AM I A PRICE-FIXER?
A BEHAVIORAL ECONOMICS ANALYSIS OF CARTELS

Maurice E. Stucke*

INTRODUCTION

General deterrence of cartels is the aim for competition authorities. The “generally accepted approach”\(^1\) under neo-classical economic theory is that price-fixers behave as “rational” profit-maximizers.\(^2\) Executives conduct “a cost-benefit analysis” to see if the benefit is worth taking the risk of being caught and punished.\(^3\) They weigh “the expected gains from the cartel multiplied by the probability of cartel detection.”\(^4\) To achieve optimal deterrence, the antitrust penalty (which includes civil damages and criminal penalties) levied against a cartel should equal the violation’s expected net harm to others (plus enforcement costs) divided by the probability of

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* Associate Professor, University of Tennessee College of Law.
4 ICN Report at 53
detection and proof of the violation. As a U.S. Department of Justice official told the U.S. Sentencing Commission, setting the antitrust fine at this optimal level “would result in the socially optimal, i.e., zero level of price-fixing.”

Yet despite (i) escalating criminal and civil fines in the U.S. (and abroad), (ii) treble private civil damages, (iii) longer jail sentences, and (iv) generous leniency program, the United States has not reached optimal deterrence. Before the U.S. responds with greater fines and jail sentences, it makes sense to evaluate several assumptions underlying optimal deterrence theory, and consider how the behavioral economics literature might shed light on achieving general deterrence.

This Chapter examines two key assumptions underlying optimal

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5 WM Landes, ‘Optimal Sanctions for Antitrust Violations’ (1983) 50 University of Chicago Law Review 652, 656, 666-68; see also Connor & Lande, ‘How High Do Cartels Raise Prices?’ at 516-17 (noting that both Chicago and post-Chicago schools of antitrust have adopted optimal deterrence theory); I Ehrlich, Crime, Punishment, and the Market for Offenses, 10 J. of Econ. Persp. 43, 46 (1996) (discussing more complex variations of this formula, which include an individual’s taste (or distaste) for crime, which includes the individual’s moral values, proclivity for violence, and preference for risk); GS Becker, ‘Crime and Punishment: An Economic Approach’ (1968) 76 Journal of Political Economy 169 (discussing how society can conserve enforcement resources and reduce the probability of detection by increasing the magnitude of the sanctions); LA Bebchuk and L Kaplow, ‘Optimal Sanctions and Differences in Individuals’ Likelihood of Avoiding Detection’ (1993) 13 International Review of Law & Economics 217 n1 (collecting qualifications of Becker’s maximal sanctions).

deterrence theory: first, humans are rational, self-interested and with willpower, and second, the antitrust crimes reflect a dispositional trait.

I. DETERRENCE OF CARTELS UNDER NEOCLASSICAL ECONOMIC THEORY

To deter cartels, the United States “has steadfastly emphasized the importance of individual accountability and stiff corporate fines.”7 In May 1999, the U.S. Department of Justice (DOJ) secured a $500 million antitrust fine, “the largest criminal fine ever imposed in the United States under any federal criminal statute,”8 against F. Hoffman-LaRoche, Ltd., for leading a worldwide price-fixing conspiracy for certain vitamins.9 In its 2007 fiscal year, the DOJ’s Antitrust Division obtained over $630 million in criminal fines, then the second highest level in its history.10 In 2008, the DOJ did better--securing over $696 million in fines.11 Between 2000-2008, the Division secured over $3 billion in criminal fines.12

7 SD Hammond, Deputy Assistant Attorney General for Criminal Enforcement, U.S. Dep’t of Justice, Antitrust Div., Recent Developments, Trends, and Milestones in the Antitrust Division’s Criminal Enforcement Program, presented at the ABA Section of Antitrust Law’s 56th Annual Spring Meeting (Mar. 26, 2008), http://www.justice.gov/atr/public/speeches/232716.htm. Believing that existing criminal penalties were suboptimal in deterring antitrust offenses, Congress over the past 35 years increased the Sherman Act’s criminal penalties to a maximum incarceration of 10 years, a corporate fine up to $100 million, and an individual fine up to $1 million. Alternatively, criminal fines in excess of the statutory maximum may be imposed pursuant to 18 U.S.C. § 3571(d), which provides for a fine of twice the gross gain derived from the crime or twice the gross loss of the victims of the crime, i.e. twice the gain derived by, or twice the loss caused by, the cartel rather than the defendant.

8 Hammond, ‘Recent Developments.’


10 Hammond, ‘Recent Developments.’


12 Between 2005 and October 7, 2009, the European Commission imposed over 9.5
The DOJ, unlike some law-and-economics scholars, believes that corporate (or individual) fines alone are inadequate to deter cartels. “As a corporate executive once told a former Assistant Attorney General of [DOJ]: ‘[A]s long as you are only talking about money, the company can at the end of the day take care of me . . . but once you begin talking about taking away my liberty, there is nothing that the company can do for me.’”

Since companies conspire to fix prices through individual employees, and the employer cannot reimburse the penalty of prison, the DOJ over the past 30 years has sought longer incarcerations, rather than larger individual fines. Over the years, average number of individuals incarcerated for antitrust violations has increased. In 2007, the DOJ’s Antitrust Division secured a record number of jail days (31,391) (which was more than double its 2005 record, and quadruple the highest annual record set before billion euros in fines against cartels, which is 2.6 times the amount imposed during the years 2000-2004. In addition, eight of the ten highest cartel fines were handed out between 2006 and 2009.


