




Uttar Pradesh

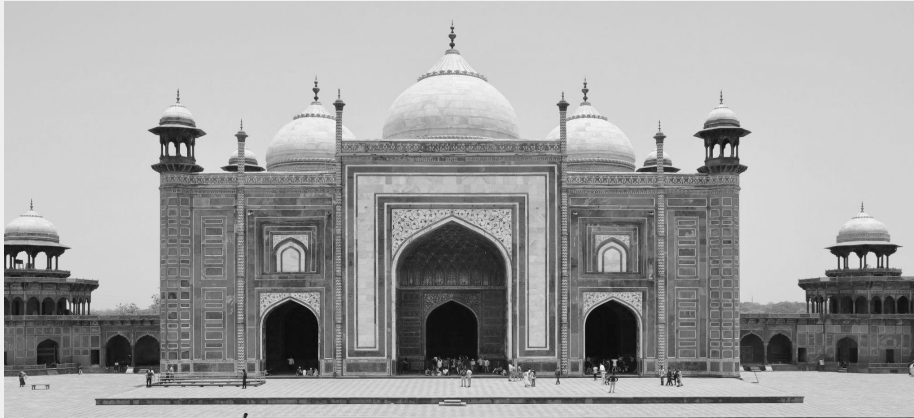
The epicentre of electric three-wheeler revolution in India

Tracking the reasons behind Uttar Pradesh's exponential 3W Electric Vehicle (EV) sales





Uttar Pradesh | The land of history and culture



Taj Mahal entry gate

Uttar Pradesh (UP), the fourth largest Indian state by area and the most populous state in the country, boasts a rich history and culture.

Beyond the world-renowned Taj Mahal, a wonder of the world, UP offers a vast array of cultural experiences. From the massive *Kumbh Mela* pilgrimage, the largest gathering on the planet, to the exquisite craftsmanship of *Chikankari*, *Zardosi*, and *Banarasi* embroidery, renowned for their complexity, UP is a treasure trove of cultural riches.

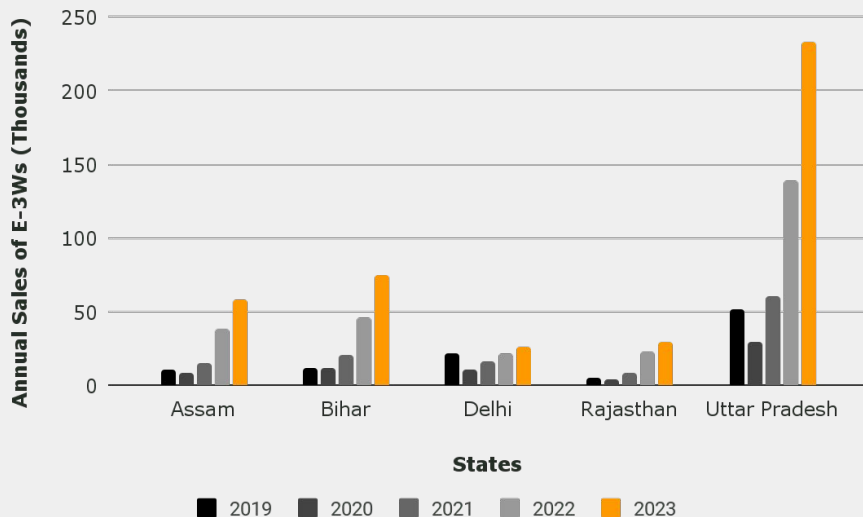


Zardosi work



Uttar Pradesh | Driven by E-3Ws

Top 5 states in E-3W sales



In the modern context, UP has positioned itself as the epicentre for electric three wheeler. **Since 2017, UP has recorded the highest Electric Vehicle (EV) 3W sales in the country, every year**

2023 Stats

43%

Of India's E-3W sales
were in UP

68%

YoY E-3W sales growth

81%

Of all 3W sales in
UP were electric



E-3Ws | e-rickshaw vs e-auto



e-rickshaws at Hussainabad Trust Road, Lucknow



e-rickshaw

E-Rickshaw (L1M)

An e-rickshaw is an Electric Three Wheeler (E-3W) whose speed does not exceed 45 kmph and fitted with an electric motor of power less than 0.5 kW. It is categorized as L1M (M representing passenger vehicle) under the Motor Vehicle Act, 1988. A driver's license is not required to ride this vehicle



e-auto

E-Auto (L5M)

