



Munich Personal RePEc Archive

The effects of the enforcement strategy.

Suurmond, Guido

Department of Economics, Leiden University

2007

Online at <https://mpra.ub.uni-muenchen.de/21142/>
MPRA Paper No. 21142, posted 07 Mar 2010 02:56 UTC

Compliance to fire safety regulation. The effects of the enforcement strategy.*

Guido Suurmond

Leiden University

Faculty of Law

Department of Economics

P.O. Box 9520, 2300 RA Leiden

Phone: ++31 71 527 7855 (7825)

E-mail: [G. Suurmond@law.leidenuniv.nl](mailto:G.Suurmond@law.leidenuniv.nl)

Abstract

The conventional economic literature on law enforcement provides no satisfactory explanation for the enforcement policies in the field of environmental regulation, safety regulation and health regulation. In these fields enforcement usually applies administrative law sanctions and is characterized primarily by advice, persuasion and warnings. This is illustrated for the enforcement of fire safety regulation in bars and restaurants by Dutch municipalities. I demonstrate that economic analyses are well able to explain the benefits and need of an enforcement policy of advice, persuasion and warnings. However, it is also true that in the specific field analyzed a more deterrent policy by more severe punishment will most likely improve compliance. As such, the general economic argument of the benefits of deterrence should not be abandoned.

Keywords: (non)compliance, Harrington paradox, compliance strategies, administrative law enforcement

* This is a revised version of the paper presented at the European Association of Law and Economics (EALE) 24th Annual Conference at Copenhagen, 13-15 September, 2007. I would like to thank the participants, especially Reimund Schwarze, for their comments. I also appreciate the comments of Ben van Velthoven on an earlier version of this paper.

1. Introduction

The standard economic model of law enforcement stresses the importance of punishing individuals and firms in order to deter them from committing a violation.¹ It assumes that a potential violator behaves rationally, so that he decides to comply with a regulatory standard if the expected penalty exceeds the costs of compliance. This model seems at odds with actual enforcement policies, especially in the field of environmental, safety and health regulation.

Consider for example the enforcement of fire safety regulation in bars and restaurants in the Netherlands. These types of establishments should take measures in order to prevent and/or limit the damage from fires to customers. These safety rules are enforced by municipalities and the local Fire Brigades. A municipality inspects a bar or restaurant once or twice per year. These inspections are announced, or even an appointment is made, and performed during the day or at least not late at night when the establishment is in full use. If the enforcement officials detect a violation, they do not impose a sanction but provide a report with the failures and announce a re-inspection. If the proprietor continues to violate despite several re-inspections, he receives an official sanction. This sanction is not a fine, but a formal warning implying that the proprietor has to restore compliance otherwise he has to pay a penal sum or his license is (temporarily) withdrawn. However, in practice these sanctions are never used.

Such enforcement policies are quite common. In Continental countries like the Netherlands the regulations addressed at firms are primarily enforced by so-called 'administrative enforcement'.² The question is whether the economic model is applicable to these enforcement policies. There are two lines of research that deal with this issue. First, economists have tried to explain what has been labeled the 'Harrington Paradox'³: (i) the frequency of inspections is low; (ii) even if a violation is detected, sanctions are hardly imposed; (iii) yet, the level of compliance seems to be pretty high. This combination of observations has inspired a lot of mostly theoretical research that tries to explain the combination of a seemingly lax enforcement treatment with surprisingly high compliance levels.⁴ By now, an important question is whether the Harrington paradox exists at all (Nyborg and Telle, 2006).

Another line of research that is mostly developed outside of economics focuses on the enforcement style. It argues that a policy of advise, persuasion and warnings is able to achieve higher levels of compliance than strict punishment. The enforcement style is labeled a compliance strategy as opposed to a deterrence strategy of which economists are thought to be the main defenders.⁵ Under a compliance strategy the enforcement official acts not as a 'policeman', but as a 'consultant', or a 'relief worker'. Enforcement proceeds according to an enforcement pyramid, in which fines and other criminal sanctions are only imposed if the individual or firm keeps on violating. A deterrence strategy ignores that most people are

¹ The 'conventional' economic literature on law enforcement is summarized in Polinsky and Shavell (2000) or Shavell (2004, Part IV).

² Because enforcement is by administrative bodies like municipalities. The term should not be confused with administrative law and economics, which deals with the position of the government (the administration) relative to that of courts, the optimal level of discretion etc.

³ For example Heyes (2000), after Harrington (1988, p. 29).

⁴ See Heyes (2000) and Nyborg and Telle (2006) for an overview.

⁵ The enforcement pyramid was introduced by Ayres and Braithwaite (1992). Another important reference is Hawkins and Thomas (1984), especially the chapter by Kagan and Scholz. Compliance strategies are further introduced and discussed by Hawkins (1984), Bardach and Kagan (1982) and Hutter (1997).

There is no major economic textbook (part) that tries to explain the enforcement style. Examples of a few economic articles on compliance strategies are Veljanovski (1984), Fenn and Veljanovski (1988), Garvie and Keeler (1994) and Ogus and Abott (2002).

willing to comply, that people may be incompetent to comply and that most people better comply under a cooperative attitude that acknowledges the individual circumstances.

In this paper I will analyze that a compliance strategy can be favorable from an economic perspective too. I will examine whether the economic model is applicable to the field of administrative enforcement, where enforcement is primarily characterized by advice, persuasion and warnings. Therefore I will analyze the example of the enforcement of fire safety regulation. Based on this example I show that the economic literature is not only academic, but is useful in examining actual enforcement problems, while on the other hand studying the enforcement policies in practice helps to improve our understanding of (administrative) enforcement, its sanctions and the corresponding enforcement style.

This paper is organized as follows. First, I will describe in more detail the enforcement of fire safety in the Netherlands and examine its prima-facie contradictions with the standard economic model. In section 3 I more thoroughly analyze the enforcement style. Based on this field study, I reflect on the general discussion between deterrence and compliance strategies in section 4. I summarize the reasons and conditions for deterrence or compliance strategies from an economic perspective. Section 5 concludes.

2. A description of the enforcement of fire safety in Dutch bars and restaurants

Whoever is interested in the effects of administrative law enforcement, would like to have recourse to a sound database of compliance levels, compliance costs and expected penalties. Unfortunately such information is not available in the Netherlands.⁶ In recent years we have learned a lot about the output of enforcement agencies: how many schools have been visited, how many sanctions have been imposed, how many licenses have been withdrawn etc. However, these do not guarantee that inspection and enforcement is effective, let alone efficient. The agencies hardly provide any information about the (social) consequences of their actions, the outcome of enforcement. How does the output affect the level of compliance, and – even more – how does compliance affect the compliance costs and the expected damage?

Because there are no data available on these relationships, I conducted a qualitative research of a specific problem at the local level. I studied the enforcement of the fire safety regulation in bars and restaurants in the Netherlands. I visited 13 municipalities and interviewed their enforcement officials in order to examine how they enforce this regulation and what are the effects of their policy. Let me shortly describe this field.⁷

Bars and restaurants

The decision to study bars and restaurants is because this is a relatively homogeneous group of establishments, aimed at serving food or drinks that are consumed at the place itself. Not included are hotels that have to fulfill stronger requirements because of the opportunity of passing the night when people are more vulnerable to fire. Also snack bars and small take

⁶ Leeuw and Willemsen (2006) demonstrate this for national enforcement agencies in The Netherlands. It is confirmed by Algemene Rekenkamer [Netherlands Court of Audit] (2005). Given the scarce (empirical) literature on administrative law enforcement this is likely to be a general pattern for at least Continental countries. Empirical research to the effects of regulatory enforcement is usually about the use of fines (most often in the US or UK). Notable exceptions are Telle (2004) and Eckert (2004).

⁷ A more extensive description will appear in my thesis (planned for publication in 2008). Moreover it is relevant to interview the proprietors too. However, it is difficult to approach them. They are not very willing to cooperate and if they do, they seem to give too much desirable answers.

away restaurants are excluded that do not have to take precautions to help people escape in case of fire, because there are only a few people present. Moreover, usually the proprietor of a bar or restaurant just exploits one establishment, so that these firms are characterized by a rather simple organization with few hierarchy levels. The proprietor himself runs the establishment, directs his personnel, and receives the profits of the business. There are a few larger chains, notably in fastfoodrestaurants (e.g. McDonald's) where there might be conflicts between organizational and managerial goals.

The regulatory setting

Of course, a fire results in financial damage to the establishment. Therefore the proprietor has an incentive to prevent fires. The regulation is primarily aimed at preventing and/or limiting the damage from fires to customers.⁸ Bars, restaurants and similar establishments should take measures like (1) keeping escape routes and emergency exits free from obstacles (like beer crates or tables), (2) decorating the establishment only with impregnated decorations, (3) guaranteeing that the escape-route indications always burn during use and yearly checking the escape-route indication and the emergency lighting, (4) annual certification of the fire extinguishers, (5) being careful with candle lights, ash-trays etc., and (6) not allowing entrance to more visitors than the maximum stipulated in the license. Municipalities and the local Fire Brigades enforce these types of regulations. They inspect the establishment regularly, both periodically and during events or feasts. Furthermore, they can decide to inspect when they receive a complaint or report about an establishment.

