

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 demonstrated 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 capacity 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

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. A penalty point system for repeated serious drink-driving and speed violations is also being prepared for 'experienced' drivers. 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 research studies conducted abroad. 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 can 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.

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 aimed at promoting the safe and rapid flow of traffic. The Sustainable Safety vision is aimed at preventing 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 *consciously* abusing traffic regulations.

The practice of imposing penalties serves a number of (social) goals. For example, it:

- punishes perpetrators (somebody has to 'pay');
- protects society (people in prison cannot commit crimes);
- influences the behaviour of the perpetrator in order to prevent a repetition of the undesirable behaviour;
- influences 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 perpetrators are only removed from society sporadically. Therefore, these measures have hardly any effect on road safety. However, as indicated below, a positive effect can be expected by influencing the behaviour of the perpetrator himself/herself and of citizens in general.

This fact sheet focuses mainly on the latter two objectives, the effectiveness of penalties in changing the (undesirable) traffic behaviour of perpetrators and in influencing citizens in general.

How do penalties work exactly?

Theories about penalties

The effect of penalties can be examined from two broad theoretical contexts (Van der Pligt et al., 2007). The first, the *instrumental approach*, is based on deterrence, where the fear of being punished is regarded as the central mechanism for avoiding certain behaviour. The classic deterrence theory was formulated in the 18th century by the philosophers Bentham and Beccaria. Psychologists have studied the behavioural effects of penalties on the basis of the 'operant conditioning theory'. According to both theories, penalties can influence human behaviour and 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 applicable norms and rules 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. In the Netherlands, Berkhout (2002) emphasises the normative character of traffic law enforcement. He states that the police, besides performing traffic checks, must also focus closely on increasing public support for rules and correct behaviour.

Penalties in the chain of enforcement

Punishing traffic violations is part of the chain of traffic law enforcement (*Figure 1*). We call it a 'chain' because all the links are connected to each other and are interdependent. The first link, 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 related 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. In other words, road users adapt their behaviour without having already been punished. In particular, frequently conducted and very visible traffic checks, which are unpredictable in terms of time and place and are combined with public information campaigns, bring about the general prevention of traffic violations. In addition, in interaction with the subjective probability of detection, the speed, certainty and severity of the imposed penalty also determine the general preventative effect. 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.

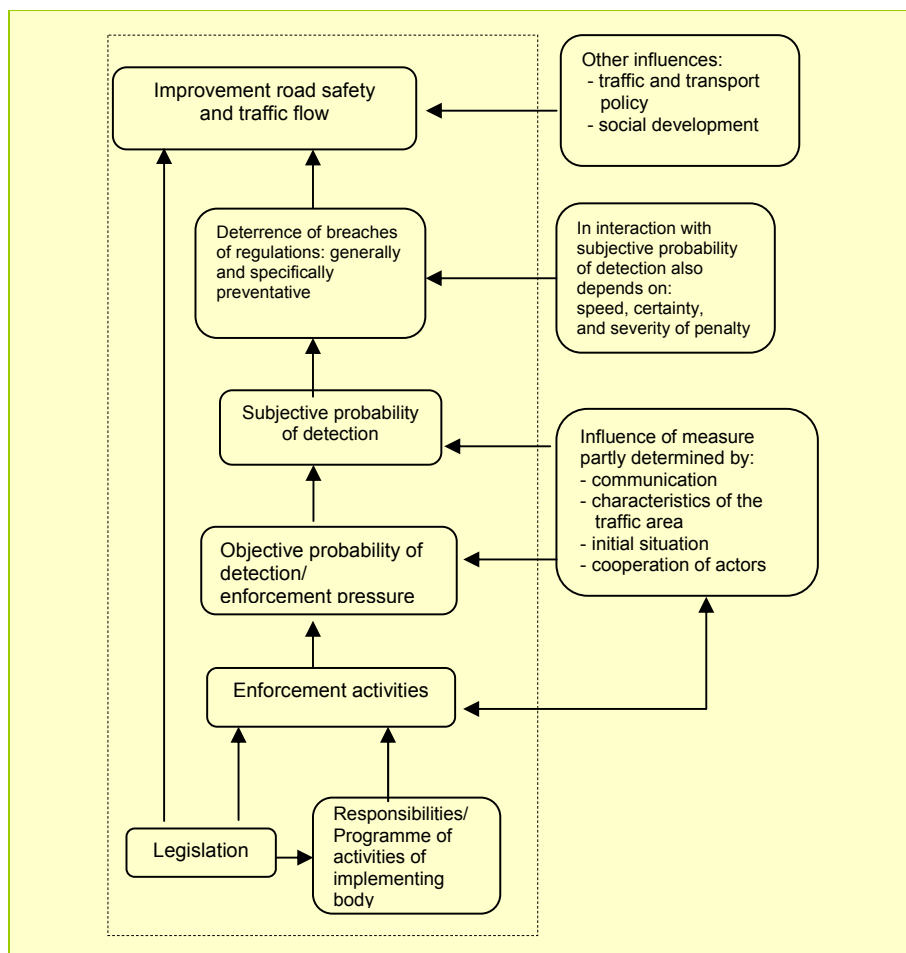


Figure 1. *Diagram of the mechanism of police enforcement (inside dotted line), and the influence of external factors (outside dotted line). Adapted by Goldenbeld (2005).*

Can the threat of a penalty prevent violations (general prevention)?

