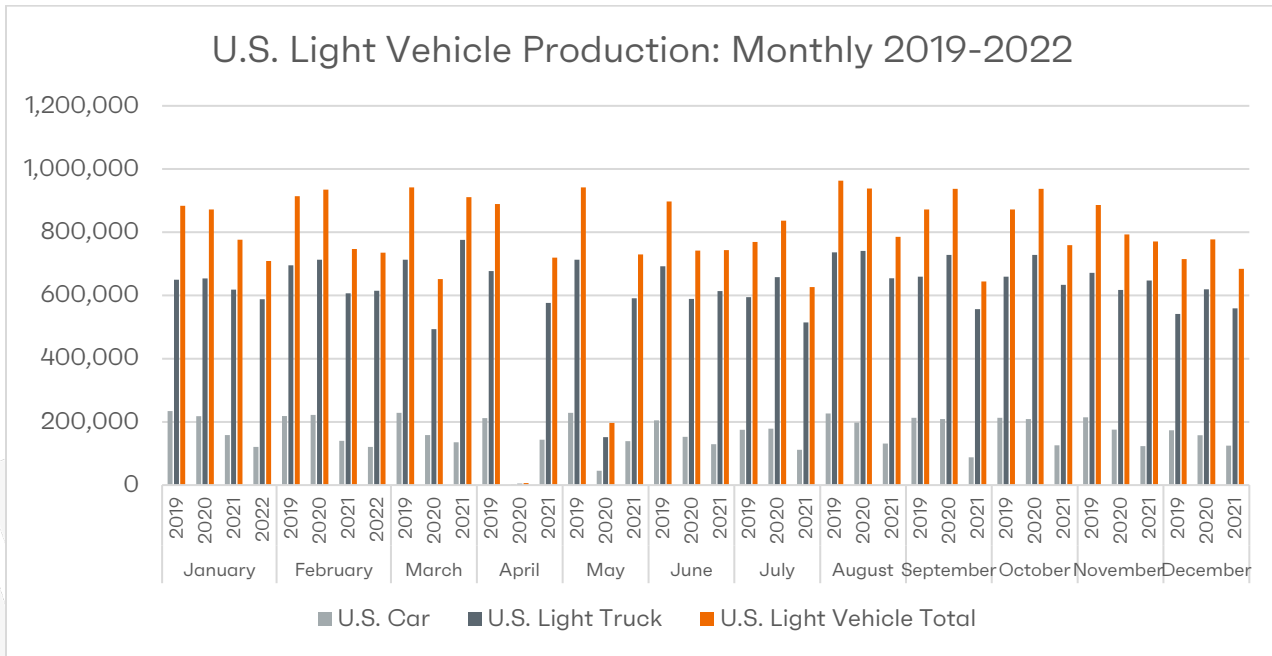
Gas And Oil Remain High: Oil prices, as benchmarked at West Texas Intermediate, fell \$9 to \$103.89 a barrel. Since election day 2020, oil prices have climbed \$67 a barrel. Gas prices fell nearly \$0.06 to \$4.17. Gas is 62% higher than the beginning of 2020.²¹