Sanctioning is primarily by what is called 'administrative enforcement'. Under administrative enforcement the College of Mayor and Aldermen can charge the proprietor to restore compliance otherwise he has to pay a penal sum or the municipality restores compliance at his expense (administrative coercion). If these do not work, the municipality can withdraw the proprietor's license, which in fact means that he has to close his business. Offences can also be enforced through criminal law by the Public Prosecutor, especially when the offences create clear and immediate danger. The maximum sanction is a fine of 4500 euros or four months imprisonment. Usually fines of about 250 euros are more realistic.

Actual enforcement policies

In practice, municipalities inspect most bars and restaurants once a year. Bars and some restaurants in the centre of the city often face an additional inspection during events or feast periods. These inspections are announced, or even an appointment is made, and performed during the day or at least not late at night when the establishment is in full use. If the enforcement officials detect a violation, they provide a letter in which the failures are reported and instruct the proprietor to restore compliance before some deadline (usually 6 to 8 weeks). In addition, they announce a re-inspection after this deadline. When at re-inspection compliance is not restored, they either choose another re-inspection or give the proprietor a formal warning. With this warning they threaten to impose a penal sum or a (temporary) withdrawal of the license. However, these sanctions are never really executed. The cooperative proprietors restore compliance after one or sometimes two inspections. The unwilling proprietors, estimated at 10 to 20 percent of the total number of proprietors, restore compliance at the latest after a formal warning. Fines or other punitive sanctions are not used.

⁸ VNG (2002).

Municipalities themselves are not allowed to use them. Police departments as well as Public Prosecutors do not make time for the enforcement of these regulations.

Is there a Harrington paradox?

On first view, the description above confirms the existence of the Harrington paradox: despite small expected sanctions, at least no immediate punishment, enforcement officials are in general satisfied about the level of compliance. However, there is a difference between serious and minor violations. For violations that create immediate and serious danger to customers the expected sanction is in fact rather high. Serious non-compliance will generally not remain unnoticed for a very long time. Although visitors are not afraid of insufficient precautions in general, they will be concerned about serious threats to life and body, at least someone will. Other municipal departments that inspect on for example hygiene, serving liquor, public order etc., are not able to notice small violations, but will notice and report severe violations or a broad non-compliance record on all regulations. Finally, a proprietor that has committed serious violations will be inspected more often and at least more thoroughly and more strictly.

For serious violations criminal prosecution is possible. Moreover, the municipality is able to close the establishment until the violation has ended. The use of these sanctions is credible. If the fire safety department can show that there is real danger, the municipality does not want to risk to ignore its responsibility and to be blamed for inertia if something happens. The threat of these sanctions seems sufficiently high relative to the costs of compliance, so that almost all proprietors comply. As a consequence the real imposition of these sanctions is hardly observed. Only one of the thirteen visited municipalities reports one such a situation over the past years.

For minor violations the story is different. These are not threatened with criminal prosecution or immediate closure, but with a warning to restore compliance. If the proprietor adequately responds to this warning, no further action will be taken. If the proprietor ignores the warning, the threat of sanctions becomes increasingly more strict. In the end, the threat of a legal procedure and of formal repair sanctions is sufficient to enforce compliance, even for the uncooperative proprietors. The financial consequences of these sanctions can rise quite high. Also the time and circus around (re-)inspections is expensive for proprietors. In fact, the policy is a variant of the state-dependent enforcement policy that was proposed by Harrington (1988) and others.⁹ In first instance violators are not punished, but moved to a target group in which they are more closely monitored by re-inspections, until they comply. As a consequence, minor violations are very often detected. The enforcement officials report that there is always something wrong. Inspections in which the report contains no failures at all are less than 10 percent. In more than 50 percent of the cases, the enforcement officials announce re-inspection. Apparently in these cases there are enough violations to warrant a re-inspection.

So, the level of compliance is not unexpectedly high relative to the expected sanction. Enforcement officials do find many minor violations, because proprietors are not punished, but only warned that in the future sanctions might follow. The only important point is that they should not willingly and deliberately create a fire dangerous situation. Proprietors are deterred from these violations by sufficiently high sanction. This pattern fits the description of Nyborg and Telle (2006) for compliance with environmental regulation in Norway. They conclude that

⁹ E.g. Harford and Harrington (1991), Heyes and Rickman (1999), Friesen (2003).

“[T]he claims that firms comply with environmental regulations to a surprisingly high degree must be regarded as a yet unconfirmed myth, rather than as an established fact” (p.14).

3. The optimal enforcement style for enforcing fire safety in bars and restaurants

Such a policy of increasingly strict enforcement can be an efficient strategy to deter offences, given the limited enforcement resources and available sanctions. But the enforcement policies and officials do not seem to be concerned with deterrence at all, but inspect to explain and convince of the importance of fire safety. The main puzzle to the economic model is not that the level of compliance does not correspond to the expected sanction, but why enforcement officials choose an enforcement policy that is different from the economic model of strict enforcement of offences. Enforcement officials defend the policy by arguing that advice, persuasion and warnings are more effective than direct punishment. They start with a cooperative attitude, with no intention to immediately prosecute an offence. In their own words they argue that they apply a compliance strategy instead of a deterrence strategy. They make the following claims that will be discussed subsequently:

1. Most proprietors are insufficiently aware of the regulation, of compliance methods and of (the importance of) fire safety. Inspection is needed to explain to the proprietor his failures and the danger of non-compliance. Enforcement is characterized by advice.
2. Proprietors can not always help that they are in non-compliance. Inspection is aimed at restoring compliance and thereby fire safety.
3. Most proprietors are willing to comply. Therefore there should be no witch-hunt on non-compliance. Inspection is needed to persuade the proprietor that compliance is socially and morally desirable.
4. The problem with imposing sanctions is that many and strict legal requirements have to be satisfied, which costs a lot of time and effort. Inspectors achieve more and sooner compliance by explanation and cooperation.
5. As long as the proprietor shows to be cooperative, the enforcement officials are cooperative too. But if the proprietor shows that he has no intention to comply, they start a strict, deterrent enforcement strategy. Some say that they do not prosecute every offence. The primary question is: is it fire proof in this establishment? Others disagree and regard the legal requirements as the minimum that has to be satisfied.
6. Fire safety is the own responsibility of the proprietor. Inspection is only a random indication to stimulate proprietors to take this responsibility.

3.1 Information and advice – non-compliance by ignorance

The enforcement officials argue that inspection is needed in order to explain to the proprietor the requirements and the importance of fire safety, and to tell which shortcomings they observe and how he can cope with these shortcomings. Most proprietors are insufficiently aware of the fire safety regulation. Therefore a relaxed, cooperative enforcement style, which takes time to explain relevant matters to the proprietor, is more effective than immediately punishing violations. Therefore inspectors make appointments and take plenty of time for their inspections.

The theoretical defense

If a proprietor is insufficiently informed about the relevant costs and benefits, he is not able to adequately choose the level of compliance. Firms face two types of uncertainty (Veljanovski, 1984). First, there is uncertainty concerning the law. Given the number of (detailed) standards, firms will often have an incomplete perception of law and their obligations and of the (expected) sanctions. Secondly, there is uncertainty concerning the least-cost method of compliance. Small firms in particular do not necessarily possess the expertise on the best compliance techniques.¹⁰

In general, imposing adequate sanctions for non-compliance provides adequate incentives to obtain efficient levels of information.¹¹ However, under some circumstances this incentive is inefficient. First, there might be economies of scale in information gathering, if information is quite expert, technically complicated information, as applies to fire safety regulation. It is not a natural by-product of exploiting a bar or restaurant. If the proprietor underestimates the probability of a fire, he will undercomply if he is sanctioned for the occurrence of a fire. If the proprietor does not know which standards apply, because they are too numerous or too vaguely formulated, he will choose either excessive or too little precautions. For example, the fire safety regulation contains requirements about the maximum number of seconds before emergency lighting should burn in case of a power failure. Proprietors can not be expected to know the regulation in such detail.

Secondly and in addition, it may be inefficient if every proprietor incurs the costs of fully acquainting itself with the law and the least-cost method of compliance. If the costs of public inspections are small relative to those of self-audits by firms, social costs will be lower when local firefighters, who naturally possess this information as part of their job, visit bars and restaurants and share their information with the proprietors (Veljanovski, 1984; Friesen, 2006).

Evaluating the argument

That proprietors do not naturally possess information about expected fire damage, is not a sufficient argument in favor of a lax enforcement treatment. The problem of insufficient information might be solved by enforcing in an 'earlier' stage (Shavell, 1993). If proprietors are not able to predict the expected damage (and thereby sanctions), the solution can be to choose act-based enforcement on the level of precautions to prevent damage. This is precisely what is observed in the field of fire safety in bars and restaurants. Act-based enforcement only requires that the proprietor is aware of the act-based standards and of the sanctions that might follow.

