Scrapping HOV Lanes Worsened Rush-Hour Traffic, Study Shows

The Wired Word for the Week of July 16, 2017

In the News

According to GPS manufacturer TomTom, Jakarta, Indonesia, is #4 on the list of the 15 worst cities worldwide for rush-hour traffic. Now, according to a study just released from MIT, we know that that city's action last year to improve the movement of traffic during those hours by removing rules that limited some lanes to vehicles with three or more occupants unexpectedly had the opposite effect.

According to the study, published this month in Science, eliminating high-occupancy vehicle (HOV) lanes caused the average speed of Jakarta drivers during the morning rush hour to drop by a third, from 18 mph to 12 mph, and during the evening rush to nosedive from 13 mph to 7 mph.

A study published in 2007 from the University of California, Berkeley, of HOV lanes in California had concluded the opposite -- that HOV lanes tended to worsen traffic, concluding that "(1) HOV actuation imposes a 20 percent capacity penalty…; (2) The HOV restriction significantly increases demand on the other lanes causing a net increase in overall congestion delay; (3) HOV actuation does not significantly increase person throughput; and (4) Both short-term (daily) and long-term (yearly) carpooling responses are insensitive to travel-time savings." Jakarta's experience, however, was different.

Even with the HOV lanes, Jakarta's traffic was notoriously heavy, but eliminating those lanes made matters worse. To get a sense of how bad the traffic is in Jakarta, consider that the only U.S. city on "15 worst cities for rush-hour traffic" list is Los Angeles, and it is #14, 10 places lower than Jakarta. (Bangkok, Thailand, has the dubious distinction of being #1.)

The MIT study found the worsening of traffic in Jakarta by pulling data from Google Maps for both before and after the HOV lane elimination.

According to the abstract for the study, "After the [HOV] policy was abruptly abandoned in April 2016, delays rose from 2.1 to 3.1 minutes per kilometer (min/km) in the morning peak and from 2.8 to 5.3 min/km in the evening peak. The lifting of the policy led to worse traffic throughout the city, even on roads that had never been restricted or at times when restrictions had never been in place."

The study's conclusion is that HOV lanes can greatly improve traffic flow -- at least in that instance. Other studies have shown that HOV lanes reduce delay under certain circumstances: where a high percentage of vehicles are high occupancy.

In Jakarta, the elimination of the HOV lanes also had a social and economic effect. When the HOV lane policy was in force, drivers sometimes paid "jockeys" to ride with them to get to the three-occupant number. Usually these jockeys -- sometimes children or mothers holding babies -- didn't actually need to go somewhere but made the trip to earn the money. When the policy
changed, the jockey business disappeared immediately, as it freed drivers from paying for something that they didn't really want, and it reduced the number of people commuting.

One reason for the policy change was that the jockey practice seemed to undermine the value of HOV lanes, but from the study, it appears that even with the jockeys onboard some vehicles, the overall traffic flow was still better with the HOV lanes in place.

The MIT team presented their findings to the Jakarta officials last year, but the city did not bring back the HOV lanes, adopting instead an odd-even license plate system. On designated days, only vehicles with odd or even plate numbers can travel certain roads. This system has not been studied for effectiveness.

More on this story can be found at these links:

Citywide Effects of High-Occupancy Vehicle Restrictions: Evidence from 'Three-in-One' in Jakarta. Science (abstract only; viewing full article requires AAAS membership)
A City Scraps Its HOV Lanes. Disaster Ensues. CNN Tech
Effectiveness of California's High Occupancy Vehicle (HOV) System. Institute of Transportation Studies, Univ. California, Berkeley
The 15 Worst Cities for Rush Hour Traffic. CNN Money
High-Occupancy Vehicle Lane. Wikipedia

Applying the News Story

"Christianity is a group trip."

That's how a preacher one of the TWW team members heard years ago described the practice of the Christian faith.

The preacher explained that while the matter of receiving Christ is an individual experience and requires individual commitment, most of the time, the living out of discipleship is not intended to be done in isolation from other Christians.

We think that preacher had it right and that his point is supported by scripture.

Another point suggested by this news concerns the people who didn't really need to go somewhere riding in vehicles to make money from drivers who just needed extra occupants to use the HOV lanes. Putting the payment issue aside, that could be a metaphor for Christians finding ways to invite others to join them in the journey toward God through Jesus the Way.

The Big Questions

Here are some of the questions we will discuss in class:

1. To what degree is living a Christian life an individual endeavor? To what degree is it a congregational endeavor? To what degree is it an endeavor of the worldwide church? What helps you answer these questions?

2. If you agree that Christianity is a "group trip," do you think Jesus intended it to be so? Why? Is there a role for solitary Christianity, and if so, what is it?
3. What aspects of your spiritual growth are related to worshiping, praying and working with other Christians? What aspects of being a church are related to worshiping, praying and working with other Christians?

4. How do you think God intends your individuality to mesh with congregational purposes? Why?

5. In what ways have you invited others to "join you in the car" on the Christian journey?

**Confronting the News With Scripture and Hope**

*We will look at selected verses from these Scripture texts. You may wish to read these in advance for background:*

- Ecclesiastes 4:9-12
- Matthew 18:15-20
- John 13:31-35
- Ephesians 2:11-22
- 1 Peter 2:1-10
- Hebrews 10:19-25

*In class, we will talk about these passages and look for some insight into the big questions, as well as talk about other questions you may have about this topic. Please join us.*