

Induced Traffic Demand

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About twice a month, I give a talk somewhere in America, typically to a chamber of commerce, a planning association, or a bunch of people in a bookstore. Topics and approaches can vary, but I have one hard and fast rule: every lecture, no matter what, I will talk at length about induced demand. I do this because induced demand is the great intellectual black hole in city planning, the one professional certainty that everyone thoughtful seems to acknowledge, yet almost no one is willing to act upon. It's as if, despite all of our advances, this one (unfortunately central) aspect of how we make our cities has been entrusted to the Flat Earth Society.

Traffic studies are perhaps the most inevitable activity in planning these days. If you want to add any significant use to a neighborhood, you have to complete a traffic study. If you want to change the design of a street, you have to complete a traffic study. Once, in Davenport Iowa, I came across a street that had lost one block of its parallel parking, turning a three-lane one-way into a four-lane one-way for just 300 feet. I recommended bringing that one block of parking back. The City's response?: "We need to do a traffic study."

This circumstance is unsurprising, since traffic congestion is the main topic of civic complaint in most American communities. Since it is the only real constraint to driving, congestion is the one place where people are made to feel the pinch in their automotive lives. Were it not for congestion, we would drive enough additional miles to make congestion—more on this ahead. So the traffic study has become the default act of planning, and more than a few large companies can thank traffic studies for the lion's share of their income. They don't want you to read the next few paragraphs.

Traffic studies are fatally flawed for three main reasons:

First: The computer model is only as good as its inputs, and there's nothing easier than tweaking the inputs to get the outcome you want. When we were working in Oklahoma City, the local traffic engineer's "Synchro" computer model said that our pro-pedestrian proposals would cause gridlock. So we borrowed that engineer's computer model and handed it to our engineer, who tweaked the inputs, and voila: smooth sailing. By the way, the most commonly tweaked input is anticipated background growth, which typically needs tweaking anyway: most cities' traffic models presume 1 to 2 percent annual growth, even when those cities are shrinking.

Second: Traffic studies are typically performed by firms that do traffic engineering. This makes perfect sense—who else would do them? But guess who gets the big contract for the roadway expansion that the study deems necessary? As long as engineers are in charge of traffic studies, they will predict the need for engineering.

Finally, and most essentially: The main problem with traffic studies is that they almost never consider the phenomenon of induced demand. Induced demand is the name for what happens when increasing the supply of roadways lowers the time cost of driving, causing more people to drive, and obliterating any reductions in congestion. We talked about this phenomenon at length in *Suburban Nation* twelve years ago, and the seminal text, *The Elephant in the Bedroom: Automobile Dependency and Denial*, was published by Hart and Spivak seven years prior. For this reason, I will not take the time here to address its causes, which are multifold and fascinating. Since these books were published, however, there have been additional reports, all essentially confirming what we knew then. In 2004, a meta-analysis of dozens of previous studies found that “on average, a 10 percent increase in lane miles induces an immediate 4 percent increase in vehicle miles traveled, which climbs to 10 percent—the entire new capacity—in a few years.”

The most comprehensive effort remains the one completed in 1998 by the Surface Transportation Policy Project, which looked at fully 70 different metropolitan areas over 15 years. This study, which based its findings on data from the annual reports of the conservative Texas Transportation Institute, concluded as follows:

"Metro areas that invested heavily in road capacity expansion fared no better in easing congestion than metro areas that did not. Trends in congestion show that areas that exhibited greater growth in lane capacity spent roughly \$22 Billion more on road construction than those that didn't, yet ended up with slightly higher congestion costs per person, wasted fuel, and travel delay. . . The metro area with the highest estimated road building cost was Nashville, Tennessee with a price tag of \$3,243 per family per year."

Thanks to studies like this one, induced demand is by no means a professional secret. I was delighted to read the following recently, in *Newsweek*, hardly an esoteric publication: “demand from drivers tends to quickly overwhelm the new supply; today engineers acknowledge that building new roads usually makes traffic worse.”

To which I must respond: “Who are these engineers, and may I please meet them?” Most of the engineers that I’m forced to work with graduated from school decades ago, and apparently haven’t cracked a textbook—or a *Newsweek*—since.

As a result, this powerful phenomenon, for which the most and best data can be found in the United States, has had virtually no impact on road-building in the United States. But there is good news: it has caused great advances in Europe! In Great Britain, where planners are no longer allowed to justify new highways on the basis of reduced congestion, road construction has dropped so drastically that Alarm UK, the main freeway protest organization, disbanded itself “on the grounds that it was no longer needed.”

