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When thinking about cartel sanctions, it is important to recognize that legal and cultural differences suggest that countries will adopt different approaches to cartel sanctions. That said, both the enforcement community and others interested in the subject should seriously consider the use of economic theory and the analysis of empirical data when developing their own sanctions program.

Two important issues arise when considering sanctions for hard-core cartel law violations. First, against whom (or what) should sanctions be imposed? Individuals, companies, or both? Second, what sanctions should be employed? Individuals can be fined or imprisoned; companies can only be fined. We address both these questions from the perspective of general deterrence.¹

With respect to private litigation, while it seeks primarily to protect a restitutionary interest, it also deters illegal conduct at the margin. While we briefly explore this issue, it is not central to the discussion.

The definition of “hard-core” cartels also merits discussion. Some jurisdictions, for example, may treat exchanges of information in much the same fashion as “hard-core” price fixing. Others have sometimes mistakenly characterized horizontal restraints associated with efficiency enhancing joint ventures as price fixing. Drawing on the work of the international enforcement community, and in particular the competition committee of the Organization for Economic Co-operation and Development (OECD), we use the term “hard-core cartels” to mean “an anticompetitive agreement, anticompetitive concerted practice or anticompetitive arrangement by competitors to fix prices, rig bids (collusive tenders), establish output restrictions or quotas, or share or divide markets by allocating customers, suppliers, territories, or lines of commerce.”² An overly broad definition of cartel behavior may deter firms from legitimate efficiency enhancing joint ventures as they strive to avoid conduct that might be misconstrued as illegal.

¹ Sanctions predicated on general deterrence seek to deter similarly situated individuals and companies from committing the same offense. Other reasons to punish include retribution, restraint, and rehabilitation. There seems little reason to be concerned in this context about restraint or rehabilitation, and although some might also include retribution and specific deterrence as other goals, there is a consensus that general deterrence is the most important.

Introduction
The economic theory of crime has consistently taught that there is a penalty that will generate optimal deterrence, i.e., that yields a net benefit for society. This basic conclusion arises out of the understanding that law enforcement has both costs and benefits, and that, therefore, it is not socially optimal to deter all crimes.

The optimal number of crimes to deter is the number at which the benefits of law enforcement are at least equal to the costs of law enforcement. Relevant factors in determining the appropriate balance include: (1) the cost of detecting a crime and convicting the criminal(s); (2) the type of penalty and its deterrent effect, e.g., monetary fines or custodial remedies; (3) the social benefit resulting from preventing the crime from happening in the first place; and (4) the cost of wrongly imposing a sanction on a non-violating party.

Economic theory also teaches that to achieve such a goal, the optimal penalty must be such that the firm or individual that may commit the crime internalizes the costs that would be imposed on the commonwealth if the crime were committed rather than trying to reap its potential benefits. To do so, the penalty must be based on harm, and “the optimal penalty will equal the harm from the offense” when the “enforcement costs are zero, and the probability of detection and punishment is one.” In the real world, with positive enforcement costs and a probability of detection that is less than one, the optimal penalty must actually exceed the harm to consumers and society as a whole.

The model discussed above is not without its critics. Gregory Werden and Marilyn Simon argue that the economics of crime analysis and use of fines advocated by Gary Becker and others is fundamentally flawed, ignoring as it does the need for custodial sanctions. Their objections are several, including the inability of most firms to pay a properly derived fine (taking into account both the injury associated with the overcharge and the losses to society) and the failure to take into account the agency problem. Many who find the Becker model to be useful also appreciate