It is argued that proprietors can not be expected to know the act-based regulation in detail. Actually, the rules are not that difficult. The detailed rules about seconds and minutes are captured in other rules that are quite easy to remember. For example, yearly replacing the lamps in the escape-route indication, yearly checking the emergency lighting and yearly re-certification of the fire extinguishers, guarantees that the proprietor satisfies the detailed requirements on minutes and seconds. Even I am able to summarize the regulations in a paper for (I assume) absolutely laymen in this field. The major rules summarized in section 2 are not difficult to remember and it is clear how proprietors can comply with them. In fact,

¹⁰ See also Shavell (2004, pp.562-564) who discusses the problems of ignorance and mistake.

¹¹ Shavell (1992a and 2004) and Friesen (2006).

most fire departments have a brochure that quite simply summarizes the fire safety rules. There is no reason why public inspection is needed on top of this type of general information campaigns. Moreover, it is not clear why advice should be a continued objective of inspections. There is no fast technological or institutional change so that information is outdated within a year. Enforcement might contain two stages. In the first stage, for example during the granting of the fire safety license, the proprietor is informed about the relevant regulation. After that, a deterrence strategy can be used in which offences are adequately sanctioned.

The argument in favor of advice is usually sustained by referring to the fact that inspectors do find many violations during inspections. Many inspectors have the impression that the proprietors do not know or simply do not observe their violations, like placing a table in front of an emergency exit. However, I judge that this type of behavior is primarily the result of a relaxed enforcement treatment. Proprietors have no incentive to inform themselves about their compliance status. When a strict punishment policy would be adopted, the blocking of emergency exits would soon be over. Proprietors would certainly be aware of it.

3.2 Remediation – non-compliance by accident

Another claim is that proprietors can not always help that they are in non-compliance. Failure to be in compliance is not always a fault of the proprietor. Non-compliance is the result of defects of technical devices, like the sudden break down of a lamp of the escape-route indication. It is argued to be ineffective, unfair or disproportionate to immediately punish such violations (an exaggerated 'witch hunt'). Inspections are aimed at restoring compliance and thereby fire safety.

The theoretical defense

For social regulation of firms (non)compliance is generally 'a continuing state of affairs' (Veljanovski, 1984). The enforcement authority should try to reduce the time spent in violation (Nadeau, 1997). This return to compliance is labeled remediation. For fire safety regulation remediation especially implies repair of technical devices that have broken down.¹²

As explained by Livernois and McKenna (1999)¹³, if offences occur accidentally, the optimal enforcement policy may be to provide the proprietor a warning. First he is allowed to restore compliance. Only if he fails to be in compliance before some next period, he is sanctioned. This occurs when an inspector who detects a violation, issues the proprietor to repair the installation and be in compliance in a period of 6 to 8 weeks.¹⁴

Evaluating the argument

However, upon further examination offences are not 'accidental'. The probability of technical failures is to a large part under control of the proprietor. The standards are precisely aimed at inducing the proprietor to take sufficient care so that technical failures in the equipment are reduced to a minimum. For example, yearly replacing the lamps in the escape-

¹² The argument can also be applied to cleaning-up damage from non-compliance. Here, clean-up is less relevant and not explicitly discussed.

¹³ See also Malik (1993) and Friesen (2006).

¹⁴ The only difference is that Livernois and McKenna (1999) assume that firms self-report their violations, while in the case here the warning is only given if the inspector detects the violation.

route indications should prevent that they suddenly break down. Moreover, the enforcement officials are able to sanction the fact that the proprietor fails to immediately replace malfunctioning escape-route indications (Innes, 1999). The level of repair is quite well observable by the fire safety departments, even more since proprietors have to register the repairing they have done to installations. The policy of Livernois and McKenna (1999) is only efficient if the target compliance level is less than full compliance. Here it is desirable that a device is immediately repaired. The current policy only allows the proprietors to delay compliance. A deterrence strategy that imposes sanctions dependent on the level of repair, will deter the underinvestment in preventing technical failures.

3.3 Persuasion – voluntary compliance

The enforcement officials argue that most proprietors are willing to comply. Persuading the proprietors to comply, is more effective than punishing every violation. The latter will break down their cooperation. Enforcement is much easier if it builds on this willingness to comply. Therefore enforcement is not aimed at punishing non-compliance, but at stimulating voluntary compliance. Enforcement officials try to persuade the proprietor that compliance is socially and morally desirable. Proprietors are taught how they behave as good and responsible citizens. Again this requires that enforcement officials take much time for inspection and do make an appointment.

The theoretical defense

Proprietors not only consider the direct costs of compliance (in time, effort and money) and the expected formal sanction by the government, but also other, indirect compliance-related benefits and costs.¹⁵ First, a proprietor may choose to comply because of informal sanctions, i.e. because he fears that others, like customers, neighbors or colleagues, will disapprove his non-complying behavior. Secondly, there may be an intrinsic motivation (or willingness) to comply, because the proprietor feels uncomfortable by violating the norm. A proprietor that subscribes a norm, feels regret and guilt when he violates it. Or a proprietor may feel the intrinsic motivation not to hurt his customers. These indirect costs may depend on the decision of other proprietors. The culture in the catering industry determines how violation and compliance are perceived.

The existence of intrinsic motivation to comply justifies both a more deterrent and a more compliant enforcement strategy. If enforcement is weak or becomes weak, proprietors might lose their belief in the norm and no longer subscribe to it, especially if they observe that others can violate the norm unhindered. Enforcement has to be strict enough so that proprietors keep on believing that the norm is actually important and should not be violated.¹⁶

On the other hand, strict enforcement can also be counterproductive. Immediate punishment of every even minor violation might induce proprietors to believe that they only have to comply because of the sanction for violation. Sanctions might crowd out the intrinsic motivation to comply and/or the sanction may be regarded as a price the proprietor can pay to

¹⁵ A review of norms and possible sanctions can be found in Posner and Rasmusen (1999).

¹⁶ See WRR (2003).

buy non-compliance.¹⁷ Therefore it might be better to forgo a strict enforcement policy of immediate punishment and instead choose a policy of warnings, negotiation and cooperation.

Evaluating the argument

The influence of informal sanctions in fire safety is very limited. Disapproval of proprietors' behavior by customers, neighbors or colleagues is practically absent, unless it actually results in a (great) disaster. Customers lack the information to make their consumption dependent on the level of compliance. Only the reputation with the municipality is somewhat important because the municipality is less ready to help a non-compliant proprietor if he needs a favor.

It is likely that the intrinsic motivation to comply is of more relevance, although this is more a claim of enforcement officials and general common sense, than an evidence-based fact. Anyhow, it does not provide sufficiently indications of how the enforcement policy should look like. As discussed above, intrinsic motivation to comply requires a balance of a compliance and a deterrence strategy. It seems that in the current situation where violations are treated mildly, the enforcement policy signals that violation does do relatively little harm. This stimulates a culture in which non-compliance is not regarded as a problem. The lack of large norm subscription and thereby feelings of guilt and regret questions whether proprietors really have an intrinsic motivation to comply. To earlier induce compliance, the balance should be shifted towards a more deterrent strategy. This will teach the proprietors that the regulation should really be taken seriously. Of course, the enforcement policy should reckon with the possibility of crowding out of motivation. This could be solved by first providing a proprietor a warning, but by strictly enforcing the regulation after this warning. Moreover, if sanctions can be made high enough, the problem of crowding out of intrinsic motivation is of no interest (Lin and Yang, 2006). If the expected formal sanction does exceed the direct costs of compliance, the proprietor will always comply irrespective of its moral concerns.

Irrespective of the precise enforcement style, it is unclear how inspection does and should create and shape norms. Does inspection directly create norms or does it create norms by increasing the proportion of complying proprietors? Should inspections be targeted on complying firms, because they have to be confirmed in their belief in the norms, or on non-complying firms, because punishment leads to guilt and regret? And what is the optimal number of inspections for norm formation? Why do moral intentions to comply not survive if public inspections are reduced? The case of fire safety in horeca establishments does not answer these questions. Nor does the literature provide any further consideration of these issues.

3.4 Informal enforcement – tolerated non-compliance

A claim that can be heard from almost all enforcement officials is that imposing sanctions is complicated. It costs a lot of time, effort and money. The legal requirements that have to be fulfilled are strict and high. An official achieves more and sooner compliance by cooperation. A deterrence strategy is ineffective because it carries the threat that the whole budget is spent on expensive legal procedures without improving fire safety. Therefore the enforcement

¹⁷ It is well-known that extrinsic rewards might crowd out intrinsic rewards. Recently the argument has been applied to penalties instead of rewards. See Gneezy and Rustichini (2000) and Lin and Yang (2006).

officials start with informal notifications. Only if it is really necessary because the proprietor remains unresponsive, the municipality will start an official enforcement procedure.

The theoretical defense

If a sanction is imposed, the proprietor can appeal the municipality's decision in an administrative court. The proprietor might contest a decision successfully by questioning the facts, the standard or the appropriate sanction (Khambu, 1989; Malik, 1990; Heyes, 1994). The higher the sanction, the more possibilities the firm will use to escape sanctions. Therefore an increase in the expected sanction or an increase in the standard, can have an adverse effect on the level of compliance. This effect is even stronger when legal procedures are costly for the enforcement authority, because the time spent on these procedures can not be spent on detecting violations. In response the enforcement authority might be better off by enforcing lowered, informal standards (Khambu, 1989) and/or by first issuing a warning (Nyborg and Telle, 2004; Fenn and Veljanovski, 1988).