Production Meter

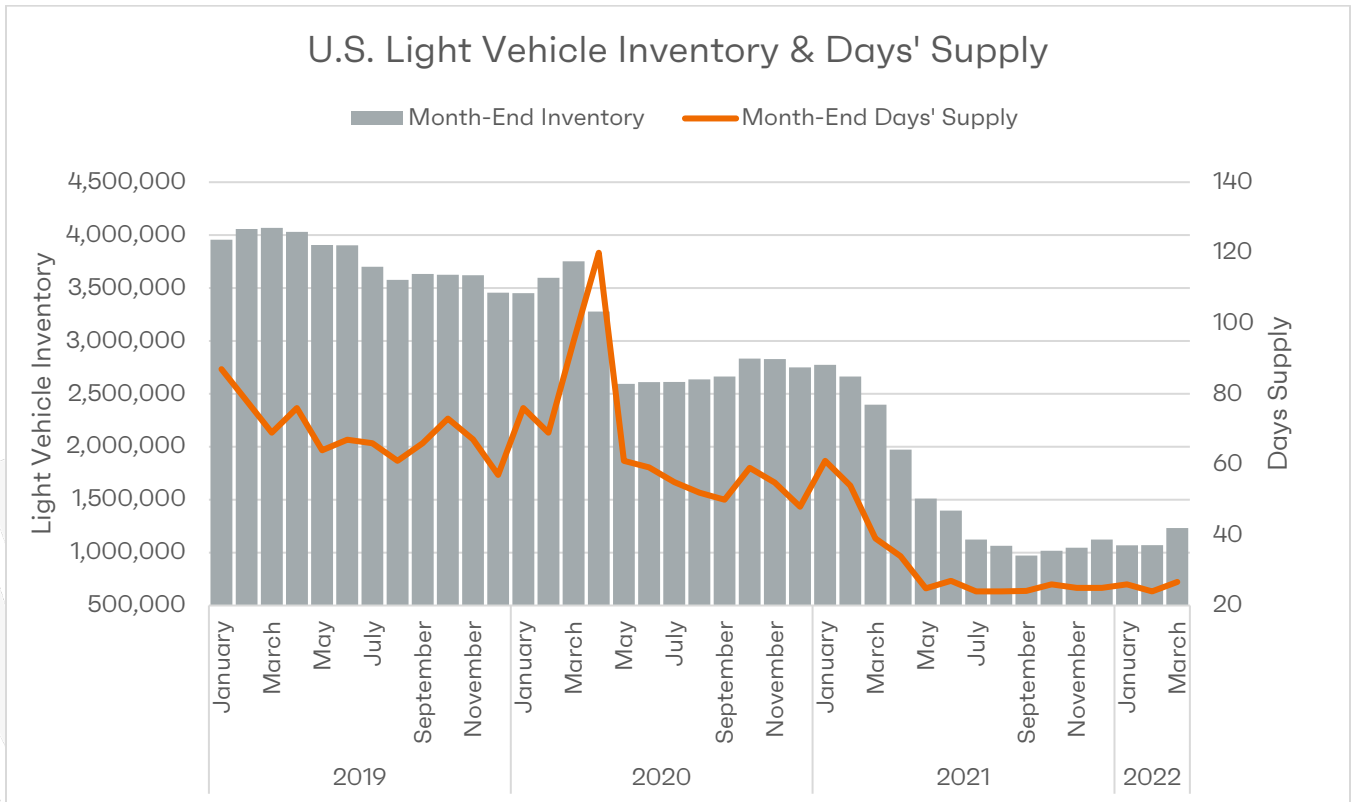
U.S. Light Vehicle Production (Updated 3/24)

U.S. Light vehicle production for February 2022 increased month-over-month by 1.4 percent, totaling 735,670 (120,767 cars, 614,903 light trucks), year-over-year, production is down 2.5% from 2021. ²²



U.S. Light Vehicle Inventory and Days' Supply (Updated 4/6)