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3 Becker, supra note 3, at 170.
4 See, e.g., Landes, supra note 4, at 653, 656 (stating that “[t]otal harm to consumers equals . . . the sum of the aggregate overcharge and deadweight loss” and finding that the optimal sanction should be equal to the net harm to customers plus the deadweight loss when the enforcement costs are equal to zero and the probability of detection is equal to one).
6 Michelle M. Burtis & Bruce H. Kobayashi, Regarding the Optimality of Cartel Fines, ABA CARTEL & CRIM. PRACT. COMM. NEWSLETTER, Spring 2017, at 22. This assumes risk neutrality on the part of the offender.
7 A risk-neutral person values a lottery with an expected value of $X the same as $X with certainty, where the expected value of a lottery is the sum of the potential outcomes multiplied by their respective probabilities. Thus, if a lottery offered one chance in 100 of paying $1,000 and otherwise paid nothing, its expected value would be $10 ($1,000 x 1/100). A risk-neutral person would be indifferent between a ticket in this lottery and a certain $10. A risk-averse person dislikes risk in the sense that he would prefer the certain $10 to the lottery. A risk-prefering person would prefer the lottery to the certain $10.
9 See Werden & Simon, supra note 8.
10 See notes 29–30 and accompanying text infra, for a discussion of both the consumer-producer transfer payment and the deadweight welfare losses to society.
11 See notes 19–22 and accompanying text infra, for a discussion of the agency issues.
Hard-core cartel activity has been described as “the supreme evil” and “the most egregious” violation of antitrust law.\textsuperscript{12} It has been widely recognized as capable of inflicting severe economic harm, and there has been a call to ensure that cartel activity is adequately “detected, deterred, and punished.”\textsuperscript{13} Indeed, some 125 jurisdictions around the world have competition laws, and almost all seek to impose sanctions to deter cartel activity.\textsuperscript{14} Due to the longevity and perceived success of its enforcement program, the experience of the United States is often looked to as a guide for others contemplating the implementation or revision of their programs.

U.S. law provides for monetary fines for both culpable firms and individuals and custodial remedies for individuals.\textsuperscript{15} Individual sanctions are thought necessary because cartels cannot exist without the active participation of human actors.\textsuperscript{16} The U.S. Sentencing Guidelines set forth relevant factors for judges to consider in imposing sanctions.\textsuperscript{17} A key factor in gauging the deterrent impact of these sentences is the probability of detection and punishment, which is necessarily less than one in the context of cartel activity.\textsuperscript{18}


\textsuperscript{13} Alison Jones & Rebecca A. Williams, The UK Response to the Global Effort Against Cartels: Is Criminalization Really the Solution, 2 J. ANTITRUST ENFORCEMENT 100 (2014).


\textsuperscript{15} For a discussion of the rationale for and a description of U.S. cartel sanctions, see Gregory J. Werden, Scott D. Hammond & Belinda A. Barnett, Deterrence and Detection of Cartels: Using All the Tools and Sanctions, 56 ANTITRUST BULL. 207 (2011). Other behavioral remedies are sometimes employed. For example, undertakings may be precluded from participating in public tenders, required to implement antitrust compliance programs, or be subjected to compliance monitoring.

\textsuperscript{16} Donald Baker, Deterring Cartels—The Criminalization Dimension 11, Competition Law Enforcement Seminar, Dublin (Mar. 23, 2012) (noting that “illegal conspiracies do not exist in the abstract; active participation by particular individuals is essential to the success of any conspiracy”).

\textsuperscript{17} See U.S. SENTENCING COMM’N, GUIDELINES MANUAL (2016), https://www.usc.gov/?sites/?default/?files/pdf/guidelines-manual/2016/GLMFull.pdf. U.S. courts are mandated to consider the Guidelines in the imposition of sanctions. 18 U.S.C. § 3551 et seq. Although courts were initially bound to follow the Guidelines, today they are treated as non-binding, although sentencing courts must consult the Guidelines. See United States v. Booker, 543 U.S. 220 (2005). Despite their non-binding character, they remain influential in the sentencing process.

