Perverse incentive effects of bounding fines for infringements of competition law: the Dutch case

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1. Introduction

In the European Union as well as in the individual member states, competition authorities have the power to levy fines on parties found in breach of competition law. Even more so than for other types of violations of law, in competition cases fines are supposed to have a desirable deterrence effect. After all, firms behaving anti-competitive typically do so to raise profits by eliminating competition. Fines may, provided they are well chosen, sufficiently counterbalance the tempting returns from infringements of competition rules to keep companies from behaving anticompetitive.

Despite the fact that in the law and economics literature on incentive effects of punishment this may be a well established insight, the actual levels of the fines imposed in competition cases in the EU seem not specifically set to achieve effective deterrence.

A particular category of restrictions on fines that take away from their potential deterrence effect is upper bounds. The Sherman Act, the foundation of antitrust enforcement in the United States of America, specifies a maximum on fines of $1,000,000, a figure that has risen somewhat over the century of enforcement from the original $10,000 in 1890, yet still is a hardly a concern to the kind of corporations found in violation of the law recently.[5] Likewise, the European Union applies maximum fining rules related to revenues that, although allowing for substantially higher fines in the European case than is possible in federal cases in the US, set upper bounds on penalties that often bind.

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[5] Deterrence effects are nevertheless serious in the US, for private damages claims – and to some, but considerably smaller, extend the threat of individual sanctions for responsible managers, including personal fines and jail sentences – compensate for the missing teeth of the Sherman Act. Private damages awards can go several times over the benefits firms found in breach of the antitrust laws are likely to have made by their anticompetitive actions, for treble damages are awarded under section 4 of the Clayton Act. In the EU, private cases are scarce, albeit that the Commission seeks to encourage them – e.g. by allowing them to be brought under EU rule in national courts through Regulation 1/2003.

These maximum fine numbers potentially affect the deterrence effect that may be expected from the threat of fines adversely. In particular, they are likely to introduce a bias towards deterring small firms rather than large firms from anticompetitive behaviour, whereas the opposite typically is socially preferable. A case in point in this respect is the way in which the Dutch competition authority, the "Nederlandse Mededingingsautoriteit" (NMa) determines its fines.

The NMa has a relatively short history of competition law enforcement. Established only in January 1998, it nevertheless has been zealous and quite bold, taking on many of the various cartels with which the Netherlands were riddled. It is a young and industrious model-authority, often open to arguments of both sides in a competition law dispute. Recently, NMa has made the method by which it intends to set fines for infringements of the Dutch competition rules public.[6] In this paper, these guidelines are reviewed, in light of economic and judicial principles, such as deterrence and prevention, equivalence, proportionality and welfare.

Whenever NMa finds an infringement of article 6 or article 24 of the Dutch Competition Law, its Director-General can impose a fine according to articles 56 and 57 of the Nederlandse mededingingswet (Dutch competition law).[7] There is flexibility in setting the exact level of the fine in various directions. An examination of the juridical literature on this matter returns that fines are, for example, to relate to basic principles such as equivalence and proportionality.

Economists, in their own right, have tried to handle issues related to fining policy. In general, their proposals emphasize the idea that sanctions must be imposed such as to promote efficiency in society. To that end, a sanction should have some deterrence effect. In order to be effective, fines must be imposed in such a way that the expected gain from infringing the law is lower than the expected gain from actions committed within the boundaries of the legal framework. Hence, fines should be set higher than the expected gain for a firm contemplating a breach of law, taking the probability of being caught into account.

Albeit this being an important concern to evaluate fines by, in general it is not true that economists have no regards for other aspects of to the fining problem. For example, determining the level of the fine solely based on the efficiency criterion would imply that fines of significant size should be imposed. This even would hold for relatively small infringements, because the primary goal then is to maximize prevention.

Both from a judicial, as well as from an economic perspective such a fining policy would raise serious questions. For example, one should incorporate the possibility that sometimes fines are imposed, which is not really justified and, furthermore, one should take into consideration how to deal with this type of mistakes from a social

[6] See www.nmanet.nl; more specifically, the fining policy guidelines can be found on http://www.nmanet.nl/nl/images/11_3860.pdf and the leniency program is presented on http://www.nmanet.nl/nl/images/11_3859.pdf.