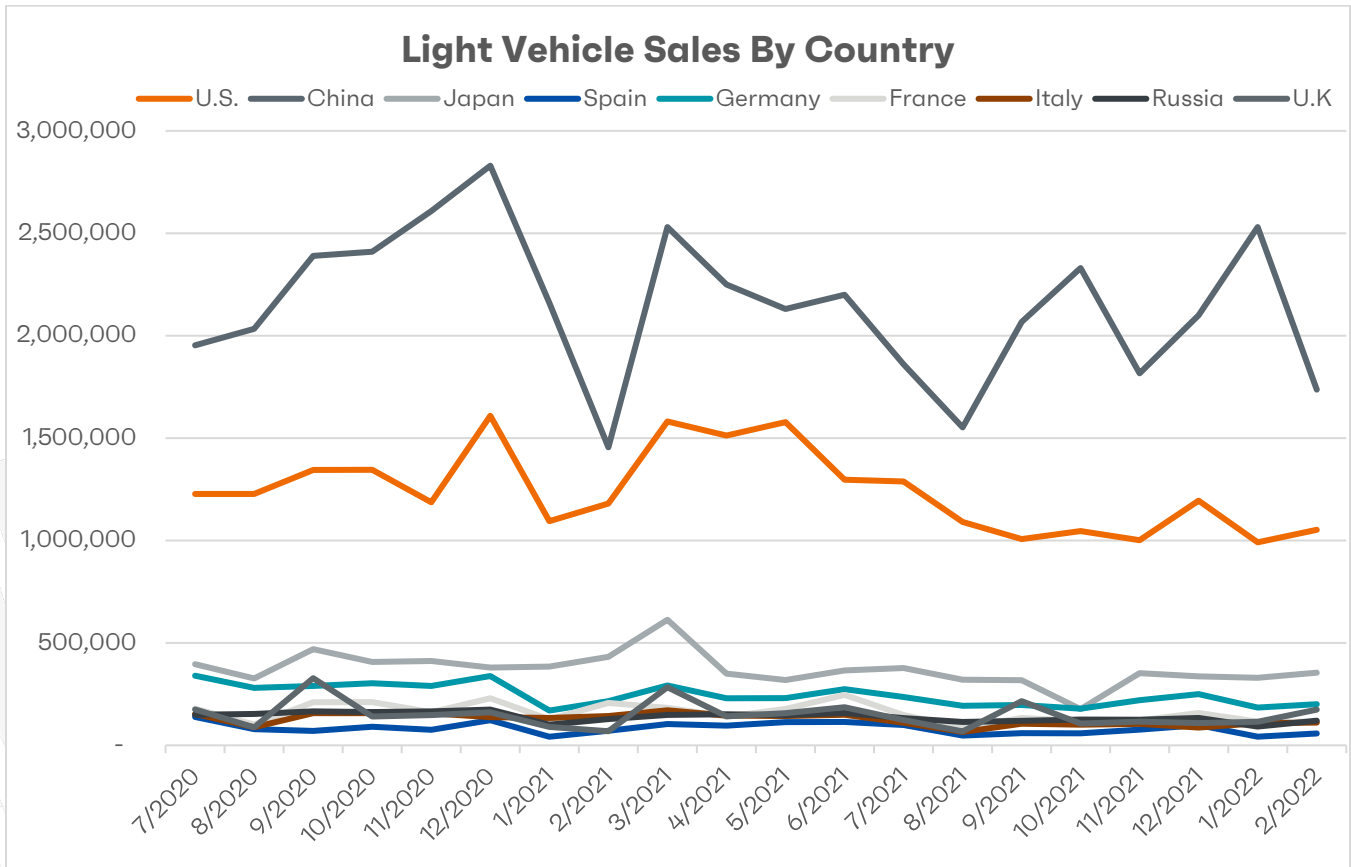
WardsIntelligence Inventory Update (4/6)²³: “U.S. light-vehicle inventory in March recorded its strongest month-to-month gain since the pandemic slammed the market in Q1-2020, boding well for continued sales growth over the remainder of the year. . . March inventory rose 15.5% from the prior month to 1.23 million units, but that was 48.7% below like-2021’s 2.40 million. Inventory is forecast to remain roughly flat with March in April, then resume modest gains in most months for the remainder of 2022. March days’ supply totaled 27, compared with 24 in February and March 2021’s 39. Prior to the pandemic, a normal March days’ supply ranged from 65 to 69.”



Global Meter

Global Light Vehicle Sales (Updated 4/6)

Wards Intelligence²⁴: “After January’s dip, world vehicle sales bounced back in February, though only slightly. With the semiconductor shortage still ongoing, sales have yet to fully recover. Furthermore, Russia’s Feb. 24 invasion of Ukraine may cause additional troubles for the automotive industry in the coming months. Global vehicle sales totaled 6.07 million units in February, up 0.3% from year-ago’s 6.05 million.”



Global Light Vehicle Production (Updated 3/17)

Wards Intelligence Outlook (3/17)²⁵: “With the impact from the Russia-Ukraine war on global supply chains worsening, and the general economic outlook looking less rosy, Wards Intelligence partner LMC Automotive revised its expectations from two weeks ago and cut forecast 2022 light-vehicle production 1.4 million units to 83.9 million. The global light-vehicle forecast for 2023 was chopped 1.6 million units to 91.1 million. Regionally, Europe is expected to be hit the hardest, with Asia and North America totals also impacted. Production in Europe for 2022 is forecast to total 17.7 million units, Asia is pegged for 46.2 million and North America has been reduced to 14.9 million. In 2023, production in Europe is forecast to rise to 18.7 million units, Asia increases to 49.7 million and North America totals 16.3 million.”

S&P Global Mobility Forecast (3/17)²⁶: “Russia’s invasion of Ukraine on 24 February 2022, the ongoing conflict and the resulting economic sanctions imposed on Russia have materially altered the outlook for the Auto industry. The unfolding human tragedy is already having a serious effect on the global economy with rising oil and gas prices having an instant impact on consumers. To be sure, supply chain disruptions, labor shortages and logistics issues remain lingering challenges, but geo-

political forces have taken hold of the broader narrative for the Auto industry. There is an immediate direct impact on vehicle sales and production within Russia and the Ukraine; however, another meaningful impact rests with the disruption of critical component supplies from both countries, with wire harnesses produced in Ukrainian facilities providing the most immediate disruption to vehicle production in areas throughout Europe. Further, we expect longer lasting macro impacts to vehicle demand associated with a protracted Russia/Ukraine conflict and the continuation of significant Russia sanctions influencing the broader economic landscape. The March 2022 forecast update reflects noteworthy reductions across several markets, to varying degrees, with the most significant reductions focused on Europe and intermediate/longer-term revisions made across various other markets. Given the ongoing uncertainty, a scenarios-based approach to planning is advised to help navigate dynamic market conditions. The more noteworthy regional adjustments with the latest forecast update are detailed below:

