



CREDESCENCE CAPITAL

(Investment Club of IIM Lucknow)

Indian Automobile Industry



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Introduction

The Indian automobile industry is the world's 5th largest auto market. It contributes 7% to GDP & 49% to manufacturing output

This sector has been one of the largest recipients of FDI with an inflow of \$24.5 billion in the last two decades, accounting for 5.1% of the total FDI inflows to the country. Also, to note, Indian automobile industry has significant cost advantages and firms save 10-25% on operations when compared to Europe & Latin America

The Indian Automobile industry was seeing a slowdown since late 2018, when it witnessed the steepest plunge of 18.71% in 19 years in July 2019.

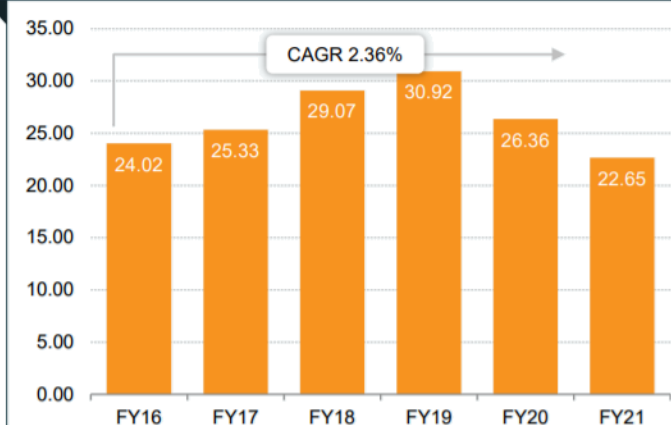
The CAGR for past 5 years is only 2.36% which was driven by many factors ranging from demonetization, NBFC crisis, low GDP growth, GST implementation, increasing fuel costs, anxiety of the BS6 norms.

The industry has picked up a lot post it faced zero sales of April 2020 (national lockdown days). The partnership between the government and industry was the driving factor. Timely re-opening of manufacturing plants, favorable monetary policies and government support packages for farmers further supported demand revival. Prior to the second Covid wave, the Auto industry had been witnessing a V shape recovery.

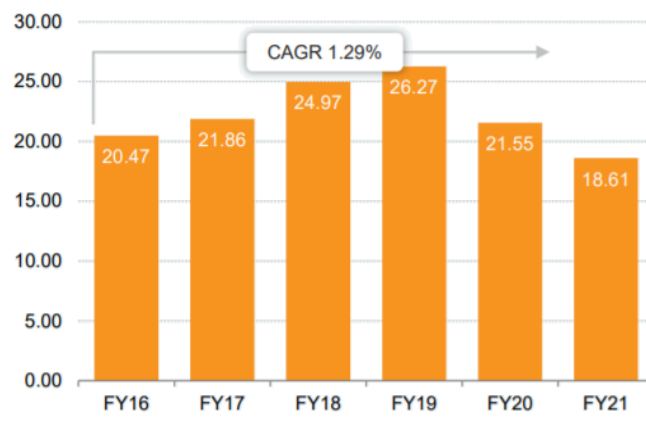
- FY20 faced a 18% y-o-y decline in auto sales 18-21% decline expected in FY21. For the first time negative growth for two consecutive years
- Q1FY21 has seen pent up demand with numbers going back to 75-80% of Pre-Covid levels
- The Indian auto industry is expected to record strong growth in 2021-22, post recovering from effects of COVID-19 pandemic.
- Electric vehicles, especially 2-wheelers, are likely to witness positive sales in 2021-22.
- Tractor sales were lower by 40.9% due to the seasonality factor at play.
- Automobile exports reached 4.77 million vehicles in FY20, growing at a CAGR of 6.94 per cent between FY16-FY20. Two-wheelers made up 73.9% of the total vehicles exported, followed by passenger vehicles at 14.2%



Number of Automobiles Produced in India (in million)



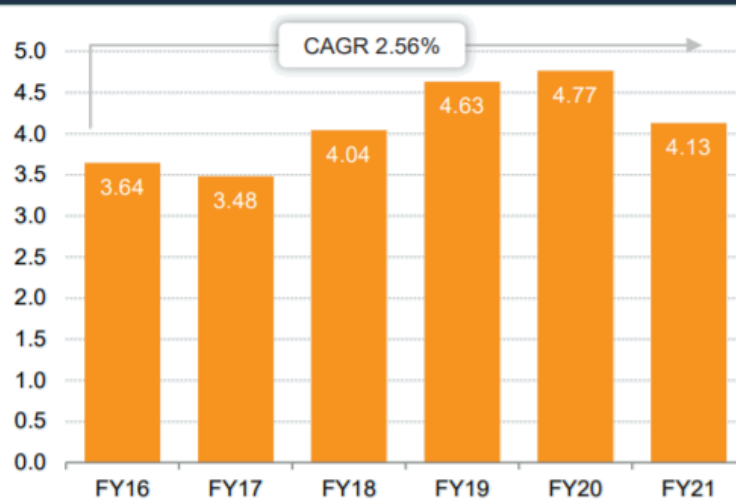
Number of Automobiles Sold in India (in million)



Indian Car Sales Figures - May 2021

OEM	May 2021	May 2020	Growth
Maruti Suzuki	32,903	13,702	140.1%
Hyundai	25,001	6,883	263.2%
Tata	15,181	3,152	381.6
Kia	11,050	1,661	565.3%
Mahindra	7,748	3,745	106.9%

Number of Automobiles Exported (in millions)

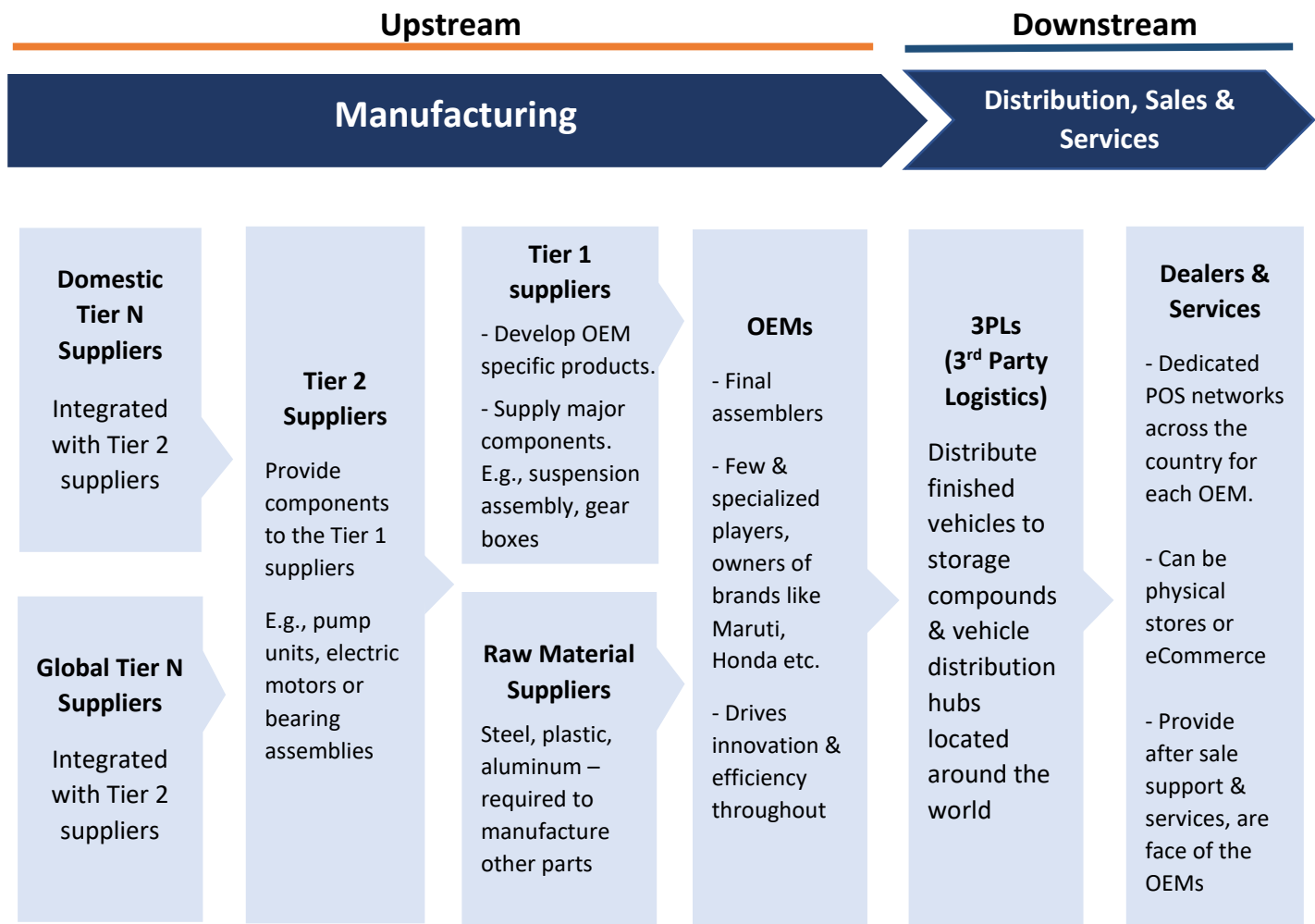




Key Stakeholders & the Supply Chain

The automobile industry has a connected supply chain with multiple stakeholders impacting the final production at different levels.