15 AAI Transition Report at 39 (average individual fine for period of 1990-2007 was $147,100).


17 Hammond, ‘Recent Developments.’
2000\(^{18}\) and record jail sentences for foreign nationals who violated the U.S. antitrust laws.\(^{19}\) In 2008, “the five highest totals in terms of annual jail days imposed in Division history have all occurred in the last six years, and the 12 longest jail sentences imposed in cases prosecuted by the Division all occurred during this stretch.”\(^{20}\) In January 2009, a 61-year-old executive was sentenced to 48 months in jail, the longest incarceration ever imposed for a single antitrust violation.\(^{21}\)

**A. Leniency Program**

Besides criminal fines and incarceration, the United States offers a carrot unique for any federal felony.\(^{22}\) Under its Corporate Leniency Program, as revised in 1993, “a corporation can avoid criminal conviction and fines, and individuals can avoid criminal conviction, prison terms, and fines, by being the first to confess participation in a criminal antitrust violation, fully cooperating with the Division, and meeting other specified conditions.”\(^{23}\) Amnesty is automatic for any antitrust violator if there is no pre-existing investigation, and may be available if the company cooperates

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\(^{18}\) Hammond, ‘Recent Developments.’

\(^{19}\) Hammond, ‘Recent Developments.’

\(^{20}\) Hammond, ‘Recent Developments.’

\(^{21}\) ‘Former Shipping Executive Sentenced To 48 Months In Jail For His Role In Antitrust Conspiracy’ 2/20/09 US Fed. News, 2009 WLNR 3343879.


after the investigation is underway, and all officers, directors, and employees of a corporation qualifying for automatic amnesty are protected from criminal prosecution. To make the amnesty program “even more effective at detecting and prosecuting cartels,” U.S. courts as of 2004 can limit civil private damages recoverable from a cooperating leniency applicant to single (rather than treble) damages.

The DOJ, among others, praised its Leniency Program as the “most effective investigative tool.” The majority of its “major international investigations have been advanced through the cooperation of a leniency applicant.”

B. Despite Record Fines and Jail Sentences, No Evidence of Optimal Deterrence

Although price-fixers prosecuted in the U.S. “are already being sent to jail with increasing frequency and for longer periods of time” and

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25 Hammond, ‘Recent Developments.’


27 Hammond, ‘Recent Developments’ (also commenting how 2007 was a “blockbuster year for showcasing the rewards of the Division’s Corporate Leniency Program”).

28 Hammond, ‘Recent Developments’ (noting among the major cartel prosecutions that arose from the Leniency Program were air transportation cartel, DRAM, Rubber Chemicals, Vitamins, and Graphic Electrodes); JM Connor, ‘Cartel Amnesties Granted: Worldwide Whistleblowers’ (May 20, 2009) 11 http://ssrn.com/abstract=1285469 (estimating 75% of all international cartels prosecuted between 1993 and 2008 with the assistance of an amnestied participant).

29 Hammond, ‘Recent Developments.’
criminal fines are at record levels, it remains difficult to quantify their impact in deterring cartel behavior. Unlike other crimes (such as murder or auto theft), cartels do not lend themselves readily to statistics of crimes committed and prosecuted. Detecting cartels is difficult. No reliable estimate exists of the number of illegal cartels operating today. Thus, the number of cartels prosecuted annually could represent 10% of all outstanding cartels or 90%—nobody knows.\(^{30}\)

Given this difficulty in detecting cartels, it is unknown whether the significant increases in criminal fines and jail sentences have significantly reduced the number and duration of illegal cartels. Another issue is causation. Besides criminal penalties, other factors, such as industry conditions (e.g., increased competition from entrants or changes in market demand) and active civil antitrust enforcement (such as enjoining mergers that significantly increase the likelihood of express collusion), deter cartel behavior. Likewise, lax civil antitrust enforcement may make anticompetitive mergers a more attractive option than collusion.

prosecutions can be misleading. Different administrations can have different antitrust priorities. The DOJ at times devotes more resources to prosecuting civil antitrust violations, such as monopolistic practices. Also the number of prosecutions does not necessarily equate with greater or lesser deterrence. Prosecuting more cartels can reflect ineffective antitrust enforcement elsewhere (such as permitting industry consolidation through mergers to the point where coordination becomes feasible). For comparisons in numbers to be meaningful, the total number of cartels or the probability of conviction, neither of which are readily quantifiable, must remain relatively constant. If the probability of conviction increases, then the number of price-fixing convictions may increase (if the overall number of cartels remains constant) or decrease (if the overall number of cartels decreases as cartel members are more concerned about prosecution). Similarly if the probability of conviction decreases (for example, due to changes in enforcement priorities), the number of convictions may decline (if the overall number of cartels remains constant) or increase (if total cartel activity increases given that administration’s lax antitrust enforcement). Thus, a low (or high) number of antitrust criminal prosecutions could reflect in theory aggressive or lax enforcement.31

31 For a critique on the reliance on antitrust enforcement statistics, see K Davidson, AAI Senior Fellow, ‘Commentary: Numerology and the Mismeasurement of Competition Laws’ (Sept. 29, 2008),
One could measure deterrence indirectly by the number of multinational cartels that intentionally carve out the United States. The DOJ identified “many cases” where it “discovered cartelists who were colluding on products sold in other parts of the world and who sold product in the United States, but who did not extend their cartel activity to U.S. sales.”

