

SME RESEARCH BRIEF

Road Safety Benefits of Traffic Enforcement

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Does traffic enforcement make roads safer?

Road safety is an important component of overall community well-being.¹ In turn, traffic enforcement is one of its key pillars. What does the evidence tell us about the linkage between police enforcement and road safety?

Scope of the review

Several peer-reviewed studies were reviewed to confirm they were methodologically sound and had sufficient data to support their key conclusions.² The focus was on research that quantified the road safety benefits of proactive traffic enforcement by police. Studies concerned with automated speed enforcement (a.k.a. photo radar) or intersection safety cameras (a.k.a. red light cameras) were considered to be out of scope.

What does the evidence say?

Two natural experiments that occurred in 2003 provide persuasive evidence that traffic enforcement efforts by police contribute to deter dangerous driving behaviour and improve road safety substantially.

In 2003, the traffic division of the Fresno Police Department in California suddenly grew from 20 to 84 officers, and this resulted in a sharp intensification of traffic enforcement within the city (Davis et al., 2006). The additional enforcement coincided with significant reductions in the per capita rate of motor vehicle crashes (-17%), collisions with injuries (-20%), crash-related hospital admissions (-25%), traffic fatalities (-50%), and speed-related fatalities specifically (-67%). These gains were not seen in surrounding areas of Fresno County that did not benefit from enhanced police enforcement and evaporated after Fresno's traffic unit was temporarily reassigned to gang suppression activity.

¹ In many communities, the odds of being killed or seriously injured in a traffic collision exceed those of being a violent crime victim. Every year in Canada, approximately 2,000 persons die in traffic collisions (Canadian Motor Vehicle Traffic Collision Statistics: 2018). By comparison, there are approximately 600 homicides on average (Homicide in Canada, 2018).

² One important methodological consideration is that more traffic enforcement is expected to be directed towards accident-prone locations where there are more road safety concerns in the first place (Makowsky and Stratmann, 2011). One additional challenge is that certain citations, such as improper lane change and reckless driving, tend to be issued after a crash already occurred (Rezapour Mashhadi et al., 2017). The best studies control for these issues, via randomization or natural experiments for instance.

In February 2003, the Oregon State Police laid off approximately 35% of its highway troopers (DeAngelo & Hansen, 2014). As a direct result, the number of traffic citations decreased dramatically. In turn, this sharp reduction in enforcement coincided with faster observed travel speeds, as well as more collision-related injuries and fatalities. None of these effects were felt in Idaho and Washington, where trooper employment did not change significantly.

Analogous findings were obtained in Uganda (Bishai et al., 2008), Belgium (Eeckhout et al., 2010) and London, UK (Walter et al., 2011).

Additional factors

Traffic enforcement efforts can influence not only the behaviour of drivers who are ticketed or apprehended by police (specific deterrence), but also the driving behaviour of those who subjectively perceive they could be caught (general deterrence). There is ample evidence that both deterrence mechanisms operate concurrently in practice.

General deterrence is illustrated by the fact that even passive measures such as unattended police cars (Kaplan et al., 2000) or realistic-looking police cut-outs placed along roadways (Simpson et al., 2020) can reduce speeding measurably. It is also supported by survey data which suggested that 61% of American drivers self-reported being motivated “a lot” to practice safe driving habits specifically to avoid traffic fines (Williams et al., 1995).

Specific deterrence is illustrated by the fact that individual drivers appear to adopt safer driving practices after they receive a traffic ticket, at least temporarily. For example, Ontario drivers who received a traffic ticket were 35% less likely to be involved in a fatal crash the following month (Redelmeier et al., 2003). In the same vein, drunk drivers (Hansen, 2015) and speeders (Goncalves & Mello, 2017) who receive more severe sanctions have lower rates of recidivism and are less likely to be involved in future accidents.

It is noteworthy that some of the benefits provided by traffic enforcement efforts tend to persist beyond the immediate intervention period and area. This phenomenon is commonly referred to as the “halo” effect. In the UK, for example, a four-week traffic enforcement campaign by the London Metropolitan Police was found to have reduced vehicle speeds not only along the targeted route but also in surrounding areas, and at least two weeks after the operation ended (Walter et al., 2011).

Implications for practice

By making roads safer, traffic enforcement has the potential to deliver benefits to society that exceed the costs. DeAngelo & Hansen (2014) extrapolated that 10 traffic fatalities could be prevented annually in Oregon by hiring only 25 additional full-time highway troopers. For their part, Makowsky and Stratmann (2011) estimated that 127 to 162 crashes, 44 to 67 crash-related injuries and 1-2 traffic fatalities were prevented, on average, for every 1,000 tickets issued by police in Massachusetts.

Conversely, road safety is expected to suffer when police enforcement is reduced. For every 10% reduction in traffic enforcement, Makowsky and Stratmann (2011) estimated that crashes would be expected to increase by 2.8% to 3.6%, while DeAngelo & Hansen (2014) extrapolated that traffic fatalities would be expected to increase by 3.3% to 3.8% and incapacitating injuries by 4.1% to 4.7%.

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