

A NEW ROUTE TO INCREASING ECONOMIC GROWTH Reducing Highway Congestion with Autonomous Vehicles

Traffic congestion harms key sectors of an economy and its aggregate performance by constraining commuters' ability to work, earn, consume, and produce. This is because congestion significantly increases travel time and makes travel times less reliable. While this is common knowledge, there is much debate about how to handle traffic congestion.

In “[A New Route to Increasing Economic Growth: Reducing Highway Congestion with Autonomous Vehicles](#),” Clifford Winston and Quentin Karpilow highlight the importance of driverless cars for transportation and economic growth. The widespread adoption of driverless cars will cause sizable decreases in traffic congestion and stimulate economic growth.

THE COSTS OF CONGESTION

This paper examines traffic congestion in California by county and finds that highway congestion has large negative effects on the state's economic performance. People spend less time at work, goods and services take longer to get to their destinations, and fewer goods and services are consumed. There are ways to increase economic performance in these counties by decreasing congestion. This first portion of the paper examines empirical evidence of congestion's negative effects on the economy.

Congestion is measured by peak-period delays and compared with measurements of travel times during nonpeak hours to estimate the total annual delay experienced by auto commuters. Economic performance is measured using real GDP, wages, employment, and commodity flow.

- Some counties use “self-help taxes,” which are sales taxes whose purpose is to fund highway projects related to congestion. However, these taxes are enacted on the basis of political considerations instead of economic factors that are relevant for growth.

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- Owing to the nature of these self-help taxes, little is actually accomplished to alleviate congestion. If congestion is not solved, it has significant negative effects on all measures of economic performance.

REDUCING CONGESTION

Unlike self-help taxes, a combination of driverless cars and congestion pricing will improve economic performance. The widespread adoption of driverless vehicles, which Google and automakers have been actively developing, testing, and perfecting, could reduce highway congestion by greatly improving the flow of traffic and by reducing vehicle accidents without increasing the monetary cost of commuting. Commuters may also choose to leave earlier or later for work because they now have more free time; they can eat breakfast or get work done in the driverless cars. In addition, driverless cars can be rented or hired as well as owned, meaning they will be accessible to many commuters.

Driverless cars will be especially effective in reducing congestion when combined with congestion pricing—that is, charging fees for driving on a road when it is likely to have the most traffic. Congestion pricing helps to reduce congestion because commuters will choose to carpool or take alternate routes rather than paying the fee.

The adoption of driverless cars and congestion pricing may dramatically affect economic performance in California. In 2010, assuming these measures would have reduced traffic congestion by 50 percent, the California economy would have grown in the following ways:

- Roughly 350,000 jobs would have been added.
- Roughly \$35 billion would have been added to real California GDP.
- Roughly \$14 billion additional wages would have been earned.

Extrapolating these California congestion effects to the United States as a whole, the authors find that the benefits to the nation would be roughly nine times the benefits to California.

POLICY LESSONS AND FINAL THOUGHTS

Many of the positive economic effects from reducing congestion through autonomous vehicles come from increased consumption and safety. But because the cost of using a driverless car is lower than the cost of using a standard car, there is a chance that driverless cars could increase congestion. However, this risk could be offset through an approach that combines autonomous vehicles with congestion pricing.