Although this is promising, other factors indicate that the U.S. has not reached optimal deterrence. Presumably increased detection would lead to cartels of shorter duration. This has not happened. The average duration of prosecuted cartels, according to one recent empirical review, “does not appear to have changed substantially over the past century.” Despite escalating prison terms and fines, price-fixers, observed one DOJ official, “tend to be recidivists.” The DOJ’s Antitrust Division has more attorneys now than it did when antitrust violations were misdemeanors, and these attorneys are busily prosecuting as many, if not more, cartels. At the close of its 2007 fiscal year, the Division had the highest number of pending cases.
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grand jury investigations since 1992.\(^{36}\) In 2008, the number of pending grand jury investigations increased.\(^{37}\) As a DOJ official remarked, “While there may have been years in the Division's history when there were more open investigations, there has never been a time when the Division’s docket involved so many matters of national and international scope affecting such massive volumes of commerce.”\(^{38}\) Major cartels (some detected under the Leniency Program) continued to operate after the Division’s publicized record criminal fine of $500 million against F. Hoffman-LaRoche. For example, the cartels involving thin-film transistor liquid crystal display panels\(^{39}\) and air transportation\(^{40}\) (which was among the “largest and most far-reaching antitrust conspiracies ever detected by the Division”)\(^{41}\) were formed after 1999. The “high tech international” DRAM cartel\(^{42}\) began approximately a month before the record $500 million fine and continued

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\(^{36}\) Hammond, ‘Recent Developments’ (135 pending grand jury investigations, including over 50 investigations involving suspected international criminal activity).


\(^{38}\) Hammond, ‘Recent Developments.’


\(^{41}\) Hammond, ‘Recent Developments.’

several years thereafter. As Business Week observed with the release of the movie, The Informant, “for all the splashy headlines, stiff sanctions, and caught-on-tape teaching moments generated by the ADM case, price fixing appears to be as pervasive as ever.”

With evidence that cartels are insufficiently deterred, the predictable response under optimal deterrence theory is to increase: (i) the probability of detection (which is difficult with the already generous corporate amnesty program to induce cartel members to implicate their co-conspirators) or (ii) the criminal (and/or civil) penalties, as they are presumably sub-optimal in deterring cartels. As one DOJ official predicted, new penalty milestones are forthcoming.

II. BEHAVIORAL ECONOMICS

Optimal deterrence theory assumes that rational offenders know of their act’s illegality, calculate their illegal acts’ likely costs and discounted benefits, and refrain from criminal action when the costs outweigh the benefits. Behavioral economics uses facts and methods from other social

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44 Hammond, ‘Recent Developments.’ For companies that commit additional wrongdoing but do not take advantage of the Amnesty Plus program, they potentially face a stiffer criminal sanction.
45 McAdams & Ulen, ‘Behavioral Criminal Law & Economics’ 2, 13 (noting that standard theoretical law-and-economics account of criminal behavior generally). Even if one accepts the assumption of rational agents, optimal deterrence theory suffers several problems when applied to cartels, including (i) the difficulties in empirically measuring deterrence, (ii) the difficulties in determining the probability of detection and harm, which may vary by industry, (iii) the difficulties in applying an optimal fine for a global conspiracy, (iv) the possible anticompetitive consequences of an optimal fine, and (v) the
Behavioral economics analysis of cartels—like psychology, neuroscience, and sociology—to understand the limits of this rationality assumption. Testing these assumptions in experiments, behavioral economists find that humans do not behave under certain scenarios as neoclassical economic theory predicts. Human behavior is more nuanced, diverse, and complex, and may vary depending upon situational variables.

A. Dispositional Factors
Criminals, at times, suffer bounded willpower, and knowingly (and contrary to their long-term interests) seek an immediate benefit with deferred costs.\(^{46}\) Of course not all criminals are alike. Some (such as heroin addicts seeking money for their next fix) may be more susceptible to hyperbolic discounting and bounded willpower than others.\(^{47}\) Presumably executives, who reached the position where they can influence corporate pricing decisions, have greater willpower than a heroin addict. Nor is price-fixing, which occurs for years, if not decades, a crime of passion. But if price-fixers are indeed rational profit-maximizers, why then did they violate the law in the first place? With so much to lose, the corporate executive in theory should not risk incarceration and being branded a felon. Either jail is


\(^{47}\) Half (50%) of convicted jail inmates were under the influence of drugs or alcohol at the time of the offense, 31% of jail inmates grew up with a parent or guardian who abused alcohol or drugs, and 46% had a family member who was incarcerated. http://www.ojp.usdoj.gov/bjs/crimoff.htm#jail.
an inadequate deterrent or the executives may not be as rational as their theoretical profit-maximizing counterparts.

Although executives may engage in some cost-benefit analysis, it is unknown how many executives, before fixing prices, actually calculate their likely fine and sentence under the Sentencing Guidelines. Many conspirators, aware of their actions’ illegality, go to great lengths to conceal their price-fixing. But one cannot assume that every individual is aware of the action’s criminality and likely criminal penalties.

