

E-Scooters: Transportation Fad or Micro-Mobility Solution?

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Electric kick scooters (e-scooters) were first introduced in the United States in 2017, and their ride-sharing platforms have since drawn significant investment from transportation and tech companies. As the transportation industry evolves to include short distance travel, or micro-mobility, e-scooters have emerged as a supplemental or alternative transportation option. A single company in China manufactures most of the world's e-scooters and U.S. imports reflect growth in the micro-mobility industry since 2015. Safety concerns and urban infrastructure in the United States, however, may need to be addressed for the trend to continue.

What are e-scooters?

E-scooters are L-shaped vehicles with two wheels, a deck in the middle where the rider stands, and a handle to control speed and direction. E-scooters typically drive up to 15 miles per hour and have a battery range designed to last throughout the day (roughly 30 miles). Because ride-sharing e-scooters are dock-free, riders use each company's app to find, unlock, and pay for a ride. In most cities, e-scooters rent for \$1, plus \$0.15 per minute. A gig-economy contract workforce collects and recharges e-scooters throughout the day.

Seemingly overnight, e-scooters took over streets and sidewalks across the United States. The popularity began in September 2017 when, unannounced, Bird dropped e-scooters in Santa Monica, California. Shortly thereafter, in February 2018, LimeBike (now Lime) launched its e-scooter fleet, and numerous e-scooter companies have since come online. E-scooter adoption has been faster than other ride-sharing platforms; in its first 12 months, Bird provided 10 million rides in over 100 cities worldwide.

The market for e-scooter sharing services is highly competitive and attracting large investments from companies like Ford, Lyft, Uber, and Alphabet (Google). Bird is currently valued above \$2 billion and Ford's acquisition of Spin in November 2018 is estimated to be worth \$100 million. Low overhead costs (e-scooters retail for about \$500) coupled with high demand (5-6 rides per e-scooter per day) mean companies could reach a unit break-even point within two to four months of deployment. However, questions remain about durability and maintenance costs.

What is micro-mobility?

Ride-sharing e-scooters, along with bicycles and mopeds, make up the micro-mobility market as transportation alternatives for short-distance travel (typically five miles or less). Concerns about urban crowding and carbon emissions as well as advantages such as speed and ease of use are attracting consumers to this market. Transportation analysts estimate that nearly half of trips made in the United States are within three miles, and that over three-quarters of those trips are made in a personal vehicle. These are the types of trips that ride-sharing e-scooters and bikes have the potential to replace. Micro-mobility is particularly appealing in congested urban areas where it may be more efficient to rent an e-scooter or bike rather than take a personal or ride-sharing vehicle. Micro-mobility may also supplement public transit as a first- or last-mile option for getting to/from home, work, and the transportation hub. In addition, e-scooters and bikes are attracting environmentally conscious customers who want to reduce their carbon footprint by using a zero tailpipe emission form of transportation.