\textsuperscript{18} Leniency programs have helped to increase this probability. See Nathan H. Miller, Strategic Leniency and Cartel Enforcement, 99 AM. ECON. REV. 750 (2009) (finding that from January 1, 1985, to March 15, 2005, leniency in the United States has yielded a 59% decrease in the formation of cartels and a 62% increase in cartel detection). If, prior to 1991, the rate of detection were around 15%, Miller’s model would predict approximately a 25% rate of detection by 2005, a detection rate that is hypothesized to be true. See, e.g., Douglas H. Ginsburg & Joshua D. Wright, Antitrust Sanctions, COMPETITION POL’Y INT’L 3, 8 (2010) (arguing that the probability of detection may be as high as 25 percent with leniency taken into account), But see Emmanuel Combe, Constance Monnier & Renaud Legal, Cartels: The Probability of Getting Caught in the European Union (Bruges Eur. Econ. Res. Papers, Mar. 2008), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1015061, (finding that the probability of detection in Europe ranged between 12.9% and 13.3%); Peter G. Bryant & E. Woodrow Eckard, Jr., Price Fixing: The Probability of Getting Caught, 73 REV. ECON. & STAT. 531 (1991) (finding that only between 13% and 17% of price fixers are successfully prosecuted during the time period studied in the United States). Although the Bryant and Eckard article contains outdated data and the methodology has been called into question, the literature in this area is not robust, and it is, with Combe, Monnier & Legal, one of the two most cited studies. However, as estimated by Miller, and theoretically supported by Ginsburg & Wright, the rate of detection has likely increased as a result of the success of modern leniency programs. Nonetheless, it is certainly possible, if not likely, that the probability remains significantly below one.
Which to Sanction: The Firm or the Individual?

Individual Sanctions. Although it is common practice to identify firms as cartel participants, it is well understood that firms can act only through human representatives (e.g., officers and employees) in committing cartel offenses. It is therefore necessary to discern whether sanctions on the firm or individual—or some combination of the two—are more appropriate to deter cartel activity. In order to do so, it is important to understand corporate governance and, in particular, the principal-agent problem: how the incentives of individual employees may not be aligned with those of their firm.

The principal-agent problem arises when management and ownership in the firm are not one and the same, as is true for the vast majority of firms. Employees, including officers, are hired as agents of firms to perform particular functions on behalf of the principal. These functions generally involve some decision-making authority that the principal delegates to the agent. Often, however, the incentives of the principal and those of the agent are not perfectly aligned. For example, the owner generally wants to maximize firm welfare, while employees are more interested in their own personal well-being, which includes taking actions that may or may not be in the best interest of the firm as a whole (i.e., engaging in ventures or activities that benefit the employee’s department to the detriment of another department). Therefore, the principal faces the problem of incentivizing the agent to align his or her interests with those of the firm. The principal-agent problem becomes more pronounced as separation between ownership and management of the firm increases, which is particularly true for large public corporations. A stockholder completely detached from the management of the corporation is generally concerned only with the value of the ownership interest, while a non-owner employee is generally concerned primarily with his or her own compensation, career prospects, and the like.

As a result, it is those employees who are the most “ambitious individuals seeking promotion, reputation enhancement, bonuses, or other indirect gains from appearing to have been more commercially successful than they really were” who most frequently participate in or facilitate cartel activity.

While the Sherman Act has always permitted criminal prosecution of individuals since its enactment in 1890, other jurisdictions are increasingly amending or adding new legislation permitting sanctions on individuals for cartel behavior. Many conclude that individual sanctions are “the
most appropriate and effective sanctions for antitrust violations” as “the individuals responsible for
the [antitrust violation] should be given a sufficient disincentive to discourage them from engag-
ing in the activity.”

Sanctions on the Firm. Most jurisdictions, including the United States, impose monetary
sanctions on firms found to have engaged in cartel activity. Properly calculated sanctions have the
potential to deter the firm from cartel participation by rendering it unprofitable, thereby providing
an economic incentive for compliance. Second, the prospect of sanctions may encourage firms
to implement compliance programs to discourage individuals from engaging in cartel activities.

How to Sanction: Monetary, Custodial, or Behavior? Or a Mixture?