“Europe: The outlook for Europe light vehicle production was reduced by 1,720,000 units and by 1,499,000 units for 2022 and 2023, respectively (and reduced by 1,690,000 units for 2024). While most markets are influenced in some way by the ongoing Russia/Ukraine conflict, Europe is undeniably the most severely impacted. Russia is the most directly affected with production now forecasted to drop by 54% relative to 2021 and remain in the 600,000-unit range per year through the forecast horizon as crippling sanctions are expected to remain in place and prevent many foreign automakers from producing and selling vehicles in the country. Beyond the direct impact to Russia production, the Russia/Ukraine conflict also significantly affects the broader European region due to the disruption of critical component supplies from both countries, with wire harnesses produced in Ukrainian facilities providing the most immediate disruption to vehicle production in areas throughout Europe. German automakers are particularly impacted in the near-term given the degree of supply chain reliance on the Ukraine. In addition to the direct impacts of the Russia/Ukraine conflict, the continuation of significant Russia sanctions is expected to affect the broader economic landscape and influence sales and production in the intermediate to long-term.

“Greater China: The outlook for Greater China light vehicle production was reduced by 193,000 units and by 276,000 units for 2022 and 2023, respectively (and reduced by 307,000 units for 2024). Notwithstanding a relatively strong start to the year with production in January, headwinds are starting to form with industrial output in Greater China expected to be impacted in the coming months with uneven semiconductor supplies and now the Russia/Ukraine conflict poised to impact supplies particularly in the second half of the year. Another wildcard impacting production in Greater China is the potential for a new wave of COVID infections. As an example, in order to maintain China’s zero-COVID strategy, both production and commercial activities have been constrained in Shenzhen and Changchun recently. Further, comprehensive social containment measures are expected causing wider operational impacts limiting vehicle production. As a result, Greater China light vehicle production was reduced in the near-term and the impacts of the Russia/Ukraine conflict are expected to have broader macro implications through the forecast horizon.

“Japan/Korea: Full-year 2022 Japan production volume was reduced by 194,000 units relative to the February forecast. In the first quarter of 2022, Japan has faced challenges to increase production due to lack of multiple components including semiconductors. In addition, Toyota has suffered production disruptions due to issues at a Tier 1 supplier. Further, on March 11, Toyota announced it would revise its production plan downward in the second quarter by about 10% relative to its original plan in order to secure product quality and employees’ safety as well as to prepare for more stable production starting in the 2nd half of 2022. S&P Global has reflected this revision into our latest forecast as the initial assessment. Through the forecast horizon, Japan production volume was cut by around 2.4% per year, affected by the longer-term impacts of the Russia/Ukraine situation. Specifically, export models were largely reduced such as the Mitsubishi RVR and the Toyota Land Cruiser series to Russia and the Subaru Forester, the Nissan Rogue and the Lexus NX/RX to the EU and North America. We also forecast some Toyota battery electric vehicle production will be localized in the United States from Japan, which has a negative impact on domestic production volumes in the long-term. Full-year 2022 South Korea production was reduced by 31,000 units relative to the previous forecast. As the Russia/Ukraine conflict continues, it is expected that the supply of neon and palladium along with other semiconductor related materials could be affected due to the conflict and the significant economic sanctions are expected to contribute to broader macroeconomic headwinds. Accordingly, South Korea’s production in the short term was reduced by 1.1% per year on average. In the long-term, South Korea production was reduced by an average of 1.7% per year. As the crisis between Russia and Ukraine could be prolonged, exports to this region are expected to decline. In addition, OEMs are expected to have slightly leaner vehicle inventory than previous levels and focus on efficient supply strategies going forward.

