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Agenda

Advancing economics in business

Crime doesn't (always) pay: what determines the level of fines?

The hefty fines imposed by the European Commission on cartels in recent years have grabbed the headlines, raising awareness of competition law among business communities and the general public. How do the Commission and other competition authorities determine the level of a fine? Is there any economic basis for these fines, and can companies actually afford them?

In the whole of the 1990s, the cartel fines imposed by the European Commission totalled only around €615m. In the years 2006 to 2010, total annual cartel fines were €1.9 billion, €3.3 billion, €2.3 billion, €1.6 billion and €3.1 billion respectively.[1] In addition, Microsoft was fined €899m in 2008 and Intel €1.1 billion in 2009, both for abuse of dominance.[2] These penalties have raised many policy questions.

Some greater transparency on how fines are calculated has been achieved through the publication of the European Commission's Fining Guidelines and similar documents in other jurisdictions.[3] The Fining Guidelines set out the steps and criteria that the Commission follows in its calculations. They explain how the basic amount of a fine is arrived at, and how adjustments are made for factors such as whether the company has engaged in anti-competitive behaviour before (the fine is adjusted upwards) or whether the company was cooperative during the investigation (in the case of a leniency application by a cartelist, the fine is adjusted downwards, or even to zero).

However, even with greater clarity on the process and mechanics of setting fines, questions remain. For example, is there an economic basis for the fines imposed under competition law, and should there be? There is no definitive answer to this question. Instead, some of the economic principles that are relevant when determining optimal fines are set out below, together with an indication of what role these principles might play in competition law.[4]

Crime and punishment

Why do you park your car neatly between the white lines of a parking bay and put enough money in the parking meter? Economists have two answers to this:

- because you know that otherwise you'll get a fine;
- you have an intrinsic motivation to be law-abiding, so you would pay the parking meter even if the chance of a fine were low.

The second answer is more akin to the principles of behavioural economics. Economists have joined those studying law and psychology in looking at the mindset of people who are tempted to break the law. In essence, the traditional economic framework sees would-be offenders making a rational trade-off between the rewards of the illegal activity and the risk of being caught.[5] Behavioural economics has introduced some further subtleties to this framework. We explain here how this decision framework can assist with determining optimal fines.

Fines function as a punishment, but, more importantly, they are also aimed at preventing crimes. Indeed, the main objective stated in the Fining Guidelines is to ensure that the fine has the necessary deterrent effect.[6] Two conditions must hold in order to achieve deterrence: the likelihood of being caught must be sufficiently high (in some places the chance of getting a parking ticket is considerably higher than in others); and the fine must be sufficiently high.

Economic theory identifies two possible reference points to determine the optimal level of a fine: the harm to society caused by the crime, and the illicit gains made by the perpetrator. On the first basis, if the cost to society of a particular crime is €1,000, and the offender is caught with 100% certainty, the fine should be set at €1,000. The harm to society can then be repaired (provided that the authorities redistribute the collected fines to those who have suffered—not something that happens often). In reality, very few

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crimes are punished with 100% certainty. If the probability of detection and enforcement is only, say, 20%, a fine of €1,000 is too low—only €200 is recovered on average for every crime costing €1,000. Instead, the optimal fine would be €5,000—one in five criminals is caught, and a total of €5,000 is collected in fines, covering the cost to society of the five crimes.

This very simple framework can be easily expanded with additional features—for example, the cost of enforcement. Having a police force and a court (or a competition authority) comes at a cost, and this cost must be weighed against the benefits of fighting crime. As a result, the socially optimal degree of law enforcement is usually not to catch 100% of criminals, but to catch some lower percentage. It can be optimal to let some criminals get away with it. In this framework there is to some extent a trade-off between the probability of detection, and the level of the fine. In theory, the same result can be achieved through very active enforcement (leading to a high proportion of criminals being caught) and low fines as through more limited enforcement and higher fines. The disadvantage of the former option is that enforcement costs are high; the disadvantage of the latter option is that the fines may be disproportionate for those few criminals who do get caught. (Using the above example, a justice system may frown on a criminal having to pay a fine of €5,000 for a crime that cost society only €1,000.)