Another issue is overconfidence bias, whereby cartel members overestimate their skills and ability to successfully collude and avoid detection. Executives, in several behavioral studies, were overconfident in their ability to manage a company, systematically underestimated their competitors’ strength, and were prone to self-serving interpretations of reality (such as taking credit for positive outcomes, and blaming the environment for negative outcomes). Groups also exhibited over-

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49 http://www.justice.gov/atr/cases/f229900/229993.pdf (responding to purported defense that unaware of violating the law); ABA Section of Antitrust Law, Antitrust Compliance: Perspectives and Resources for Corporate Counselors (2005) 32 (citing example of corporate ignorance of illegality of fixing mark-ups).
optimism, where pessimism is viewed as disloyalty.\textsuperscript{52}

A third issue is salience. Since the probability of detecting and prosecuting a cartel is unknown, such ambiguity should favor deterrence: even risk-seekers, the empirical evidence suggests, are averse to ambiguity.\textsuperscript{53} But price-fixers may suffer from the availability heuristic, as the “perceived probability of detection will depend not only how frequently offenses are detected but also on how salient or vivid the method of detection is.”\textsuperscript{54} Executives, like ordinary citizens, may overestimate the likelihood of those incidents that come readily to mind, and underestimate the likelihood of less salient events. Antitrust convictions may be salient to antitrust lawyers, but executives in industries without any recent antitrust prosecutions may underestimate the likelihood of getting caught.\textsuperscript{55} No other country incarcerates price-fixers at the levels of the United States. Even in the U.S., the number of prison sentences is relatively small. Between 1990 and 2007, the DOJ’s Antitrust Division secured prisons sentences for 284 individuals, not all of whom were convicted for antitrust

\textsuperscript{52} Engel, ‘Behaviour of Corporate Actors’ 10.
\textsuperscript{53} McAdams & Ulen, ‘Behavioral Criminal Law & Economics’ 22.
\textsuperscript{54} McAdams & Ulen, ‘Behavioral Criminal Law & Economics’ 18.
\textsuperscript{55} In one lab experiment, subjects played a repeated Bertrand price game with differentiated goods. The amount of fines paid by the subjects in previous rounds of the game had a significant and substantial negative effect on their willingness to communicate in the next round. M Bigoni et al., ‘Risk Aversion, Prospect Theory, and Strategic Risk in Law Enforcement: Evidence from an Antitrust Experiment’ (June 22, 2008) SSE/EFI Working Paper Series in Economics and Finance No. 696.
offenses. In contrast, in 2004 alone, state and federal courts in the U.S. convicted nearly 1,145,000 adults of felonies. Presumably white-collar crime is more salient to white-collar executives, who hear about antitrust crimes from corporate counsel, at compliance sessions, and in the business media. Some price-fixing prosecutions, such as the Sotheby’s and Christie’s auction house trial, are well-publicized. But the signals at times may be mixed. For example, the DOJ, during the Bush administration, prosecuted global cartels, but its civil antitrust enforcement significantly declined. In one study of public perceptions of deterrence, the surveyed U.S. respondents who were more educated and had higher incomes generally believed that a street crime was more likely than the white-collar crime of fraud to be detected and severely punished. Thus, some antitrust lawyers find the inclusion in the antitrust compliance program a former executive, whose career was ruined by a price-fixing scandal, to be highly effective.

B. Situational Factors
Another bias is the fundamental attribution error, when one over-

58 But see Kolasky, ‘Antitrust Compliance Programs’ (noting complaints from Antitrust Division’s field offices of “how sloppy many large, publicly traded companies have become about antitrust compliance”).
61 ABA, Antitrust Compliance 34.
values dispositional or personality-based explanations for other people’s observed behavior while undervaluing situational explanations for the behavior. People make “decision errors that not only harm others, but are inconsistent with their own consciously espoused beliefs and preferences—decisions they would condemn upon further reflection or greater awareness.”62 Do we view criminal behavior as largely attributable to some inherent dispositional flaw, which fortunately neither you nor I have? For example, one would think that government torturers and death squad executioners are inherently sadistic; their crimes simply reflect their inherent vices. Yet government torturers and death squad executioners, according to one study, were not “unusual or deviant in any way prior to practicing their new roles nor were there any persisting deviant tendencies or pathologies among any of them in their years following their work as torturers and executioners.”63 In fact, the Brazilian government weeded out sadists during the training process.64 Similar findings of normalcy were found in a study of 400 al-Qaeda members.65 So if torturers and suicide bombers are not inherently evil or pre-disposed to criminality, why should we presume corporate price-fixers are?

64 Zimbardo, Lucifer Effect 290.
65 Zimbardo, Lucifer Effect 291.
Missing in antitrust analysis today is the extent to which various situational factors contribute to criminal cartel activity. These situational factors do not excuse the corporate actors from their illegal actions. Instead, by examining these situational factors, corporations and policymakers can consider other means (besides higher fines and longer periods of incarceration) to deter cartels.