Another problem is that because sanctioning is expensive, the threat of sanctions is incredible (Boadway et al., 1995; Baker and Miceli, 2005). Therefore, at the supreme moment, the municipality might be more interested in minimizing current enforcement costs than in deterring future non-compliance. If the threat of a sanction is not credible, proprietors know that they can get away with non-compliance. Of course, unwillingness to sanction might also be the result of a discrepancy between public interests and private interests of enforcement officials.

Evaluating the argument

That enforcement officials are quite afraid that their decisions do not withstand the court's review, is especially a problem of perception. Several studies have shown that there is no reason for municipalities to be afraid that judges reverse their decisions because of formal, procedural errors. In some cases the court even sustained the decision despite formal failures by the municipality.¹⁸ The fear for judicial review is unfounded as long as municipalities 'just' do their job. The fear seems to stem from a lack of judicial expertise in fire safety departments. Most officials indicate that they would appreciate a better back-up from legal departments or even an own lawyer employed.

Moreover, it is hard to think up what might be contested by the proprietors. In general the standards are quite clear. If municipalities have granted proprietors time to restore compliance, they are entitled to impose sanctions. The facts will also remain largely undisputed. The only violation that is difficult to establish is the number of visitors as it is difficult to count the number of present people in a crowded bar. But generally, challenging the sanction that is imposed is of no use.

That does not deny that imposing sanctions requires time and effort and that the threat of a sanction might therefore be incredible. For example, enforcing the number of visitors is problematic because it can lead to problems of public order when people are sent away from a bar on the streets. Municipalities are unwilling to impose sanctions if the costs are not in proportion to the offence, for example when just one escape-route indication does not burn. The College of Mayor and Alderman will often give priority to other, more severe, cases, like an environmental or building offence. The imposition of a sanction is often executed by a

¹⁸ See especially Committee Alders (2001, pp. 265-288) and Gundelach and Michiels (2003).

different department (the Legal or Building Department). If the fire safety department finally wants to impose a sanction, the file starts at the bottom of the stack of the other department and possibly never reaches the top. Moreover, there are some indications that sanctioning is not always in the private interest of the enforcement officials, like the sometimes poor cooperation between different municipal departments, the dislike of trouble with a proprietor or other municipal departments and the fact that many inspectors prefer to spend time on advice rather than on sending (legal) letters. Especially, most fire safety departments show to have more interest in granting licenses (for which fees are collected) than in enforcing these licenses.

If proprietors know that for any reason the enforcement officials may postpone or even refrain from the use of sanctions, they might choose to continue to non-comply as is largely observed. Yet this does not mean that a compliance strategy is desirable. On the contrary, social welfare will be improved if the enforcement officials are forced to pursue a deterrence strategy of strictly imposing sanctions on every violation.

3.5 Cooperative enforcement – flexible compliance

The enforcement officials say that enforcement has to be somewhat flexible, although there are different opinions on what this flexibility should look like. Some argue that the primary objective is not compliance, but fire safety. They do not investigate whether every single requirement is precisely obeyed, but ask (themselves and the proprietor): is it fireproof in this bar or restaurant? They negotiate about the necessary precautions to restore compliance, provided that the fire safety is guaranteed. Others argue that there should be no compromise on compliance with the regulation, as this is already a minimum. But there is flexibility in the possibilities to restore compliance. They do negotiate with the proprietor about the time before he restores compliance, and whether or not the proprietor will benefit from precautions beyond compliance.

The theoretical defense

If all potentially harmful actions are unambiguously stipulated in the law, the regulation can be enforced to the letter. A deterrence strategy with a sufficiently high expected sanction will implement full compliance. However, in general law is inherently incomplete (Pistor and Xu, 2003). Because open-ended norms are used, it is not unambiguously clear which actions will actually be punished. In response, law can try to be highly specific, but the lawmaker will be unable to capture all relevant actions.¹⁹ As a consequence, law is both under- and overinclusive (Veljanovski, 1984). This problem might be overcome by granting the enforcement officials sufficient discretion to specify the law for individual firms and particular situations, in licenses and/or during inspections (Pistor and Xu, 2003).

However, in general, enforcement officials have insufficient information to determine the first-best level of precautions. Usually there is two-sided uncertainty (Ricketts and Peacock, 1996). Enforcement officials have a better knowledge of the applicable standards than firms. But firms have a better knowledge about their production process, which governs the detailed

¹⁹ This is different from the uncertainty described before that proprietors might be ignorant about the law or perform mistakes in choosing precautions. Here the problem is that proprietors (might) know the standards, but that these standards are only partially applicable to their situation.

application of regulations and which determines the costs and possibilities to achieve compliance. In such a situation both the enforcement authority and the firm may benefit if they behave more cooperatively, in two ways.

Ricketts and Peacock (1996) argue that both benefit if they reveal their private information. If firms reveal their information, this allows the enforcement authority to enforce the socially optimal level of precautions. The firm benefits if it implements the required precautions, because compliance with this (adjusted) standard will relieve it from penalties. This allows the enforcement authority to bargain higher precautions, which is beneficial if the law is underinclusive.

Scholz (1991) argues that both benefit from being flexible. The enforcement officials overlook minor technical violations (due to overinclusion) in recognition of the firm's extralegal safety efforts to reduce greater hazards not directly addressed in the regulations (due to underinclusion). The firm that chooses flexible compliance, can tackle its worst health and safety hazards with the most efficient methods available rather than spending money to precisely comply with every standard. Hence, flexible compliance produces greater safety at fewer costs. In order to sustain flexibility the enforcement officials should choose a tit-for-tat strategy: maximal enforcement if a firm has established a record of minimal compliance, and flexible enforcement if the firm has a record of flexible compliance. Under this cooperative strategy enforcement is characterized by negotiations (Veljanovski, 1984). The enforcement officials will try to persuade the firm that compliance, sometimes extralegal compliance, is the cheapest action in order to achieve the highest safety gains. The firm will try to persuade the officials that compliance is infeasible or extremely costly in order to minimize compliance costs.

Evaluating the argument

That fire safety regulation is incomplete is self-evident. There are very different types of establishments. The regulation itself varies from very detailed requirements to very open-ended norms. Part of this problem is solved by the obligation of a license, in which special requirements can be included.

It is more difficult to determine whether – in general – the regulation is more under- or overinclusive. As said, there are two attitudes at the enforcement officials. Some say that the regulation is just a minimum to which everyone has to comply. For some proprietors it is necessary to impose even stricter rules. This fits to the description of the enforcement policy of Ricketts and Peacock (1996) where the municipality tries to achieve as high as possible levels of precaution. Other enforcement officials speak more in terms of the required level of fire safety. They argue that the basic question is whether it is fire proof in a bar or restaurant. They do not consider every minor violation important. This fits to the description of Scholz (1991) where the municipality tries to achieve the highest safety gains. The enforcement officials have sufficient discretion to determine the precautions proprietors have to take. But cooperation is necessary because the enforcement officials lack the information to determine and enforce the first-best levels of precautions. The officials say they are only moderately informed about costs of compliance, but have an informational advantage on the expected damage and the regulation.

For the proprietor there are three benefits from being cooperative and choosing compliance before the enforcement officials start official procedures. (1) Re-inspections require time and effort and being cooperative implies less re-inspections. (2) Being uncooperative implies that the fire safety department chooses strict terms for compliance,

while the fire safety department may allow the flexible proprietor to choose compliance at a point that better suits (for example that depends on terms by supplying companies). (3) Being uncooperative may imply that the municipality will also not be ready to help the proprietor if that is needed. However, what is not clear, is when proprietors choose a cooperative approach. Are they only behaving cooperatively after inspection or also absent inspection (throughout the year)? I suspect the former, because there are many violations found at first inspections, because proprietors are only generally informed about fire safety and have to be informed over and over again, and because being cooperative (uncooperative) is only rewarded (punished) after inspection.

So there are sufficient arguments why enforcement benefits from flexibility and cooperation. However, this does not imply that the current level of flexibility is optimal. First, cooperative enforcement implies that the inspectors are flexible for cooperative proprietors, but choose strict enforcement against uncooperative proprietors (“tit-for-tat”). Under the observed policy uncooperative proprietors are able to delay compliance to a large extent, because it takes a lot of time before official procedures are started. The inspectors should immediately adopt a strict enforcement policy if they detect that a proprietor is unwilling to cooperate. Secondly a cooperative enforcement strategy also includes the threat that enforcement officials abuse their discretionary powers to maximize their own interests and apply unjustified discrimination between proprietors. The obligation to strictly enforce violations might lead to a better, although not first-best, result. It is not obvious that the regulation is so incomplete that strict enforcement produces undesirable results.

3.6 Supplementary enforcement – compliance as own responsibility

A final comment of the enforcement officials is that compliance is first of all the responsibility of the proprietor himself. Inspection is only a random indication. Therefore, they argue, they can not be expected to enforce continued compliance at all times by arbitrarily punishing every violation. It is better to use inspection to persuade the proprietor that he has to guarantee compliance throughout the year.