An e-auto is an E-3W whose speed exceeds 45 kmph and fitted with an electric motor of power more than 0.5 kW. It is categorized as L5M (M representing passenger vehicle) under the Motor Vehicle Act, 1988. A driver's license is required to ride this vehicle

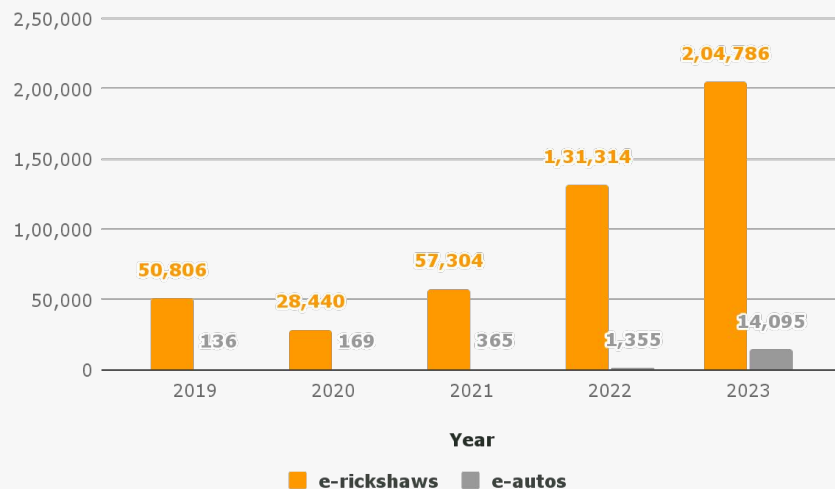
E-3W is used synonymously with e-rickshaw in this study



E-3Ws | e-rickshaw vs e-auto

- E-rickshaws constitute a major part of the total E-3W sales in UP. In 2023, about 94% of all E-3W sales were e-rickshaws.
- E-rickshaws are low speed 3Ws, mostly constituting of low cost lead acid batteries. These vehicles are simple to build as well as operate, and can be 3x-5x cheaper than e-autos.
- In our informal discussions we learned that most 3W drivers first prefer to buy e-rickshaws, as they are cheaper, simple to operate and most importantly, do not require a driver's license. Most of the e-auto owners are seasoned drivers, and they understand the EV technology better.

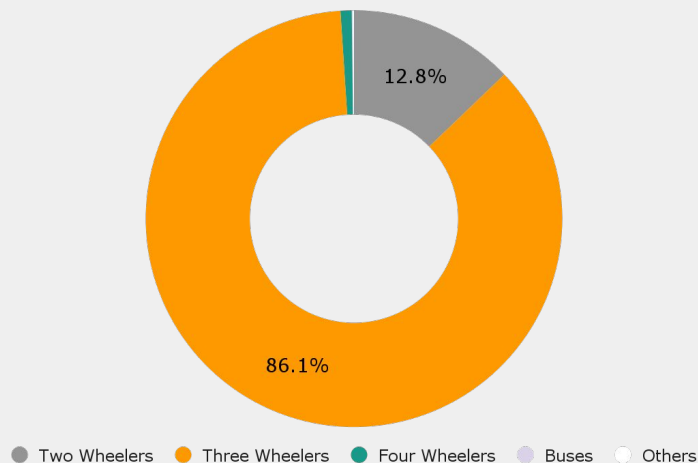
Sales of e-rickshaws vs e-autos | UP





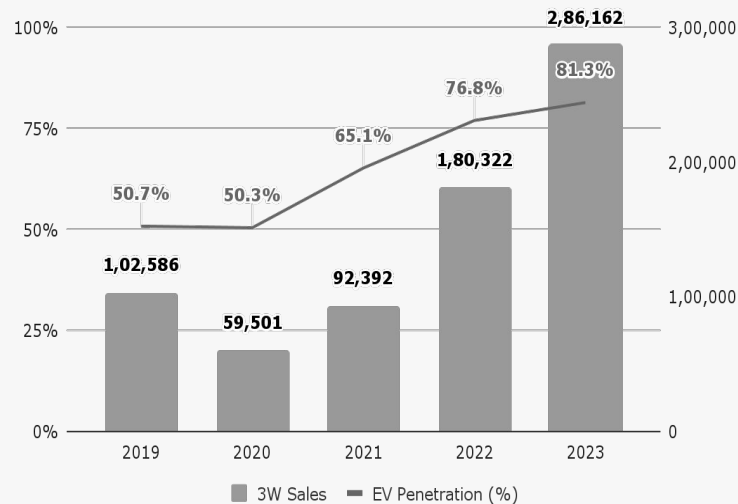
Uttar Pradesh | The land of E-3Ws

EV sales across all vehicular categories | 2014-present



The lack of public transport infrastructure in the state for last mile connectivity has opened up opportunities for three wheelers to act as Intermediate Public Transport (IPT) in the shared mobility space.

