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The Costs and Gains of Raising Truck Speed Limits

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Issue

Highway speed limits are increasing across the United States (Figure 1). There is also a national trend toward uniform speed limits, within states, for both passenger vehicles and trucks. California is one of only seven remaining states that sets different speed limits, with lower speed limits for trucks than passenger vehicles. While higher speed limits provide operational benefits by shortening travel times and fostering economic benefits—especially for the trucking and logistics industries—they can also increase the likelihood and severity of crashes since higher vehicle speeds require longer stopping distances and generate more energy during a collision.

While there is no consensus on the optimal speed limit, research generally shows that lower speed limits reduce the frequency and severity of crashes. Likewise, there is mixed evidence on whether universal (i.e., same for trucks and passenger vehicles) or differential speed limits are safer. While some evidence suggests that setting lower speed limits for heavier trucks that take longer to stop has safety benefits, others argue that differential speed limits create bottlenecks may cause more crashes as cars attempt to overtake slower-moving trucks.

Our research team used traffic simulation and statistical models to estimate the costs of crashes, travel time,

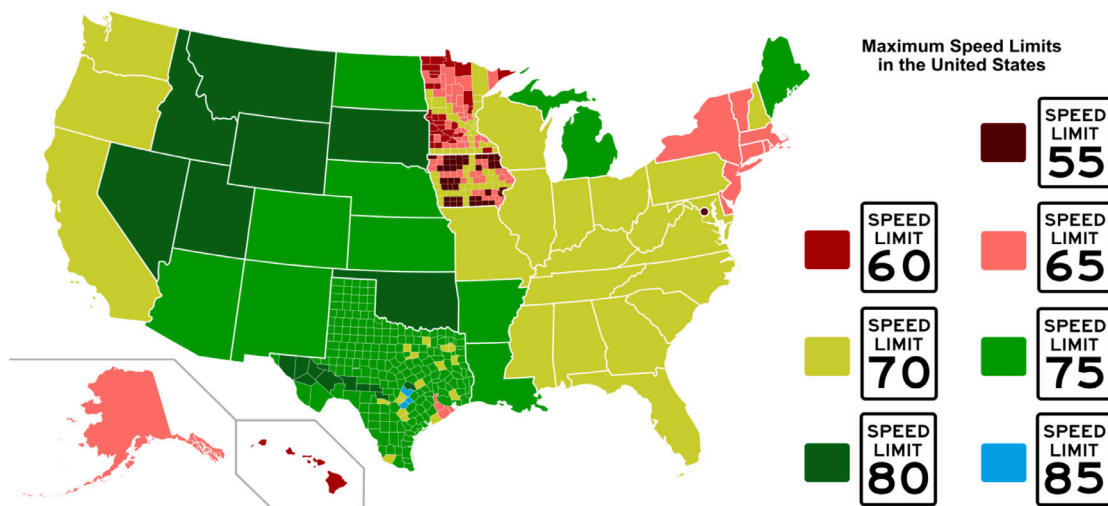


Figure 1. Maximum Interstate Speed Limits in the United States in 2023.

and vehicle operation for various speed limit scenarios in California. Our analysis focuses on the economic and comprehensive costs associated with fatal and severe traffic crashes, as outlined by the National Safety Council. We derived key metrics such as traffic speeds, travel times, and distances by simulating typical highway operating conditions. These insights help us calculate the overall economic and operational impact across the state's highway system.

Key Research Findings

Higher speed limits likely have a higher safety cost. Our statistical models show an increase in crashes as the speed limit increases. Moreover, when speed limits increase and there are different speed limits for cars and trucks, this also tends to increase the number of crashes. For the fastest speed limit considered, which was 75 mph for cars and 70 mph for trucks, the highest estimated safety cost was 2.9 billion dollars a year in urban areas and 1.6 billion dollars a year in rural areas.

Higher speed limits reduce travel time costs but increase operating costs. Based on our micro traffic simulation results for the seven highway segments selected to represent urban and rural highways in California, higher speed limits generally lead to shorter travel times, and reduced travel time costs by as much as 26%. On the other hand, higher speeds tend to lead to higher fuel costs, by as much as 29%. Travel time cost savings, unfortunately, are often offset by crash cost increases when speed limits are increased

More Information

This policy brief is drawn from the reports “Assessing the Safety Implication of Alternative Speed Limits in California” available at www.ucits.org/research-project/2019-11, and “Assessing the Economic Impact of Speed Limit Changes on Safety and Mobility in California” available at <https://escholarship.org/uc/item/7r94h26c>.

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