Also called auto ancillary industries includes component manufacturers like BOSCH, Sundaram and tyre manufacturers like CEAT, MRF, Apollo



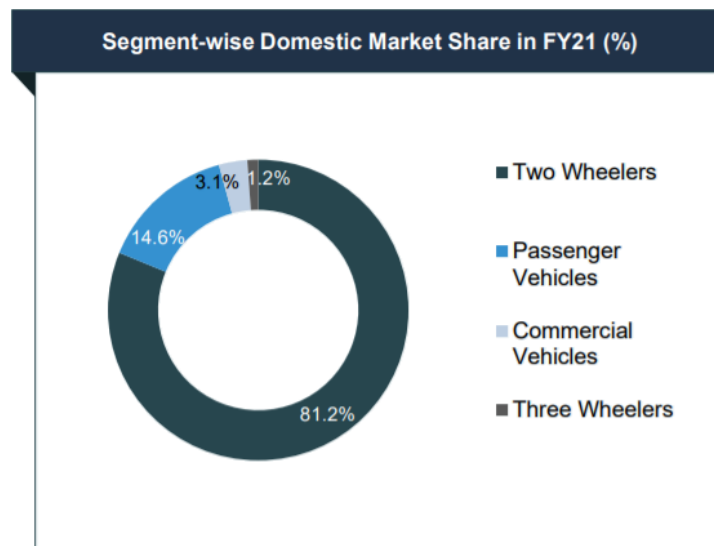
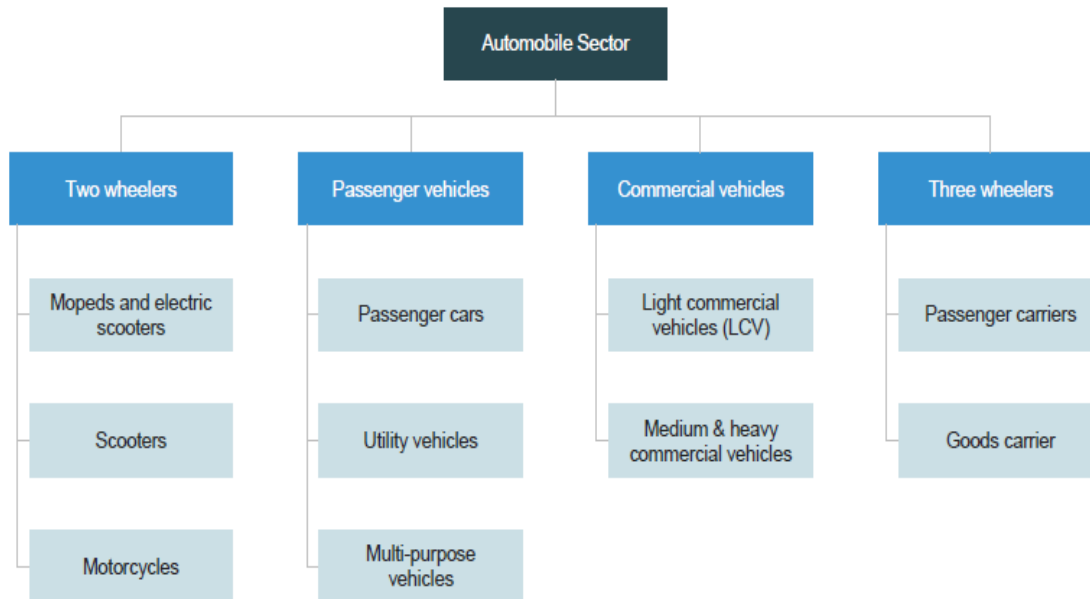
Industry Value Chain





Major segments

It comprises of commercial vehicles, passenger cars, three & two-wheelers with the two-wheelers and passenger vehicles contributing to a majority of the domestic demand.



These segments can further be either of following types – Internal combustion engines, Electric Vehicles & Hybrid vehicles.

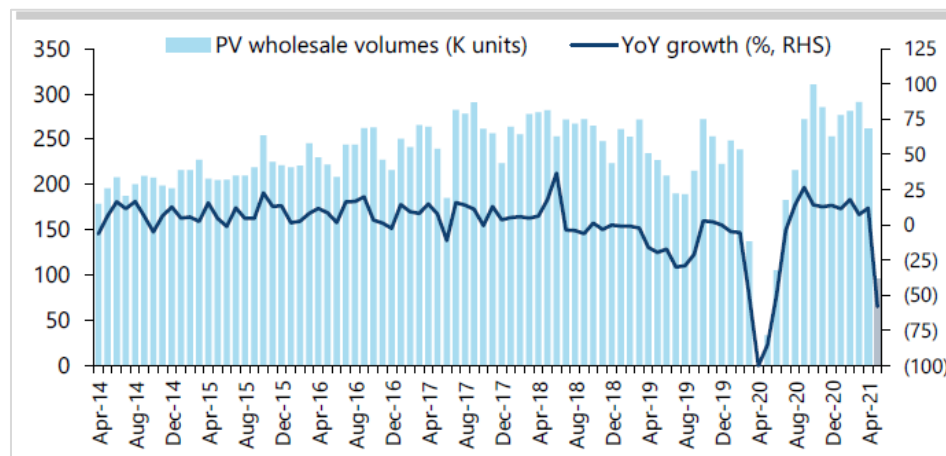
Their Markets can be largely divided as – New Vehicles & Used vehicle markets



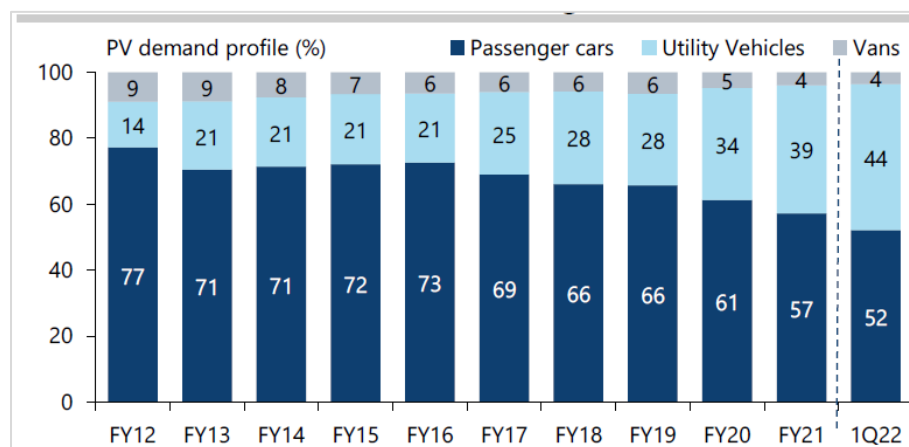
Segment wise analysis

Passenger Car & Utility Vehicles

- In FY21, the total passenger vehicles production reached 22,652,108. In 2019-20, the total passenger vehicles sales reached ~2.8 million, while ~2.7 million units were sold in FY21.
- Passenger vehicle wholesales in India increased by 45% YoY in June 2021 to 2,64,442 units in July against 1,82,779 units in the same month last year
- However, sales for the period of April to July 2021 for Passenger Vehicle segment are still lower than the level of 2016-17
- Passenger car sales are dominated by small and mid-sized cars.
- Increasing share and demand in market for UVs



Source: Jefferies



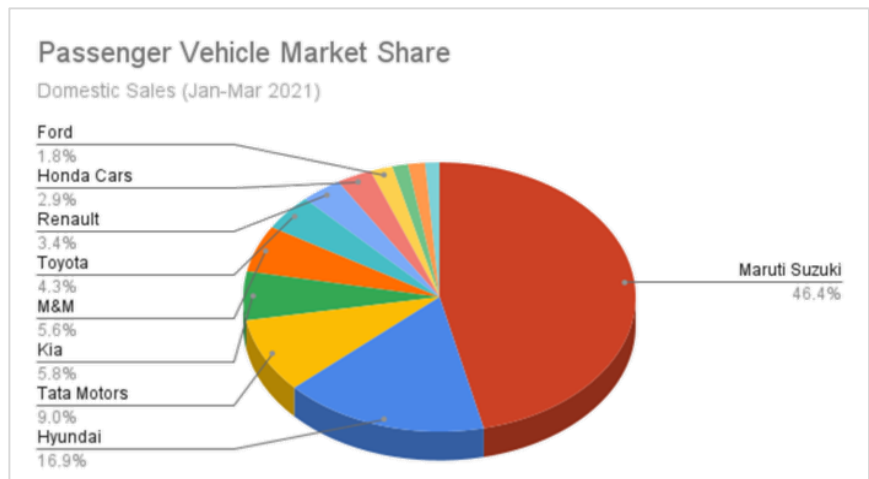
Source: Jefferies

Maruti has remained undisputed market leader in this segment with other players like Hyundai, Renault, Ford trying to gain share.