The theoretical defense

In itself, an appeal to the own responsibility of the proprietor seems to be a weak argument. Such an appeal can be made by every enforcement official, for every kind of regulation. However, in a somewhat different context there might be a defense of stimulating the own responsibility of the proprietor. In many situations the importance of public enforcement is not to induce compliance on its own, but to supplement private enforcement. As discussed in section 3.1, public enforcement might be needed as a supplement if the proprietor is ignorant of the (ex-ante) precautions he can take to prevent damages (ex-post). There are three other relevant weaknesses of private enforcement.

First, public enforcement is needed to reduce the uncertainty about the levels of due care in private litigation claims (Kolstad et al., 1990).²⁰ If levels of due care are uncertain, proprietors will overcomply (in order to be sure that they escape liability) or – if uncertainty is large – undercomply (because making compliance costs will not lead to a sufficiently large reduction in paying compensation). Under such uncertainty public regulatory standards

²⁰ See also Shavell (1984).

imposed ex-ante might be helpful, at least when courts will follow the regulatory standard in a predictable way.

A second – related – problem is that proprietors are short-sighted and do not think of the long term due to severe competition or due to cognitive constraints (bounded rationality). Then a proprietor might underestimate the small probability of a fire and might be unaware of the full consequences of liability. Inspection might alert them to the issue of potential liability damages and therefore prevent them from taking inefficient precautions.

Finally, deterrence by private enforcement may be hindered by for example wealth constraints or litigation barriers for victims. Public enforcement might be needed in order to deter non-compliance by wealth constrained firms, so that these firms will at least take some precautions. Additional private enforcement induces those proprietors that have sufficient assets to take higher precautions (Schmitz 2000).

Evaluating the argument

Despite no one of the enforcement officials mentioned the supplemental function of public enforcement, it might be relevant. Consider the three arguments discussed.

It is quite well possible that proprietors are uncertain about the evaluation of their behavior by courts, and that they are not able to inform themselves about this evaluation against reasonable costs. The probability of a fire and especially of casualties is small. Most claims will be settled in relatively intransparent ways. Therefore it might be helpful to impose ex-ante regulatory standards that will determine negligence. But it is not immediately clear which enforcement style is most appropriate for these standards. Enforcing the regulatory standard might be characterized more by advice than by punishment. But probably (section 3.1) public standards can be better communicated by general information campaigns than by inspections. Moreover, communication about standards might only be credible if the municipality really and effectively enforces the standards (by a deterrence strategy). Otherwise the proprietor is able to argue in court that he believed that compliance with the standards was not that important, as the municipality was unwilling to allocate resources to it and really take action against violations.

The second problem discussed is that proprietors might be cognitively constrained so that they are unable to take optimal decisions. The interviews or other data do not investigate the rationality and available information of proprietors. Probably there is not much difference between proprietors and other human beings. In the period after the severe disaster in a bar in the municipality Volendam in 2001 (14 casualties and over 200 people severely injured), it is observed that most proprietors were aware of potential liability claims. When this remembrance vanishes, the awareness also disappears. However, the period after the Volendam disaster is precisely the period in which public inspection was most frequent. That pattern does not fit the argument that public enforcement is needed at times when proprietors are insufficiently aware of fire safety. Apparently public enforcement suffers from the same cognitive constraints.

The third reason for supplementary enforcement does seem relevant. Claiming damages is not an important problem, but wealth constraints are present, especially when several people are harmed at the same time. The level of assets largely varies between proprietors. Some own several bars and restaurants, while others only rent the establishment. However, it is more an argument in favor of a deterrence than a compliance strategy. In order to induce those firms with insufficient assets to choose (some) compliance, enforcement has to be strict,

not relaxed. Public enforcement is already guaranteeing a minimal level of compliance, which is not negotiable.

3.7 Conclusion

I analyzed different claims with respect to the optimal enforcement style in the field of fire safety regulation for bars and restaurants. These claims often imply that a deterrence strategy is ineffective. I discussed that under certain conditions a compliance strategy can indeed be effective. The theoretical (economic) literature identifies several of these conditions. However, for the example of enforcing fire safety in bars and restaurants it can be concluded that the arguments in favor of a compliance strategy are usually not valid. On the contrary, most arguments imply that in the current situation the balance should be shifted towards a more deterrent strategy.

4. The desirability of compliance and deterrence strategies

The arguments of the enforcement officials in favor of advice, persuasion and warnings, do not stand alone. The field of fire safety is a classic example of a field in which most scholars would defend the use of a compliance strategy. So if there are doubts about compliance strategies in this field, it surely urges caution in general about compliance strategies.

4.1 The debate between deterrence and compliance strategies

The academic (especially non-economic) literature distinguishes two enforcement styles: a deterrence or penalty strategy and a (negotiated) compliance strategy.²¹ Let me briefly summarize the distinction (see table 1). The central idea of a deterrence strategy is that tracing offenders and punishing their violations deters them from committing a violation. It assumes that the potential offender makes a conscious decision by comparing costs and benefits of (non)compliance. It is a punitive, repressive method that is aimed at achieving general deterrence by imposing fear of the consequences of violation. Becker (1968) and more generally the economic models and theories are judged to be the main defenders of this approach.

This strategy is often criticized. Individuals or firms do not make conscious decisions, but comply because of the moral intention to do so. Non-compliance is the result of either mistake or misinformation. A deterrence strategy stimulates people to think in terms of costs and benefits, reducing moral intentions and hence compliance. It is characterized by 'going by the book', a detached approach where every detected violation is sanctioned, without any reference to circumstances or motives for non-compliance and/or the objective of the rules. A deterrence strategy is also reactive, hence too late because the harm has already occurred. Imposing penalties is only a final possibility for restoring compliance in case negotiations break down. Enforcement is primarily negotiation, persuasion and advice instead of sanctioning.

²¹ See the references of note 5, which is of course an inexhaustive list.

Table 1 Deterrence versus compliance strategies

Deterrence:	Compliance:
Fear of consequences non-compliance	Moral approval and rejection
Cost-benefits, rational	Spontaneous compliance
Command-and-control	Alternative regulation
Punitive, sanctioning	Bargaining, persuading, advising, informing
Repressive, reactive	Pro-active
Criminal law, government action	Confidentiality, social cooperation
Generic prevention (deterrence)	Fight causes (repair)
Going by the book (to the letter of law, bureaucratic)	Motives and circumstances
Police-officer	Advisor, relief worker
Extrinsic incentives	Intrinsic incentives
Economists, Becker	Thomas and Hawkins, Braithwaite, Kagan and Scholz

It should be stressed that these strategies are stereotypes. Most scholars promote a combination of the two strategies. However, there is a clear distinction between the two different strategies and between those who favor them.

4.2 The real difference between deterrence and compliance strategies

Upon further examination this distinction is less clear than it is on first sight. It concerns several factors at the same time. Therefore the debate about deterrence and compliance strategies is often confusing and not helpful to deal with the problem at hand.

Usually a relationship is made between rationality and deterrence strategies. If a firm behaves rationally, a deterrence strategy is favorable, while if a firm is irrational a compliance strategy is most effective.²² Moreover, rational firms are assumed to be amoral. However, rationality does not exclude morality and is certainly not restricted to profit-maximization. I demonstrated that even from a rational choice approach compliance strategies do have their merits, while a deterrence strategy might be inappropriate for rational firms.

The distinction between compliance and deterrence strategies should also not concern the timing of enforcement: ex-ante versus ex-post, or proactive versus repressive. Ex-post enforcement is nothing more than enforcement after some damage has actually occurred (harm-based) while ex-ante is enforcement of standards that try to prevent damage (act-based).²³ There is no direct relationship with the distinction between deterrence and compliance strategies. For example, remedying damage with a compliance strategy is ex-post, while strictly enforcing automobilist speeding is ex-ante.

The distinction between a compliance and a deterrence strategy should be limited to a distinction between the enforcement styles. The style describes what an enforcement official will do when he detects a violation. A deterrence style is a style in which every violation is immediately punished and the enforcement official bases his decisions solely on his own information. A compliance style is a style in which the enforcement agency might forgo some violations (for some time) when this induces the firm to reveal important information necessary for enforcement.

²² E.g. Kagan and Scholz (1984).

²³ Shavell (1993).

4.3 The objective of enforcement

The enforcement style should not be confused with the objective of enforcement. From an economic perspective the social objective of enforcement is to minimize the total costs of enforcement, i.e. the expected harm for (potential) victims, the costs of compliance for potential offenders and the costs of enforcement. Enforcement should balance the benefits of deterrence (less harm but higher costs of compliance) against the costs of enforcement.

In regulatory enforcement of firms maximizing social welfare may include several intermediate (not mutually exclusive) enforcement objectives: (1) deterrence (signal that non-compliance does not pay), (2) remediation (restore compliance), (3) advice (inform about compliance), (4) education (create voluntary compliance), and (5) completion (supplement private enforcement). A different question is which enforcement style does achieve an objective the best. As the analysis of the enforcement of the fire safety regulation in bars and restaurants revealed, arguing that enforcement is not aimed at deterrence does not imply that a compliance strategy should be adopted. My assertion is that there is no relationship whatsoever between objectives and strategies. There is no necessary relationship between the objective of deterrence and a deterrence strategy, or between other objectives and a compliance strategy. Each of the objectives can be served by both a deterrence and a compliance strategy. Which one is optimal, depends on the specific conditions and can not be stated in general.