Types of Sanctions. Monetary sanctions or fines, which can be imposed on firms and individu-
als, seek to deter by making cartel conduct unprofitable by recovering the harm—or increased
prices—that buyers suffered while the illegal activities were ongoing. Custodial sanctions, which
can be imposed on individuals, impose significant non-monetary costs—most notably the loss of
liberty—on culpable individuals to deter individuals from cartel conduct in the first place. The third
type of sanctions, behavioral remedies, can be imposed on firms or individuals, although behav-
ioral sanctions are generally imposed on firms and are aimed at preventing recidivism.

Economic theory suggests that in order for a monetary penalty to be sufficient, it must be based
on the harm caused to society and not to the consumer. This is because determining the harm
to consumers is much easier than determining the gain to the wrongdoer, and because total harm
includes both the overcharge, i.e., the consumer-producer transfer payment, and the injury asso-
ciated with the misallocation of resources, i.e., the deadweight welfare loss. Monetary sanctions
are also attractive because they contribute to the exchequer while many others impose costs on
the commonwealth. However, the effectiveness of the monetary penalty will largely depend on
both how the penalty is calculated and on upon whom it is imposed.

The objective of custodial sanctions is the same but determination of the appropriate sentence
is more difficult. While utility functions vary, there is little in the literature on optimal custodial sen-
tences for cartel behavior. Opinions differ, as is evidenced by the varied range of sentences pro-
vided for across jurisdictions. Moreover, the issue is complicated by the diverse factors relevant
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adopted regulations allowing for criminal sanctions on individuals. At least 34 countries impose criminal sanctions on individuals for car-
tel convictions. See MORGAN LEWIS, 2016 GLOBAL CARTEL ENFORCEMENT REPORT (2016), https://www.morganlewis.com/?pubs/2016-
year-end-global-cartel-enforcement-report. However, some jurisdictions, e.g., France and Germany, provide criminal sanctions for only a
limited set of hard-core cartel offenses, such as bid rigging or recidivist conduct.

26 See, e.g., Donald C. Klawiter, Antitrust Criminal Sanctions: The Evolution of Executive Punishm ent, 6 COMPETITION POL’Y INT’L 83, 83
(2010); Ginsburg & Wright, supra note 18, at 3.

27 Some jurisdictions provide credit for compliance programs when imposing sanctions on firms; others do not. We do not address that issue
here although it must be addressed when implementing a sanctions regime for cartel infringement.

28 See Landes, supra note 4, at 653 (noting that harm is equal to not only the supracompetitive prices paid by consumers but also the dead-
weight loss).

29 See supra note 6 and accompanying text.

L. REV. 331, 341 (1989) (“In the context of antitrust violations, the social loss used for calculating the optimal penalty is equal to the net
harm imposed on all parties (excluding, of course, the violators). In general this calculation will equal any increase in total payments made
by customers over what would have been the competitive price, plus the ‘deadweight loss’ associated with any reduction in output.”); William
of the aggregate overcharge and deadweight loss.”).
to sentencing. For example, some jurisdictions reduce sentences for cooperation; some do so for good behavior while incarcerated; and in others, the courts have very wide discretion in sentencing and may elect to impose probation rather than commit an individual to prison. Moreover, prison conditions vary widely among jurisdictions and often within the same jurisdiction. Nonetheless, it seems reasonable to assume that business executives are likely to be deterred by the near-certain deprivation of liberty for a non-trivial amount of time.31 Unfortunately, there has been little scholarship on what that entails.

Monetary Sanctions.

Fines on the Firm. Monetary fines are the most appropriate sanction for firms.32 But they are not without issues. First, history is replete with instances in which firms have been unable to pay appropriate fines and the reduced fine loses some or all of its deterrent character.

Second, there are cases where the firm appropriately implemented well-designed compliance policies and programs but where individuals, acting in accordance with their own incentives, engaged in illegal conduct, creating unavoidable liability for the firm. In these instances, the firm may be subjected to liability that it could not have reasonably avoided by actions of the firm alone.