The market share has remained similar despite COVID being a testing time for all and had led to a huge decline in sales as well as production for all.

The traditional players are facing strong competition from new

entrants like Korea's Kia Motors, China's MG Motors and upcoming Great Wall Motors and First Auto Works have launched models in the UV segment.



SUVs: There has become an increasing need for players to address all SUV segments including the mid SUV as well as the compact SUV.

The SUV upward demand trend was visible before the pandemic & has now solidified into an across-the-categories preference at the expense of sedans, the car category conventionally considered the centrepiece in any brand's offering.

Many carmakers got into the compact SUV category initially because market leader Maruti Suzuki did not have a presence in that segment. After the pandemic hit, consumers now see added value in buying an SUV instead of a sedan, as they are more suitable for family mobility, long trips and even weekend getaways. Hyundai's Creta, for instance, was selling just above 6,000 units a month two years ago; now it is selling nearly 12,000.

"The kind of growth compact SUV has seen is not present in any other segment,"

- president of the Federation of Automobile Dealers Association

Factors that have affected this segment in COVID

- Global semi-conductor shortage
- Steep rise in commodity prices – e.g. steel
- Capacity of labor for production – due to social distancing restrictions, migration back to home towns etc.
- Keeping a close eye on the onset of a 3rd wave in India and across the world
- Consumer Behavior / Pent up-demand
- Substitute of buying a new car – leasing, renting, used cars



Change in Consumer Behavior: Social distancing norms has resulted in higher share of first-time buyers, additionally as well as salaried buyer since financier wants higher income certainty; Share of replacement buyers have decline on account of postponement of purchasing decisions amid income uncertainty. Low-priced petrol variants share increased due to lower cost compared to diesel variants

Raw materials cost has softened due to current drop in commodity prices which has been led by the decreased demand due to major economies not recovering completely from COVID-19

Low penetration: India's car market is highly underpenetrated compared with most developed economies and some developing nations. As of FY2019, India had ~23 passenger vehicles per 1,000 people. This is significantly lower than both developed nations and even other nations in the BRIC block (Brazil, Russia, and China) when compared to GDP per capita.

Electric Vehicles: In order to curb pollution levels, electric vehicles are gaining global interest. In India as well, electric vehicles are gaining popularity as the government is extending support via FAME (Faster Adoption and Manufacturing of Hybrid and Electric vehicles) and tax rate cuts in order to give a boost to EV adoption. At current prices total cost for EV Personal car is higher due to low running whereas for taxi segments it is lesser. Taxi segment accounts for ~10-15% of sales within passenger cars and within taxi segment, cab aggregators are expected to lead adoption of Electric vehicles.

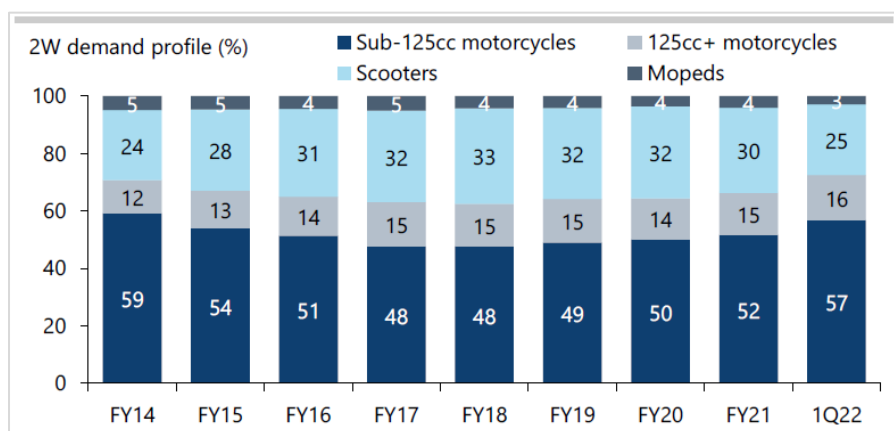
Two Wheelers

The Indian 2W industry has emerged as the world's largest 2W market (~15mn domestic sales and ~3.3mn export volumes respectively in FY21) and ~60% of the total miles driven in India are travelled on two-wheels.

The demand in two-wheeler segment is majorly dominated by motorcycles (~65% sales), scooters (~30%) and mopeds (~5%). Major players include market leader Hero MotorCorp, followed by Honda Motor & Scooters, TVS, Bajaj, Suzuki, Yamaha.



Scooters formed 30% of Indian 2W demand in FY21



Source: Jefferies

In FY 2021, two-wheeler sales in India saw a decrease from the previous years to 15.12M units. Post 1st wave of the pandemic & lockdown, 2 wheeler sales were driven by pent-up demand coming from - wedding season, rabi harvest, and non- availability of public transport. And added demand was generated due to high liquidity in market & low number of cases.

In Q1 of 2021-22, Domestic 2W sales surged, compared to the previous year's similar quarter. However, CRISIL Ratings has **trimmed its growth estimate** for 2W this fiscal to 10%-12% vs an earlier 18%-20%.

Reasons being - deeper and wider penetration of the second wave of the Covid-19 pandemic till the rural areas, temporary closures of dealerships and higher inventory with retailers.

August 2021: Domestic 2W wholesales (excluding Honda) fell ~18% YoY. Domestic 2W wholesales declined 11% YoY for Bajaj, 18% for Royal Enfield and TVS, and 24% for Hero. 2W **exports**, on the other hand, remained strong with August wholesales growing an estimated 35-40% YoY.

Increased Cost: Two wheelers witnessed a 10-15% price increase across models due to transition from BS IV to BS VI. This is expected to further weigh on retail demand during the year.

Financing: Cash transactions continue to dominate two wheelers sales, as compared with other automobile segments, given the industry's smaller ticket sizes, relatively lower-income profile of customers, high default rates, and difficulty in repossessing vehicles. Higher availability of cash / liquidity in the economy is thus driving the demand

Change in consumer preferences: The premium segment's share has been steadily rising on the back of increased competition, affordability, better model launches.



Electric Vehicles: For FY21, the E2W segment sales declined by 6% to 1,43,837 units, as compared to 1,52,000 units in FY20.

The cost of ownership & acquisition of an E2W is more favorable as compared to a traditional ICE scooter in long term. Subsidies as a part of government initiative FAME will also push up the demand.

However, analysts believe that a meaningful shift towards EV would happen in a phased manner and Ola's capacity expansion would not have any sudden disruption on the ICE based 2Ws. Moreover, OEMs have planned a slew of new EV launches over next couple of years, roll outs for which would happen in conjunction with the development of adequate charging stations in India. This would enable them to grab sizable pie of the E2W market

What can drive growth - In rural areas, rising penetration due to deeper distribution network and improving incomes of the farmer, with a good monsoon this season it is expected to support two-wheeler demand. Rural road connectivity plays an important role in driving two-wheeler sales. It acts as an income multiplier in the rural economy- aiding incomes while roads are constructed and enabling mobility and connectivity once the construction is over.

Tractor

Apart from their primary application in agriculture operations, tractors are also used to haul bricks, sand, and farm produce. Currently non-farm usage accounts for ~30% of total demand

The domestic tractor industry grew 27% in FY21 (~900k units), much higher than the 5-year CAGR of 6.5% and 10-year CAGR of 12.5%.

This was **driven by** - consecutive good monsoons, leading to better reservoir levels; better yields for the farmers and the rural ecosystem (good harvest & production, fair prices and high government procurement).

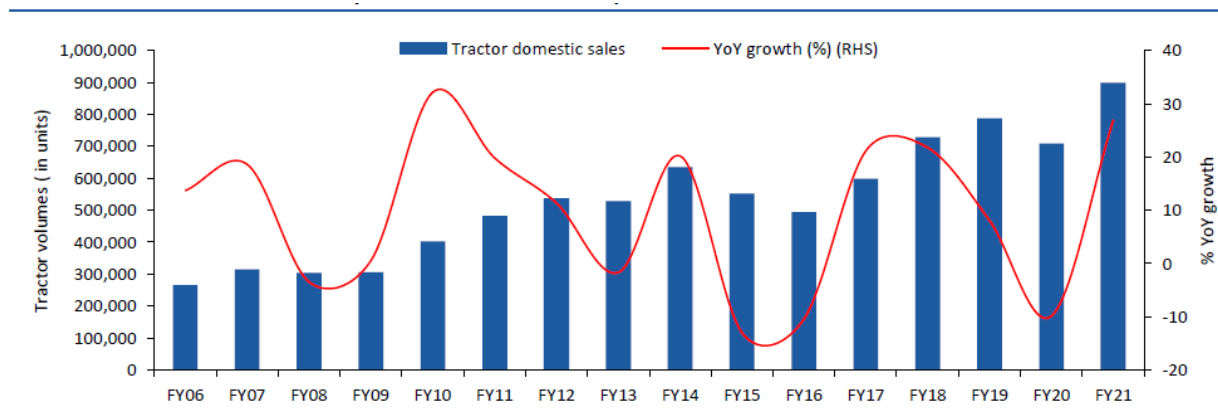
In FY20, Domestic sales had fallen by ~10% after three years of robust growth where the industry grew by 19%, 22% and 8% in FY17, FY18 and FY19 respectively owing to poor commercial demand and uneven rainfall spread across the country.