A fine as a price

One problem with setting fines with reference to the cost of the crime to society is that this may not have a deterrent effect if the fine is lower than the benefit obtained by the criminal. If you are in a real hurry to get to a client meeting on time, and the fine for speeding is only €30, you may well consider that a cost worth bearing (especially if there is a chance that you may not even get caught). In contrast, if the fine is €300, your rational calculation may lead you to behave differently (it will depend on many factors, such as how much the client is worth to you or what your hourly rate is, or what the chances are of being caught).

A similar example (made famous in the book *Freakonomics*) is that of a number of private day-care centres in Haifa, Israel, which began to charge parents a penalty of 10 shekels every time they arrived more than ten minutes late to pick up their child (in addition to their monthly bill of 1,400 shekels).[7] The result was the opposite of what was intended: instead of having a deterrent effect, the new fining system resulted in an increase in the number of late pick-ups, as parents were more than willing to pay the fine in exchange for the extra time their child was looked after. The fine effectively became like any other price in the consumers' rational calculations. (To put the 10 shekel fine into context, a typical parking fine was 75 shekels, but with a lower probability of detection, and a babysitter cost around 15–20 shekels per hour.) An additional explanation for the increase—and here behavioural economics is at work—is that the parents now felt less guilty about arriving late and taking advantage of the teachers' goodwill, because they were paying for it.

These examples show that deterrence can best be achieved through fines that directly reflect the benefits obtained by offenders, especially if there is a chance that the private gains from the crime exceed the social harm caused by it. If the cost to society of you speeding is €15, and the chance of being caught is 50%, proponents of the first economic approach (fines based on the harm to society) would say that a fine of €30 results in the socially optimal level of crime. The fact that, at this level of fine, there are some well-off motorists who can afford to 'pay off' the authorities for the right to speed is simply part of the optimum in this framework.

However, these examples also demonstrate that deterrence is not achieved. Some commentators therefore do not regard this as the optimal situation in the context of competition law, and would rather set fines with reference to illicit gains so as to achieve greater deterrence. The calculation is similar to that above. If the extra profit from entering a cartel is €1,000 and the cartel will be punished with 100% certainty, a fine of €1,000 achieves effective deterrence. If the chance of punishment is only 20%, a fine of €1,000 is insufficient, since the would-be cartelist will take the 80% chance of receiving a positive pay-off from the crime. Instead, as before, the optimal deterrent fine is €5,000 (but this time because €1,000 is the illicit gain, not the cost to society).

Behavioural economics identifies two reasons why fines may have to be set even higher than that:

- one is the 'availability bias'—people tend to forget past fines after a while, and hence may still not be sufficiently deterred. Regularly grabbing the headlines with high fines is one way competition authorities can avoid this cognitive bias;

- the other is optimism bias—criminals tend to underestimate the probability of something bad happening to them (ie, that they get caught), and hence an uplift in the fine would again be required to make deterrence effective.

Fines in competition law

In practice, however, in the case of competition law infringements, the difference between the two economic approaches—fines set with reference to the harm to the economy and fines based on illicit gains—may not matter too much for competition law. This is for two reasons.

First, the European Commission's Fining Guidelines are only loosely based on these economic principles—fines are set with reference to the value of the sales in the relevant market and the duration of the infringement, which are seen as 'an appropriate proxy to reflect the economic importance of the infringement'.[8] The term 'economic importance' can be interpreted as the importance to either the economy as a whole or the perpetrators. Both are positively correlated with the value of sales in the market in question—larger companies tend to do more harm and gain more by engaging in anti-competitive practices than smaller companies do. Nevertheless, the Guidelines stop short of actually trying to measure either the harm to the economy or the illicit gain. Instead, they apply a number of rules to 'approximate' these effects: the basic fine is taken as a proportion of the sales in the relevant market, which can be up to 30% for the more serious cartel infringements.