“North America: The outlook for North America light vehicle production was reduced by 480,000 units and by 549,000 units for 2022 and 2023, respectively (and reduced by 249,000 units for 2024). Amid the backdrop of the Russia/Ukraine conflict, the March 2022 forecast update for North America reflects broad based reductions spanning virtually every automaker amid the potential for the conflict and subsequent sanctions to impact the production of semiconductors in the second half of 2022. Further, lingering supply chain, labor and logistics challenges remain material concerns. Production cuts are most pronounced spanning the five quarters from second quarter 2022 through second quarter 2023 with 912,000 units being cut from the forecast over that period due to expectations of continued supply chain issues. Disruptions are expected to continue well into 2023 with production revised down 3.2% to total 16.7 million units. Production in 2024 was revised down 1.4% to total 17.5 million units with downside pressure amid elevated oil prices and ongoing inflation concerns. Long-term implications of the Russia/Ukraine conflict were incorporated across the forecast horizon with production between 2025 and 2028 being revised down an average of 2.1% per year with larger reductions occurring in 2025 and 2026.

“South America: The outlook for South America light vehicle production was reduced by 29,000 units and by 36,000 units for 2022 and 2023, respectively (and reduced by 55,000 units for 2024). The downgrade in production for 2022 was driven primarily by continued weakness in production results

for Brazil. While Argentina continues to exhibit a level of production stability, that is not enough to offset the weakness associated with the Brazil market. The outlook for 2023 and 2024 was downgraded marginally on rising supply chain concerns resulting from the Russia/Ukraine conflict. Of note, only primarily indirect effects from deteriorating macro conditions are reflected in the forecast as more direct component supply impacts have not yet been clearly identified.

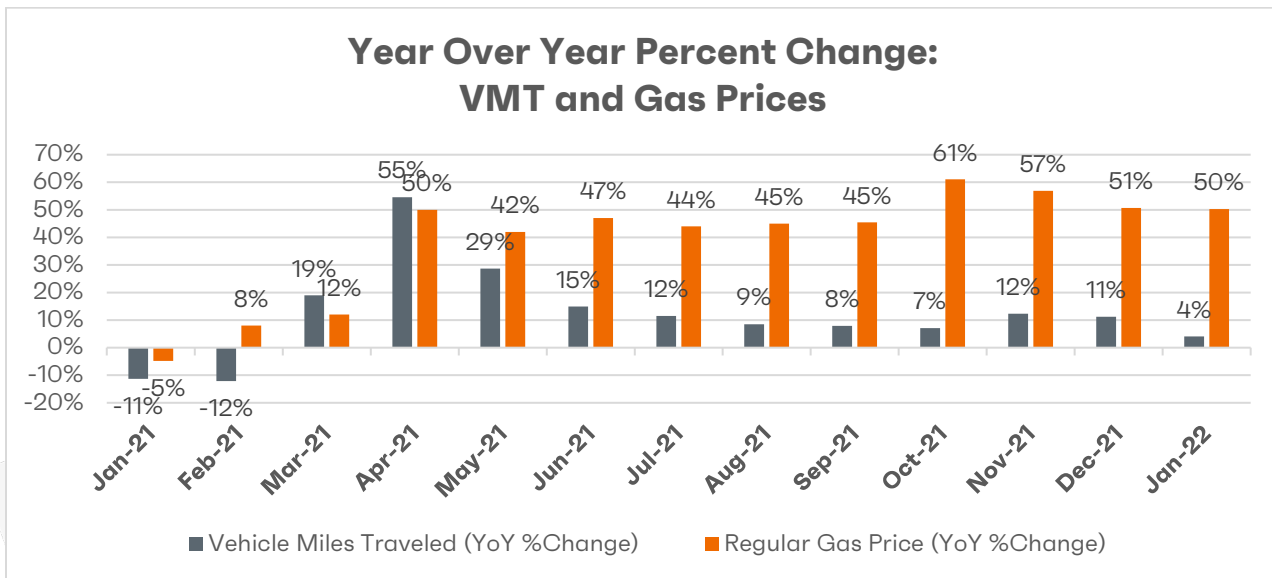
“South Asia: The outlook for South Asia light vehicle production was reduced by 50,000 units and by 94,000 units for 2022 and 2023, respectively (and reduced by 98,000 units for 2024). The downgrade in outlook for 2022 was primarily focused on the ASEAN market amid ongoing semiconductor constraints and potential chip supply chain disruptions due to the Russian invasion of Ukraine as well as the resulting economic consequences. Looking beyond 2022, the forecast has been negatively impacted due to rising uncertainty from the Russia/Ukraine conflict, rising commodity prices and deteriorating economic outlook. On the commodity front, India is particularly vulnerable given its position as a net oil importer and relative sensitivity to capital outflows.”