3W sales and EV penetration



This has led to a significant demand for three-wheelers in the state and interestingly, a lot of these sales are electric three-wheelers. To better understand this, our team assessed the on-ground reality in UP and the learnings are documented in subsequent pages.



Climate Dot travels to the streets of UP

While the state government does support E-3Ws with upfront subsidies like many other states in the country, it was still unclear why the uptake in E-3Ws were significantly higher in UP than other states in comparison as observed from the [E-mobility dashboard](#).

In order to understand the major drivers for the E-3Ws uptake, our team visited Lucknow, the capital city of UP, to better understand the market dynamics and the EV landscape in the state.

The team



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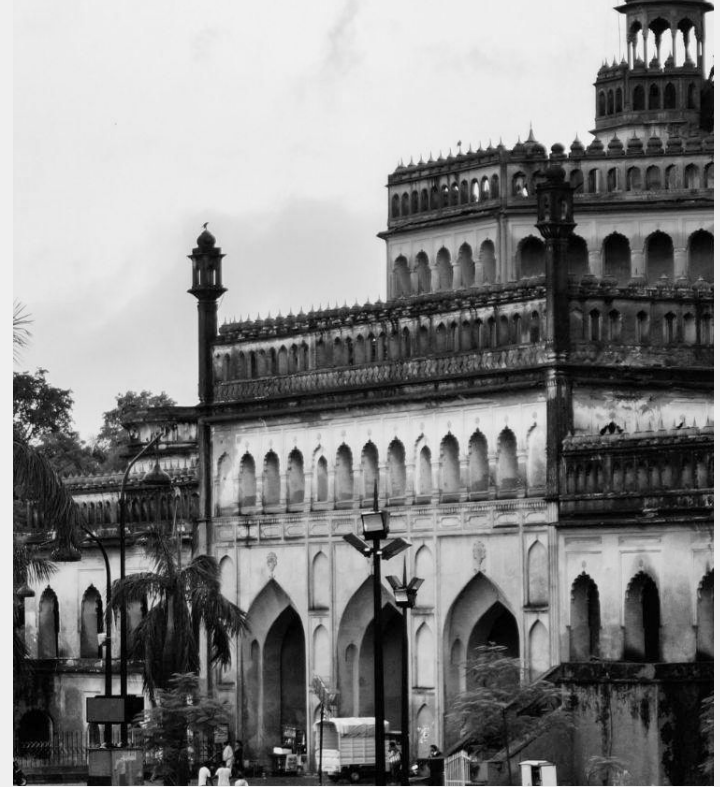