The second reason why the difference between the two approaches does not matter too much in practice is that cases like the Israeli day-care centre problem are less likely to arise in competition law, particularly in relation to cartels. The total harm to the economy from cartels is typically greater than the illicit gains made by the cartelists—the extra cartel profits are equal to the cartel overcharge harm, and there are additional volume harms caused to suppliers and purchasers of the cartel.[9] Fines based on harm to the economy would therefore achieve at least as much deterrence as fines based on illicit gains (at least in the case of cartels).

This last issue does point to an unresolved policy question about the interaction between fines and damages awards. They are, to some extent, substitutes and complements at the same time. In the EU, the main policy objective of awarding damages is to compensate victims of infringements, but damages, like fines, also play a role in deterrence. (In the USA, deterrence is a major reason why treble damages are typically awarded in successful antitrust actions.) The simple decision framework presented above can be easily expanded to include damages. In the last example, the fine was set at €5,000, reflecting a probability of detection of 20% and illicit gains of €1,000. Now, suppose that there is a follow-on damages claim for €1,000 from the cartel's customers relating to the cartel overcharge, and that the probability of this claim succeeding is 75%. (There are many legal obstacles to successful damages claims, so the likelihood of success in this example is not 100%.) This adds another €150 to the expected costs to the cartel of infringing the law (a 20% chance of detection times a 75% chance of a successful damages claim times €1,000), and hence reinforces deterrence. However, it also shows that, in theory, the fine can be reduced from €5,000 to €4,250 without affecting the deterrent effect: 20% of €4,250 equals an expected fine of €850, plus the expected damages payment of €150 equals €1,000, which is the same as the illicit gain. As yet, no such explicit link between fines and subsequent damages awards has been made in EU policy.

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[1] See the European Commission document 'Cartel Statistics', available at http://ec.europa.eu/competition/cartels/statistics/statistics.pdf.
[2] European Commission (2008), 'Antitrust: Commission Imposes € 899 Million Penalty on Microsoft for Non-compliance with March 2004 Decision', press release, IP/08/318, February 27th; and European Commission (2009), 'Antitrust: Commission Imposes Fine of €1.06 Bn on Intel for Abuse of Dominant Position; Orders Intel to Cease Illegal Practices', press release, IP/09/745, May 13th.
[3] European Commission (2006), 'Guidelines on the Method of Setting Fines Imposed Pursuant to Article 23(2)(a) of Regulation No 1/2003', *Official Journal of the European Union*, C 210/02. These guidelines partly followed those issued by the Netherlands competition authority. See NMa (2001), 'Richtsnoeren boetetoemeting met betrekking tot het opleggen van boetes ingevolge artikel 57 van de Mededingingswet', December.
[4] The question of whether companies can afford the fines was addressed in Oxera (2010), 'Fine to Pay? When Firms Cannot Afford to Pay the European Commission's Penalties', *Agenda*, March.
[5] See Becker, G. (1968), 'Crime and Punishment: An Economic Approach', *Journal of Political Economy*, **76**, pp. 169–217; Landes, W.M. (1983), 'Optimal Sanctions for Antitrust Violations', *University of Chicago Law Review*, **50**; Polinsky, A.M. and Shavell, S. (2000), 'The Economic Theory of Public Enforcement of Law', *Journal of Economic Literature*, **38**:1, pp. 45–76.
[6] European Commission (2006), op. cit., para 4.
[7] Levitt, S.D. and Dubner, S.J. (2005), *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*, William Morrow Ltd, chapter 1. The original study was Gneezy, U. and Rustichini, A. (2000), 'A Fine is a Price', *Journal of Legal Studies*, **1**, pp. 1–17.
[8] European Commission (2006), op. cit., para 6.
[9] See Oxera and a multi-jurisdictional team of lawyers led by Dr Assimakis Komninos (2009), 'Quantifying Antitrust Damages: Towards

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email g_niels@oxera.com

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