

# Impact of India's Recent Electric Vehicle Subsidy Announcement

Tamara Sheldon, Dimpy Suneja and Rubal Dua

## Instant Insight

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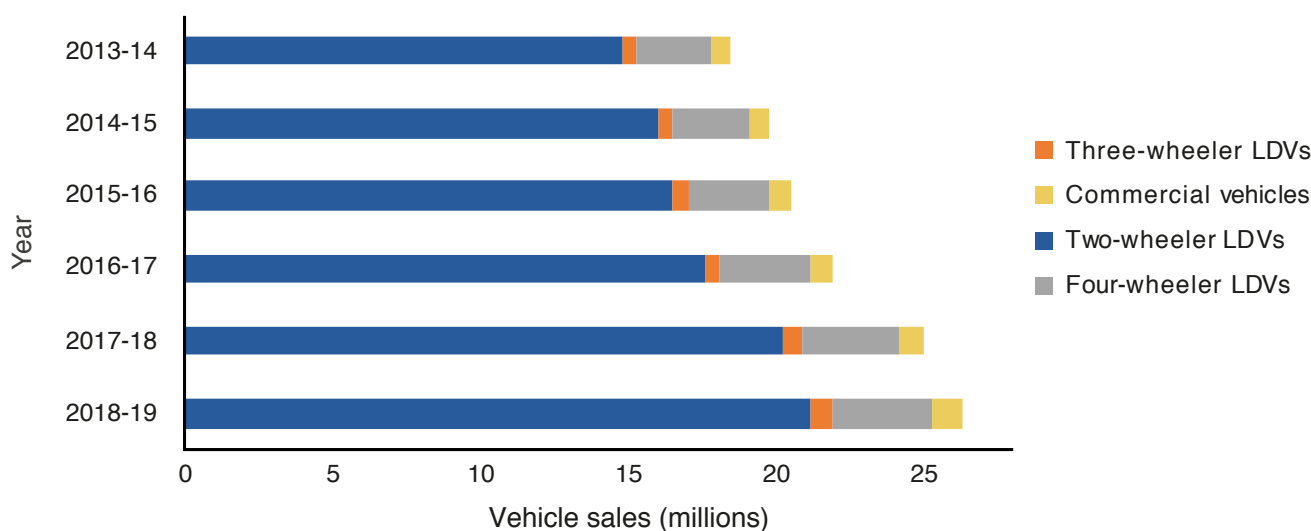
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The Indian government is urgently promoting electric vehicles (EVs) to help curb the country’s urban air pollution — the world’s worst, according to the World Health Organization (Parkin 2019a). The steep increase in vehicle sales (shown in Figure 1) in recent years has brought deteriorating air quality and made India the third-highest oil consuming and greenhouse gas (GHG) emitting country in the world (Friedrich, Ge, and Pickens 2017; EIA 2019). Currently, India imports 80% of crude oil for domestic consumption, with around 18% of the imported crude supplied by Saudi Arabia; this is expected to increase to up to 28% following the Aramco-Reliance deal (Deb 2019; Bhatt, Mollet, and Roychoudhury 2019). In addition to tackling urban air pollution, GHG emissions, and dependence on imported oil, India’s government aims to make the country a global hub for electric vehicle manufacturing, as outlined by the finance minister, Nirmala Sitharaman, in the recently announced Union budget (Ghosh 2019a).

**Figure 1.** Vehicle sales in India by segment.



Source: Society of Indian Automobile Manufacturers (2019).

Note: LDV = light-duty vehicles.

## India’s EV incentive policies

Subsidies and other incentives are key policy levers for promoting EV sales. They reduce the purchase price gap between EVs and traditional internal combustion engine vehicles (ICEVs), one of the major barriers to EV adoption.

Since 2015, EV purchases in India have been eligible for rebates of up to \$2,000 for four-wheel (4-W) vehicles and up to \$300 for two-wheel (2-W) vehicles (at 2019 dollars) as part of a subsidy scheme known as Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME) (Mallick 2015). The first phase, FAME-I, was initially approved for two years (2015-17) with funding of 795 crore rupees (Rs) (\$113 million) and later extended through March 2019 (The Economic Times 2018). In 2018, EVs accounted for 0.16% and 0.05% of 2-W and 4-W sales in India, respectively.

Launched in April 2019, FAME-II aggressively expanded the scheme with a budget of Rs 10,000 crore (~\$1.4 billion), over 12 times that of FAME-I; this second phase will run until 2022 (Ghosh 2019b). Approximately 86% of this funding has been set aside for price incentives for EV purchases, of which 23% has been allocated to 2-W EVs and 6% to 4-W EVs, with the remainder going to three-wheeler EVs and electric buses (Ministry of Heavy Industries and Public Enterprises 2019).

Despite its larger budget, FAME-II places stricter requirements on EV vehicles than FAME-I. The scheme covers private-use 2-W motorcycles but not 4-W cars, unlike FAME-I (Ministry of Heavy Industries and Public Enterprises 2019). Only 4-W vehicles purchased for public transport or commercial purposes are eligible (Ministry of Heavy Industries and Public Enterprises 2019). Even in the 2-W EV segment, stringent criteria exclude roughly 95% of existing models (The Hindu 2019), largely because lead-acid battery-powered 2-W EVs are not permitted. In addition, the technical requirements for lithium-ion (Li-ion) battery-based 2-W EVs have been made more stringent and include a requirement of 50% localization in manufacturing (Autocar India 2019). Most of the modifications in FAME-II aim to boost the quality and quantity of locally manufactured EVs and EV components.