Tractors is a cyclical industry, and as a trend in the last 15 years, each year of degrowth is followed by a few years of growth. The industry has grown by ~8.5% in the last 15 years. Monsoons remain the key driver for tractor demand.

Market is dominated Mahindra & Mahindra maintaining a market share of >40%



Domestic tractor industry sales volume trend – 15-year CAGR of 8.5%



Source: Centrum Broking

Q1 FY22 – again witnessed a strong growth as registrations were 44% above 2019

Sales in the northern region grew at ~12% CAGR over the last five years. Punjab and Haryana are mature and highly penetrated tractor markets. West UP is well penetrated and growth is likely to be driven by replacement demand. Rajasthan and East UP are underpenetrated.

Monsoon trend points towards a robust FY22-23 period

Monsoons play a significant role in Indian agriculture, not only irrigating the Kharif crop, but also filling the reservoirs for the Rabi crop. As a trend, tractor sales following the years of above rainfall sees strong growth. In FY21, rainfall was 109% more than predicted, which is a positive sign for tractor volumes in FY22.

Farm income supported by higher agricultural output and increased MSP

In FY21, total food grain production in the grew 2.7% to 305.44mn tonnes. Further, the production during FY21 was higher than the previous five years' (FY16-20) average production. Record production was seen for grains like rice, wheat, maize and gram.

To supplement production, the government increased MSP of Kharif crops by an average 4.8% for FY21 and 6% in FY21 for Rabi crops.

Increased grain procurement by Govt.

Government procurements have been at record high in FY21. Procurement improved in the year due to lifting of food grains by state governments under Pradhan Mantri Garib Kalyan Ann Yojana (PMGKAY), under which food grains are being distributed free of cost for three months to about 800mn beneficiaries across the country.

Low Penetration: The growth will be supported by low tractor penetration in India (3 tractors per 100-hectare area)



COVID lockdowns: About 70% of the tractor sales happen in 10 states including Maharashtra, Uttar Pradesh and Madhya Pradesh, where the COVID-cases are highest. Sporadic & sudden lockdowns, and subsequent supply chain constraints further can reduce demand

Government Initiatives: The government's objective of doubling farm income by 2022 via initiatives such as e-NAM (National Agriculture Market), expansion of crop insurance coverage, direct income support and improvement in land productivity via soil health cards. These measures should improve farmers' crop yields and affordability, and boost tractor penetration

Irrigation investments have risen considerably in past 10 years, resulting in a consistent increase in irrigation intensity. This, in turn, heightened cropping intensity and led to higher and stable farm incomes over the period. Irrigation intensity is expected to continue to improve over the medium term, supporting tractor sales.

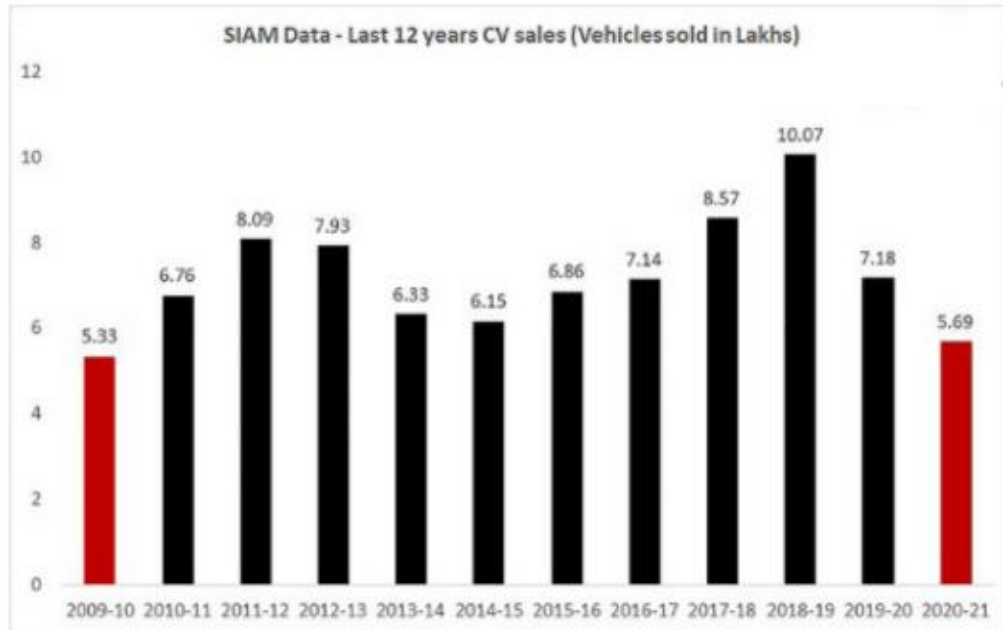
Non-farm use: Tractor usage in non-farm activities has been increasing, with the government's focus on improving rural infrastructure. Tractors are used for carrying construction material such as bricks, cement and pipes, mining. Tractors are also being looked at as a better alternative to commercial vehicles, as tractors are more economical, can carry heavy weight, and easily used on rough, rural roads.

COMMERCIAL VEHICLES

Based on the product type, the commercial vehicles market in India can be segmented into Light Commercial Vehicles (LCVs) and Medium & Heavy Commercial Vehicles (M&HCV).

In FY 21 - While the overall industry fell 20%, the small commercial vehicle (SCV) segment performed best. It de-grew by 12% followed by the intermediate and light commercial vehicle segment at 17% and the medium and heavy commercial vehicle segment at 21%. The bus segment had the steepest fall of 78% as the pandemic impacted passenger transportation across India.

CV sales fell by ~85% in Q1 FY22



M&HCVs witness sequential drop while LCVs remain strong; rural demand continued to support tractors on better monsoon.

While there are headwinds from higher diesel prices and supply-chain issues, CV volumes are expected to bounce back, driven by Infra and an economic recovery.

LCVs have seen a strong demand recovery on the back of e-commerce and FMCG activity.

The intensity of the third COVID wave is an unknown, but higher diesel prices and financing issues will get addressed through a demand recovery.

The recovery in the CV segment last year was not even across categories. MHCVs recovered quite well in H2 FY21 as demand for tipper trucks picked up on increased government spending on infrastructure projects. Similarly, the intermediate commercial vehicles (ICVs) picked up due to short haul requirements and e-commerce.

Tata Motors dominates the domestic commercial vehicle market across India with a share of about 44 percent followed by Mahindra & Mahindra (25%), Ashok Leyland (18%), VE Commercial (6%)

Increase in freight / logistics demand: Dealers expect normalcy by Sep-Oct'21, with an increase in freight demand.

- Lower freight rates and higher input cost due to rising diesel prices.
- Financing disparity: Large and medium fleet operators are being offered very attractive rates. However, single and small fleet operators are facing challenges.



Commodity cost inflation: Steel prices increased by 12-13% in 1Q, but is expected to soften in 2HFY22. It hiked prices by 2.5%/2% in 1QFY22/Jul'21 to offset the commodity cost inflation.

Price hike: 3Q and 4QFY21 saw a price hike in M&HCVs (2% in Oct'20, 2% in Jan'21, and 2.5% in Apr'21) and LCVs (1.5% in Oct'20, 1.5% in Jan'21, and 2% in Apr'21). It has taken a 1.5-2% price hike each in 3Q/4QFY21, 2.5% in 1QFY22, and 2% in Jul'21.

Semi-conductor availability remains a concern.

Increased Cost: BSVI vehicles are expected to be 10-15% costlier as due to already low volumes OEMs have taken complete price hikes

Axle norm to lead to a shift from T-Trailers to MAVs The Ministry of Road Transport and Highways had notified new axle load norms for commercial vehicles, which allow for an increase in the load-bearing capacity of trucks by ~20%. The new axle norms will be applicable to the entire lot of freight-moving trucks. this would also lead to lower truck purchases.

High infrastructure development: construction and manufacturing activities to pick up and high government spending.

MHCVs are highly dependent on GDP growth. With a GDP growth of 11% - 11.5%, we expect the construction and manufacturing activities to pick up. This augurs well for the MHCV demand.