4.4 The objective of deterrence

Under deterrence (the focus of most economic literature) the objective is to induce compliance by making non-compliance unattractive. The threat of sanctions signals that non-compliance does not pay. If the objective is to deter offences, the primary enforcement style is a deterrence strategy in which offences are immediately punished. The deterrent effect of enforcement relies critically on the expectation by potential offenders that a detected offence will consistently be prosecuted (Fenn and Veljanovski, 1988). Not immediately imposing a sanction negatively affects deterrence. Under a compliance strategy the firm is able to delay compliance or to negotiate a smaller level of compliance.

The failures of deterrence

But a deterrence strategy fails to deter (i) if regulation is too incomplete, or (ii) if imposing sanctions is too costly, or (iii) if the enforcement authority and its officials have insufficient interest in pursuing deterrence.

Under a deterrence strategy, the enforcement authority strictly enforces the legal standard. If law is incomplete, a deterrence strategy that legalistically enforces the legal standard to the letter, does not induce the first-best level of precautions. Only if the enforcement authority is perfectly informed and has sufficient discretion, it is able to discriminate between firms and to induce the first-best level of precautions by strictly enforcing this level for each firm.

A deterrence strategy may also be in- or countereffective because imposing sanctions is costly. If there is serious underdeterrence a deterrence strategy leads to high costs, because every non-complying firm has to be sanctioned. Then it can be more beneficial to refrain from sanctioning. The costs of sanctions are not only the direct costs of prosecuting an offence and

executing a sanction, but also the costs and consequences of convicting innocent firms, of running risk, of contesting enforcement actions (section 3.4) or of crowding out the intrinsic motivation to comply (section 3.3). A deterrence strategy is also costly if punishing every detected violation reduces overall deterrence. Sometimes the enforcement authority has to balance the effects of an immediate penalty on the offence at hand and the importance of overall deterrence. This is the case if efficient enforcement is based on past compliance²⁴, so that it is lax for one group and severe for the other. If the harm from serious offences is sufficiently high, it is efficient to tolerate small offences in order to deter the more serious ones (marginal deterrence²⁵). And self-reported offences have to be punished less severe than non-reported offences. In these cases using a deterrence strategy against every violation might reduce the overall compliance rate.

Because of these costs of imposing sanctions a deterrence strategy may imply that the enforcement authority is spending many resources on imposing sanctions without actually enforcing the desired level of compliance. Note however that a compliance strategy is only favorable if the enforcement budget is insufficient for obtaining full compliance. If there is full compliance, there are no costs of imposing sanctions, including no adverse effects on deterrence. When the sanction can be made arbitrarily high, a minimal enforcement budget will be sufficient to enforce full compliance. If however the maximum penalty is binding, the probability of inspection should be made sufficiently large to induce full compliance. If the marginal enforcement costs are increasing (due to capacity constraints), social welfare is possibly maximized by enforcing some partial instead of full compliance rate (Lando and Shavell, 2004). Moreover the enforcement budget might be insufficient to enforce full compliance, because there is almost always competition for resources with other public programs or with private interests of the enforcement officials. If the combination of the sanction and the enforcement budget is such that full compliance can not be achieved, underdeterrence might be higher under a deterrence strategy than under a compliance strategy due to the costs of imposing sanctions.

The final reason why a deterrence strategy may fail, is that enforcement officials are insufficiently interested in pursuing deterrence and in consistently sanctioning every violation. This might be the result of credibility problems. If the enforcement authority has insufficient interest in deterring future offences, it might not be inclined to realize enforcement costs. Unwillingness to sanction may also stem from a misalignment between public interests and private interests of the enforcement officials. The officials might be more interested in their short term careers than in deterring future offences, or might not want to spend sufficient time on (actual) enforcement. But enforcement officials should not necessarily try to maximize social welfare. Dependent on the available information and provided that the enforcement budget is efficiently determined and/or provided that there is no threat of overcompliance, it may be efficient that the enforcement authority tries to reduce expected damage or maximize compliance.

Alternatives to a deterrence strategy

If a deterrence strategy fails to deter, different enforcement methods can be efficient. These are: (i) target enforcement, (ii) adjust the standards downwards, and (iii) cooperate by

²⁴ Harrington (1988), Polinsky and Shavell (1998), Livernois and McKenna (1999).

²⁵ Shavell (1992b), Mookherjee and Png (1994).

offering mutually beneficial deals to the firm. Especially (iii) contains a compliance style of enforcement.

Suppose that only some partial compliance level is achievable. Then it is optimal to target enforcement on some subgroup of the population. This will induce the target group to fully comply, while there is no sanctioning in the non-target group. Hence the enforcement authority avoids the costs of imposing sanctions. The best targeting scheme is one that depends on past compliance, for example by issuing warnings. Yet, the primary enforcement style is a deterrence strategy. The only point is that this strategy might forgo a part of the population or that the first enforcement action is a movement to the target group instead of a direct penalty.

If the legal standard can not be enforced, it is generally optimal if the enforcement authority adjusts the standard downwards and enforces some informal standard. Again the costs of imposing sanctions are avoided. A partial compliance rate is realized by inducing every firm to partially comply with the standard. This implies not a pure deterrence strategy because the enforcement authority should not legalistically enforce every breach of the standard but forgo minor violations. However, it is a deterrence strategy in enforcing the adjusted standard.

If due to incomplete law there is large two-sided uncertainty about the standards and about compliance methods, a cooperative, flexible enforcement style can be efficient. The enforcement authority can achieve higher levels of safety against lower enforcement costs by offering mutually beneficial deals to the firm. This implies that it requires the firm to reduce the most important safety problems in exchange of reducing sanctions for minor violations.

4.5 Optimal strategies for the other objectives

In a similar way we can analyze whether the objectives other than deterrence are most efficiently achieved by a compliance or a deterrence strategy.

Remediation

Remediation implies that enforcement is aimed at restoring compliance. For example repairing the technical device that causes non-compliance or cleaning-up the environmental harm that was created by some emission.

Only if offences occur purely accidentally and enforcement can not be made dependent on the level of remediation, immediate punishment of violations has no merit and a strategy of warnings is efficient. If however it is possible to sanction insufficient remediation, a deterrence strategy that imposes sanctions dependent on the level of remediation is efficient, as this will best induce the firm to choose remediation (given the general conditions for a deterrence strategy discussed above). Similarly if offences also occur deliberately, there is no need for lowering deterrence. It is hard to think up of any example in which offences are truly accidental and in which sanctions can not be made dependent on the level of remediation.

Advice

Advice implies that the objective of enforcement is to make sure that the firm is sufficiently informed about all benefits and costs of (non)compliance, the standards that apply and the least cost method of compliance.

If the firm is able to inform itself against reasonable efforts, advice is not needed. Imposing efficient deterrent sanctions provides firms the efficient incentive to inform themselves. If the firm is not able to do so (especially under technically complicated regulation), advice might be relevant. If all firms lack the same kind of information, general information campaigns will be sufficient to inform them. If law is (very) incomplete, so that an individual firm can not learn from others, it might be efficient if public inspection has advice as objective. This requires a more compliant strategy, in which inspection is characterized by speech, explanation and cooperation.

Education

Enforcement may also have as objective stimulating norms and values that enhance compliance. Public inspection may be needed to maintain, strengthen or even create norms and to realize the costs and benefits of norms.

If the costs of norm violation are only realized if an offence is detected – which is especially true for informal social sanctions – public inspection to detect offences might be necessary. The magnitude of sanctions may be relatively small, but it is generally necessary to punish violations (immediately).

If the costs of norm violation depend on the level of compliance in the relevant population, public enforcement by sufficient deterrence is needed to prevent that compliance and norm subscription break down. If norm formation occurs by observing that non-compliance is punished, a more deterrent enforcement style is appropriate. If norms are stimulated by being inspected if in compliance because this signals that compliance is important and valued, a more cooperative style, aimed at compliers, is appropriate.

Another problem is that public enforcement may destroy norms, because imposing sanctions crowds out the intrinsic motivation to comply. Then deterrence might fail and preventing the breakdown of norms requires a compliance strategy.

Completion

Another objective of public enforcement is to supplement private enforcement. There are several reasons for this supplementary function. First, public enforcement might be used to provide the proprietor information he needs in order to take efficient precautions. Especially, public enforcement is needed to reduce the uncertainty about the levels of due care in private litigation claims. Moreover, public enforcement is needed because proprietors are not (fully) aware of the existence and consequences of private enforcement because it suffers from cognitive limitations. Here, public enforcement has the objective of advice, as specified above. In addition, information about standards might only be credible if the public standard is actually enforced. So, in general, public enforcement should apply a deterrence strategy.

Finally, public enforcement might be used to create deterrence for those cases where private enforcement fails to deter efficiently. Deterrence by private enforcement may be hindered by for example wealth constraints or litigation barriers for victims. Here, public enforcement has the objective of deterrence. In general a strict enforcement policy is needed to induce the privately underdeterred firms to take precautions.

