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The Economics of Ride-Sharing Applications

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With just the tap of an app, ride-sharing users today can enjoy the comfort and convenience of a chauffeur-like service, a concept that had not been conceived a mere decade ago. Nevertheless, the widespread benefits of using ride-sharing apps have contributed to the industry's rapid expansion: for Uber, the largest shareholder of the U.S. ride-sharing market, over 14 million rides are taken each day, and the growth of ride-sharing passengers by 120 percent from 2016 to 2019 alone conveys the growing popularity of this mode of transportation. What most users may not realize, however, are the consequences of their rides. While ride-sharing platforms such as Uber and Lyft have provided consumers with numerous benefits, often offering a cheaper, faster method of transportation than other services, ride-sharing has many hidden economic and environmental costs that must be addressed.

Because of their ability to connect passengers with drivers instantly, ride-sharing apps do yield many economic benefits. Ride-sharing follows the sharing economy business model because the cost of ownership of a car is distributed among passengers who pay for transportation. In an age where cars are only utilized 4 percent of the time, the sharing economy helps to alleviate the inefficiency created by passengers who may otherwise drive alone or rarely use their own car (and therefore people who do not need to own a car). Ride-sharing apps also balance the supply of drivers with the demand from passengers through dynamic pricing, where prices may increase or decrease based on popularity at the time. Although prices may rise when demand for rides simultaneously increases, ride-sharing users experience shorter wait times than passengers using traditional taxi services. Similarly, drivers spend less time with empty cars. Capacity utilization rate, or the fraction of time a driver has a passenger in the car while working, is 30 percent higher for ride-sharing drivers than for taxi drivers. This efficiency allows rides to be cheaper as well. The difference between what consumers are willing to pay and what they actually pay, known as consumer surplus, is estimated to be 1.60 dollars for every dollar spent on Uber rides, which means the typical user saves 6 thousand dollars every year. For all users in the U.S. combined, this equates to over 6 billion dollars in consumer surplus annually. Consumers are satisfied as well as drivers, who report greater life satisfaction. The sharing economy seems like the epitome of efficiency – an economics win-win for all.

But is this the whole story? Although passengers may experience a surplus from adjustable market prices, drivers face a different scenario. Given the fact that drivers can choose when they wish to work, the supply of drivers is flexible, and thus wages are uncertain. One study found that 74 percent of surveyed Uber and Lyft drivers earned less than the minimum wage in their state. In addition, 30 percent of those drivers were losing money when all expenses were accounted for, as costs beyond fuel and car insurance - like repair and maintenance - drastically decreased their earnings. Every 2 out of 3 ride-sharing drivers worked full-time but, as "independent contractors," were not subject to the same compensation of traditional full-time employees. And 80 percent purchased cars specifically for their jobs, so those who were attracted by the illusion of a profitable job were in fact the ones hurt. Despite these losses, the growth of workers in the ride-sharing industry shows no sign of slowing down: in New York City, the number of drivers grew 10 times faster than the overall employment rate in 2018.

It may also seem that ditching one's car at home and instead using a ride-hailing app would help the environment. However, ride-sharing does the opposite, drawing many people away from non-automobile modes of transportation, including those who would otherwise use public transportation or who would bike or walk to their destination. Ride-sharing has generated increased vehicle mileage and greenhouse gas emissions, and Uber and Lyft drivers spend an estimated 20 percent of miles with empty cars while searching for their next passengers. The carpooling options offered by Uber and Lyft add even more mileage than regular rides because routes are less direct to pick up passengers along the way. In addition, rather than leading to a decrease in car ownership,

ride-sharing has been associated with an increase in car registration. Thus, increases in ride-sharing have lead to an increased number of cars on the road, which has resulted in new congestion in cities as well as slower average speeds on the roads by an average of 3 miles per hour. This increased congestion only contributes to the cycle as idle cars spend more time releasing greenhouse gases. Beyond the environmental costs, a deadly consequence of this increased traffic and congestion is a nearly 4 percent increase in fatal car accidents.

Although ride-sharing has strayed from its original vision to be a sustainable method of transportation, the future of ride-sharing is not unamendable. Currently, 70 percent of rides via Uber and Lyft in the U.S. are concentrated in 9 densely populated cities, so some cities like New York City have begun implementing congestion fees, charging drivers for entering city centers at peak hours during the day. These additional fees hope to discourage cars, ride-sharing vehicles included, from entering congested areas while raising money to improve public transportation. Ride-sharing companies have also focused on redesigning their applications to encourage passengers to use public transit for part of their journey or to select pick-up locations away from busy roads. Others have proposed creating fully integrated applications to help passengers move easily between ride-sharing, buses, and other forms of transportation, creating the most efficient route possible, and even giving users the option to buy public transportation tickets and rides all within the same platform.

Cars, however, are not the only method of transportation that can provide the convenience sought after by ride-sharing passengers; several other "micro-mobility" forms of transportation have been rapidly growing in cities, most notably electric scooters and dockless bicycles. Studies have already shown promising results, finding that 30 percent of riders surveyed replaced car rides with electric scooters. Dockless bicycles, an increasingly popular and widely available form of micro-mobility in China, have reduced car trips in urban areas by seven percent. Although such devices as bikes and scooters come with their own set of problems, including safety and theft, the growing popularity of them is one step forward in decreasing congestion and providing an alternative means of transportation. In a similar vein, ride-sharing companies have begun investing in electric cars to address the increase in greenhouse gas emissions and incentivizing drivers who use electric cars. Although they may have a greater up-front cost, electric vehicles have a lower cost per mile that could ultimately create a greater surplus for both passengers and drivers. In addition, recent advances in driverless car technology may usher in a new age of ride-sharing in which costs may further be reduced. Regardless of what the future holds, ride-sharing has asserted itself as a leading transportation method in today's society, providing passengers and drivers with greater choice and accessibility, but will have to continue to adapt and improve in order to be both economically efficient and environmentally friendly.