Demand from intercity, school, STU and tourist bus segment to be hit: State road transport undertakings (STUs) will open up the bus acquisitions for public transport this fiscal. The bus segment was worst hit last fiscal as people avoided public transport and preferred personal mobility amid covid-19 scare

Autonomous Vehicles

Connectivity is still in the early stages of adoption in India. However, connected car market ecosystem in India is expanding fast with players cutting across on-board diagnostic (OBD)-based connected car solutions, fleet telematics, vehicle navigation

Development of autonomous vehicles in India is being spearheaded by key local automakers, such as Mahindra & Mahindra and Tata Motors. For example, Minda iConnect and Microsoft India announced a strategic collaboration to locally develop connected vehicle technologies and enhanced driving experience in 2018



ELECTRIC VEHICLES

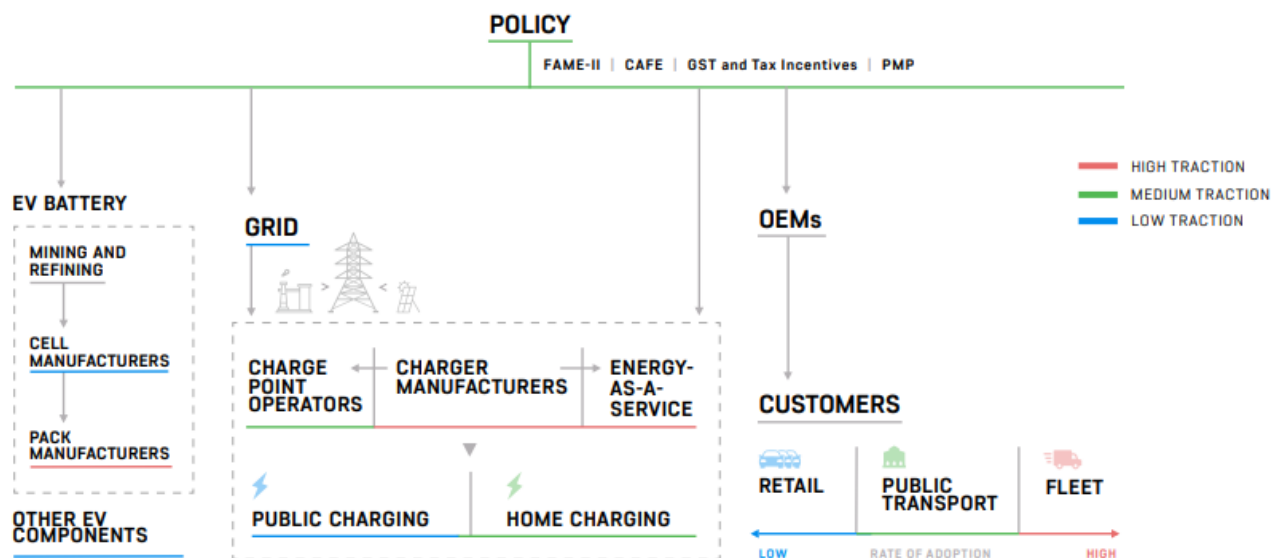
India represents the fourth largest automobile market in the world and the second largest two-wheeler market with ~20 mn units. It is also a country with massive dependency on oil imports, with a USD 112 bn oil import bill in FY19. Pollution in many Indian cities has reached alarming levels. All these factors put together make a strong case for EV adoption in India. Pricing and infrastructure, though, continue to remain a challenge.

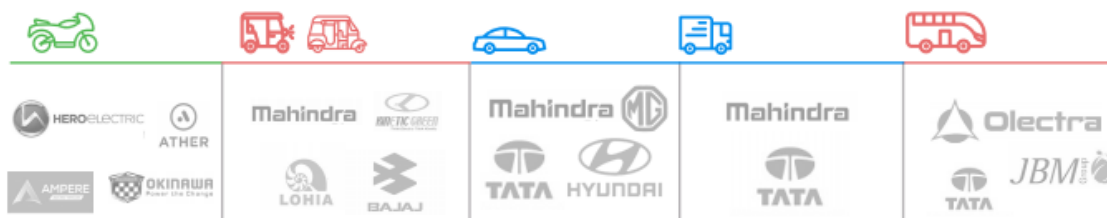
Global electric car parc (vehicles on road) crossed 7 million units in 2019 with annual sales crossing 2.2 million units.

- China has moved way ahead in the EV adoption race with a whopping 53% share of the global electric car sales in 2019.
- Europe and the USA are the next largest markets with 26% and 14% market share respectively.
- Norway, Iceland and Netherlands remain leaders in EV penetration with electric cars representing 56%, 25% and 14% respectively of their annual car sales.

Tesla leads the EV sales chart with 367K units sold in 2019 - a 50% growth over 2018. BYD is the second largest player with 229K unit sales. BAIC, BMW, and Nissan are the other leading OEMs in the EV space currently. Tesla's Model 3 (13%), BAIC EU-Series (5%) and Nissan Leaf (3%) were the three top selling models of 2019.

EVs Ecosystem





- Policy:** The role of policy makers is central to the evolution of electric vehicles. China has taken a massive lead over the rest of the world in EV adoption, with strong backing from its New Electric Vehicle Policy. Lack of economic parity is a major hurdle in adoption of EVs today. Policy makers are trying to bridge this gap through subsidies to encourage EV adoption. Policy makers need to simultaneously adopt other levers also to encourage EV adoption further. The Indian policy has taken a number of positive steps towards promoting EV adoption, and FAME II is a significant leap among those. Mandated adoption targets, localization of key components, clear guidelines on regulations and standards and EV adoption in public transport are some of the key levers that policy makers in India need to leverage.
- Battery:** The battery not only constitutes 30-40% of the cost of the vehicle but is also the key to solving other hurdles like range anxiety, charge time reduction, safety of EVs, etc. Availability of battery's raw material is a critical hurdle for the Indian EV industry. India does not have any meaningful reserves of key raw materials like Lithium and Cobalt. Cell manufacturing is highly cost and R&D intensive and requires scale. For now, India is completely dependent on cell imports and the role of domestic industry in battery value chain is limited to battery pack assembly.
- GRID:** There are two key considerations for the grid

 - Its ability to handle increase in the peak load
 - Its composition – Fossil fuel based vs renewable based

While the generation and transmission part of the grid is capable of handling the increase in peak electricity demand driven by EV adoption, the distribution part of the grid will have to undergo structural changes to handle peak loads at high EV adoption. Majority of households in India are connected through 200 kVA transformers which cannot handle more than 20 cars being simultaneously charged by a 7.4 kWh AC charger. Also, the composition of the grid must shift towards renewables for EVs to truly address the pollution problem. India's coal dependent grid is amongst the most inefficient ones in the world and that makes this shift even more important, as inefficient fossil fuel based power plants also mean higher carbon emissions.
- OEMs:** OEMs have a strong influence on the future of EVs and they are the ultimate drivers of this disruption. The 2W segment has seen a lot of activity, with emergence of



new players as well as increased activity by the incumbents. In case of 3W, the e-rick segment has grown rapidly and has even started to shift to Li-ion batteries. E-autos are expected to be launched soon. 4W market was largely being driven by Mahindra and Tata Motors with their fleet targeted variants. In 2019, Hyundai, MG Motors and Tata Motors came up with new EV models aimed at the retail segment. In CVs, the bus segment is seeing most action, mainly on account of public sector demand.

- **Infrastructure:** Charging infrastructure development in India is still slow, mainly because the adoption of EVs (especially 4Ws) has not gained enough momentum. Innovative business models have come up that offer energy-as-a-service (most of them are based on battery swapping). Home charging will be the primary method in the near term as public charging infrastructure will get developed in sync with the overall EV adoption.
- **Customers:** Finally, the most important stakeholder in the ecosystem – the end customer. Customers need economic parity and a good product. TCO parity is an imperative and the upfront cost differential needs to go down to attract customers to adopt EVs. Fleets and public transport systems are gaining traction rapidly but the retail customer is still slightly further away from EV adoption – especially in segments where the upfront cost differential is very high

Opportunities

Electric vehicle market in India would present opportunities worth USD 206 billion by 2030.

- It is estimated that the EV market in India is likely to grow at a CAGR of 36% until 2026. Also, the EV battery market is likely to expand at a CAGR of 30% in the same period.
- A cumulative investment of over USD 180 billion is required in vehicle production and charging infrastructure.
- OEMs have placed big bets on all-electric fleets and batteries.
- This transition is likely to save Indian crude oil imports worth INR 1,07,566 crore.
- Increased consumer readiness. Across use cases, more consumers must be willing to opt for EVs over ICE vehicles

Challenges

- **High costs:** With the increase in research and development activities and market competitiveness, EV price will be rationalised considering the price sensitivity of consumers.
- **Higher dependence on imports:** Reliance on imports of battery as well as other components is also one of the factors adding to the cost of EVs in India.



- **Insufficient charging infrastructure:** Establishing the charging infrastructure is necessary for large-scale EV adoption. It is an enormous but essential undertaking for widespread adoption.
- **Range anxiety (kms/charge):** With compatible charging stations along EV route, this challenge will be taken care of.
- **Grid challenges:** Increasing methods of power generation are necessary to meet the expected growth in electricity demand once EVs become mainstream.

Growth

Some drivers:

- **Adoption by B2B players** – Fleet, logistics & delivery players are adopting EV vehicles for their fleet. electric vehicles are cheaper to maintain compared to ICE vehicles.
- **Federal subsidies** - Favourable policies with deeper discounts for Indian-made electric vehicles. Favorable policies for setting up manufacturing in this segment, and even for end consumers – siffering subsidies as per state policy
- Boost for localised ACC battery storage production through the PLI scheme
- Consumer preference is also ow seen tilting towards EV from ICE (internal combustion engine) vehicles

India's EV ambitions started taking shape with the introduction of the National Electric Mobility Mission Plan (NEMMP) in 2013. The plan underlined an ambition to have 6-7 million EVs on the road by 2020.