Third, the ownership of the firm may have changed between the period of the illegal conduct and its discovery. Often, years pass before cartel behavior is discovered.33 This is particularly true where the equity stock of a firm is actively traded. A similar issue is presented when the firm has acquired an entity that has been engaged in cartel conduct but where the best due diligence could not have discovered the conduct.

Fourth, there is some evidence that monetary sanctions at current levels in some jurisdictions are inadequate to deter and would have to be much higher to do so, i.e., large enough to outweigh the potential benefit to the firm.34 More importantly, it is argued that fines would have to increase to such a level that many firms would be put into liquidation, which could impose significant external costs on employees, suppliers, and the community tax base.35

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31 See Werden & Simon, supra note 8, at 935 ("There are several reasons to believe that the marginal deterrent effect on price fixers and other white-collar criminals remains high only for rather short terms of imprisonment and then falls rather rapidly.").

32 As noted earlier, the penalty would need to significantly exceed the aggregate overcharge faced by consumers to take into account the fact the cartel detection rate is less than one. See generally, e.g., Bryant & Eckard, supra note 19; see also Margaret C. Levenstein & Valerie Y. Suslow, Contemporary International Cartels and Developing Countries: Economic Effects and Implications for Competition Policy, 71 ANTITRUST L.J. 801, 801 (2004); D. Daniel Sokol, Policing the Firm, 39 NOTRE DAME L. REV. 785, 793 (2013) ("Explaining high recidivism is the fact that a firm may be better off financially for participation in a cartel even after paying fines when caught.").

33 See generally Margaret C. Levenstein & Valerie Y. Suslow, What Determines Cartel Success?, 44 J. ECON. LIT. 43 (2016) (finding the average duration of discovered cartels from a number of studies is between 5 and 7 years).

34 See Emmanuel Combe & Constance Monnier, Fines Against Hard Core Cartels in Europe: The Myth of Overenforcement, 56 ANTI TRUST BULL. 235 (2011), (finding that the very high fines imposed by the European Commission are far too low and fail seriously to deter). See also Wouter Wils, Is Criminalisation of EU Competition Law the Answer?, in CRIMINALIZATION OF COMPETITION LAW ENFORCEMENT: LEGAL AND ECONOMIC IMPLICATIONS FOR THE EUROPEAN MEMBERS STATES 60, 79 n.9 (Katalin J. Cséres et al, eds, 2006) (finding that fines would have to be dramatically higher to effectively deter); Joseph E. Harrington, Jr., Antitrust Enforcement, in 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS 181 (Steven N. Durlauf & Lawrence E. Blume eds., 2008) (finding that even when high fines are imposed on firms, “financial penalties fall significantly short of making collusion unprofitable.”); Werden & Simon, supra note 8 (where the authors, drawing on U.S. Department of Justice data, illustrate that firms could not pay fines derived from the Becker model in a large number of cases); Werden, Hammond & Barnett, supra note 15, at 211; cf. Gregory J. Werden, Sanctioning Cartel Activity: Let the Punishment Fit the Crime, 5 EUR. COMP. J. 19, 30–31 (Apr. 2009).

35 It has been suggested that in cases of extremely high monetary fines, sanctions “may lead to bankruptcy of the firms in the market, which would result in a more highly concentrated market and potential monopoly by the remaining firm.” Sokol, supra note 32, at 796 & n.54. See also Catherine Craycroft, Joseph L. Craycraft & Joseph C. Gallo, Antitrust Sanctions and a Firm’s Ability to Pay, 12 REV. INDUS. ORG. 171 (1977).
Notwithstanding the above, most regimes impose monetary fines on firms found culpable of cartel conduct. The fact that they are arguably inadequate or inequitable does not mean that they do not have value for the reasons stated in the beginning of this section.

**Individual Fines.** Individual fines may assist in deterring cartel conduct and are widely employed by regimes that impose individual sanctions. However, they too present problems. Many doubt that meaningful monetary sanctions could be imposed on individuals at a level that would deter cartel conduct. Whatever rewards may have been obtained by individuals may have been expended on family, holidays, etc., and no longer available to satisfy monetary sanctions. Therefore, it is very plausible that in many instances, individuals will be unable to pay more than nominal fines.