Recovery Meter

Roadway Travel (Updated 4/6)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in January rose 4.7% from the same time a year ago. The cumulative travel estimate for 2022 is 240.6 billion vehicle miles.²⁷

- Travel on all roads and streets changed by +4.1% (+9.5 billion vehicle miles) for January 2022 as compared with January 2021. Travel for the month is estimated to be 240.6 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for January 2022 is 274.4 a +4.7% (+12.3 billion vehicle miles) change over January 2021. billion vehicle miles) compared with December 2021.
- Cumulative Travel for 2022 changed by +4.1% (+9.5 billion vehicle miles). The cumulative estimate for the year is 240.6 billion vehicle miles of travel.



Economic News (Updated 4/6)

Manufacturing Gained 38,000 Jobs In March; Motor Vehicles And Parts Manufacturing Gained 6,400. “Manufacturing boosted employment by 38,000 jobs in March, the Bureau of Labor Statistics said today. Both durable and non-durable goods contributed to the monthly gain, according to a breakdown by sector issued by the bureau. Durable goods industries increased by 22,000 jobs and non-durable goods industries by 16,000. On the durable goods side, the increase was paced by transportation equipment, up 10,800 jobs. That included a gain of 6,400 jobs in motor vehicles and parts.”²⁸

The ISM Index Fell To 57.1 In March. “The Institute for Supply Management said its manufacturing index, known as the PMI, slipped to 57.1 percent in March. That was down from 58.6 percent in February. Despite the softening, the index still indicated that manufacturing was running at a strong rate. A PMI level above 50 percent indicates an expanding manufacturing economy. Below 50 percent indicates economic contraction.”²⁹

The Consumer Price Index Increased 7.9%, A Forty-Year High; Vehicle Costs Showed Signs Of Easing. “The consumer price index, which measures a wide-ranging basket of goods and services, increased 7.9% over the past 12 months, a fresh 40-year high for the closely followed gauge, according to the Labor Department’s Bureau of Labor Statistics. The February acceleration was the fastest pace since January 1982, back when the U.S. economy confronted the twin threat of higher inflation and reduced economic growth. On a month-over-month basis, the CPI gain was 0.8%. Economists surveyed by Dow Jones had expected headline inflation to increase 7.8% for the year and 0.7% for the month. . . . Vehicle costs have been a powerful inflationary force but showed signs of easing in February. Used car and truck prices actually declined 0.2%, their first negative showing since September 2021, but are still

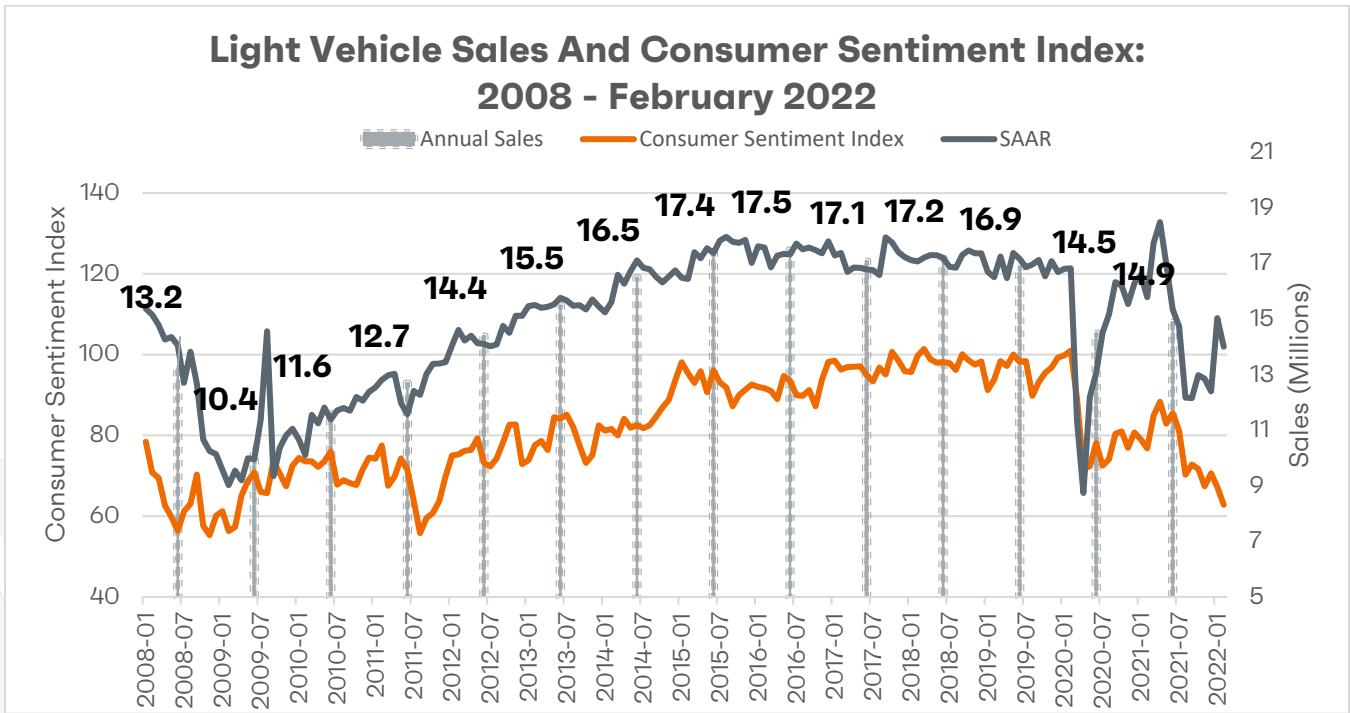
up 41.2% over the past year. New car prices rose 0.3% for the month and 12.4% over the 12-month period.”³⁰