Today, in 2020, while the number of EVs on the road are far lesser than what the policy envisaged, the enthusiasm created by electric vehicles in India is significant. A large number of start-ups have come up in this space in various parts of the ecosystem – OEMs, component manufacturers, charge point operators and other service providers. Established players have laid down their EV strategies and large investments have been committed.

EV adoption, in India, was largely restricted to 2W/ 3W so far. Despite challenging economics, the 4W segment has started showing an uptick in adoption.

Investors are actively looking at the EV space as the next big opportunity to create value. Close to USD 700 million of capital has been raised in this space in India. A number of businesses are trying to leverage electric mobility to create value. Electric shared mobility is one such example.



Auto eCommerce - Used car market & New car market

The opportunity: Auto ecommerce has low penetration globally, with India and US, for example, having a 1% penetration. This is largely because the auto market still requires physical inspections and the target market skews towards used vehicles - an unorganized market. The TAM in India is around USD220bn, which includes 1) used vehicle purchase by consumers, 2) auctions and remarketing 3) new vehicle TAM, 4) financing and advertisements etc. The TAM for only the used car market in US is over USD800b

Business models: There are three models:

1. Pure marketplace with lead generation and advertisements as key income sources,
2. Inventory model
3. A Hybrid one

Globally for example, Carvana is an inventory model while Copart, Autohome, and Carsales.com are marketplaces, classifieds, and lead generation models.

While a marketplace model is more appealing (asset light, higher ROEs), it is not an easy one to scale up. This requires a strong consumer base, built either through early mover advantage, significant spend on branding or by the absence of relevant competitors.

On the other hand, inventory models can be high growth plays, given a better supply visibility/control over product quality. However, these are tough to operate and may have higher break-even levels. Long term, one risk for both models is the impact of EVs on the used car market dynamics.

While there are several successful marketplace models globally, we see that in India, Inventory models, if executed well, have a better chance of scale up, as the marketplace models in India, do not offer a unique value proposition or a longer history of presence.

From a valuation perspective, globally these models trade at a wide range, with marketplace models trading at higher revenue multiples.

To Note: CarTrade Tech, an auto ecommerce marketplace in India, filed its IPO prospectus in May 2021. CarTrade Tech's last round valued it just shy of USD1bn of valuation

Ecommerce in the Indian automobile industry

Auto ecommerce has been around for a while, but is a small market not just in India but globally. Penetration is just under 1% in India/US. While a low penetration may appear as an opportunity, the fact that it is still low – even in the US, suggests that it is a tough market to scale up given the larger focus on an unorganized used vehicle market. The new vehicle market is tightly controlled by the OEMs through traditional offline dedicated dealers



Growth Drivers

Fragmented market for used vehicles an opportunity

The new vehicle opportunity will continue to be controlled by the OEMs, even as it moves online. OEM's have built dedicated online presence where consumers can book test rides and are able to complete the entire purchase process. The opportunity for independent auto ecommerce companies is hence largely in the used vehicle market.

The used vehicle market is unorganized in nature and fragmented with shares spread across, individual dealers and brokers with no physical presence, institutional dealers that operate out of physical stores, ecomm players and P2P sales. There are over 30K dealers (60% in non-metro, 45% Individual dealers) for used cars, of which 14K are individuals and the others are Institutional dealers. There is room for this segment to see a consolidation

Value added services

Given the fragmented nature of the used vehicle industry, service levels are not standardized and in many cases lack well defined structure for seamless experience for consumers. Thus, building an ecosystem which includes all necessary services like paper transfer, loan application could be a key lever to drive traffic from unorganized physical stores to organised ecommerce players.

For few online players in the used vehicle industry, the revenue contribution of allied service is as high as 50% - e.g. Mahindra First Choice, which drives a significant part of revenue from franchise fees, yard management services while CarTrade garners 43% of revenue from website services/fees (advertisement, lead generation etc.).

Low finance penetration in used vehicle

The overall finance penetration for used car market in India is 17% vs. 75% for new car sales. The gap is almost similar for developed markets like US. While lower transaction cost may reduce financing needs, part of the gap is because of no formal valuation - given unorganized market structure, significantly higher interest rates compared to new vehicle purchase (17% for used car vs 11% for new car) & lower residual values. There is also a large element of C2C sales as well. Better finance offering from Auto ecommerce companies could help in unorganized to organized shift in the used vehicle industry

Potential to tap digital marketing opportunity

In India, Auto OEMs (PVs and 2W) still rely on traditional channels like print, television, in-store marketing/promotions etc. for majority (86%) of advertisement spends vs. global average of 58% and 69% in US. As consumers get increasingly engaged with digital platforms, Auto ecommerce platform could become a key media for advertisements



The key revenue opportunity for online auto Ecommerce

Potential to provide various services like:

- **Vehicle Transaction** – The largest opportunity for Auto ecommerce is transactions related to used vehicles. For new vehicle sales, currently online players mostly act as lead generation for regular offline dealers.
- **Auctions/Remarketing** – This opportunity is mostly related to used vehicle transactions for C2B and B2B services. TAM (Total Addressable market) for this is around USD47Bn.
- **Auto Finance** – Most online auto portals, offer aggregator service for auto financing. Using technology, the entire process from loan application to approval is digitalized, with negligible/minimum physical documentation. The current TAM for this service is estimated to be USD 32Bn, which includes financing of used vehicle and new vehicles. Low penetration and attractive interest rate offers strong upside for digital auto portals from this business.
- **After sales** – Includes after sales support/assistance for used vehicle customers, which includes purchase of accessories, vehicle servicing, warranty, etc.
- **Auto Insurance** – This is an aggregator kind of service for online purchase of auto insurance. TAM for the service is estimated to be USD7Bn.
- **Advertisement** – Many auto OEMs use auto ecommerce portals for digital marketing, which is currently estimated to be USD2Bn TAM opportunity.
- **Vehicle Inspection** – This service is offered to used vehicle sellers, to get a formal certification on vehicle health and condition. This helps such customers to get appropriate pricing in used vehicle market.

The used vehicle market in India

The used vehicle industry in India includes not only sale/purchase of old vehicles but also many allied services such as auction and remarketing, vehicle inspection and certification, post purchase warranty and servicing, vehicle loan and insurance etc.

The used vehicle and allied services is estimated to be USD124B of the total automobile market of approximately US\$ 220B (including finance, insurance, and others) in India.

In this \$124B - Used vehicles sold to end customers is estimated to be USD 50B per annum, across CVs, PVs, and motorbikes in FY20. This is around 75% of the new vehicle market. In terms of end markets, around US\$20 bn is accounted from each of used CV and \$22B to used PVs while 2W segment is around US\$ 10B.



Key players in Auto Ecommerce

Company	Founded	Major Sub-Platforms	Business Model	Adj. revenue (FY20 in RsM)	PAT (FY20 in RsM)
CarTrade Tech	2009	CarTrade, CarWale, BikeWale	Mostly Mktplace for services	3,012	292
Cars24 Services	2015	Cars24, Cars24 Finance	Inventory model + online auction	2,558	(2,850)
CarDekho	2008	CarDekho, TyreDekho, TruckDekho, InsurancDekho	Inventory & mrktplace	4,654	(3,265)
Mahindra First Choice Wheels	2007	MahidraFirstChoice, Cars&Bike	Franchise model for offline store, Online listing of stock	2,133	(70)
Droom	2014	Droom, DroomCredit	Mrktplace	1,795	(829)
Spinny	2015	Spinny, Truebil	Inventory	161	(725)

Competitive landscape of service offerings from online ecommerce players in India

Segments	Business segments										Customer reach	
	Marketplace for used vehicle	Used vehicle - Inventory	Segments other than Cars	New Vehicle	News & Reviews	Inspection & Valuation	Vehicle Auction	Vehicle Finance (NBFC)	Vehicle Finance (agregator)	Vehicle Insurance - aggregator	Physical stores	Global presence
CarTrade	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗
Cars24	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓
CarDekho	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓
Mahindra First Choice	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗
Droom	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓
Spinny	✗	✓	✗	✗	✓	✓	✗	✗	✓	✓	✓	✗



Pandemic impact (first wave)

The Indian auto sector had been witnessing a downturn over the past few years and COVID-19 just added to the burden. The sector has attempted to use this time to revamp and change its procedures; some players have even tried to use this as an opportunity to reskill staff, strategise to improve in the future and evaluate new technology and business models.

- The pandemic and its subsequent lockdowns resulted in the Indian automotive industry suffering losses of approximately USD 328 million, in turnover per day and job losses of almost 3.5 lakh overall.
- There were also decrease in imports of auto-components from China due to supply restrictions (India imports about 29% of total auto components from China)
- Domestic sales for all the four segments namely passenger vehicles, commercial vehicles, two-wheelers and three-wheelers declined substantially during COVID-19 pandemic

Reasons & trends of growth seen:

Post government announcing the first batch of coronavirus vaccines, there was seen an increase in sales of PVs, 2W, 3W.