[7] Since May 2004 Article 6 is equivalent to article 81 EEG, while article 24 is comparable with article 82 EEG.

welfare point of view.[8] The most important economic question here is likely to be in what way the decision about the level of the fine effects social welfare.[9]

Given these and other problems related to fining policy, it is interesting to examine to what extent the way fines are imposed according to the criteria of the competition law, the guidelines for fining policy and the relatively new guidelines for leniency programs are in line with the economic criteria. To put it slightly differently, are legal and economic criteria with respect to fining policy working mainly antagonistic or are they, on the contrary, mutually supportive?

Obviously, there exist numerous approaches to analyze this question of which this article will only use a few. This paper is structured as follows. In section 2 a brief overview is given of how the level of fines is determined in practice, according to the competition law and the Dutch fining policy guidelines. Sections 3 and 4 deal with the question to what extent the guidelines fulfil essential legal and economic criteria. In section 5 a tentative answer is given to the main question as to whether the juridical and economic criteria are complements, or should rather be seen essentially as substitutes. Section 6 summarizes the main conclusions.

2. Fine levels according to Dutch competition law, the NMa fining guidelines and its leniency program

The essence of the Dutch fining policy guidelines and the associated leniency program of the NMa can be captured in some main features that are needed to answer the main questions of this article.

The fining policy guidelines explicitly state that the determination of the level of a fine can never be based on a purely arithmetical model.[10] The reason given is that such a method will lack sufficient discretionary room needed in order to incorporate significant facts of a specific case. Nevertheless, and without pretending having provided a perfect formal capture, we present a formula that, we believe, is a good summary of the criteria mentioned in the guidelines:

$$F = 0.1 \times TI_d \times Z_i \times EC \times BV \times L_j \qquad (1)$$

Subject to,

$$F = \text{Max}\{€\ 450{,}000;\ 0.1 \times TT\} \qquad (2)$$

[8] See for instance: Posner, R.A., *Antitrust Law*, The University of Chicago Press, Chicago, 2001. Posner discusses how problems with respect to implementing antitrust policy can influence the determination of optimal fines. A more formal approach is presented by: Schinkel, M.P. and J. Tuinstra, "Imperfect Competition Law Enforcement," forthcoming in the International Journal of Industrial Organization.

[9] See for instance: Becker, G. S., Crime and Punishment, *Journal of Political Economy*, 76, 169-217, 1968. Here, the idea of maximizing punishments is defended from an economic or efficiency perspective. Some counterarguments can be found in: Bergeijk P. A. G. van and H.M. Godfried, "De beëindiging van het kartelparadijs," *Economisch Statistische Berichten*, 15-3-2002, 204-207.

[10] See Richtsnoeren boetetoemeting, paragraph 4, last sentence.

F denotes the level of the fine. The basis of this level is equal to one-tenth of the turnover (TI_d) involved or protected by the infringement for the total duration of the infringement. This basis can be modified with the factors Z_i, EC, BV and L_j, depending on the specific circumstances of the case.

The variable Z_i stands for the 'grievousness' of the infringement. The Dutch competition authority has defined three different categories of infringements. For minor infringements $Z_i = Z_1$, which implies that Z_1 is smaller or equal to 1. More heavy infringements yield a value Z_2, which means that Z_2 will be smaller or equal to two. Finally, the most serious infringements of the competition law result in a value Z_3, of which Z_3 will be a value drawn from the domain [1.5; 3]. Consequently, the actual fine imposed can vary between 0% and 30% of the turnover involved.[11]

The parameter EC provides the opportunity to take into account the specific circumstances under which the infringement actually took place. From the guidelines it can be derived that knowledge about market power and the damage for other competitors and customers should be incorporated when determining the level of the fine. Obviously, EC can have both a value larger as well as lower than 1. It seems likely to assume that the Dutch competition authority has the wish to keep some discretionary power to, for instance, impose a lower fine in case of a very heavy infringement when this infringement took place in a competitive environment. If this is the case, the variable EC is likely to get a value smaller than 1. From the guidelines it is unclear what exactly the upper bound and lower bound are of EC, although these will naturally lie above zero.

