

Penalties in traffic

Summary

Traffic offenders are penalized in various ways: fines, (temporary) driving licence suspensions, confiscation of their vehicles, penalty points, mandatory participation in rehabilitation programmes, prison sentences or community service. The aim of penalties is to punish offenders, to protect society and to influence the behaviour of offenders and all citizens (prevention).

Many studies have found that the combination of enforcement and penalties prevent the violation of traffic regulations and increase road safety. However, the most common type of penalty at the present time, a fine, has been found to have little effect.

It is important to take account of people's reasons for behaving as they do and their ability to change their traffic behaviour. This type of approach requires customized penalties, and technological applications will play an increasingly important role in this area.

Background and content

In terms of influencing behaviour, penalties can be regarded as an instrument for steering undesirable behaviour in a desirable direction by linking negatively perceived consequences to the undesirable behaviour. The current penalties for traffic violations in the Netherlands mainly consist of imposing fines. Penalties also include (temporary) driving licence suspension, mandatory participation in special rehabilitation programmes, and prison sentences or community service for serious traffic offences that result in injury. Since 2002, novice drivers are allotted penalty points for serious violations. In June 2011, a penalty point system for repeated serious drink-driving offences was introduced in the Netherlands. This fact sheet discusses the effectiveness of penalties and the factors that play a role in this. The information in this fact sheet is partly derived from international research studies. However, a system that works well in one country does not necessarily work equally well in another country. Differences in legal context and cultural norms must be taken into account. But when translated in the right way, results from other countries may also be relevant to the Netherlands. The opposite of penalizing – rewarding correct traffic behaviour – is another instrument that can influence behaviour, but it is not discussed in this fact sheet. For information about this subject see SWOV Fact sheet [Rewards for safe road behaviour](#).

Why are penalties necessary in traffic?

Traffic regulations direct the mutual relationships between road users and the relationships between road users and their surroundings. They are intended to promote the safe and rapid flow of traffic. The Sustainable Safety vision aims to prevent unintended errors and *unconscious* violations by road users by means of a clear road layout, understandable and realistic traffic regulations and good traffic education (Wegman & Aarts, 2006). As part of this vision, the enforcement and punishment of offenders is a final but necessary step in preventing road users from *intentionally* offending against traffic regulations.

The practice of imposing penalties serves a number of (social) goals: *retribution* (somebody has to 'pay'), *protection of society* (those not participating in traffic cannot commit offences), *influencing the offender's behaviour* to prevent repetition of the undesirable behaviour and *influencing the behaviour of all citizens* (through the general normative effect of the law and penalties).

The aim of punishment is not relevant for the prevention of accidents, and offenders are only removed from traffic sporadically. Therefore, these measures have hardly any effect on road safety. However, as indicated below, a positive effect can be expected from influencing the behaviour of the offender himself/herself and of citizens in general. Therefore, this fact sheet focuses mainly on the latter two objectives of penalties in traffic.

How do penalties work?

The effect of penalties can be examined from two theoretical contexts (Van der Pligt et al., 2007). The first, the *instrumental approach*, is based on deterrence, and regards the fear of being punished as the central mechanism for avoiding certain behaviour. According to the classic deterrence theory (formulated in the 18th century by the philosophers Bentham and Beccaria) and the later 'operant conditioning theory' (formulated by, among others, Skinner) penalties can influence human behaviour. According to these theories the certainty, speed and severity of the penalty can determine the effectiveness of that penalty in mutual interaction.

Normatively oriented theories hold that criminal law and the chain of law enforcement based upon it can only be effective when citizens are familiar with the norms and rules in force and are convinced that compliance with the rules is important (Andenaes, 1974). Punishment as a mechanism for getting people to obey the rules has a much greater effect when that punishment is compatible with the norms, values and the sense of justice of the citizens themselves. According to this approach, it is the social disapproval that turns a formal penalty into a psychological penalty.

Punishing traffic violations is part of the chain of traffic law enforcement (*Figure 1*). The first link in the chain, which is the foundation of traffic law enforcement, is traffic legislation. The legislation defines the rules for traffic participation and determines the possibilities for tracking down and punishing violations. The actual enforcement of the rules leads to an enforcement pressure or *objective probability of detection*. Ultimately, however, it is not about the objective probability of detection, but the *subjective probability of detection* – that is, road users' assessment of the likelihood of being caught breaking the rules. The subjective probability of detection is partly determined by the objective probability of detection, and also, for example, by coverage in the media, public information campaigns and anecdotes told by friends and acquaintances.