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, failure to use 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 we discuss the effectiveness of increasing the punishment.

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. Researchers found that the regular enforcement pressure must be increased at least by a factor of two, three or even four 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. However, for the first doubling it involves a quarter of a much larger group (and therefore has a much greater effect on road safety) than for the second doubling. Ultimately, for every subsequent round of intensification an ever larger enforcement effort is necessary, while the expected behavioural and safety effects become ever smaller.

Can penalties discourage repeat offenders (specific prevention)?

Effectiveness of regular penalties

Goldenbeld & Van Schagen (2008) refer to various research studies abroad that generally demonstrate the relatively minor, short-term effects on repeat offenders of regular penalties such as fines or prison sentences. Here it must be remembered, 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, on average there was 35% less likelihood of the motorist in question being involved in a fatal accident than before the penalty was imposed. This effect was already considerably less 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 studies the rate of accidents and not the rate of 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 violation. These types of findings argue in favour of working out new, alternative penalties that have a greater effect on recidivism (see also under [Customized penalties](#)).

The limited behavioural effects of regular punishments lead one to suspect that there is a significant level of recidivism in the area of traffic violations. The Dutch WODC Recidivism Monitor shows that this is indeed the case. This 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. There is no precise information about such a group in the Netherlands, but it is in all probability a small group.

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, besides the regular fine an offender is also allotted a number of demerit points, and having reached a specific number of demerit points the perpetrator'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 under 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 the SWOV fact sheet [Demerit points systems](#).

The Netherlands has used a demerit points driving licence for novice drivers since 2002. In this system, the demerit points are linked specifically to the holder of the licence, which in practice means that points can only be allotted when drivers are stopped by the police. The effect of this system has not yet been systematically researched.

Does the severity of the penalty affect behaviour?

The social and political debate often focuses on the severity of the penalties. Here the role of the severity in determining the effectiveness of the penalty is discussed, where it should be noted that highlighting one aspect does not do justice to the complexity of the real situation. After all, according to

the (instrumental) theory, the speed, certainty and severity of the penalty *in mutual interaction* determine the effectiveness of the penalty.

For general prevention, penalties must in any case never be too mild – otherwise, there would be no incentive for road users to avoid them. In addition, from the perspective of punishment and security in society it is understandable that penalties become stricter for more serious violations. A comparison made in 2005 between twelve European countries revealed that traffic fines in the Netherlands are slightly under the average European level (Van den Houten & Rademaker, 2005).

Most studies show that when penalties are already quite severe, making the penalty stricter (more severe) has very little or no influence on the effect. 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 accidents (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 reduction 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. It did not find evidence either that the duration of the driving licence suspension had 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 relatively heavy 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 Significant, 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 Van 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 in drink-drivers, while an alternative penalty, a form of temporary electronic house arrest, does have a positive effect on recidivism (Nochajski & Stasiewicz, 2006). Customized Penalties that result in less recidivism must therefore be custom-designed. *Customized penalties* can be regarded as penalties that in terms of their approach, substance and method are focused as closely as possible on the characteristics and capabilities of the target group and are aimed at a long-term change in behaviour. The principle of *customized penalties* stimulates people to reflect on not only the severity of the penalty, but also on other elements of the penalty that can be important in bringing about a change in behaviour. 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. In addition, fast developing vehicle technologies can be part of a penalty (programme). For example, for structural speed offenders this might involve building ISA into their cars – to be financed by offenders themselves (see also the SWOV fact sheet [Intelligent Speed Assistance \(ISA\)](#)); for drink-driving repeat offenders an alcohol lock with an accompanying rehabilitation programme (see the SWOV fact sheet [Alcolock](#)); and for offenders with a structural behavioural problem to supervision by means of electronic devices in the vehicle.

There is currently insufficient research available to unambiguously determine which penalty for which violation has the best effect on whom – that is, which penalty contributes most to a change in behaviour. The exact structure of the principle of *custom-designed penalties* must therefore be studied in more depth.

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 seriousness 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 heavier, as an isolated measure, has been 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, is something that requires further research. To an increasing extent, technological applications may play a role in this. In the short term, an alcolock programme is expected to be introduced in the Netherlands to punish and change the behaviour of serious repeat drink-driving offenders. In due course, a limiting ISA will be used for serious speed offenders.

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