“Material inflation/headwinds risks from conflict broad in range as to variety and severity:

Although material cost headwinds were expected in 2022, the Russia/Ukraine conflict will likely further exacerbate those headwinds. As of now, we see primary materials/input headwinds related to: aluminum, precious metals palladium/platinum, nickel, resins/oil, steel, and semiconductors. Should spot prices hold, we could see materials adding ~\$400-500 of incremental cost per ICE vehicle (vs. year-end levels), and ~\$1,100-1,200 of incremental content for EVs. For context, for Ford/GM the typical variable profit per vehicle in NA is currently likely ~\$9-10k.”³¹

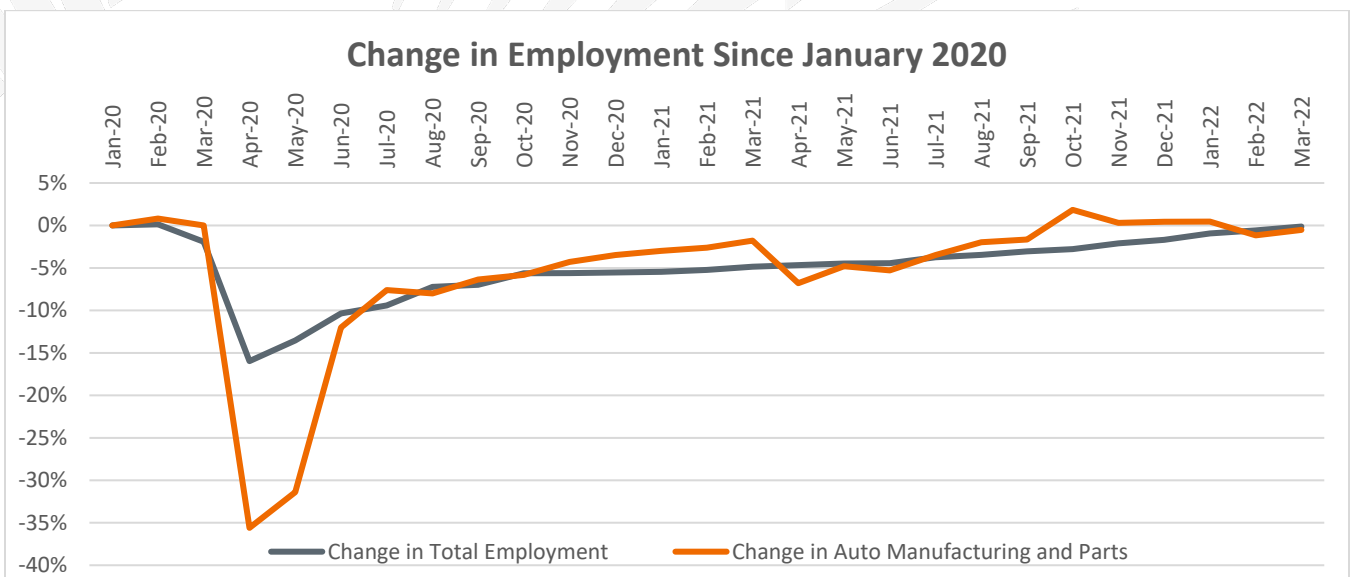
Consumer Confidence and Sales (Updated 4/6)