Additionally, there is evidence that firms have directly or indirectly reimbursed individuals for monetary sanctions, and it is widely recognized that it can be difficult to prevent this practice.\(^{36}\)

**Custodial Sanctions.** Obviously, a term of imprisonment imposes significant costs on the individual; these costs include loss of liberty, the likely loss of income, and injury to career opportunities, to name but a few. The U.S. Department of Justice, which has been by far the most active competition authority in the imposition of custodial sentences, believes strongly in the deterrent value associated with such sanctions. Former U.S. Deputy Assistant General Scott Hammond has stated: “The best evidence of its impact is the fact that we have detected international cartels that fix prices everywhere around the world except in the U.S. . . . They have avoided extending the cartel activity to the lucrative U.S. market because they feared detection and going to jail.”\(^{37}\)

In addition, much of the U.S. cartel prosecution is of foreign firms whose conduct has had anticompetitive effects in the United States. Some argue that this is because executives of U.S. firms are more cognizant of the prospect of imprisonment and are accordingly deterred from participating in cartel conduct in the United States.

Opponents of custodial sentences argue that (1) the standard of proof in criminal cases is more difficult, thus permitting some cartelists to escape punishment; (2) such sanctions are costly;\(^{38}\) and (3) cartel offenses ought not to be criminal as a matter of public policy.\(^{39}\)

The first point is true; enhanced burdens of proof are common in criminal cases in most jurisdictions.\(^{40}\) Officials within the U.S. Department of Justice are quick to counter that notwithstanding the heightened standard, they have a very successful record of criminal prosecution.

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\(^{36}\) See, e.g., OECD, **Roundtables: Cartel Sanctions Against Individuals** 100 (2006), [https://www.oecd.org/competition/cartels/34306028.pdf](https://www.oecd.org/competition/cartels/34306028.pdf) (noting that because it is impracticable to prevent a firm from reimbursing an employee, “incarceration is the single greatest deterrent to the commission of antitrust offenses”).

\(^{37}\) Peter Scott, *Go Directly to Jail, Global Competition Rev.* (Nov. 2008), [https://globalcompetitionreview.com/insight/november-2008/1049240/go-directly-to-jail](https://globalcompetitionreview.com/insight/november-2008/1049240/go-directly-to-jail). Unfortunately, the Department of Justice has been unwilling to provide data that would substantiate this claim because of laws protecting the confidential nature of the evidence. See, e.g., Scott D. Hammond, *Caught in the Act: Inside an International Cartel*, OECD Competition Committee, Working Party No. 3, Public Prosecutor’s Program (Oct. 18, 2005), [https://www.justice.gov/atr/speech/caught-act-inside-international-cartel](https://www.justice.gov/atr/speech/caught-act-inside-international-cartel) (“Shortly after [the lysine] investigation became public in 1995 and cartel members realized that the FBI might be watching, [the DOJ] learned from cooperating defendants in several investigations that the cartels changed their practices in order to avoid having meetings or calls in the United States and tried, where possible, to exclude the participation of U.S. personnel in conspiracies.”).


\(^{39}\) See, e.g., Peter Whelan, *Cartel Criminalization and the Challenge of “Moral Wrongfulness,”* 33 OXFORD J. LEGAL STUD. 535 (2013).

Incarceration is costly. But the question is not just one of costs, which are fairly easy to measure, but also benefit, which is hard to quantify. Still, as noted above, the United States ascribes the success of its cartel enforcement to the availability and imposition of custodial sanctions.