Meanwhile, back on planet earth, Mary Peters, a recent Secretary of Transportation, testified before a U.S. Senate committee that “congestion must be addressed with a long-term strategy to increase capacity.” It would seem that Saul Bellow’s Good Intentions Paving Company is still open for business.

Nowhere is this more evident than in the propaganda put forth by the current incarnation of the Road Gang. There is an engineering firm that I work with, one of the largest in the country. I won’t name them here, because I would like to work with them again. They do some really top-notch city projects, are great promoters of urbanism, and are leaders in the development of new transit systems. They also build a lot of sprawl, since they do everything, and the biggest part of everything is still sprawl.

Not long ago, they placed a full-page ad in Planning magazine. It shows an old highway choking on traffic. Then it shows a sparkling new cloverleaf, with cars zipping along happily. The copy reads as follows:

“Vehicle miles travelled increased by 97 percent from 1980 to 1996. Infrastructure improvements could significantly reduce the \$78 billion of fuel lost to congestion each year.”

This ad is, to put it mildly, misleading. It is misleading on so many levels it is hard to know where to start pulling it apart. At the very least, it is misleading in what it says, what it implies, and what it assumes. It says that new roads can reduce congestion, when we know that new roads almost always increase congestion. It implies that the dramatic surge in vehicle miles travelled since 1980 was not explicitly caused by infrastructure improvements, when we know that it was. Finally, it assumes that congestion wastes fuel, when we know that congestion actually saves fuel—and ultimately is one of the only things that does.

All three of these statements are perhaps counterintuitive, which is why this promotion was not laughed off the copywriter’s table at the ad agency. The first two refer, of course, to induced demand. The third statement, that congestion saves fuel, requires some evidence to be plausible.

It turns out that there is a strong correlation between a metropolitan area's average traffic speed and its fuel use. Cities with higher congestion use less fuel per capita, while cities with the least congestion use the most fuel.

This strange circumstance exists not because driving in traffic is more efficient—it isn't—but because of the way we pay to drive. Whether we own or lease, most of the costs are fixed: the price of the vehicle (and/or financing), the driver's insurance, the registration fees, and most of the maintenance fees are largely the same whether we drive a little or a lot. The roads, bridges, and policing are largely paid by general taxes from drivers and non-drivers alike. Tolls, unless you are trying to enter Manhattan or San Francisco, are rarely significant, and even more rarely a deal-killer. Parking, as will be discussed at length ahead, is typically priced below market rate, and again is only prohibitively expensive in a few places. For most American drivers, the most meaningful variable cost is gas, and by global standards, our gas is dirt cheap—even at \$4 per gallon, it's about half the European rate. All told, the marginal costs are almost negligible compared to the fixed costs. According to the AAA, for a large sedan driven 10,000 miles per year, the operating costs total only one-fifth of the ownership costs.

This all adds up to a situation in which you are paying to drive whether you drive or not, in which the more you drive, the less each mile costs, and in which the greatest constraint to driving, then, is congestion. While the cost of the trip will rarely keep us home, the threat of being stuck in traffic often will, at least in our larger cities. Congestion saves fuel because people hate to waste their time being miserable.

That's the negative way to look at it, but there's a positive side as well. The cities with the most congestion are often the cities that provide the best alternatives to being stuck in congestion. Of the ten cities ranked worst for traffic in the 2010 Urban Mobility Report, all but three—Houston, Dallas, and Atlanta—have excellent public transit and a vast collection of walkable neighborhoods. Indeed, these seven cities—Chicago, Washington, Los Angeles, San Francisco, Boston, Seattle, and New York—also appear in another list: Walk Score's ten "Most Walkable Neighborhoods" in America.

So, with the exception of the usual sunbelt suspects, congestion comes hand in hand with the opportunity to avoid it. And in those places like Atlanta, where congestion affects almost everyone, at least it mitigates fuel use rather than adding to it. It is certainly troubling to sit in traffic and watch the sky waver from the exhaust of a hundred tailpipes. But you can take some solace in the fact that less congestion would actually lead to more exhaust.

Nobody likes congestion, and, despite appearances, I am not arguing here for more of it. Rather, I am asking that it be better understood by those who build and rebuild our communities, so that we can stop making stupid decisions that placate angry citizens while only hurting them in the long run. There is a simple answer to congestion—and it's the only answer—which is to bring the costs of driving on crowded streets closer in line with its value.

http://www.amazon.com/Walkable-City-Downtown-Save-America/dp/0865477728/ref=sr_1_1?ie=UTF8&qid=1433507685&sr=8-1&keywords=walkable+city