Progressive penalty system and road safety

Estimated safety effects of progressive fines for repeated speeding offences

Summary

A traffic offence is typically more heavily penalized if it comes with a greater risk. As one exceeds the limit – for driving speed or blood alcohol content – to a greater extent, the fine one gets is higher. Repeat offences also lead to a significantly higher risk. However, most repeat offences in the Netherlands do not lead to higher fines at present, because they are licence plate-based. At this moment, the ‘Administrative law enforcement traffic regulations’ (WAHV, also called 'Mulder Law'), does not allow this. Dutch Parliament (motion 471, 2 July 2015), asked the Minister of Security and Justice to investigate options for a progressive penalty system in which the fine increases in the case of repeat offences.

The Ministry’s Research and Documentation Centre (WODC) asked SWOV to carry out part of that investigation, namely an estimation of the road safety effect of a progressive fine system for speeding offences. Furthermore, SWOV investigated whether evidence could be found for the assumptions and mechanisms on which a progressive fine system is based, and whether such a system has possible (unintended) side effects. This report presents the results of this study. Calculations are based on licence plate-based fines, as in 2016 96% of all WAHV-offences were ‘automatically’ registered (licence liability) and 84% concerned a speeding offence, mainly by delivery vehicles and cars.

It has been established that three assumptions underlie the desire to achieve a progressive fine system: 1) there is a relation between driving speed and road safety, 2) there is a relation between repeat speeding offencesand road safety and 3) there is a relation between the height of fines and road safety. Taken together, these three consitute the mechanism of action. Literature research indicates that there is evidence for these assumptions. Driving speed influences injury severity and the probability of a crash. Repeat speeding offences also have influence on the risk of crashes: vehicles that have received multiple (speeding) fines, have been found to have a (significantly) higher risk of crashes. The crash risk of vehicles with one fine is similar to that of vehicles that have not been fined at all, but the risk of vehicles with two fines per year is twice as high. The relative risk increases rapidly: the risk at three fines is more than five times higher, at four fines it is eleven times higher and at five or more fines it even reaches 35 times higher. A measure that results in fewer repeat speeding offences is expected to have a considerable positive effect on the number of crashes. Several studies indicate that a higher fine usually leads to behavioural changes, but the relationship between the fine increase and speed behaviour (the price elasticity) is inconclusive. Based on the literature, the present study is based on a best estimate of -0.2 held. This means that each percentage of fine increase results in 0.2% fewer offences. Because fewer offences lead to a lower risk, the number of crashes will decrease. Sufficient social support is necessary to make a progressive fine system successful. Research shows that there still is broad support for the current (speed) enforcement system in the Netherlands. Although a progressive fine system has not yet been introduced, we do know something about the view of interest groups in the field of traffic and road safety. They are either favour of such a system (60%), or they are neutral about it (40%).

Other than social support, the risk of being fined and, consequently, the enforcement level, is essential for the success of a progressive fine system. We estimate that, at present, the average vehicle receives one fine for speeding per 4,000 km of driving (far) over the speed limit. Nevertheless, in recent years the licence plate-based apprehension rate in the Netherlands was the highest of Europe (calculated per inhabitant). Not only the objective apprehension risk is important, but the subjective apprehension risk also plays an important role. When people estimate the risk of being fined for a traffic offence to be low, the height of the fine will have little influence on their behaviour. Many road users in Netherlands consider the risk of being fined for speeding to be high. At present, both conditions, sufficient social support and a high enough (subjective) risk of being fined, therefore seem te be met in the Netherlands.

Two types of side-effect of a progressive fine system are to be expected. The first is a change in the penalty system at the expense of the intrinsic motivation (do something because it gives you satisfaction). There is a risk that a change of the fine system leads to more extrinsic motivation, i.e. drivers mainly keeping to the limit to avoid a (higher) fine and not because they find it important. That could lead to a lower actual compliance with the limits. Since this same objection applies to the current penalty system, a progressive fine system will not necessarily cause an increase in extrinsic motivation compared to the current fine system. Concerning the motivation, it is also possible that a progressive fine system will have a positive effect on the ‘signal ' function of a traffic fine, for example because the progressive penalty system focuses attention on the (small) group of repeat offenders, a group one may not want to belong to. This possible signal function needs to be investigated. In advance it is unclear which effect on the motivation will be stronger.
The second side effect is that of payment problems which may arise among offenders. We consider that possibility to be realistic. Beside their social impact, payment problems may result in people becoming insensitive to fine increases and not adjusting their behaviour. It is therefore recommended to implement a more personal approach after a yet to be determined number of fines. This may be in the form of a telephone call, a visit of a police officer or the installation of a speed lock (ISA).
In consultation with the advisory committee of this research, the effects of two variants of a progressive fine system have been calculated. In the first variant the fine increase ranges from 25% (for the second fine) to 100% (from the fifth fine). The second variant has a stronger increase but has a lower first fine compared to the current level. In this second variant the maximum fine increase amounts to150% from the fifth penalty onwards.

The main conclusion is that a progressive fine system could result in about 30 (5%) fewer road deaths and 400 fewer serious road injuries (2%). This Stichting Wetenschappelijk Onderzoek Verkeersveiligheid SWOV – Den Haag would also reduce the social costs of road crashes by a few percentage points. The social benefit-cost ratio of a progressive fine system can be very high, depending on the administrative costs of the measure. The change in behaviour of a small group of multiple offenders (ca. 1% of all vehicles) is crucial for this effect, but it is not certain how large this change will actually be. The effect on the group of multiple offenders must therefore be closely monitored and where necessary, the approach (fine enhancement, personal approach etc.) must be adapted.