Post COVID-19, there is likely to be a shift away from shared mobility to affordable personal mobility, boosting automotive sales

Increasing domestic customer base and favourable demographics

India has about 120 vehicles (all segments) for every 1000 people, which is expected to rise to almost 300 in the next 10 years⁴ • The consumer base in the country is witnessing rising income levels and improvement in overall employment.

Rapid urbanisation

Urbanisation is a key driver of India's automotive industry. Urbanisation rate was estimated at 33.2% of India's population and expected to reach 36.2% by 2025, warranting a need for more vehicles. By 2050, 60% of Indians will live in cities - Delhi, Mumbai, and Kolkata will be among the world's largest cities expected to have ~100 million residents

Support infrastructure and rising investment by foreign companies

- India is transforming into a global automotive R&D hub, with several players entering the automotive manufacturing and development space.
- This has been supported by availability of a low-cost workforce, government support through effective labour laws and other schemes, well-established IP rights policy, cost advantages in setting up manufacturing facilities, and access to a large consumer market to offer finished products.
- The Government of India expects automobile sector to attract USD 8,000 -10,000 million in local and foreign investments by 2023.



- 5% of total FDI inflows to India from April 2000 to June 2020 went into automobiles sector.
- Investment flows into Electronic Vehicles (EV) start-ups in 2019 (until the end of November) increased nearly 170% to reach USD 397 million

Market entry of established brands

In 2019, South Korean brand Kia and Chinese car manufacturer MG Motors from China, entered the Indian market. Tesla recently made its entry in the Indian market and companies, such as FAW Haima, Citroen and Great Wall Motors are planning to launch in India.

This is also driving an increase in collaboration between foreign and Indian companies to develop products. For example, partnerships between Ford and Mahindra & Mahindra, Citroen and CK Birla group

More digital presence

COVID-19 containment measures are forcing the closure of car showrooms, and is also increasing the requirement for an effective online purchase process. This has led to automotive retailers to look at ways to enhance their online presence across the country

Decline in ride sharing market

post outbreak of COVID-19, ride sharing market is projected to decline 2% in FY21. Preference for private ownership of vehicles has accelerated due to increased focus on personal safety

Impact of COVID-19 second wave

In April, the sudden onset and severity of the 2nd wave of COVID-19 pandemic in the country derailed the recovery momentum of automobile OEMs and auto ancillaries. While most of the segments continued to report growth on a y-o-y basis, given the favourable base, the growth estimates were revised downwards given the sharper and longer-than expected impact of the second wave.

Segment Growth	Passenger vehicles	2 Wheelers	Commercial
Expected earlier	16-18%	22-25%	27-30%
Now	10-12%	17-20%	21-2%

- The second wave has seen deeper and wider penetration including rural hinterlands.
- Near-term supply disruptions in the sector
- Collapsed sales of new vehicles as auto plants and many dealers were forced to close.
- Impact on disposable income and rising vehicle costs (including fuel cost).
- The prolonged impact is likely to be on account of the effect on various demand drivers.
- An elongated recovery cycle or possibility of a third wave offers further downside risks.



- Impact of lockdowns: Drop in orders received by OEMs; Piling up of inventories; Second thoughts by customers who had pre-booked;

Semiconductor shortage

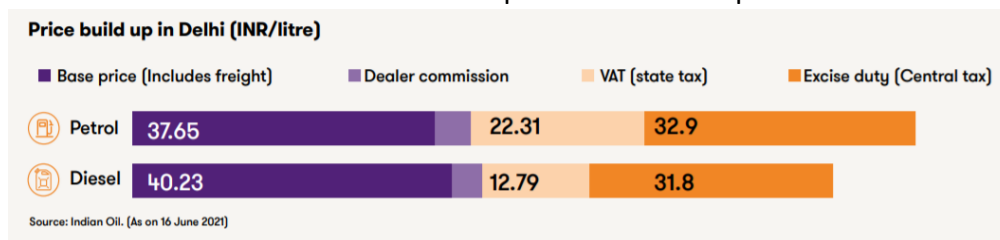
Prolonged semiconductor shortage for over six months has put pressure on automotive supply chains and continues to decelerate the production levels.

Fuel economy standards

Petrol and diesel prices have increased about 20% in the last year. The rise in prices has impacted consumer sentiments and made logistics and supply chains expensive for automobile OEMs. The price of petrol has surpassed the INR 100 per litre mark in numerous states and union territories including Maharashtra, Rajasthan, Madhya Pradesh, Andhra Pradesh, Telangana, Karnataka and Ladakh. Since 4 May 2021, petrol prices surged 40 times and in July itself the prices were increased 10 times (as of 17 July 2021).

High taxes

While international crude oil prices determine the cost of fuels in India, it is major factor contributing to the rise in petrol and diesel prices. The main reason for this hike is central and state government taxes. More than half of fuel prices are made up of taxes



Quarterly domestic sales analysis

(In units) *

Category	April		May			June			April-June	
	2020	2021	2020	2021	y-o-y % change	2020	2021	y-o-y % change	2020-21	2021-22
PVs	-	261,633	33,546	88,045	162.46	105,617	231,633	119.31	153,734	646,272
2Ws	-	995,097	279,682	352,717	26.11	1,014,827	1,055,777	4.04	1,294,509	2,403,591
3Ws	23	13,728	2,437	1,251	(48.67)	10,300	9,397	(8.77)	12,760	24,376
CVs	-	-	-	-		-	-		31,636	105,800
Total	23	1,270,458	315,638*	442,013	40.04	1,130,744	1,296,807	14.69	1,492,639	3,180,039

Note:
According to data released by the industry body Society of Indian Automobile Manufacturers (SIAM). Does not include volumes of Tata Motors.

*Less 27 quadricycles in May 2020



Q1 FY22 units

Category	Production		Domestic sales		Exports	
	2020	2021	2020	2021	2020	2021
April	15,741	1,875,698	23	1,270,458	57,332	520,289
May	339,488	806,755	315,638	442,013	129,093	435,471
June	1,094,554	1,693,639	1,130,744	1,296,807	246,190	447,319

Note: According to data released by industry body SIAM

April-May-June Quarter

In April and May, owing to the alarming rise in the number of COVID-19 cases and subsequent lockdowns, vehicle sales plummeted. The situation in Q1 FY22 was exacerbated with supply chain disruptions that are expected to persist over the coming months as well.

May 2021 - However, the production and retail sales numbers are not comparable as the previous year's months were impacted due to nationwide lockdowns imposed in the country due to the pandemic. Many OEMs had shut their manufacturing plants to divert oxygen from industrial use for medical purposes.

So, as compared to May 2019, sales in the month of May 2021, for PVs stood at 88,045 units (- 61.2%), for 2Ws at 3,52,717 units (- 79.6%) and for 3Ws at 1,251 units (- 97.6%).

June 2021 - With the relaxation of norms after the second wave of COVID-19 announced by the government, the overall domestic vehicle sales rose by nearly 15%.

Major Players' analysis

Maruti Suzuki: Semi-Conductor constrain impacting production

- MSIL mini segment grew by 3.8% YoY. Compact sales decreased by 26.4% YoY. Mid-Size sales grew by 75.5% YoY. Domestic sales decreased by 8.3% YoY. Total domestic YTD sales grew by 91.7%.
- According to the management, the sales were impacted due to electronic components shortage.

Mahindra & Mahindra (M&M): Tractor Disappointed

- M&M UV sales increased by 17.7% YoY. CV sales decreased by 42.5% YoY. Auto division domestic sales decreased by 6.3% YoY.
- The company is impacted due to global semiconductors shortage. However, the company has good order books of its Thar, XUV 300, Bolero Neo and Bolero Pick-up. The company has launched XUV700 and getting good response and interest from customers.



Hero MotoCorp: Weak Demand

- HMCL domestic sales declined by 22.8% YoY. Exports sales increased by 44.1% YoY. Total sales declined by 22.3% YoY. Total YTD sales increased by 15.8% YoY.
- HMCL has higher Inventory in dealer levels. HMCL will take longer time to revive as commuter segment is still struggling with covid impact. Awaiting the festive season demand.

Bajaj Auto: Exports sustaining the momentum.

- BJAUT domestic motorcycle sales declined by 11.4% YoY whereas export motorcycle sales increased by 26.3% YoY. Domestic 3W increased by 90.9% YoY.
- BJAUT reported decent 2w sales on the back of good export numbers. As economy opens and vaccinated population increases we expect 3W to improve on the back of higher demand of shared mobility.

TVS Motors: Recovery in Scooters Demand

- Overall motorcycle sales increased by 11.6% YoY. Scooter sales & 3W domestic sales increased. Overall YTD sales increased by 54.0% to 1.24mn units.
- With the opening of work places, schools and colleges. The TVSL is well placed with its scooters portfolio to meet the demand of personal mobility.

Ashok Leyland: CV sales rebound as Economy opens

- Domestic sales increased by 44.2% YoY whereas M&HCV Goods segment increased by 80.3% YoY. Domestic LCV segment increased by 22.5% YoY.
- Total sales increased by 48.0% YoY.
- Ashok Leyland focus on LCV and Export market is helping drive growth. With the pickup in construction activities and strong Govt. Infra Push the demand of tippers expected to grow.

