Welfare Effects of Traffic Calming
Evidence From London's 20 mph Limits

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Job Market Paper

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Abstract

Road traffic is associated with a wide array of negative externalities that can vary substantially across space. Economic theory suggests that the preferred way to address such externalities is Pigouvian pricing which is welfare enhancing unless correcting taxes exceed marginal external costs. In practice, spatially targeted pricing interventions such as congestion charges are extremely rare. Instead, cities resort to traffic-calming measures such as stricter speed limits to steer motor vehicle traffic and address its negative externalities. Such interventions have become very popular over recent decades but have a priori ambiguous welfare consequences as inframarginal drivers bear a true time or access cost. In this paper, I study the welfare consequences of reducing 30 mph to 20 mph speed limits in London. Constructing novel road-level data on vehicle speeds and volumes covering all roads in Greater London between 2010 and 2025, I document that average speeds have fallen by about 10% over the time period despite declining vehicle volumes. I then use the staggered introduction of 20 mph limits across roads to estimate the causal effect of speed limit changes on accessibility, vehicle volumes, accident risk, and traffic externalities more broadly. I find that 20 mph limits contributed only 5% to the observed reduction in speeds between 2010 and 2025, implying that drivers in 2025 lost at least 3.7 million vehicle-hours due to stricter speed limits. At the same time I find that 20 mph limits reduced accidents by about 20 fatalities and 1,200 casualties per year. At recommended UK valuations, these estimates corresponds to time costs for drivers of about £65 million yearly and accident cost savings of about £84 million indicating that speed limits are welfare enhancing.

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