4.5 Conclusion on deterrence and compliance strategies

I argue that the major difference between a deterrence and a compliance strategy is between the enforcement style that describes the reaction to a detected violation. There is no general relationship between objectives of enforcement or firms' characteristics and the optimal enforcement style. Assumed that firms are rational, each possible enforcement objective might be achieved by both a deterrence and a compliance strategy. But in general the scope for compliance strategies seems to be small and restricted to some specific situations in which enforcement authorities have small powers and little information. In general, welfare will increase more by increasing these powers (provided that discretion can be controlled) than by using a compliance strategy.

The comments on the economic model are often relevant. As economists have acknowledged to a more or lesser degree, people are moral individuals who not only care about monetary costs and benefits and who are not perfectly informed. However, the critics are wrong, in as far as they argue that these are sufficient arguments for a compliance strategy. On the contrary, often a deterrence strategy is better able to cope with moral intentions to comply or with imperfect information. Most arguments in favor of a compliance are especially arguments why a deterrence strategy fails. However, the question should be whether a compliance strategy would really do better. The optimal enforcement policy should balance the failures of a deterrence and a compliance strategy.

The mistake of linking economics to deterrence strategies stems from a misunderstanding of what economics is about. Deterrence is not the objective of economic models of enforcement. From an economic perspective the social objective of enforcement is to balance the benefits of deterrence against the costs of enforcement. Deterrence, let alone maximal deterrence, is not the objective of optimal economic policy.

5. Conclusion

The major question of this paper is whether the economic model of law enforcement is applicable to the field of administrative enforcement where enforcement is primarily characterized by advice, persuasion and warnings instead of imposing fines and imprisonment. The analysis showed that the economic analysis provides many building stones for explaining these policies. However, the different stones are rather isolated and often apply to rather specific circumstances. As a consequence there is no coherent theory on the desirability of administrative enforcement policies²⁶, and especially not on its desirability and effects in practice. I studied the enforcement of the fire safety in bars and restaurants in the Netherlands. This is a classic example of a field in which administrative enforcement and a compliance strategy are defended. Yet it was concluded that most arguments in favor of advice, persuasion and warnings are inadequate. In the current situation social welfare would benefit from a shift towards a more deterrent enforcement strategy. Of course, this conclusion only applies to this specific field. But, as it is such a classic example, doubts on a compliance strategy in this field, urges caution in general about a compliance strategy.

If a compliance strategy is only efficient in rather specific circumstances, the question that remains is why the use of administrative enforcement is so widespread. Especially in the

²⁶ See the small attention for administrative law in general and administrative law enforcement in particular in the encyclopedic works in law and economics.

enforcement of regulatory crime by firms, compliance strategies are often observed, also when fines are available. In theory it can not be argued whether this is efficient or inefficient. This requires more field studies as the one discussed here. For that, it is important to invest in data collection. Given the current lack of suitable quantitative databases qualitative research is an indispensable tool for analyzing enforcement policies.

References

- Algemene Rekenkamer [Netherlands Court of Audit], 2005. *Handhaven en gedogen* [Enforcement and toleration]. The Hague: Sdu Uitgevers.
- Ayres, I., and J. Braithwaite, 1992. *Responsive regulation: transcending the deregulation debate*. New York: Oxford University Press.
- Baker, M.J., and T.J. Miceli, 2005. Credible criminal enforcement. *European Journal of Law and Economics* 20, pp. 5-15.
- Bardach, E., and R.A. Kagan, 1982. *Going by the book: The problem of regulatory unreasonableness*. Philadelphia: Temple University Press.
- Becker, G.S., 1968. Crime and punishment: An economic approach. *Journal of Political Economy* 76 (2), pp. 169-217.
- Boadway, R., N. Marceau, and M. Marchand, 1996. Time-consistent criminal sanctions. *Public Finance / Finances Publiques* 51 (2), pp. 149-165.
- Committee Alders, 2001. *Cafébrand Nieuwjaarsnacht [Cafe Fire New Year's Eve]*. The Hague.
- Eckert, H., 2004. Inspections, warnings, and compliance: the case of petroleum storage regulation. *Journal of Environmental Economics and Management* 47, pp. 232-259.
- Fenn, P., and C.G. Veljanovski, 1988. A positive economic theory of regulatory enforcement. *Economic Journal* 98 (393), pp. 1055-1070.
- Friesen, L., 2003. Targeting enforcement to improve compliance with environmental regulations. *Journal of Environmental Economics and Management* 46, pp. 72-85.
- Friesen, L., 2006. The social welfare implications of industry self-auditing. *Journal of Environmental Economics and Management* 51, pp. 280-294.
- Garvie, D., and A. Keeler, 1994. Incomplete enforcement with endogenous regulatory choice. *Journal of Public Economics* 55, pp. 141-162.
- Gneezy, U., and A. Rustichini, 2000. A fine is a price. *Journal of Legal Studies* 29, pp. 1-17.
- Gundelach, J., and F.C.M.A. Michiels, 2003. *Ongegronde vrees: een onderzoek naar de rechtspraak inzake handhavingsbesluiten [Unfounded fear]*. Deventer: Kluwer.
- Harford, J.D., and W. Harrington, 1991. A reconsideration of enforcement leverage when penalties are restricted. *Journal of Public Economics* 45, pp. 391-395.
- Harrington, W., 1988. Enforcement leverage when penalties are restricted. *Journal of Public Economics* 37 (1), pp. 29-53.
- Hawkins, K., and J.M. Thomas (Eds.), 1984. *Enforcing Regulation*. Boston: Kluwer-Nijhoff Publishing.
- Hawkins, K., 1984. *Environment and enforcement. Regulation and the social definition of pollution*. Oxford: Clarendon Press.
- Heyes, A.G., 1994. Environmental enforcement when 'inspectability' is endogenous: A model with overshooting properties. *Environmental and Resource Economics* 4, pp. 479-494.
- Heyes, A.G., 2000. Implementing environmental regulation: Enforcement and compliance. *Journal of Regulatory Economics* 17 (2), pp. 107-129.
- Heyes, A.G., and N. Rickman, 1999. Regulatory dealing - revisiting the Harrington paradox. *Journal of Public Economics* 72 (3), pp. 361-378.
- Hutter, B.M., 1997. *Compliance: Regulation and environment*. Oxford: Clarendon Press.
- Innes, R., 1999. Remediation and self-reporting in optimal law enforcement. *Journal of Public Economics* 72, pp. 379-393.
- Kagan, R.A., and J.T. Scholz, 1984. *The "Criminology of the Corporation" and Regulatory Enforcement Strategies*, in: Hawkins and Thomas (1984), pp. 67-95.

- Khambu, J., 1989. Regulatory standards, noncompliance and enforcement. *Journal of Regulatory Economics* 1, pp. 103-114.
- Kolstad, C.D., T.S. Ulen, and G.V. Johnson, 1990. Ex post liability for harm vs. ex ante safety regulation: Substitutes or complements? *American Economic Review* 80 (4), pp. 888-901.
- Lando, H., and S. Shavell, 2004. The advantage of focusing law enforcement effort. *International Review of Law and Economics* 24, pp. 209-218.
- Leeuw, F.L., and F. Willemsen, 2006. Toezicht en inspectie: trends, kosten en baten [Supervision and inspection: trends, costs and benefits]. *Nederlands Juristenblad* (37), pp. 1623-1630.
- Lin, C.-C., and C.C. Yang, 2006. Fine enough or don't fine at all. *Journal of Economic Behavior & Organization* 59, pp. 195-213.
- Livernois, J., and C.J. Mckenna, 1999. Truth or consequences: Enforcing pollution standards with self-reporting. *Journal of Public Economics* 41, pp. 415-440.
- Malik, A.S., 1990. Markets for pollution control when firms are noncompliant. *Journal of Environmental Economics and Management* 18, pp. 97-106.
- Malik, A.S., 1993. Self-reporting and the design of policies for regulating stochastic pollution. *Journal of Environmental Economics and Management* 24, pp. 241-257.
- Mookherjee, D., and I.P.L. Png, 1994. Marginal deterrence in enforcement of law. *Journal of Political Economy* 102 (5), pp. 1039-1066.
- Nadeau, L.W., 1997. EPA effectiveness at reducing the duration of plant-level noncompliance. *Journal of Environmental Economics and Management* 34, pp. 54-78.
- Nyborg, K., and K. Telle, 2004. The role of warnings in regulation: keeping control with less punishment. *Journal of Public Economics* 88 (12), pp. 2801-2816.
- Nyborg, K., and K. Telle, 2006. Firms' compliance to environmental regulation: Is there really a paradox? *Environmental and Resource Economics* 35, pp. 1-18.
- Ogus, A., and C. Abbot, 2002. Sanctions for pollution: do we have the right regime? *Journal of Environmental Law* 14 (3), pp. 283-298.
- Pistor, K., and C. Xu, 2003. Incomplete law. *N.Y.U. Journal of International Law and Politics* 35, pp. 931-1013.
- Polinsky, A.M., and S. Shavell, 1998. On offense history and the theory of deterrence. *International Review of Law and Economics* 18, pp. 305-324.
- Polinsky, A.M., and S. Shavell, 2000. The economic theory of public enforcement of law. *Journal of Economic Literature* 38, pp. 45-76.
- Posner, R.A., and E.B. Rasmusen, 1999. Creating and enforcing social norms, with special reference to sanctions. *International Review of Law and Economics* 19, pp. 369-382.
- Ricketts, M., and A. Peacock, 1996. Bargaining and the regulatory system. *International Review of Law and Economics* 6, pp. 3-16.
- Schmitz, P.W., 2000. On the joint use of liability and safety regulation. *International Review of Law and Economics* 20, pp. 371-382.
- Scholz, J.T., 1991. Cooperative regulatory enforcement and the politics of administrative effectiveness. *American Political Science Review* 85 (1), pp. 115-136.
- Shavell, S., 1984. A model of the optimal use of liability and safety regulation. *Rand Journal of Economics* 15 (2), pp. 271-280.
- Shavell, S., 1992a. Liability and the incentive to obtain information about risk. *Journal of Legal Studies* 21, pp. 259-270.
- Shavell, S., 1992b. A note on marginal deterrence. *International Review of Law and Economics* 12, pp. 345-355.