It is unlikely that many executives set out to violate the Sherman Act when joining their new employer or in their new position within the firm. Few probably envisioned themselves as felons in a federal correctional facility. Likewise, before his famous experiment, Stanley Milgram asked college students, psychiatrists, and middle-class adults for their predictions. No one predicted that the experiment participants would

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66 The test-subject and a confederate at the onset were told that the experiment was to test the effects of punishment on memory. To determine their assigned roles, the confederate and test-subject drew lots (which were rigged) so that the test-subject always received the role of teacher. The teacher-participant then administered a test where the confederate-learner was to memorize word pairs. Each time the confederate-learner gave a wrong answer, the teacher-participant was to administer an electric shock to the learner. A “shock generator” had 30 clearly marked voltage levels ranging from 15 to 450 volts. The instrument panel had designations from *Slight Shock* to *Danger: Severe Shock*. Two switches after the last designation were simply marked XXX. Unbeknownst to the teacher-subject, the confederate was not actually receiving electric shocks. The learner-confederate gave standardized responses. In one variation of the experiment, the confederate-learner pounded on the wall of the room in which he was bound to the electric chair after the 300-volt shock was administered. The teacher-subject could hear the pounding. After this point, the learner no longer responded; the experimenter instructed the teacher-subject to treat the absence of a response as a wrong answer, and to continue with the experiment. As the experiment proceeded, the teacher-participant was told to administer increasingly more intense shocks to the non-responsive confederate-learner, even to the point of reaching the level marked *Danger: Severe Shock*. The experiment actually sought to measure at what voltage level the teacher-participant would disobey and refuse to continue with the experiment. In later experiments, Milgram varied the situational factors to determine the extent to which they altered the degree of obedience.
administer shocks above 300 volts. They also predicted that nearly all the subjects would refuse to obey the experimenter, that only 4% of the subjects would administer 300 volts, and that only a pathological fringe (about 1 in a 1000) would administer the highest shock of 450 volts. They were uniformly wrong. In his primary experiment, 26 of the 40 subjects went to the end and administered 450 volts. Similar results occurred in recent versions of this experiment. Nor do dispositional “deeply aggressive” human traits explain the results of Milgram’s experiments. In one variation, where the 40 participants chose the voltage level, the average shock was only 60 volts, 3 subjects did not go beyond the lowest voltage, 28 subjects went no higher than 75 volts (where the confederate “learner” “grunted”), 38 subjects did not go beyond 150 volts (where the confederate-learner “protested”), only one subject administered 325 volts, and only one administered the maximum 450 volts.

Instead Milgram’s experiments highlight the importance of situational factors: how ordinary blue-collar workers and white-collar professionals, contrary to their own likely expectations, administered a lethal dosage of 450 volts to an unresponsive, and possibly dead, fellow
test-subject. Social psychologist Philip Zimbardo, the pioneer of the famous Stanford prison experiment, identifies from the social research situational factors that enable ordinary people to commit such evil acts. Granted the correlation between these situational factors and corporate fixing is imperfect, and other situational factors may provide better explanatory power for certain cartels. Nonetheless his factors may help explain why dispositional traits alone are insufficient to explain why corporate executives commit crimes, like price-fixing.

The first situational factor is to prearrange some form of contractual obligation, verbal or written, to control the individual’s behavior in pseudo-legal fashion. As Milgram’s experiments show, this obligation can be surprisingly fragile. The teacher-subjects were told that the experiment was voluntary and they could keep the money regardless. In contrast to the corporate executive, Milgram’s subjects were not threatened with the loss of employment or reduction in income, nor any social ostracism for failure to obey. Nor did Milgram’s teacher-subjects expect additional financial compensation for compliance, or the prospect of promotions and accompanying status. Nonetheless, most teacher-participants felt obligated to complete Milgram’s experiment.

Price-fixing cartels can range from one extreme (the docile middle-

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70 Zimbardo, Lucifer Effect 273.
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manager asked to implement the mechanics of the cartel) to the other extreme (the rogue employee who fixes prices unbeknownst to others within the company). Although the degree of initiative and compulsion varies along this extreme, in both extremes the corporate executives generally collude to increase corporate profits, the goal of any profit-maximizing firm.\(^1\) Unlike other white-collar criminals, such as inside traders and embezzlers whose interests are generally antagonistic to the corporation’s interests, the corporate price-fixers generally do not pocket directly the ill-gotten proceeds.\(^2\) Some executives benefit indirectly through higher bonuses and promotions. Thus the end of price-fixing, namely increased profitability, is often highly desirable from the corporation’s perspective. It is only when the means are exposed that the corporation’s interests conflict with those of its executives, and Jonah is tossed overboard. At times, the executives may be retained\(^3\) and even promoted.\(^4\)

\(^1\) Kolasky, ‘Antitrust Compliance Programs’ (DOJ has “rarely, if ever, seen a case where an employee who committed an antitrust violation was acting solely for his own benefit and not the company’s”).

\(^2\) ABA, *Antitrust Compliance* 31 (“history of antitrust prosecutions is rife with examples of ministerial employees who participated in the crime even though they personally would not profit”).

\(^3\) When news that Virgin Atlantic’s most senior director was embroiled in a price-fixing cartel, a company spokesman was asked if Virgin considered firing him. The company spokesman replied, “Not at all. The board discussed all this in 2006 and they fully supported him and the business has moved on.” A Osborne, ‘Virgin boss caught up in BA price fixing case’ Daily Telegraph (London 14 July 2009) 1.

The second situational factor is to give the participants meaningful roles to play (such as the “teacher” and “learner” in Milgram’s experiment) that carry with them previously learned positive values and automatically activate response scripts.\textsuperscript{75} Corporate price-fixers are not society’s outcasts.\textsuperscript{76} Indeed, they have sufficient clout within the company to oversee pricing and marketing decisions. One problem for many years was that US judges refused to incarcerate price-fixers, given their stature in society.\textsuperscript{77}

The third situational factor is to present basic rules that seem to make sense before their actual use, but “can then be used arbitrarily and impersonally to justify mindless compliance.”\textsuperscript{78} The basic rules in Milgram’s experiment made sense initially (the effect of a slight penalty (a mild shock) as an incentive to remember); the danger arose when the rules continued to be implemented when they no longer made sense.

