Traffic on Our Highways

As a kid, I used to ask my parents why they couldn't just build more lanes on the freeway. Maybe transform them all into double-decker highways with cars zooming on the upper and lower levels. Except, as it turns out, that wouldn't work. Because if there's anything that traffic engineers have discovered in the last few decades it's that you can't build your way out of congestion. It's the roads themselves that cause traffic. The concept is called induced demand, which is economist-speak for when increasing the supply of something (like roads) makes people want that thing even more.

Though some traffic engineers made note of this phenomenon at least as early as the 1960s, it is only in recent years that social scientists have collected enough data to show how this happens pretty much every time we build new roads. These findings imply that the ways we traditionally go about trying to mitigate jams are essentially fruitless, and that we'd all be spending a lot less time in traffic if we could just be a little more rational.

But before we get to the solutions, we have to take a closer look at the problem. In 2009, two economists—Matthew Turner of the University of Toronto and Gilles Duranton of the University of Pennsylvania—decided to compare the amount of new roads and highways built in different U.S. cities between 1980 and 2000, and the total number of miles driven in those cities over the same period.

"We found that there's this perfect one-to-one relationship," said Turner.

If a city had increased its road capacity by 10 percent between 1980 and 1990, then the amount of driving in that city went up by 10 percent. If the amount of roads in the same city then went up by 11 percent between 1990 and 2000, the total number of miles driven also went up by 11 percent. It's like the two figures were moving in perfect lockstep, changing at the same exact rate.

Now, correlation doesn't mean causation. Maybe traffic engineers in U.S. cities happen to know exactly the right amount of roads to build to satisfy driving demand. But Turner and Duranton think that's unlikely. The modern interstate network mostly follows the plan originally conceived by the federal government in 1947, and it seems incredibly coincidental that road engineers at the time could have successfully predicted driving demand more than half a century in the future.

A more likely explanation, Turner and Duranton argue, is what they call the fundamental law of road congestion: New roads will create new drivers, resulting in the intensity of traffic staying the same.

Intuitively, I would expect the opposite: that expanding a road network works like replacing a small pipe with a bigger one, allowing the water (or cars) to flow better. Instead, it's like the larger pipe is drawing more water into itself. The first thing you wonder here is where all these extra drivers are coming from. I mean, are they just popping out of the asphalt as engineers lay down new roads?