

CITATION

Johns Hopkins International Injury Research Unit. Evidence Synthesis on Impact of Traffic Fines to Improve Road Safety. October 2024. Baltimore, MD.

CONTACT

abachani@jhu.edu



**International
Injury Research Unit**



Evidence Synthesis on Impact of Traffic Fines to Improve Road Safety



Key Findings

- The evidence regarding the long-term effectiveness of increasing fines for traffic violations on the incidence of violations and road injuries is inconclusive.
- Fines have lower elasticities (sensitivity to changes in “price” or charges), which implies that additional interventions are key to increasing the perceived cost of the penalty.
- When increases in fines are combined with other measures, such as the introduction of a penalty scoring system, the evidence shows greater and more sustained positive effects.
- Continuous monitoring of the effects of changes in fines on driver behavior is needed to improve road safety while minimizing unintended consequences.



Recommendations

- Fines should be combined with other measures, such as a penalty scoring system and measures to raise media interest, for greater effectiveness.
- Imposed fines should be appropriately and consistently enforced, surveilled, and correlated to the level of violation.



The Problem

Evidence on the impact of traffic fines on road traffic injuries and crashes is scarce and the evidence varies.



Aim of the review

This review aimed to synthesize evidence of the effectiveness of interventions related to increasing traffic fines and enhancing road safety.



Summary of Evidence

TYPE OF INTERVENTION	EFFECTIVENESS
<p>Increasing fines</p>	<p>Inconclusive.</p> <ul style="list-style-type: none"> • One meta-analysis found that an increase of fines by 50%–100% may decrease violations by 15%. The same study found that fine increases by less than 50% or more than 100% were not associated with reduced traffic violation rates.¹ • In Brazil, implementing a significant increase in fines (up to 10 times) with a penalty scoring system resulted in a 33% decrease in the number of emergency room admissions due to road injury.² • In the Czech Republic, the introduction of a demerit point system for driver's licenses and a 200% increase in speeding fines resulted in a 33% decrease in the fatality rate in the first three months, but the effect was temporary.³ • A study in Australia found that increasing fines can inversely affect the perceived legitimacy of enforcement, especially for speeding offenses, which are not perceived negatively in comparison to other risky behaviors like fatigued driving, lack of seat-belt use, and drink driving.⁷ In such cases, raising fines can be seen as a way for the government to increase revenue rather than citizens acknowledging that the behavior is risky, and offenders are less willing to pay their fines. • Some studies, including one in Brazil, report higher effectiveness when combined with other measures, such as the introduction of a penalty scoring system.²
<p>Decreasing fines</p>	<p>Negative effects on road safety. Eliminating fines for speeding less than 20 km/h and an increase for speeding more than 20 km/h resulted in a 13% increase in speeding in Russia.⁵</p>

TYPE OF INTERVENTION	EFFECTIVENESS
<p>Insurance-related incentives</p>	<p>Promising, but needs more evidence. Findings from three studies indicate that interventions linking economic incentives (insurance savings) with speeding behavior had a modest but significant impact on the reduction of speeding and the proportion of distance traveled while exceeding the speed limit. However, the studies involved small groups of participants and were all undertaken in Denmark, Sweden, and the Netherlands. Further, this incentive did not provide an intrinsic motivation to change behavior as the speeding behavior quickly returned to baseline levels after the incentive was withdrawn.^{8,9,10,11} Additionally, the decision to be exposed to the intervention (insurance savings) was taken by the drivers themselves, thereby adding self-selection bias to the studies and preventing researchers from understanding the true effect of insurance-related incentives.</p>
<p>Demerit points systems</p>	<p>Inconclusive when applied as an isolated measure. A study implemented in the United Arab Emirates did not find any significant impact of the demerit point system on speeding behavior.¹²</p>
<p>Enforcement and incentives</p>	<p>Promising. Interventions that used enforcement alone, incentives alone, and a combination of both increased seat-belt use. One study in the U.S. showed that the effect of the combined interventions was sustained for a period of time after the increased enforcement phase.¹³ Compared to those that used enforcement alone, interventions that used incentives alone had a longer-lasting effect.¹³</p>

References

1. Elvik, R. (2016). Association between increase in fixed penalties and road safety outcomes: A meta-analysis. *Accident Analysis & Prevention*, 92, 202-210.
2. de Figueiredo, L. F. P., Rasslan, S., Bruscatin, V., Cruz Jr, R., & e Silva, M. R. (2001). Increases in fines and driver licence withdrawal have effectively reduced immediate deaths from trauma on Brazilian roads: First-year report on the new traffic code. *Injury*, 32(2), 91-94
3. Montag, J. (2014). A radical change in traffic law: Effects on fatalities in the Czech Republic. *Journal of Public Health*, 36(4), 539-545.
4. Izquierdo, F. A., Ramirez, B. A., McWilliams, J. M., & Ayuso, J. P. (2011). The endurance of the effects of the penalty point system in Spain three years after. Main influencing factors. *Accident Analysis & Prevention*, 43(3), 911-922.
5. Bhalla, K., Paichadze, N., Gupta, S., Kliavin, V., Gritsenko, E., Bishai, D., & Hyder, A. A. (2015). Rapid assessment of road safety policy change: Relaxation of the national speed enforcement law in Russia leads to large increases in the prevalence of speeding. *Injury Prevention*, 21(1), 53-56.
6. Weatherburn, D., & Moffatt, S. (2011). The specific deterrent effect of higher fines on drink-driving offenders. *The British Journal of Criminology*, 51(5), 789-803.
7. Walting, C. N., & Leal, N. L. (2012). Exploring perceived legitimacy of traffic law enforcement. National Conference, Sydney, Australia, 1-13.
8. Bolderdijk, J. W., Knockaert, J., Steg, E., & Verhoef, E. T. (2011). Effects of Pay-As-You-Drive vehicle insurance on young drivers' speed choice: Results of a Dutch field experiment. *Accident Analysis & Prevention*, 43(3), 1181-1186.
9. Hultkrantz, L., & Lindberg, G. (2011). Pay-as-you-speed An Economic Field Experiment. *Journal of Transport Economics and Policy*, 45(3), 415-436.
10. Lahrman, H., Agerholm, N., Tradisauskas, N., Berthelsen, K. K., & Harms, L. (2012). Pay as You Speed, ISA with incentives for not speeding: Results and interpretation of speed data. *Accident Analysis & Prevention*, 48, 17-28.
11. Stigson, H., Hagberg, J., Kullgren, A., & Krafft, M. (2014). A one year pay-as-you-speed trial with economic incentives for not speeding. *Traffic Injury Prevention*, 15(6), 612-618.
12. Mehmood, A. (2010). Evaluating impact of demerit points system on speeding behavior of drivers. *European Transport Research Review*, 2(1), 25-30.
13. Mortimer, R. G. (1992). Extra enforcement and the use of seat belts by drivers in Illinois. *Accident Analysis & Prevention*, 24(6), 661-666.
14. Goldenbeld, C., Mesken, J., & van Schagen, I. (2013). The effect of severity and type of traffic penalties on car drivers'. SWOV Institute for Road Safety Research.