In July 2019, the government of India also announced that the Goods and Services Tax (GST) rate for electric vehicles would be reduced from 12% to 5% (Singh 2019), substantially lower than the 28% GST rate for ICEVs. Furthermore, buyers of EVs will receive an income tax deduction of up to Rs 1.5 lakh (\$2,150) for interest paid on EV vehicle loans (Singh 2019).

## Impact of the recent changes to incentives

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Using a vehicle choice model built on 2018 data, we conducted two counterfactual simulations to model the impact of the EV incentive changes on the vehicle purchasing decisions of Indian consumers and resulting EV sales, assuming no countervailing measures.

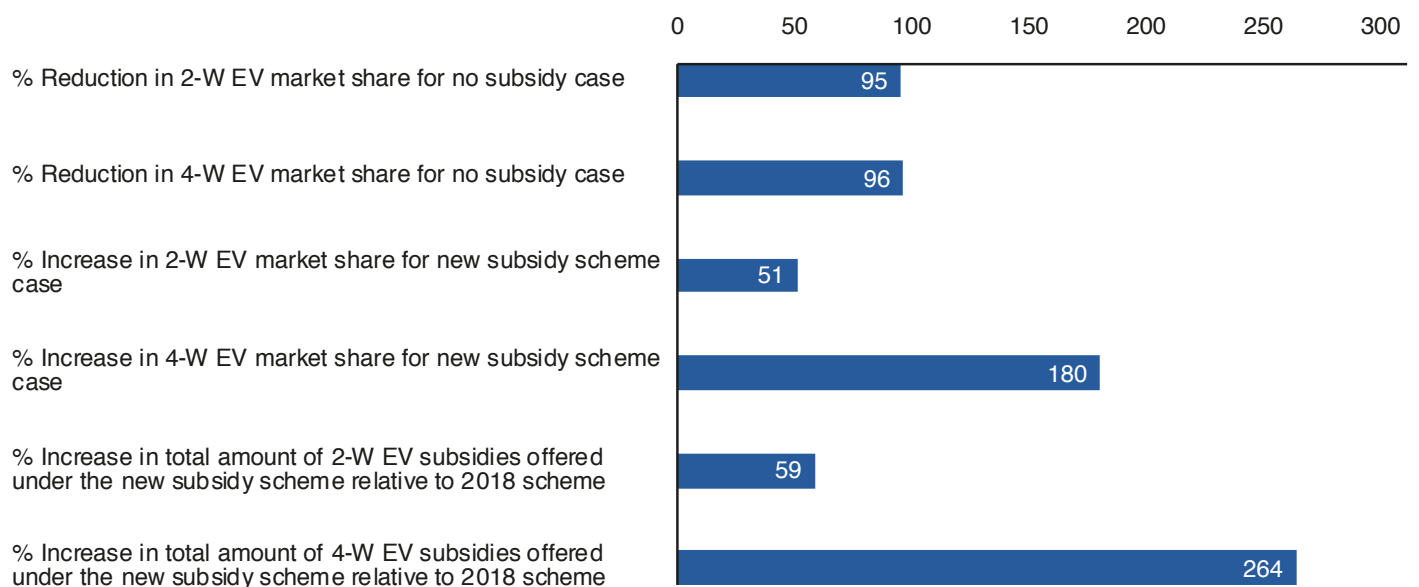
**Test 1:** To measure the positive impact of existing 2018 EV incentives, we removed the FAME-I subsidy scheme and imposed a similar level of GST (~28%) on EVs as ICEVs.

**Test 2:** To estimate the additional impact of the 2019 increases to incentives (FAME-II, GST reduction and income tax deduction), we made relevant adjustments to the model. To approximate the income tax deduction, we assumed a 15% reduction in the manufacturer’s suggested retail price (MSRP), based on discussions with market experts. For 4-W EVs, we also reduced MSRP by 15% on sales intended for public transport or commercial purposes (which qualify for FAME-II) as well as private use (through income tax rebates). Note: Only one 2018 model year 2-W EV met the FAME-II requirements for battery technology and local component manufacturing.

The first simulation, which removes 2018 incentives, indicates that both 2-W and 4-W EV sales would have been around 95% lower in terms of market share without these schemes. This echoes the 80% year-on-year decline in EV sales recorded in 2012 after the Indian Ministry for New and Renewable Energy revoked incentives it had launched in 2010 (Tryti and Pareek 2017). The results imply that the EV incentive scheme has been extremely effective in promoting EV sales in India. Relative to the no-incentives case, the model shows that EV promotions offered in 2018 amounted to \$15.11 million.

The second test, which applies the more generous 2019 incentives, suggests 51% and 180% increases in 2-W and 4-W EV sales, respectively. Relative to the no-incentives case, the additional costs of the 2019 incentive package total \$35.56 million, a 135% increase over 2018.

**Figure 2.** Impact of India’s electric vehicle subsidy schemes.



Source: KAPSARC analysis.

## What happens next?

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It is worth noting that in the counterfactual simulation case with FAME-II incentives, the strict rules for batteries used in 2-W EVs would have resulted in a lower percentage increase (59%) in the total amount of subsidies provided to 2-W EV buyers compared with 4-W EV buyers (a 264% increase). Thus in the short-run, without any countervailing measures, FAME-II requirements would have had the unintended consequences of decreased utilization of subsidies for 2-W EVs relative to 4-W EVs. India's electric vehicle makers have already warned of the 'brutal' short-term effects of these recent reforms that were designed to boost the sector and encourage local production (Parkin 2019b). However, given the size of the 2-W market in India, it is very likely that the Indian 2-W EV manufacturers will adapt by shifting to qualified and locally produced Li-ion batteries.

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