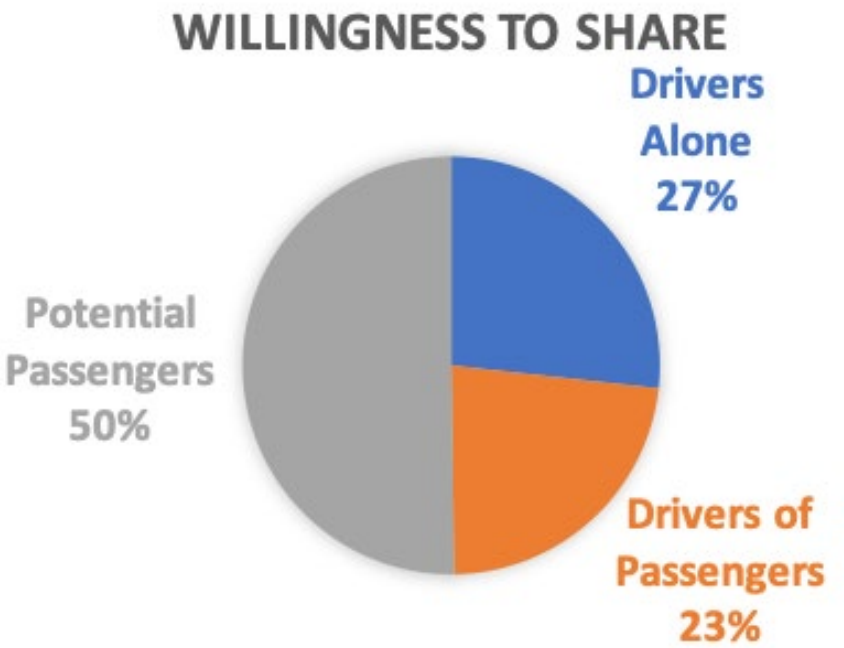
SJSU SAN JOSÉ STATE UNIVERSITY

MTI MINETA TRANSPORTATION INSTITUTE

Congestion-Clearing Payments to Passengers

Project 1817
July 2020

Paul Minett, John S. Niles, Richard W. Lee, PhD, and Brittany Bogue



At peak commute times, our highways are jammed with low-occupancy vehicles. A high proportion of these trips go to similar destinations and could be pooled together if people really wanted to reduce traffic and avoid so much traffic congestion.

Traffic congestion contributes to wasted time and fuel, greater levels of pollution and carbon emissions, reduced economic growth, and demand for additional roads or lanes. People leave home early and get home late. Quality of life is impacted. Still, people do not pool their trips or take public transport. Why not? One important answer is that it is not worth the effort and inconvenience involved in traveling as a passenger.

This project asked people how much effort it would take for them to travel as a passenger, and how much money it would take (if someone was prepared to pay them) to offset that effort and the inconvenience. And for those who would not travel as a passenger for any amount of money, would they give someone else a ride? No one has ever really asked this question before.

The intention was to find out if enough people would travel as passengers, if the deal was right, to get rid of the congestion and keep it away. If enough people would do it, the intention was to find out how much it would cost in total, and how big the benefits would be.

Study Methods

The project looked at all the previous research it could find that considered paying people incentives to travel as passengers. Researchers held small group meetings with people who travel in congested traffic to find out what would be important to them. A larger number of people who use a particular busy road in California were surveyed to find out: about their trips; what impact the congestion has on them; what they would do if

the congestion went away; if they would consider traveling as a passenger to help reduce the traffic; and if so how much money it would take to get them to travel as a passenger. This study analyzed the responses to the survey and estimated the total costs and benefits.

Findings

If the deal was right (up to $15 per day), half the people who use that busy road would travel as passengers. About half of the others would be willing to give rides. The last quarter only ever want to drive alone. Enough people would travel as passengers, if the deal was right, to get rid of the congestion on that route.

But the congestion would come back. Once the congestion was gone; people would change the time they leave home in the morning. Another reward would be needed to encourage people to leave home early for the whole intervention to be successful. Priority would then also be needed for high occupancy vehicles to travel at peak times. The project estimated the total costs of getting rid of congestion in this way for twenty years on that busy road in California. It also estimated the dollar value of all the benefits of getting rid of that congestion. The total costs appeared high, but overall, for every dollar of cost, the project found that there would be four and a half dollars of benefit.

For up to $15 per day, enough people would travel as passengers to get rid of traffic congestion on the case study route.

Policy Recommendations

The project provides a method for estimating the costs and benefits of a permanent program of paying people to travel as passengers to remove congestion. Researchers recommend that this method be considered for creating a 'build-nothing' alternative to compare to proposed infrastructure expansion projects. The solution is also recommended for consideration where a congestion pricing proposal is politically infeasible. Prior to significant use, researchers recommend that the solution be pilot-tested (implemented) on the case study route to match real costs to the estimated costs, and that the method be applied to further locations to provide additional examples.

About the Authors

An international team, the authors have expertise and interest in sustainable transportation policy development, regional planning, strategy development, and telematics. Paul Minett (PI) has a focus on strategies to increase carpooling. John Niles has recently co-authored a book on autonomous vehicles. Richard Lee is a lecturer in the Urban and Regional Planning Department at San José State University. Brittany Bogue is a graduate student in Urban and Regional Planning.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/1817.

MTI is a University Transportation Center sponsored by the U.S. Department of Transportation's Office of the Assistant Secretary for Research and Technology and by Caltrans. The Institute is located within San José State University's Lucas Graduate School of Business.