Uttar Pradesh

Four drivers for the E-3W success in UP



Floral stone inlay, Taj Mahal



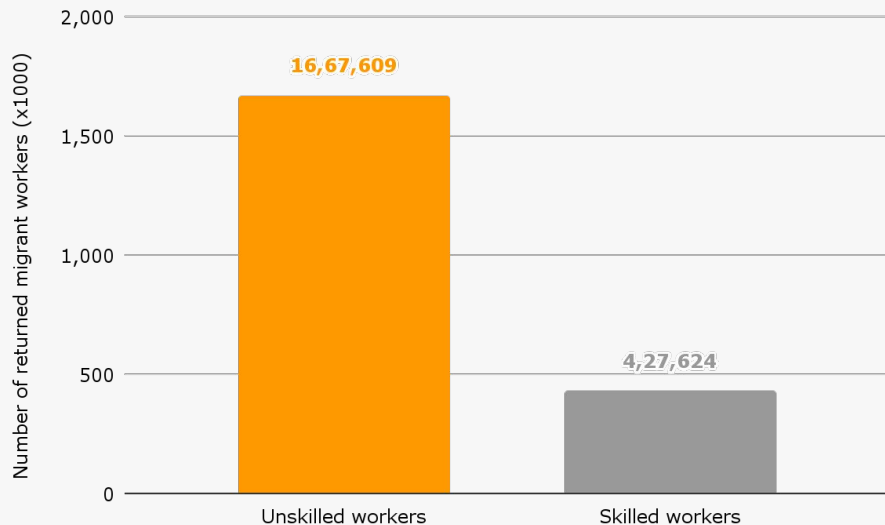
Rumi Darwaza, Lucknow



1. COVID-19 | Return of the migrant workforce to become e-3W drivers

- As per Census 2011, with approximately 12.32 million migrants, **UP has the highest number of inter-state emigrated migrants**
- Amidst the lockdown during COVID-19, these migrants, returned to their villages/hometowns in UP
- However, aggressive efforts by the state government for skill-mapping and upskilling of the labour force led to a decrease in the unemployment rate from 21% to 4.1% in February 2021
- There is an evident correlation between the rapid fall in unemployment in UP and multi-fold increase in the E-3W sales, which grew 4.5x between 2020-2022
- Indicating that several unemployed youth took to e-rickshaws as a source of livelihood

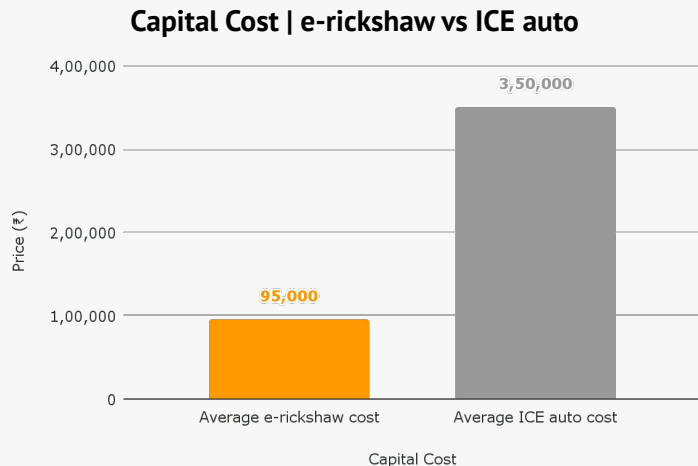
Skillset of returned migrant workers | UP



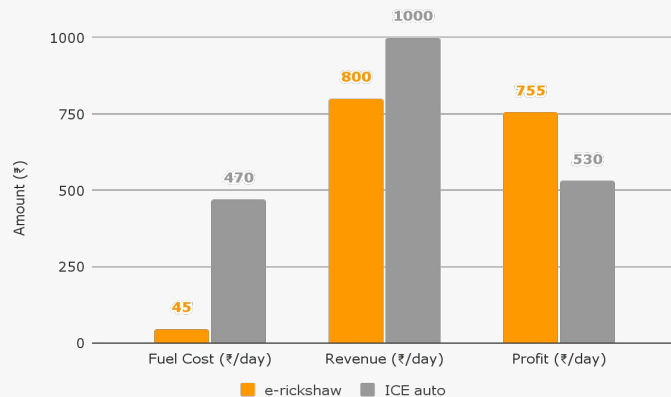
Source: [*Reverse Migration and Crisis Management: A Study of the Model of Government of Uttar Pradesh \(India\)*](#)



2. Low barrier, high reward | Why driving an e-rickshaw is a lucrative opportunity



Daily revenue and profit margins | E-Rickshaw vs ICE auto



- The capital barrier for self-employment as a rickshaw driver is exceptionally low. An e-rickshaw costs anywhere between 0.6 lakhs - 1.30 lakhs which is **3-5x times less than the cost of an ICE auto** that costs between 3 lakhs - 4 lakhs
- Based on our on ground assessment, we learned that a rented e-rickshaw can cost the driver anywhere between ₹300 - ₹400/day depending on the condition and model of the vehicle. While on the flip-side, there is a potential to earn up to ₹1,300 - ₹1,500/day. In our conversations with several rickshaw drivers, many indicated they earn over an average of ₹1,000/day
- Additionally, a recent government decision to allow E-rickshaw registration without the sale of batteries along with the vehicle could significantly bring down the upfront cost of vehicles



3. Abundant supply to meet the E-3W demand

- India is the **largest 3W market** in the world
- Most of these manufacturers have their manufacturing and assembly facilities in Northern India and a high percentage of them are boutique suppliers of 3Ws. **Evidently, with such a large number of suppliers, the E-3W market is highly price competitive** and highly sensitive to the sticker price of the vehicle.
- Considering the “*still pretty decent margin*”, as one dealer stated, and the potential of E-3W sales volume because of steady growth in demand, there has been a surge in dealership and sub-dealership network for the E-3W market in Lucknow and other cities of UP.