The last proffered objection is more difficult, since it may be related to cultural differences. The United States criminalizes more conduct than do most countries. Other countries are less inclined to incarcerate, especially for white collar crimes. Leaving aside the severity of sentences, whether cartel offenses merit criminalization depends on whether one regards cartels as a form of theft or fraud—both of which merit criminalization in almost all jurisdictions. If so, why treat cartels more leniently than other crimes of theft and fraud? Nonetheless, there is serious opposition to the imposition of custodial sentences in many jurisdictions. This is also reflected in jurisdictions where cartel conduct is criminalized but where the courts refuse to impose custodial sentences on individuals convicted of criminal cartel offenses. In that context, it must be noted that, notwithstanding the availability of custodial sentences for cartel offenses since 1890, it was not until the 1970s that cartelists were routinely imprisoned in the United States. This may suggest that it simply takes time for judges to become comfortable sentencing “white collar” criminals to actual time in prison. Indeed, there is an increasing number of countries where the judiciary now seems more willing to commit cartelists to prison.

The fact that an increasing number of jurisdictions have criminalized cartel conduct and opted for the imposition of custodial sentences suggests that competition authorities and their governments ought to consider both the agency issues previously discussed and the wisdom of such sanctions.

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42 Clearly many jurisdictions do regard price fixing as a form of theft. Former head of the U.K. competition authority Sir John Vickers put it this way: “Since hard-core cartels are like theft, criminalization makes the punishment fit what is indeed a crime.” John Vickers, Address Before the British Chamber of Commerce 4 (Mar. 31, 2003). See also Joel Klein, former Assistant Att’y Gen., Address Before the ABA Section of Antitrust Law (Apr. 6, 2000) (stating that price fixers were simply “well dressed thieves”).

43 The Irish experience is illustrative. Ireland has criminalized cartel conduct for many years and yet not one defendant convicted of price fixing has actually served time in prison. Interestingly, the Irish Parliament, signaling its view of the serious nature of the offense, raised the maximum term of imprisonment to 10 years and vested jurisdiction in the Central Criminal Court, which has jurisdiction to try murder, treason, rape, and price-fixing cases.

44 See generally Werden, supra note 34, at 20–22 (noting that although custodial sanctions have been available for cartel activities since the Sherman Act was passed in 1890, the first 70 years did not see much use of custodial sanctions).

45 This was likely a factor in the U.S. experience, but the mandatory nature of the Sentencing Guidelines was probably much more important. By the time the mandatory nature of the Guidelines was overturned, judges had become accustomed to sentencing cartelists to prison.

46 Although slow to see the actual incarceration of cartelists, there is change in the air in Brazil, with at least one cartelist now in prison. Caroline Binham, Global Fines for Price-Fixing Hit $5.3bn Record High, FIN. TIMES (Jan. 6, 2015), https://www.ft.com/content/83c27142-95a8-11e4-b3a6-00144feabdc0. In 2016, a Canadian court sentenced an IT services firm executive to an 18-month suspended sentence for bid rigging. See Press Release, Competition Bureau Can., Former IT Senior Official Pleads Guilty, Commits to Assisting With Compliance Efforts (Aug. 24, 2016), https://www.canada.ca/en/competition-bureau/news/2016/08/second-individual-sentenced-for-rigging-bids-for-federal-government-contracts.html. In addition, the presidents of two bread companies in Israel were also sentenced to 12-month prison terms in 2016 by the Israel Antitrust Authority related to their participation in a conspiracy to fix the prices of bread in Israel. Dror Halavi, Two Sentenced to Prison in “Breadgate” Scandal, HAMODIA, Jan. 24, 2016, 6:08am, http://hamodia.com/?2016/?01/?14/?two-sentenced-to-prison-in-breadgate-scandal/.

47 See discussion supra note 25.
Although private rights of action to recover damages associated with cartel overcharges are generally thought to serve a restitutionary interest, they clearly deter cartel conduct to some extent. 50 Private damage litigation and awards can impose very significant costs on cartelists. 51 There is a debate as to whether the U.S. private damage system is a good model for emulation, but clearly a properly structured form of restitution would complement public sanctions in securing optimal deterrence. 52 This is likely to be the case when the victims of anticompetitive behavior—individuals from serving on boards of directors and other limits on career opportunities. 53 So, public and private enforcement might be complementary in some instances.