When road users consider the subjective probability of detection to be sufficiently likely, they will avoid violating a regulation. The combination of enforcement and penalty is *generally* preventative when road users avoid traffic violations on the basis of the expected negative consequences. We speak of *specific* prevention when road users avoid committing traffic violations on the basis of fines or penalties they had to pay as a consequence of earlier violations. Specific prevention therefore involves a change in behaviour resulting from the penalty itself.

Can the threat of a penalty prevent violations?

Most studies show that road users commit fewer offences when confronted with a greater likelihood of being apprehended and punished. This applies to various violations such as speeding, drink-driving, driving without using a seat belt, and red light running (see the SWOV Fact sheets [Police enforcement and driving speed](#) and [Effects of police enforcement of protection devices and moped helmet use and red light running](#)). It therefore involves the general preventative effect of being threatened with punishment. Below, in the section [How important is the severity of the penalty?](#) the effectiveness of increasing the punishment will be discussed.

Although the threat of enforcement and punishment reduces the number of violations, there is a limit to what can be achieved with this approach. A constant level of enforcement and punishment is not enough in the long term to further reduce the number of violations. Research has found that increasing the regular enforcement pressure with a factor of three is often sufficient to have an effect on behaviour and therefore on road safety (Bjørnskau & Elvik, 1992).

Once a certain level of enforcement and punishment has been reached, it therefore becomes comparatively more difficult to realize extra behavioural effects. For example, Mathijssen (2005) found that every doubling of the enforcement level for drink-driving in the Netherlands leads to approximately a quarter fewer violations.

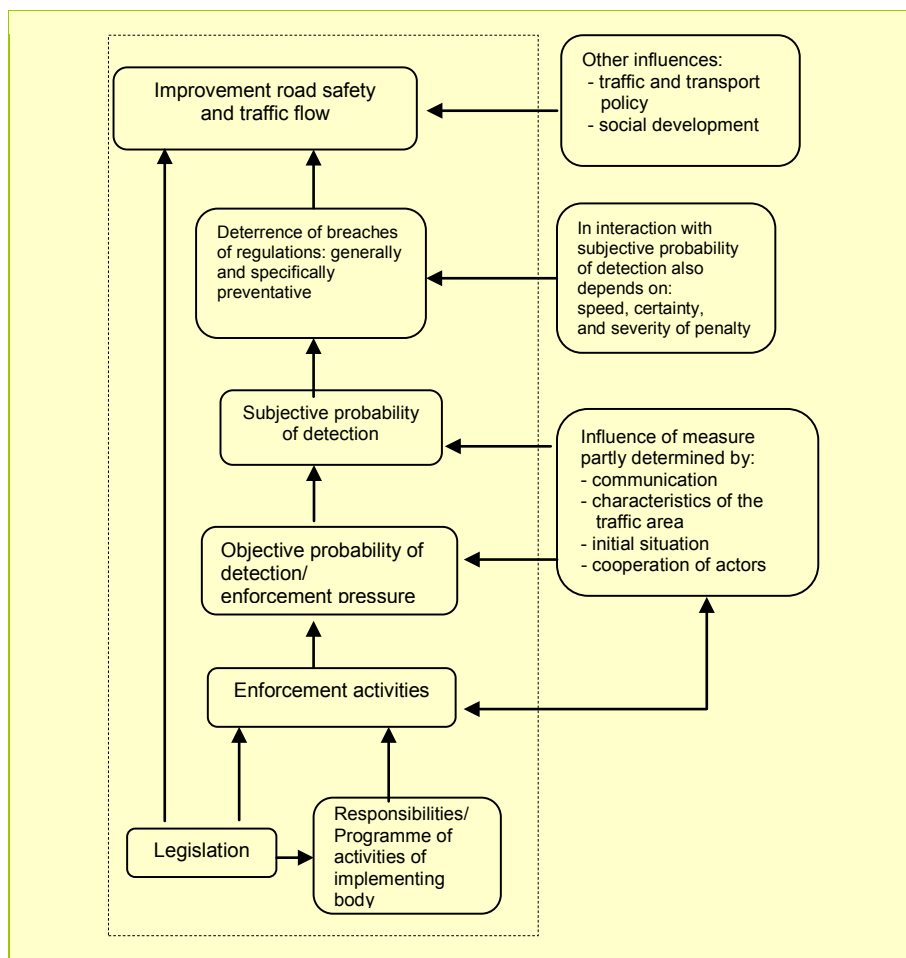


Figure 1. Diagram of the mechanism of police enforcement (inside dotted line), and the influence of external factors (outside dotted line). Adapted by Goldenbeld (2005).

Can penalties prevent repeat violations (recidivism)?