1,429

Total Auto OEMs in India

481

3W OEMs in India

316

About **66%** of total 3W OEMs are based in UP

Nearly 100% (315 out of 316) listed OEMs, have E-3W sales in the state



4. The permit system | Disincentivizing purchase of ICE - 3Ws

What is a permit?

“A permit is a document issued and regulated by the Regional Transport Offices (RTO), established by the state government entitling vehicles to be used as transport vehicles within its jurisdiction. There are two types of permits issued by authorities which may vary from city to city: open and closed permits.” as stated in the [report](#), **‘Status of Electric Informal Public Transport in India’** by ITDP India.

Open vs Closed Permit System

In an Open Permit, there is no restriction on the number of permits that can be issued, thus allowing uncapped and free movement of vehicles. On the other hand, in a Closed Permit system, the total number of permits issued are capped and regulated hence, it restricts the free movement of vehicles.

Why ban ICE 3Ws?

In order to curb pollution and congestion in the city centres, many RTOs in UP banned new permits issued for ICE 3Ws from the early 2000s. For e.g. the Lucknow RTO froze issuance of new permits to 3Ws from December 2009.

The Consequences

“A permit ban effectively blocked new ICE auto sales. Furthermore, a permit holder can only transfer the permit to another individual along with the sale of their auto in the second hand market.

With permits in limited supply, they’ve become a coveted commodity, fetching exorbitant prices on the black market – sometimes reaching a staggering 4.5 lakh rupees, more than double the cost of the second hand 3W vehicle itself”, a dealer added, who chose to stay anonymous.

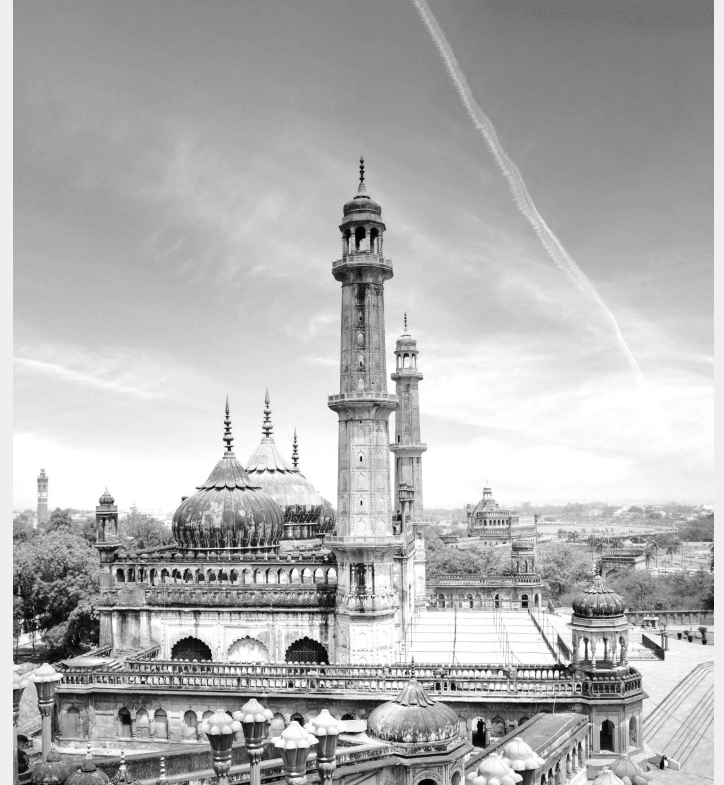


Uttar Pradesh

Challenges : Proliferation of chaos and congestion



E-3Ws | Bara Imambara, Lucknow



Bara Imambara, Lucknow



Uttar Pradesh | The E-3W congestion



E-3Ws | Bara Imambara, Lucknow

The recent surge in E-3W popularity in UP has presented new challenges. Cities like Lucknow are experiencing congestion and considerable chaos in hotspot areas due to the sheer number of E-3Ws.

Lucknow RTO has introduced a mandate of route segregation for E-3Ws starting this year. The city of Lucknow is divided in multiple zones, and the E-rickshaw drivers will now be allotted 3 routes from 3 zones, where their vehicles can be operational. It is still unclear how significant this impact will be but time will tell.



Lucknow



Climate Dot

Energy Transition | E-Mobility | Climate Policy