Investments, M&As News

- **Toyota:** In September 2020, Toyota Kirloskar Motors announced investment of over Rs. 2,000 crore (US\$ 272.6 million) in India directed towards developing electric components and technologies.
- **Hyundai:** Hyundai Motor India invested close to Rs. 3,500 crore (US\$ 500 million) in FY 2020 with an eye on gaining market share. The investment is part of Rs. 7,000 crore (US\$ 993 million) commitment by the company to the Tamil Nadu government in 2019
- **SAIC:** Chinese state-owned auto major, SAIC Motor, has announced investment of over US\$ 310 million in India. In March 2018, SAIC announced that its subsidiary, MG Motor India, would invest Rs. 5,000 crore (US\$ 775.8 million) in India over the next six years.



- **Mercedes-Benz:** Increased its plant capacity at Chakan to 20,000 units per year, the largest for any luxury car manufacturer in India. In March 2019, the company inaugurated two new service stations in New Delhi.
- **Fiat:** In January 2021, Fiat Chrysler Automobiles (FCA) announced an investment of US\$ 250 million to expand its local product line-up in India. It plans to launch four new SUVs by the end of 2022.
- **MG Motors:** In October 2020, MG Motors announced its interest in investing Rs. 1,000 crore (US\$ 135.3 million) to launch new models and expand operations despite the anti-China sentiments.
- **Olectra Greentech Ltd.:** In December 2020, Olectra Greentech Limited and Evey Trans Private Limited bagged an order for 150 electric buses under FAME-II Scheme from Pune Mahanagar Parivahan Mahamandal Ltd.
- **Kinetic Green:** In October 2020, Kinetic Green, an electric vehicles manufacturer, announced plan to set up a manufacturing facility for electric golf carts besides a battery swapping unit in Andhra Pradesh. The two projects involving setting up a manufacturing facility for electric golf carts and a battery swapping unit will entail an investment of Rs. 1,750 crore (US\$ 236.27 million)
- **Mahindra and Mahindra** sold its vehicle service business – Mahindra First Choice to TVS Automobile Solutions Pvt Ltd in November 2020
- **Ola Electric** bought Amsterdam based electric scooter manufacturer Etergo in May 2020
- **TVS Motor** acquired sporting motorcycle brand Norton of UK in an all cash deal in April 2020
- **Tesla Inc.** has gotten approval for 4 of its vehicle by Ministry of Road & Transport India in August 2021. This paves the way for a launch their India. Tesla has also already setup an India team.

Government policies

Vehicle Scrappage Policy

The vehicle scrappage policy is a government-funded programme to replace old vehicles from Indian roads. The policy is expected to reduce pollution, create job opportunities and boost demand for new vehicles.

CVs of >15 years and passenger vehicles of >20 years will have to be mandatorily scrapped if they do not pass the fitness and emission tests. The idea is to phase out cars and CVs older than 15-20 years to slash urban pollution levels and stimulate automotive sales. Additionally, the vehicle scrappage policy is also said to be a part of a stimulus package majorly requested by the original equipment manufacturers (OEMs) to infuse their demand. Challenge is to build the infra for testing and collecting scrap



BS VI Norms

The Indian Government has mandated PAN India implementation of the BS6 emission norms from 1st April 2020 for all the vehicles with the objective to reduce automobile emissions by treating harmful pollutants like CO (Carbon monoxide), PM (particulate matter) and Nox (Nitrous Oxide). To treat these various pollutants, there are components to be added/modified in the current vehicle portfolio across asset classes in order to comply with the BS VI emission norms. Diesel platform which is more polluting and hence requires more components to treat the emissions as compared to petrol variants.

NATRiP (NATIONAL AUTOMOTIVE TESTING AND R&D INFRASTRUCTURE PROJECT)

The project has been set up at a total cost of USD 573 Mn to enable the industry to adopt and implement global performance standards. It aims at converging India's unparalleled strengths in IT and electronics with automotive engineering sectors. The main area of focus is on providing low-cost manufacturing and product development solutions. It will provide the essential impetus to Indian auto industry which will help drive it to a position where it will cater not only to the ever-challenging and increasing indigenous demands but also it will be looked upon by the world to provide solutions for globally present challenges in the Auto Industry.

FAME-II

The FAME India (Faster Adoption and Manufacture of (Hybrid and) Electric Vehicles) Scheme is an incentive scheme for the promotion of electric and hybrid vehicles in the country. Ultimate objective of the scheme is to promote electric mobility and the scheme gives financial incentives for enhancing electric vehicle production and creation of electric transportation infrastructure. Over 27,000 electric vehicles have been supported till September 10 this year by way of demand incentive amounting to about Rs 95 crore

The Automotive Mission Plan 2016-26 (AMP 2026)

The Automotive Mission Plan 2016-26 (AMP 2026) is the vision of Government of India on where the vehicles, auto components and tractor industries should reach over the next 10 years in terms of size, contribution to India's development, global footprint, technological maturity, competitiveness and institutional structure and capabilities

AMP 2026 seeks to enhance the industry's contribution to GDP and employment.

Production-Linked Incentive (PLI) Scheme

To make the Indian auto industry more competitive globally, improve export and make the production better in economies of scale, the government announced an outlay of USD 8,149 million over the next five years towards the automobile sector

These incentives have the potential to kickstart significant investments in the coming years and help the industry achieve globally competitive scales in the chosen segments



Road Ahead

Demand revival:

Demand outlook is improving but uncertainty remains. Auto demand has definitely improved from the lows seen. This was driven by easing restrictions on dealer operations, vaccination & decline in Covid cases. However, the threat of a 3rd wave continues to prevent a solidified increase in demand outlook. Hence, major players are awaiting the festive season & end of year period to see if demand boosts.

Cost pressures: Some commodity prices have plateaued and some slightly declined from peak level witnessed. However, at the same time there has been an increase in freight costs – both on land i.e truck freight (fuel prices increased) & on sea i.e ocean freight.

Pricing: To offset these high costs, most OEMs have been indulged in regular price hikes. However, the margin for increasing these prices without impacting demand is limited.

Chip Shortage: Semi-conductor chip shortage has impacted auto production globally since 2HCY20. This has caused significant volume disruption over recent quarters, however, OEMs expect the situation to ease by Oct21.

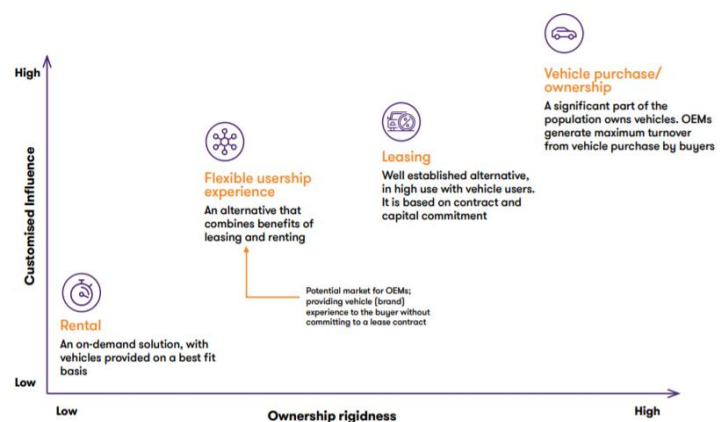
Electric Vehicles: The launch of Ola eScooter is a major event and success for Indian 2W industry. Bajaj's EV, Chetak is eligible for FAME II subsidy & TVS is trying to improve as well, Hero has plans. Analysts feel that over next 12 months, India can witness a flurry of e2W launches.

At the same time, if 'new age' OEMs – Ola, Ather – dominate this segment, legacy players like TVS, Hero, Bajaj could contract

Increasing Vehicle subscriptions:

To increase relevance and be attract customer, the industry has made many shifts in ways of marketing, distribution and selling techniques. Business transformation is becoming pertinent for auto companies in India.

Vehicle subscription service schemes help build strong, lasting relationships with the customers. These schemes are being offered with a high degree of flexibility and are getting fostered by automotive OEMs, rental companies, and disruptors.





Key metrics for performance assessment of an automobile company

COMPANY STRATEGY

- Number of new models introduced
- Response of consumers to the new models introduced
- Distribution Network and model
- Waiting time for consumers
- Is the company entering a new market in terms of design, cost etc. (For example; Introduction of motorcycle with high cc engine, when company is well known for low cc bikes and scooters)

OPERATIONS

- Number of units produced and capacity utilization rate
- Manufacturing cycle time: It refers to the time taken to manufacture a single complete vehicle
- Dependency on imports for components
- Labor union related issues like strikes
- Aid being received by govt. – subsidies, presence in SEZs

FINANCIALS

- Sales volume: The data is released on a monthly basis
- Market share
- EBITDA (Operating profit)
- Profitability ratios (since it is a 'product selling' company, margins are very important)
- Working capital (cash ratio)
- Debt-equity ratio as companies are capital intensive
- Price to Sales price multiple as sales for automobile companies cannot be manipulated as compared to earnings and book value