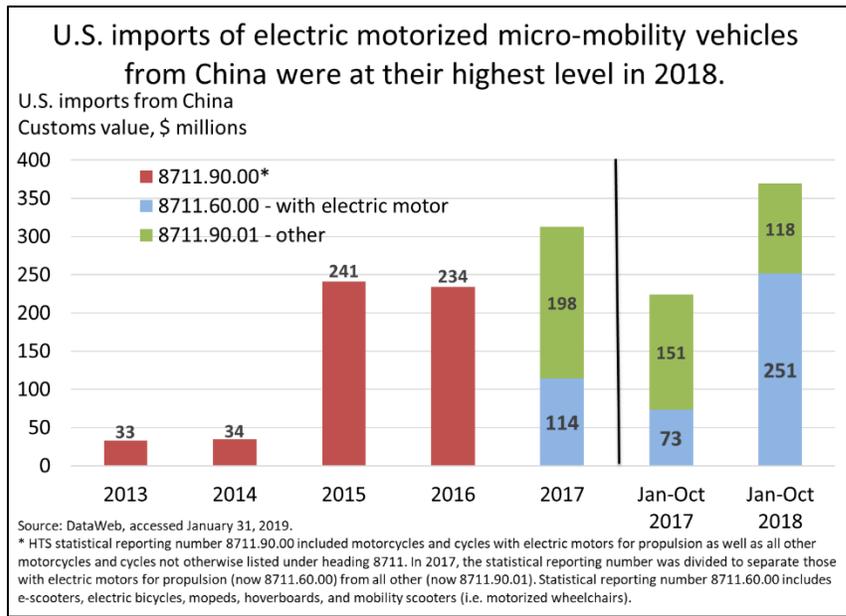
Micro-mobility globally

Micro-mobility is growing globally, with estimates from McKinsey that the global market could reach \$300-500 billion by 2030. U.S. micro-mobility companies have expanded to Europe, Latin America, and Australia and are leading the market for their e-scooter and bike ride-sharing services. In China, the micro-mobility market gained momentum in 2015 with ride-sharing companies like Ofo, Mobike, and Bulegogo.

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While numerous companies offer ride-sharing services for e-scooters, a single company in China—Ninebot—manufactures nearly all e-scooters that are on roads and sidewalks worldwide.¹ When e-scooters emerged in the United States in 2017, Ninebot was one of the only manufacturers able to produce on such a large scale. U.S. companies are beginning to invest in R&D for customized e-scooters to increase durability and distinguish their brand. Currently, however, an estimated four out of five e-scooters globally are made at one of three Ninebot assembly plants in China.

The U.S. imported \$251 million worth of electric motorized micro-mobility vehicles, such as e-scooters and electric bicycles, from China in the first three quarters of 2018.² Over 75 percent of total U.S. imports of these goods in 2017 and 2018 came from China. In 2015, U.S. imports of electric motorized micro-mobility vehicles and all other motorcycles and cycles from China increased seven-fold from the year before. U.S. imports have continued to increase, even after motorcycles and cycles with electric motors for propulsion were separated from the “all other” category in 2017, highlighting growth in the micro-mobility industry. The first three quarters of 2018 had the highest reported level of imports of electric motorized micro-mobility vehicles.



Barriers to overcome

While growth in micro-mobility has outpaced growth in other shared-transportation sectors, safety and infrastructure concerns need to be addressed in order to have widespread adoption in the United States. Prior to 2017, most U.S. municipalities did not have regulations to govern dock-less e-scooters and bikes and some cities initially banned e-scooters until legislation was enacted. Questions of where e-scooters can legally ride and park, fleet restrictions, fees, and age and speed requirements remain for local jurisdictions to answer. Many cities now offer permits to approved companies, though requirements vary by location. Additionally, many cities lack infrastructure such as bike lanes to safely allow for micro-mobility vehicles to travel. Companies and municipal governments are working together to educate road-users on how personal vehicles can safely coexist with micro-mobility on roadways.

Sources: Automotive World Monthly Briefing, [Bird watchers expect the scooter unicorn to fly in 2019](#); M. Bergen and J. Brustein, [Almost every electric scooter in the world comes from this Chinese company](#); Bird, [Bird marks one year anniversary with 10 millionth environmentally-friendly ride](#); R. Clewlow, [The micro-mobility revolution](#); M. Dickey, [The electric scooter wars of 2018](#); A. Griswold, [Simple math shows how scooters could make big money](#); A. Hawkins, [The electric scooter craze is officially one year old — what's next?](#); K. Heineke, et al, [Micromobility's 15,000-mile checkup](#); L. Lazo, [Scooters: We answer your questions about this latest transportation trend](#); Lime, [One year report.](#); T. Lorenz, [Electric scooter charger culture is out of control.](#)

¹ Ninebot also produces Segways, hoverboards, electric unicycles, and other short-distance electric vehicles.

² Electric motor micro-mobility vehicles are categorized under HTS statistical reporting number 8711.60.00, motorcycles and cycles with electric motors for propulsion. This includes e-scooters, electric bicycles, mopeds (i.e. micro-mobility vehicles) as well as hoverboards and mobility scooters (i.e. motorized wheelchairs). Prior to 2017, motorcycles and cycles with electric motors for propulsion were imported under 8711.90.00, which also included all other motorcycles and cycles not otherwise listed under heading 8711. All other are now imported under 8711.90.01.

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