Ethical transgressions in organizations, according to several studies, are attributable to many factors, including “unclear standards” and “pressure to perform.” For example, after being involved in over a dozen antitrust violations...

\textsuperscript{75} Zimbardo, Lucifer Effect 273.
\textsuperscript{76} One Westinghouse executive convicted in the electrical equipment price-fixing conspiracy, for example, was a vestryman of the local Episcopal Church. RA Smith, ‘The Incredible Electrical Conspiracy (Part I)’ (Apr. 1961) Fortune 132-33.
\textsuperscript{78} Zimbardo at 273.
cases in the 1940s, General Electric disseminated in the 1950s its written policy that employees must “conform strictly to the antitrust laws.” But GE executives were under tremendous corporate pressure to meet their departments’ financial goals. Each year, these managers had to budget for more profit as a percent of net sales as well as a larger percentage of available business. These “reach” goals were unattainable, according to some mid-level GE executives, absent collusion. If they failed to meet these “reach” goals, the GE executives could expect to be fired. As one GE executive rationalized, collusion may have been illegal “but it wasn’t unethical.”

Consequently some corporate higher-ups, as in one study, might view the price-fixing as “isolated incidents of human weakness tempted by the prevailing low morals in a few isolated industry subcultures.” In contrast, the mid-level managers closer to those convicted for price-fixing may attribute the blame to the conflicting company goals or moral gray zones where “[t]he need to survive conflicts with the drive to be super clean.”

The fourth situational factor is when the issue is reframed to

79 Smith, ‘Electrical Conspiracy’ (Part I) 135.
80 Id. at 172.
81 Id. at 135; see also Gino et al., ‘See No Evil’ 5.
83 Id. at 196.
disguise the unpleasant reality with a more desirable alternative. In Milgram’s experiment, the participants were “teachers,” who were “helping” the “learners.” Likewise, cartel members at times reframe their anticompetitive activity as ethical conduct that promotes a greater good. For example, professional associations label their members’ anticompetitive agreement as part of their “canon of ethics,” and rationalize the loss of competition, such as “the risk that competition would produce inferior engineering work endangering the public safety.” In the lysine price-fixing conspiracy, the president of ADM tells his competitor that ADM’s slogan, which “penetrated the whole company,” was: “Our competitors are our friends. Our customers are the enemy.” This was not hyperbole. ADM’s senior management distrusted their salespeople, who tended to

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84 National Soc. of Prof’l Engineers v. United States, 435 U.S. 679, 681 (1978); Leslie, ‘Trust, Distrust, and Antitrust’ 575-76 (discussing sugar cartel’s code of ethics). In a recent case, the Kentucky Real Estate Commission promulgated and enforced administrative regulations that banned real estate brokers and sales associates from competing with each other by offering consumers cash rebates or other inducements. Many brokers conceded that repealing or modifying the Commission’s rebate ban would generate a bidding war and lead to lower prices for consumers, but they offered various justifications, including the ensuing competitive behavior would make the realtors “look unprofessional in the eyes of the public.” Complaint filed in United States v. Kentucky Real Estate Commission, Civil Action No. 3:05-cv-00188-S (W.D. Ky. March 31, 2005), http://www.justice.gov/atr/cases/f208300/208393.htm. To prevent brokers from offering rebates or other inducements, the Commission among other things taught brokers in licensing courses to refrain from offering rebates and inducements; asked brokers to inform the Commission when competing brokers offered rebates or other inducements; and brought disciplinary actions against and sanctioned brokers for offering rebates or other inducements. Competitive Impact Statement filed in United States v. Kentucky Real Estate Commission, Civil Action No. 3:05-cv-00188-S (W.D. Ky. July 26, 2005), http://www.justice.gov/atr/cases/f210200/210274.htm.

become advocates for their customers and cut price; ADM, in fact, fired their best salesman for discounting off the cartel price. Thus, price-fixing may be reframed as honoring one’s word with competitors.

The fifth situation factor is to create opportunities for the diffusion of responsibility or abdication of responsibility for negative outcomes. In Milgram’s experiment, the experimenter (who was actually a 31-year-old high school biology teacher) in a firm but polite voice used a series of prods to instruct the teacher-participant to go on. In another variation of Milgram’s experiment, the teacher-participant only administered the test, while a confederate administered the shock for every wrong answer. In this situation, the degree of compliance was even higher: 37 of the 40 participants proceeded to the highest level of voltage. Similarly responsibility for the cartel is diffused when senior executives reach the terms of the cartel but leave its implementation to lower-level executives.

