Space and time are joined, pronounced Einstein at the start of the 20th Century, detonating a revolution in physics that still reverberates.

Nowadays, drivers connect space and time a bit differently: they discover daily that taking up space takes away time. On any heavily-trafficked road, your car steals time from me by slowing me down, just as my car slows you and takes your time. Totaled across the millions of cars and drivers in New York and other cities, this mutual theft of time attains staggering dimensions.

In some respects, the story of the first century of urban traffic was one futile effort after another to stop time theft. Again and again, the seemingly commonsensical solution of widening existing roads and building new ones ran afoul of “induced traffic” – the phenomenon by which the ability to travel faster on the new highway lanes engendered new and longer trips. Almost invariably, the initial trickle of attracted trips became a flood that filled up the increased capacity all over again, recreating gridlock over a larger area.

The same fate has also befallen localized efforts to tame traffic. Synchronized signalization, “crackdowns” on double-parking, even provision of transit service all tend to attract new vehicle trips that soon exhaust the increase.

Stopping time theft requires a radically different approach. To grasp what that might be, we undertook an analysis that has rarely if ever been attempted: quantifying time theft at the level of one individual trip.
The popular literature on traffic is overflowing with estimates of time lost in congested traffic across an entire city or region. These “macro” figures help convey the scope of the problem. But they don’t point toward solutions. For that, we need to grasp the extent to which one additional trip slows down all other vehicles on the road. As we show below, estimating this figure can lead to a radically new perspective on urban traffic and put society on a path to fixing it once and for all.