- Shavell, S., 1993. The optimal structure of law enforcement. *Journal of Law and Economics* 36, pp. 255-287.
- Shavell, S., 2004. *Foundations of economic analysis of law*. Cambridge, Massachusetts: Harvard University Press.
- Telle, K., 2004. Effects of inspections on plants' regulatory and environmental performance - evidence from Norwegian manufacturing industries, *Statistics Norway, Research Department, Discussion Papers* no. 381.
- Veljanovski, C.G., 1984. *The economics of regulatory enforcement* in: Hawkins and Thomas (1984), pp. 171-188.
- VNG, 2002. *Model-bouwverordening* [Model building by-law]. Den Haag: VNG Uitgeverij.
- WRR, 2003. *Waarden, normen en de last van het gedrag, appendix 4* [Values, norms and the burden of behavior]. Amsterdam: Amsterdam University Press.

Research Memorandum Department of Economics

Research Memoranda

- are available from Department of Economics homepage at : <http://www.economie.leidenuniv.nl>
- can be ordered at Leiden University, Department of Economics, P.O. Box 9520, 2300 RA Leiden, The Netherlands
Phone ++71 527 7756 / 7855; E-mail: conomie@law.leidenuniv.nl

- 2007.03 Guido Suurmond
Compliance to fire safety regulation. The effects of the enforcement strategy.
- 2007.02 Maroesjka Versantvoort
Een schets van de sociaal-economische effecten van verlof en de beleidsmatige dilemma's die daaruit volgen.
- 2007.01 Henk Nijboer
A Social Europe: Political Utopia or Efficient Economics? An assessment from a public economic approach.
- 2006.04 Aldo Spanjer
European gas regulation: A change of focus.
- 2006.03 Joop de Kort and Rilka Dragneva
Russia's Role in Fostering the CIS Trade Regime.
- 2006.02 Ben van Velthoven
Incassoproblemen in het licht van de rechtspraak.
- 2006.01 Jurjen Kamphorst en Ben van Velthoven
De tweede feitelijke instantie in de belastingrechtspraak.
- 2005.03 Koen Caminada and Kees Goudswaard
Budgetary costs of tax facilities for pension savings: an empirical analysis.
- 2005.02 Henk Vording en Allard Lubbers
How to limit the budgetary impact of the European Court's tax decisions?
- 2005.01 Guido Suurmond en Ben van Velthoven
Een beginselplicht tot handhaving: liever regels dan discretionaire vrijheid.
- 2004.04 Ben van Velthoven en Marijke ter Voert
Paths to Justice in the Netherlands. Looking for signs of social exclusion.
- 2004.03 Guido Suurmond
Brandveiligheid in de horeca. Een economische analyse van de handhaving in een representatieve gemeente.
- 2004.02 Kees Goudswaard, Koen Caminada en Henk Vording
Naar een transparanter loonstrookje?
- 2004.01 Koen Caminada and Kees Goudswaard
Are public and private social expenditures complementary?
- 2003.01 Joop de Kort
De mythe van de globalisering. Mondialisering, regionalisering of gewoon internationale economie?
- 2002.04 Koen Caminada en Kees Goudswaard
Inkomensgevolgen van veranderingen in de arbeidsongeschiktheidsregelingen en het nabestaandenpensioen.
- 2002.03 Kees Goudswaard
Houdbare solidariteit.
- 2002.02 Ben van Velthoven
Civiele en administratieve rechtspleging in Nederland 1951-2000; deel 1: tijdreeksanalyse.

- 2002.01 Ben van Velthoven
Civiele en administratieve rechtspleging in Nederland 1951-2000; deel 2: tijdreeksdata.
- 2001.03 Koen Caminada and Kees Goudswaard
International Trends in Income Inequality and Social Policy.
- 2001.02 Peter Cornelisse and Kees Goudswaard
On the Convergence of Social Protection Systems in the European Union.
- 2001.01 Ben van Velthoven
De rechtsbijstandsubsidie onderzocht. En hoe nu verder?
- 2000.01 Koen Caminada
Pensioenopbouw via de derde pijler. Ontwikkeling, omvang en verdeling van premies lijfrenten volgens de Inkomensstatistiek.
- 1999.03 Koen Caminada and Kees Goudswaard
Social Policy and Income Distribution. An Empirical Analysis for the Netherlands.
- 1999.02 Koen Caminada
Aftrekpost eigen woning: wie profiteert in welke mate? Ontwikkeling, omvang en verdeling van de hypotheekrenteaftrek en de bijtelling fiscale huurwaarde.
- 1999.01 Ben van Velthoven and Peter van Wijck
Legal cost insurance under risk-neutrality.
- 1998.02 Koen Caminada and Kees Goudswaard
Inkomensherverdeling door sociale zekerheid: de verdeling van uitkeringen en premieheffing in 1990 en 1995.
- 1998.01 Cees van Beers
Biased Estimates of Economic Integration Effects in the Trade Flow Equation.
- 1997.04 Koen Caminada and Kees Goudswaard
Distributional effects of a flat tax: an empirical analysis for the Netherlands.
- 1997.03 Ernst Verwaal
Compliance costs of intra-community business transactions. Magnitude, determinants and policy implications.
- 1997.02 Julia Lane, Jules Theeuwes and David Stevens
High and low earnings jobs: the fortunes of employers and workers.
- 1997.01 Marcel Kerkhofs and Maarten Lindeboom
Age related health dynamics and changes in labour and market status.
- 1996.07 Henk Vording
The case for equivalent taxation of social security benefits in Europe.
- 1996.06 Kees Goudswaard and Henk Vording
Is harmonisation of income transfer policies in the European Union feasible?
- 1996.05 Cees van Beers and Jeroen C.J.M. van den Bergh
The impact of environmental policy on trade flows: an empirical analysis.
- 1996.04 P.W. van Wijck en B.C.J. van Velthoven
Een economische analyse van het Amerikaanse en het continentale systeem van proceskostentoe-rekening.
- 1996.03 Arjan Heyma
Retirement and choice constraints: a dynamic programming approach.
- 1996.02 B.C.J. van Velthoven en P.W. van Wijck
De economie van civiele geschillen; rechtsbijstand versus no cure no pay.
- 1996.01 Jan Kees Winters
Unemployment in many-to-one matching models.
- 1995.05 Maarten Lindeboom and Marcel Kerkhofs
Time patterns of work and sickness absence. Unobserved effects in a multi-state duration model.

- 1995.04 Koen Caminada en Kees Goudswaard
De endogene ontwikkeling van de belastingdruk: een macro-analyse voor de periode 1960-1994.
- 1995.03 Henk Vording and Kees Goudswaard
Legal indexation of social security benefits: an international comparison of systems and their effects.
- 1995.02 Cees van Beers and Guido Biessen
Trade potential and structure of foreign trade: the case of Hungary and Poland.
- 1995.01 Isolde Woittiez and Jules Theeuwes
Well-being and labour market status.
- 1994.10 K.P. Goudswaard
Naar een beheersing van de Antilliaanse overheidsschuld.
- 1994.09 Kees P. Goudswaard, Philip R. de Jong and Victor Halberstadt
The realpolitik of social assistance: The Dutch experience in international comparison.
- 1994.08 Ben van Velthoven
De economie van misdaad en straf, een overzicht en evaluatie van de literatuur.
- 1994.07 Jules Theeuwes en Ben van Velthoven
De ontwikkeling van de criminaliteit in Nederland, 1950-1990: een economische analyse.
- 1994.06 Gerard J. van den Berg and Maarten Lindeboom
Durations in panel data subject to attrition: a note on estimation in the case of a stock sample.
- 1994.05 Marcel Kerkhofs and Maarten Lindeboom
Subjective health measures and state dependent reporting errors.
- 1994.04 Gerard J. van den Berg and Maarten Lindeboom
Attrition in panel data and the estimation of dynamic labor market models.
- 1994.03 Wim Groot
Wage and productivity effects of enterprise-related training.
- 1994.02 Wim Groot
Type specific returns to enterprise-related training.
- 1994.01 Marcel Kerkhofs
A Quadratic model of home production decisions.