The idea that the behaviour of firms during the investigation should come back in the level of the fine imposed is expressed with the factor BV. One can think here of issues like recidivism and activities that hamper the investigation or, on the contrary, voluntary cooperation with the authority and indemnity. Like the factor EC, BV can be larger or smaller than 1. For example, BV can take a value equal to 1.5 when the firms involved are notorious recidivist that tried to hamper the investigation procedures.

Finally, the factor L can have a value between 0 and 0.9. Remember that L has been added here to incorporate the relatively new leniency program. Four different categories are distinguished. The value L_1 represents the most extensive form of leniency; the case where no fine will be imposed. Consequently, L_1 will have a value equal to zero. Following the document about the leniency program a firm will be free of charge when some stringent cumulative conditions are met.[12] The most significant of which is probably that the specific firm has offered information that was of crucial importance for starting further investigations.

The second category represents the possibility that the leniency program results in a decline of the level of the fine of at least 50%. This decline might even be 100%. Therefore, L_2 will take a value between 0.5 and 0. As is the case with L_1, there exist some stringent conditions that have to be fulfilled of which providing significant

[11] See fining policy guidelines (paragraphs 11-13). Some examples are given of various sorts of firm behaviour and how these are divided among the different categories.
[12] Leniency program guidelines, paragraph 5.

relevant information seems to be of utmost importance.[13] The third category, denoted L_3, describes the situation in which firms have provided some additional information and did not, in fact, hamper the investigation procedures. Here, L_3 can take a value between 0.9 and 0.5. Finally, one can think of situations in which the leniency program will not be applied. This category, denoted L_4, implies that L_4 will be equal to 1.

In practice, this way of determining the actual level of the fine might yield the following outcome. Suppose the director-general of the NMa decides to impose a fine in case a firm is convicted for a very heavy infringement (Z_3=3). Here, the basis of the fine (0.1 x TI_d) will be multiplied by 3. Furthermore, it is assumed that the infringement has caused relatively much economic damage (Assume that EC=1.5) and that the perpetrators are well known recidivists (BV=1.5). Finally, suppose that, due to the specific characteristics of this case, the leniency program cannot be applied. Consequently, this implies that the actual fine can be equal to 67,5% of the turnover involved for the whole duration of the infringement.

However, the Dutch competition authority has to respect an upper bound as defined in the Dutch competition law.[14] This upper bound is presented in equation (2). The actual fine (F) must be equal or smaller than € 450,000 or than 10% of the total sales of the firm in the previous year. If the latter amount is higher, this figure is the boundary. If € 450,000 is more than total sales in the previous year, € 450.000 is the relevant maximum.

3. Analysis and Evaluation: the maximum criteria in the Dutch competition law

To judge the Dutch fining policy properly, we first have to clarify the distinction between maximum fines and optimal fines. This distinction can be made clear with some simple examples. The standard micro-economic model of monopoly, for instance, shows that the maximization of total revenues will not yield a situation in which profits are maximized. In order to maximize profits the monopolist should aim on having a non-maximum, but optimal total revenue.

Furthermore, maximizing the profit-level in the short run might well undermine the maximization of profits in the long run. This happens, for instance, when the price set in order to maximize profits in the short run will seduce other potential competitors to enter the market. Obviously, this strategy is likely to undermine the maximization of profits for a longer period. Consequently, when the monopolist aims to maximize its long run profit the optimal profit level in the short run might well differ from the maximum short-run profit.

These rather straightforward examples show that, in order to determine what is optimal with respect to certain criteria, it is necessary to specify the overall goal that one likes to achieve. Furthermore, we can only judge the optimality of, in this case, the fining policy, given the framework in which it has to be implemented. Obviously, this framework is given and normally cannot be changed that easily.

[13] Leniency program guidelines, paragraph 6.
[14] See Nederlandse Mededingingswet, Article 57-1

The legal infrastructure of the modern state can considered as such a framework. More specifically, the fining policy must be optimized given the legal rules as described in the competition law, although it contains some striking rules. One of these is the maximum criterion as presented in equation (2). This criterion is striking, not only because it is unclear where exactly these maxima come from, but more importantly but also because it tends to affect smaller firms stronger than it does larger ones.