Effectiveness of regular penalties

Goldenbeld & Van Schagen (2008) refer to various international studies abroad that generally indicate relatively minor, short-term effects on recidivism of regular penalties such as fines or prison sentences. Here it needs to be considered, however, that the chosen before and after period of a study can influence the intensity of the effect that is found. In this context, the Canadian study by Redelmeier et al. (2003) is particularly interesting. This study found that in the month following a fine or penalty, the risk of the driver being involved in a fatal crash was an average of 35% lower than before the penalty was imposed. This effect was already considerably smaller after two months, while after three months it had completely disappeared.

The Canadian study therefore suggests that the behavioural effects of penalties are short-lived. However, this is an indirect study because it studied the crash rate and not recidivism. When recidivism is examined, the effects of regular penalties and variations are also found to be modest. An Australian study examined whether the size of a penalty has an effect on recidivism (Moffat & Poynton, 2007). This study used a data file of 70,000 people who had been fined for traffic offences. The study found no evidence whatsoever for a connection between the size of the fine and the likelihood of an offender being prosecuted again. There was no evidence either that the length of the period for which driving licences were suspended affected the likelihood of an offender being prosecuted again. An American study (Jingyi et al., 2006) showed that a fine for speeding, whether or not in combination with penalty points, had no effect on the likelihood of people being prosecuted

again for a traffic offence. These types of findings argue in favour of working out new, alternative penalties that have a greater effect on recidivism (see also under [What are customized penalties?](#)).

The limited behavioural effects of regular punishments lead one to suspect that recidivism in the area of traffic violations is significant. The Dutch WODC Recidivism Monitor shows that this is indeed the case. This continuous study examined the data of all the people that were prosecuted in 1997 for violating the 1994 Road Traffic Act (WVW), the 1990 Traffic Rules and Signs Regulations (RVV) or the Motor Insurance Liability Act (WAM). Forty percent of Dutch traffic offenders were found to have been prosecuted again at least once within four years, and in four out of five cases they were prosecuted for the same traffic offence. A UK study examined the connection between recidivism in traffic violations and violations outside the traffic domain (Broughton, 2007). The study found that men who perpetrated several criminal offences over a period of five years often also committed several traffic violations. It is quite reasonable to assume that in most countries, also in the Netherlands, there is a group of offenders that are hardly affected by penalties of any kind. Depending on the definition that is used, 2.6% or 3% of all drivers can be called 'multiple speed offenders' (Goldenbeld & Twisk, 2009). For policy purposes it is advisable to agree on a generally accepted definition of 'multiple traffic offender'.

The effectiveness of demerit points

Internationally, a demerit points system is often used to increase the effectiveness of penalties and prevent recidivism (specific preventative effect). In such a system, an offender is also allotted a number of demerit points in addition to the regular fine, and having reached a specific number of demerit points the offender's licence is (temporarily) suspended and he/she must follow a training course or retake the driving test. A demerit points system may indeed contribute to a general preventative effect, particularly during the initial phase when the introduction of the system is in the public spotlight. The European Transport Safety Council (ETSC) believes that the demerit points system is an important addition to the system of traffic law enforcement (ETSC, 2008). However, the ETSC does note that the safety impact of a demerit points system diminishes between six months and a year after its introduction. For more information, see SWOV Fact sheet [Demerit points systems](#).

The Netherlands has used a demerit points driving licence for novice drivers since 2002. Drivers who are stopped for a serious traffic offence three times during the first five years of licence possession, have to do a driving test. For legal reasons alcohol offences are not included in this demerit points system. If the driving test indicates that the driving skills are insufficient, the offender has to retake the driving examination. An initial assessment of this demerit points system did not establish that the road safety of novice drivers had improved as a result of the system (Vlakveld & Stipdonk, 2009). The 'demerit points system alcohol' was introduced on 1 June 2011. This measure encompasses that a driver loses his licence if he is convicted for driving under the influence alcohol twice within a period of five years. The BAC must be higher than 1‰ at the second offence. The main difference from the previous recidivism regulation for driving under the influence is that under the new legislation the driver has absolute certainty about losing the driver's licence at the second offence. Under the old regulations the judge would need to pass verdict first. The new type of measure has not yet been evaluated.

How important is the severity of the penalty?