Greater compliance may also be attributable to the reduced salience, as the teacher-participant was not directly administering the shock. Two variations of Milgram’s experiment demonstrate the impact of increased salience on compliance: fewer teacher-participants administered the maximum voltage when the confederate-victim was in the same room, and

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87 Leslie, ‘Trust, Distrust, and Antitrust’ 575-76 (**CHECK CITE**).
88 Zimbardo, Lucifer Effect 274.
89 Milgram, Obedience to Authority 122.
compliance was even less when the teacher-participant had to force the victim’s hand on a shock plate.\(^9\) Behavioral economist Dan Ariely found a higher degree of cheating when the graduate students were paid in tokens (rather than directly in cash) for every correct answer. Even though the tokens were immediately redeemable for cash, the intermediary step made cheating less salient and easier to justify (much like taking a pen, rather than a dollar bill, from the office supply closet is easier to justify).\(^1\) People generally perceive indirect harms less problematic than direct harms.\(^2\) Likewise price-fixing may be easier for cartel members who do not directly deal with the end customer, such as cartels for intermediate manufactured goods and services.\(^3\) Despite cartels’ greater harm to the economy and consumers than petty crime, price-fixing is less salient than if the corporate executives broke into the consumers’ home and stole their televisions.\(^4\)

\(^8\) Milgram, Obedience to Authority 34.
\(^1\) Gino et al., ‘See No Evil’ 11.
\(^3\) Levenstein & Suslow, ‘Determinants of Cartel Duration’ 11; Connor & Helmers, ‘Statistics on Modern International Cartels 1990-2005’; Gino et al., ‘See No Evil’ (discussing identifiable victim effect where people have greater concern for identifiable, than statistical, victims).
\(^4\) One recent survey of Great Britain residents found weak support for imprisoning price-fixers, few compared price-fixing to theft and fraud, and 65% had trouble relating price-fixing to another kind of illegal act with which they were familiar. A Stephan, ‘Survey of Public Attitudes to Price-Fixing and Cartel Enforcement in Britain’ (May 2007) CCP Working Paper 07-12 17-19, http://ssrn.com/abstract=993407. With the Sherman Act over a century old, American may take a more severe attitude toward price-fixing. In the DOJ’s 1985 survey of crime severity, the respondents deemed the “hard-core” antitrust crime a more serious crime than someone “armed with a lead pipe, rob[bing] a victim of $1,000. No physical harm occurs.” M Wolfgang et al., National Survey of Crime Severity viii (U.S. Government Printing Office 1985).
The sixth situational factor fostering criminality is to begin with a “small, seemingly insignificant first step, the easy ‘foot in the door’ that swings open subsequent greater compliance pressures, and leads down a slippery slope.”95 In Milgram’s experiment, the first steps were seemingly innocuous: a mild 15-volt shock, which was less than the slight tingly pain from the 45-volt sample shock each teacher-participant received.

Although the DOJ does not publicly account how cartels originated, it is unlikely that many cartels originated in a smoke-filled room; instead they likely arose innocuously out of social networks.96 The price-fixing conspiracy can begin innocuously with friends sharing helpful pieces of competitively-sensitive information. For example, managers in the Sydney hotel industry, as part of their friendships, regularly shared competitive information about price and occupancy.97 Although the authors did not find any evidence of explicit collusion, they did find a norm within this social group against price-cutting.98

The seventh situational factor on the path to evil is to successively increase the level of activity by small incremental steps, in such a way “that

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95 Zimbardo, Lucifer Effect 274.
98 Ingram & Roberts, ‘Sydney Hotel Industry’ at 392-93.
they are hardly noticeably different from one’s most recent prior action.”

In Milgram’s experiment, the voltage increased in 15-volt increments. Each step increase seemed minor relative to the past voltage. The teacher-participant does not see the number of volts in isolation but relatively as 15 additional volts. If the teacher-participant was capable of administering 300 volts, then 15 additional volts seems relatively minor. Thus, a “gradual increase in the size of demands is an effective tactic for changing attitudes and behavior.”

Likewise, it would be interesting to see how cartels develop and evolve. Informal sporadic information exchanges can progress to more regular formal information exchanges that lead to mutual accommodations over particular geographic markets or customers. Each step takes the cartel members closer to the smoke-filled room.

The eighth situational factor is the just and reasonable leader changes gradually in becoming more demanding and unjust. Take for example, the 61-year old former Sea Star Line executive who after pleading guilty received in 2009 the longest sentence ever for an antitrust

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99 Zimbardo, Lucifer Effect 274.
100 JM Burger, ‘Replicating Milgram: Would people still obey today?’ (Jan 2009) American Psychologist 1, 3; Gino et al., ‘See No Evil’ 16 (discussing change blindness where individuals are less likely to notice others’ unethical behavior when it occurs in small increments).
102 Zimbardo, Lucifer Effect 274.
violation. His attorney argued at the sentencing hearing that the senior vice president participated in the price-fixing scheme under orders from the company’s part-owner, who “was powerful,” “threatened and directed the termination of employment at others at Sea Star,” and “significantly intimidated” the executive. Nor did the former naval officer, according to his defense attorney, personally profit from the price-fixing scheme; he participated in it “only to keep his job.”

Here a couple of factors come into play. One involves the prevalent ethical and moral norms within this corporate culture. In one variation of Milgram’s experiment, when two lab experimenters of equal status gave incompatible demands, no shocks were delivered past the point of disagreement. Thus, moral corporate leadership can play an important role to signal to lower level employees that illegal conduct is unacceptable. As a senior antitrust official during the Bush administration observed,

A culture of competition must begin at the very top of the company. Respect for the law is a necessary, but not sufficient, condition. Senior management must value competition and must be vocal in making that commitment known to employees. In the cases we prosecute, we find almost invariably that in companies that violate the antitrust laws, the tone of disrespect for the law and for