The maxima create a situation in which smaller firms are imposed a higher fine as a percentage of their total turnover. In other words, firms with a total turnover larger than € 4,500,000 will be fined no more than 10% of their turnover, while smaller firms face the risk that this percentage is much higher. Therefore, the principle "equals should be treated as equals" is not met in this case. In our opinion, removing this discriminatory rule from the competition law should be advocated.

Like the € 450,000 maximum, the 10% criterion raises serious questions. It is true that this maximum is applied in the European Union as well as in Ireland and Finland, but this in itself doesn't tell us very much about the underlying reason for this 10% maximum. First of all, there are countries, like Denmark, that work without such a constraint. Furthermore, the 10% maximum too harms the principle of equivalence. This can be clarified with an example.

Suppose there are two industries both of which contain firms that are participating in a cartel-agreement. Assume further that one firm realizes 60% of its total turnover via the cartel, while the other generates 20% in this way. For simplicity, let the duration of both cartel-agreements be equal to one year. Following the fining policy guidelines both firms will be imposed a fine based on the turnover involved. When all other criteria are judged in such a way that both firms are fined 50% of their revenue, then, ceteris paribus, a fine will be imposed in a proportion three to one. This situation seems to be completely in line with the legal principle of proportionality.

However, the level of the fine actually imposed will differ as a result of the maximum criterion. Without the maximum constraint the "60%-firm" should be imposed a fine equal to 30% of its annual turnover. In practice, this implies a fine of only 10% of its annual revenue; a discount of 20%. The other firm should be imposed a fine equal to 10% of its annual turnover, which is a possibility even with the maximum rule. Hence, this firm will receive no discount contrary to the principle of equivalence.

This conclusion is even more striking when we take into account higher profits of a cartel over a period of several years. A modest estimation of the average price increase as a result of the cartel-agreement is about 10% for duration of 5 or 6 years.[15] If we now simply assume that 10% of the turnover of the firms described above are the result of these illegal cartel practices and that the turnover involved and the annual turnover are more or less the same in every year, then the maximum criteria are discriminating even more. The "60%-firm" has generated extra revenues equal to 50%

[15] See Werden G.J. and Simon M.J.(1987), 'Why Price Fixers Should Go To Prison,' Antitrust Bulletin, 32, 917-937. See also the OECD report, 'Report on the Nature and Impact of Hard Core Cartels,' page 5. Agreeing with the "United States Sentencing Guidelines' (see § 2R1.1 cmt. N. 3) in which an average of 10% is mentioned as well.

of its annual turnover of which it pays 1/5th by means of a fine. However, the "20%-firm" has to pay an amount equal to all of its extra revenues. It therefore can be concluded that the maximum criterion both undermines the legal principles of equivalence and proportionality.

Furthermore, the maximum rule seems to create an incentive to limit competition. This can be easily explained by using the example presented above once more. Suppose that the "60%-firm" now, instead of 60%, generates 100% of its annual turnover via cartel-agreements. As long as the extra revenues are structurally higher than 10% and this firm is convicted no more than once a year, the maximum criteria will protect this offender of rules of competition.[16]

In other words, the legal maximum makes cartel-agreements more interesting as a profitable alternative. The system as designed therefore creates incentives for firms to make agreements that limit competition the lower the chance of being fined and the lower the legal upper bound of the fine. Bryant and Eckard (1991) investigated the chance of conviction in case of a price-agreement, which is estimated on 13% up to 17% at max.[17] For 10% extra revenues one can pay a fine once in the 8 à 6 years. In South Korea the maximum criterion is fixed at a level of 5%. It seems to be an understatement to conclude that such a maximum rule must be seen as a clear invitation to limit competition seriously.

From the analysis above it can be concluded that the fining policy with the maximum criterion not only is likely to result in unequal treatments and disproportional punishments, but also is unlikely to create effective deterrent effects. It seems that the fining policy as it exists in the antitrust practice of today is not supportive with respect to social welfare. The effect on welfare of the unequal treatment of relatively small firms is the main subject of the next section.