Surveys of Consumers Chief Economist, Richard Curtin³²: “Consumer Sentiment remained largely unchanged in late March at the same diminished level recorded at mid month. Inflation has been the primary cause of rising pessimism, with an expected year-ahead inflation rate at 5.4%, the highest since November 1981. Inflation was mentioned throughout the survey, whether the questions referred to personal finances, prospects for the economy, or assessments of buying conditions. When asked to explain changes in their finances in their own words, more consumers mentioned reduced living standards due to rising inflation than any other time except during the two worst recessions in the past fifty years: from March 1979 to April 1981, and from May to October 2008. Moreover, 32% of all consumers expected their overall financial position to worsen in the year ahead, the highest recorded level since the surveys started in the mid-1940s. The combination of rising prices and less positive income expectations meant that half of all households anticipated declines in inflation-adjusted incomes in the year ahead. The sole area of the economy about which consumers were still optimistic was the strong job market. Consumers anticipated in March that during the year ahead it was more likely that the unemployment rate would post further declines than increases (30% versus 24%).”



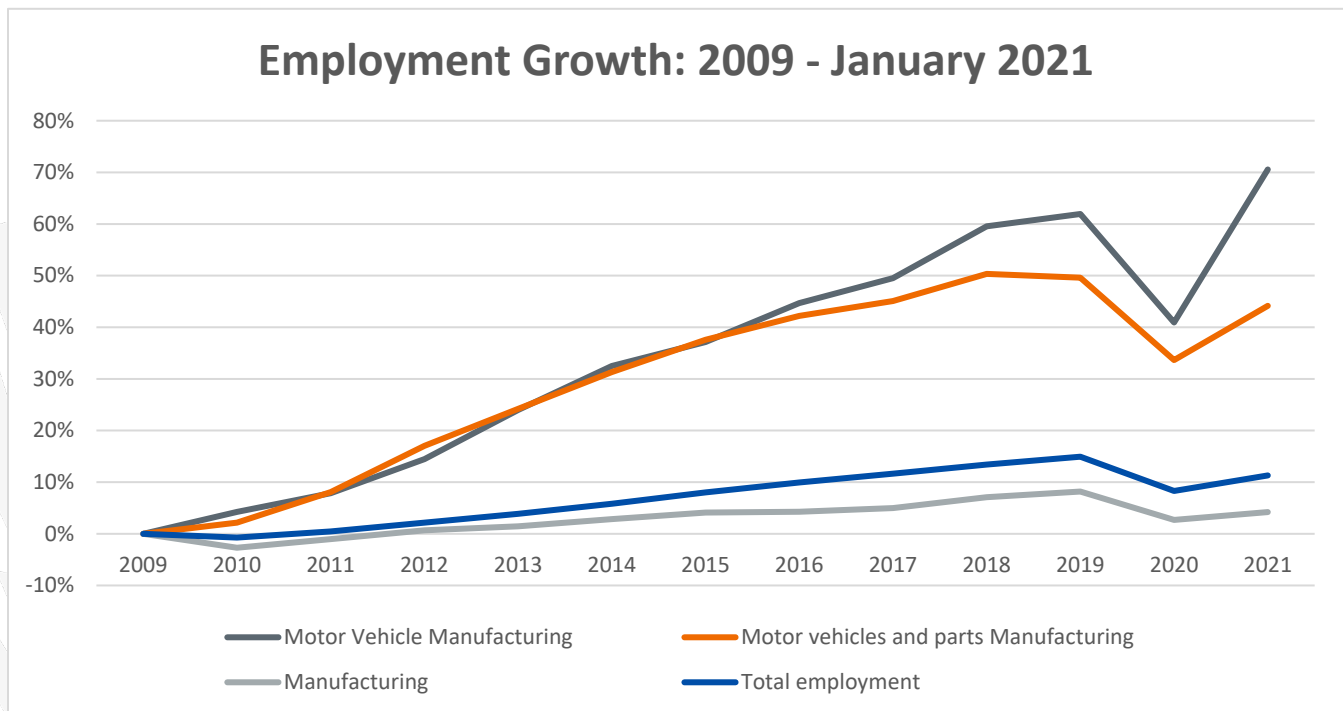
Employment (Updated 4/6)

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.³³



- **Motor Vehicle And Parts Manufacturing Gained 6,400 Jobs In January.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.



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