The Relationship Between Public Sanctions and Private Rights of Action for Damages

Although private rights of action to recover damages associated with cartel overcharges are generally thought to serve a restitutionary interest, they clearly deter cartel conduct to some extent. 50 Private damage litigation and awards can impose very significant costs on cartelists. 51 There is a debate as to whether the U.S. private damage system is a good model for emulation, but clearly a properly structured form of restitution would complement public sanctions in securing optimal deterrence.

The difficulty is whether to consider private enforcement in setting public sanctions. And, if so, how? Private enforcement might be seen by some as a partial substitute for public enforcement because both are means of generating deterrence. Indeed, while there will often be scale economies in “monopolistic” pubic enforcement, public enforcement can be costly from a budgetary perspective, and there will be occasions in which competition among private enforcers will generate efficiencies. 52 This is likely to be the case when the victims of anticompetitive behavior—and the plaintiffs’ attorneys who are likely to represent them—will have an incentive to bring suits. 53 So, public and private enforcement might be complementary in some instances.

Behavioral Remedies. Behavioral remedies can be imposed either on the firm or on the individual. Corporate behavioral sanctions are more common and widely accepted. They include such remedies as requiring the debarment from public procurement tenders, implementation of compliance or monitoring programs, and reporting to a monitor that submits reports to the government agency that investigated the illegal antitrust behavior. Individual behavioral sanctions are less common and have only been put in place in a few jurisdictions. Such sanctions include the debarment of individuals from serving on boards of directors and other limits on career opportunities. 48 The efficacy of individual behavioral sanctions, however, has been the subject of debate. 49


49 There are arguments for similar behavioral sanctions against individuals. However, the effectiveness of such sanctions in deterring cartel activities or punishing participation in a cartel is unknown. See generally, e.g., Ginsburg & Wright, supra note 19 (arguing that behavioral remedies, such as forbidding prosecuted individuals from being members on the boards of other firms or being hired into the position of CEO, might deter individuals from participating in cartels). But see Werden, Hammond & Barnett, supra note 15, at 216 (“So a lifetime term of disqualification might provide less deterrent punch than a year in prison.”).

50 The U.S. Supreme Court recognized the important role that private actions for damages plays in the U.S. context in Hawaii v. Standard Oil Co. of California, observing: “The treble-damages provision wielded by the private litigant is a chief tool in the antitrust enforcement scheme, posing a crucial deterrent to potential violators.” 405 U.S. 251, 262 (1972) (quoting Perma Life Mufflers, Inc. v. Int’l Parts Corp., 392 U.S. 134, 147 (1968) (Fortas, J., concurring)).


53 R. Preston McAfee, Hugo M. Mialon & Sue H. Mialon, Private v. Public Antitrust Enforcement: A Strategic Analysis, 92 J. PUB. ECON. 1863 (2008) (pointing to the knowledge advantage of private enforcement, but cautioning that private enforcers are more likely to use the antitrust laws strategically, to the disadvantage of consumers).
The topic is rendered even more complex because private rights of action vary radically from jurisdiction to jurisdiction: actual or punitive relief, pre-judgment interest or no interest, ability to sue absent a government prosecution, aggressive or limited discovery, symmetrical treatment of costs and attorneys’ fees, etc. As a result, without further analysis, one cannot be certain that fines in systems with active private enforcement should be somewhat lower than fines in systems without such enforcement.

Conclusion
The two questions are (1) who (or what) should be punished, and (2) how. While separate issues, both must be simultaneously considered, as the effectiveness of a sanction depends on both the type of actor and the form of the penalty.

Importantly, the effectiveness of a sanction depends in part on assumptions made about the probability of detection and punishment, because any penalty must take that into account. It is admitted that determining the optimal sanction when the rate of detection is not equal to one is difficult. The literature on incidence of cartel detection is sparse. Obviously more research is needed but given that it is clear that the probability of detection is not one, authorities must consider the probability of detection and punishment when setting cartel sanctions. Resort to the currently available data is necessary in the absence of a more robust literature.