4. Analysis and Evaluation: the Dutch guidelines and competition law

After this rather critical assessment with respect to the maximum criterion of the competition law this section will emphasize what happens in equation (1). More concrete, the central question in this section is to what extent the requirements of equivalence, proportionality and deterrent effect are fulfilled with respect to social welfare in case the maximum criterion is not a restriction.

We will start with an industry with many risk-neutral firms. That is, all firms take their decisions purely based on expected profits. When we assume that the chance of conviction lies between 13% and 17% and if we further assume that the extra gains of infringing the rules of competition are lying somewhere between 10% and 20%, then the level of the fine, in order to work effectively deterrent, should be at least 60% (corresponding with an extra gain of 10% and a chance to be caught of 17%) up to 150% (corresponding with an extra gain of 20% and a chance to be convicted of 13%)

[16] For simplicity, the examples used neglect possible quantity effects. Incorporating such effects will not alter the conclusions drawn significantly.

[17] See: Bryant, P.G. and E.W. Eckard; Price Fixing, the Probability of Getting Caught, *Review of Economics and Statistics*, 73, 1991. pp. 531-536.

of the total revenue involved. The level of the fine must be set even higher when we assume that firms are risk-inclined, which in many cases seems to be a more reasonable assumption.

Equation (1) can be used to impose a fine of a significant level. Especially the variable EC can be used to make sure that the fine is likely to work deterrent. This variable provides the authority an opportunity to incorporate specific circumstances of a concrete case, like, for instance, differences in market power. However, to judge this system properly from a social welfare perspective we have to take into account the marginal social benefits in relation to a possible higher deterrent effect. A reasonable question seems to be if the fining policy is primarily focused on large infringements or, on the contrary, tends to punish small offenders more than proportional.

From a social welfare perspective it is assumed that the fining policy should primarily have its focus on very heavy infringements because the damage done to society is more serious. When we look at the system as presented in the guidelines and the competition law, given the maxima of article 57 Mw, we get the following.

As already mentioned, the maximum criterion is discriminating between large and small firms. Furthermore, the maximum criterion is defending those firms that generate a higher percentage of their turnover via cartel agreements. From this it follows that the maximum criterion works less deterrent for large firms/serious offenders of the competition law, while the marginal social benefits are relatively high.

In practice, this asymmetric situation is corrected to some extent, as can be seen in equation (1). The factor Z_i makes sure that the fact is taken into account that some infringements are more serious than others. Apart from the maximum criterion large and small firms are judged in an identical way. However, the factor Z_i does not explicitly incorporate the idea of damage done to society. It makes no difference for the level of Z_i if the offender is a large or a small firm; what matters is the nature of the infringement. From a social welfare perspective this seems to be incorrect because the marginal benefits of a policy that generates a relatively higher deterrent effect for a larger firm, given that the nature of the infringement is equal to that of a small firm, are higher. Nevertheless, the way this factor influences the level of the fine is independent of the size of the firm. The factors BV and L are also not discriminatory with respect to the size of the firm and reflect the idea that firms must be sanctioned symmetrically.

Table 1: Non-financial firms in the Netherlands
1996-2000

		Number	Sales in € mln	Profit in € mln	Sales per firm in € 1000	Profit per firm in € 1000	Profit/ Sales in %
Small firms;	**1996**	148,799	185,813.3	9,097.7	1,248.8	61.14	4.9
assets < € 12.5 mln	**1997**	158,168	204,168.8	10,825.8	1,290.8	68.44	5.3
	1998	165,205	213,816.9	12,089.7	1,294.3	73.18	5.7
	1999	167,563	216,760.4	12,736.9	1,293.6	76.01	5.9
	2000	171,693	218,355.2	12,276.5	1,271.8	71.50	5.6
Large firms:	**1996**	2,463	377,094.2	31,848.2	153,103.6	12930.65	8.4
assets >= € 12.5 mln	**1997**	2,509	414,983.2	40,257.2	165,397.8	16045.12	9.7
	1998	2,404	434,443.8	39,845.8	180,717.1	16574.79	9.2
	1999	2,751	469,017.9	43,636	170,490.0	15861.87	9.3
	2000	2,907	548,709.9	64,155.8	188,754.7	22069.42	11.7

Source CBS, own calculations: Sales per firm, Profit per firm Profit/Sales

A stylized analysis of the welfare effects of asymmetric deterrence of fixed maximum of € 450,000,- may proceed as follows. Let us assume an economy, inspired by the real world observations in the Netherlands in the period 1996-2000 as given in table 1.[18] The number of large firms is in this economy, say, 60 times smaller than the number of small firms. The sales of the large firms are nevertheless taken together twice as high. Profit/sales ratio for these firms are also twice as high.