In the field of road safety, research has mainly been conducted into the effect of increased penalties for drink-driving. In the Australian state of New South Wales, a doubling of the penalty for drink-driving that was introduced in 1998 did not reduce the incidence of drink-driving or the numbers of crashes (Briscoe, 2004). Also in the Netherlands, the much stricter penalties introduced in 1992 for drink-driving (higher fines and faster suspension of driving licences) did not lead to a decrease in drink-driving (Mathijssen, 1994). It even increased somewhat, probably partly due to the noticeable drop in the level of enforcement. The laws in various US states that lay down prison sentences for first-time drink-driving offenders were found to have little or no effect on drink-driving (Wagenaar et al., 2007). The abovementioned Australian study (Moffat & Poynton, 2007) also found no connection between the size of the fine and the likelihood of an offender being prosecuted again. Nor did it find evidence for the duration of the driving licence suspension having an effect on this likelihood.

Less is known about the effect of more severe penalties on speed violations, but there are indications that here too the use of higher penalties has little effect on behaviour. For example, a Finnish study found that personally addressed warning letters were just as effective as traffic fines in reducing speed violations (in Mäkinen et al., 2003). A study in Norway showed that an increase in speeding fines by

100-150% over ten years did not improve speed behaviour (Elvik & Christensen, 2007). Based on a dynamic system model supplemented with actual data, a Dutch study group of experts has estimated that increasing traffic fines by 20% would at most have a temporary behavioural effect under Dutch circumstances, but any such effect would have completely disappeared within a year (Bureau Significanc, 2008).

However, higher penalties may have an effect on traffic behaviour that can easily be changed, such as the seat belt use. The use of the seat belt requires just one decision and one simple action, while speed behaviour often involves a continuous decision process in different traffic situations. Drink-driving also involves various decisions (Will I go out tonight or not? Will I drink or not? When will I stop drinking? Will I go home by car?). A study by Elvik & Christensen (2007) shows that increasing the fines for failure to use a seat belt by 50% was linked to improved seat belt use over ten years.

What are customized penalties?

Traffic offenders differ in the extent to which they can be stimulated and can structurally change their traffic behaviour themselves. Different types of penalties or treatment work best for different groups of offenders. For example, in the United States a prison sentence has absolutely no effect on the level of recidivism of drink-drivers, while an alternative penalty, a form of temporary electronic house arrest, does have a positive effect on recidivism (Nochajski & Stasiewicz, 2006).

An effective penalty can consist of a combination of related parts of the penalty, such as temporary confiscation of the vehicle, a temporary driving licence suspension, a fine, or the choice of a rehabilitation programme in exchange for the faster return of the vehicle or driving licence. Fast developing vehicle technologies can also be part of a penalty (programme). For example, for structural speed offenders this could involve building ISA into their cars, also called a speed lock – to be financed by the offenders themselves (see also the SWOV Fact sheet [Intelligent Speed Assistance \(ISA\)](#)); for drink-driving repeat offenders the penalty could be an alcohol lock with an accompanying rehabilitation programme (see the SWOV Fact sheet [Alcolock](#)); and for offenders with a structural behavioural problem the penalty could involve supervision by means of electronic devices in the vehicle. The compulsory alcolock as part of the penalty was introduced in the Netherlands on 1 December 2011.

A first proposal for customized penalties for notorious traffic offenders was made by Kuiken et al. (2009). They advocate supplementary punishments for groups of notorious offenders in the Netherlands. An in-vehicle data recorder which not only records offences but also actively reduces the driving speed (limiting ISA or speed lock) could be imposed as a restriction on the driving licence. Such a measure could be used to ensure safe traffic participation by those road users for whom an Educational Measure Behaviour and Traffic is not effective. Within the *Strategic Plan Road Safety* a speed lock measure for serious speed offenders is presently being developed.

Conclusions

The purpose of threatening people with penalties is to make it unattractive to commit violations (general prevention) and the actual punishing of offenders is intended to prevent offenders from repeating the offence (specific prevention). Many studies have demonstrated that combining enforcement and penalties prevents violations and increases road safety. Of course, the penalty must match the severity of the violation and must be substantial enough to influence behaviour, but particularly the frequency, visibility, and unpredictability of inspections are responsible for the general prevention of traffic violations. Making penalties higher, as an isolated measure, was found to have little extra effect.

Research into the specific preventative effect of penalties shows that the effect of the currently most common type of penalty, a fine, is negligible when expressed in time. The effects are also negligible in terms of recidivism.

For the optimal effect of penalties, it is important to take account of what motivates people and the extent to which they are capable of changing their traffic behaviour. This requires customized penalties. Which penalties or which combinations of penalties are the most appropriate for which groups of traffic offenders requires further research. To an increasing extent, technological applications will play a role in this. On 1 December 2011 an alcolock programme was introduced in the Netherlands to punish and change the behaviour of serious repeat drink-driving offenders. Within the

Strategic Plan Road Safety a speed lock measure (limiting ISA) is presently being developed for serious speed offenders.

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