If the fine system would become completely effective towards the small firms and not effective towards large firms, it is clear that the benefits to be gained by the disappearance of all cartels by small firms would be relatively small given the effect that the sales, the profits and the profit/sales ratio are on the average significantly smaller in this part of the economy. It is also clear that a completely effective fining system towards large firms promises much more welfare rewards for society.

From this straighforward line of reasoning it is clear that in this case an asymmetric fining system could be improved in terms of generating welfare by decreasing or taking away the properties generating the asymmetry. In the Dutch case, this implies abolishing both the ceilings of € 450,000,- and the turnover of the trespassing firm in the previous year. The first one discriminates against smaller firms and the latter stimulates firms to cooperate.

In the previous analysis we have seen that the Dutch system of fines as described in the guidelines, and in combination with the maximum criterion of the competition law, seems to be represented more accurately by a fining policy deterring small firms. An important question is, of course, in what ways this problem could be solved. As already mentioned, and as a first important step, removing the maximum criterion from the competition law would be an improvement.

[18] The table has been comprised on the basis of CBS Statline

Next to that, it might be helpful to think more seriously about the economic context in which the infringement actually took place. The factor EC can be used progressively and can be linked with the damage done with respect to social welfare. Here, one can think about defining categories like: damage between € 0,5 and € 1 million, EC=1; damage between € 1 and € 1,5 million, EC=2, and so on. An approach like this will work increasingly deterring for economic situations that do more harm to society. Note, however, that the progressiveness of such a system will be lower as long as the maximum criterion serves as an upper bound.

One can be opposed to the creation of categories for the factor EC by claiming that in practice it is often hard, if not impossible, to provide a good estimation of the size of social damage. However, the argument for differentiation by means of the factor Z_i for minor, heavy and very heavy infringements lies in the actual damage done to society. The obvious argument against such a differentiation is that large and small firms are judged symmetrically. That is, firms are treated with respect to their actions, but irrespective of the total damage they create in terms of social welfare. The core argument for a more progressive fining system is to make the progressiveness of the fining policy more explicit. The factor EC, or economic context, seems to be the most logic variable to apply this idea in practice, because both the size of the firm and the damage done to other competitors and customers are explicitly taken into account.

5. Conclusions

From our attempt to a more formal summary of the fining practice of the Dutch competition authority and the contradictory symmetry effects of this fining policy we are able to draw the following general conclusions.

Our analysis suggests that it is an important omission in discussions about possible improvements of fining policy not to provide enough room for the idea that most of the social damage is created by large firms, which generate most of their turnover via illegal agreements. A system that profoundly works deterring these kinds of practices should be preferred from a social welfare point of view. In our opinion, therefore, discussions about fining policy should emphasize the importance of issues like the welfare effects of the maximum criterion, as well as the lack of progressiveness in the sanction system as it is applied in the field of antitrust.

Finally, let us come back to the original question; to what extent is the fining practice in Dutch competition policy complementary to the relevant economic and juridical principles? As we have argued, it is highly doubtful if principles of equivalence and proportionality are met in antitrust practice. Small offenders of the competition laws can be punished relatively harder than larger players on the market. The fining policy as it is used today will have a low deterrent effect towards serious infringements and therefore its welfare effects are likely to be small. Removing the fining maxima from the competition law or to increase them to a non-binding higher level and the implementation of more progressive punishments in competition policy are likely to improve the social welfare level.

With the factor EC, or economic context, the negative effects presented above can to some extent be corrected. The friction between the legal criteria of the competition

law and the principles of equivalence and proportionality can be lessened in this way. Furthermore, using the factor EC in a thoughtful manner, in that firms that create the highest damage are receiving a higher fine, will already be an important step towards a situation in which antitrust enforcement is more optimal in the sense of contributing to social welfare.