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106 Milgram, Obedience to Authority 107.
competition permeated the entire company, usually starting at the very top. Look at some of the people we have prosecuted: Alfred Taubman, the chairman and principal shareholder of Sotheby's; Mick Andreas, son of the long-time chairman and CEO, Dwayne Andreas, who was himself being groomed to take over the reins. In fact, ADM is a particularly good illustration of the kind of corporate culture that breeds antitrust crimes. It was a culture that believed, as one senior executive put it, that, "Our competitors are our friends. Our customers are the enemy." Both in representing defendants in criminal investigations in private practice and now as a prosecutor, this is exactly the attitude I've found in almost every company that commits antitrust crimes. And it's an attitude that can be changed only if the company's senior officers and directors all believe in the value of competition and communicate to their employees.107

Some senior executives may view antitrust compliance as an annoyance, meant for lower-level employees, and not themselves.108 One recent survey of British residents asked whether price-fixing is harmless or harmful and whether it should be punished. Although the overwhelming majority across all categories considered price-fixing harmful, a higher percentage of senior-level management considered price-fixing as harmless compared to junior executives and non-executives.109

Nor are cartels necessarily a few isolated mid-level executives gone wild. Sixty-nine percent of all individual criminal defendants between 1955 and 1997 were corporate officers.110 Similarly, another study found that

107 Kolasky, ‘Antitrust Compliance Programs.’
108 ABA, Antitrust Compliance 34.
110 Gallo et al., ‘DOJ Antitrust Enforcement’ 104-7; see also Stephan, ‘Hear No Evil, See No Evil’ 8-10 (collecting employee positions of 40 international cartels prosecuted between 1998-2008).
successful cartels “will often develop a hierarchy, separating high-level policy decisions made by executives from the more frequent ongoing monitoring and negotiations undertaken by lower-level managers.”\textsuperscript{111} In the citric acid cartel, for example, a group of senior executives, who called themselves “the masters,” negotiated the cartel’s broad terms, while a second level of executives, the “sherpas,” worked out the details.\textsuperscript{112}

Thus illegality may infect the entire corporate culture. One survey of 283 international cartels found 174 instances of recidivism during the period of 1990-2005, with 11 companies having 10 or more convictions during this period.\textsuperscript{113} Cartels in one industry spillover to adjacent markets and “involve one or more common players from other cartels.”\textsuperscript{114} Consequently, the DOJ has initiated an “Amnesty Plus” program whereby when a “company already under investigation discovers the additional, unrelated wrongdoing before the Division,” then qualifying companies can receive amnesty for reporting the second offense, and an additional discount when calculating an appropriate fine for its participation in the first conspiracy.\textsuperscript{115} Moreover, if the corporate culture prizes self-interest, and

\textsuperscript{111} MC Levenstein & VY Suslow, ‘What Determines Cartel Success?’ (2006) 44 J. Econ. Lit. 43, 44 (median duration in wide range of studies of cartels is 5-6 years).


\textsuperscript{113} Connor & Helmers, ‘Statistics on Modern International Cartels 1990-2005’ 23 (finding 170 companies to be price-fixing recidivists, of which 11 companies were caught 10 or more times fixing prices).

\textsuperscript{114} Hammond, ‘Recent Developments.’

\textsuperscript{115} Hammond, ‘Recent Developments.’ For companies that commit additional
doing whatever it takes to raise corporate earnings, then antitrust may not be the only corporate crime, as executives bribe foreign officials, inflate earnings or dump toxic chemicals.

Besides the company’s ethical and moral norms, a second factor is the extent within this corporate culture that co-workers are encouraged to and actually do dissent. Ethical transgressions in organizations may be attributable in part to “intolerance of criticism.” However, dissent is meaningless if the company employees continue their descent to criminality. The teacher-subjects in Milgram’s experiments, for example, could dissent, and many did. Despite their protestations, many teacher-subjects still continued with the experiment.

Verbal dissent must transform into non-compliance. In one variation of Milgram’s experiment, two confederates and the subject administered shocks. When the two confederates disobeyed and refused to go beyond a shock level, 36 of the 40 subjects refused to go along as well. Consequently, for antitrust compliance to be effective, a company should promote whistle-blowing to either the senior executives or outside board members. As Kolasky noted, “In addition to strong, positive leadership, it is important also that a company have sound incentive wrongdoing but do not take advantage of the Amnesty Plus program, they potentially face a stiffer criminal sanction.

117 Milgram, Obedience to Authority 118.
structures in place. There should be strong negative incentives against violating the antitrust laws and strong positive incentives for reporting and deterring violations.***118

Besides corporate culture there are issues of industry culture. To facilitate trust, cartel members may promote a group identity with its own ethical norms of behavior.119 For example, athletes abide by unwritten rules to ensure a “fair” contest.120 So too industries may develop rules as to fair competitive behavior, and punish sharp business practices. Realtors, for example, condemn as “unethical” another broker “poaching” another realtor’s clients.121

Neoclassical economic theory, however, predicts that cartel members, in pursing their economic self-interest, can destabilize cartels, and cartels with more members are inherently less stable, than cartels with

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118 Kolasky, ‘Antitrust Compliance Programs.’
120 For example, professional cyclists (generally from different teams) often breakaway from the main body of riders (the peloton). To prevent the peloton from catching them, the breakaway cyclists must cooperate by taking turns riding up front. To take advantage of the slipstream, the cyclists often ride behind one another. Thus, the cyclist up front is working harder than others in the paceline. See Bicycle Racing Terminology: A Primer, http://www.amgentourofcalifornia.com/Peloton/glossary.html. Moreover, the peloton riders enforce unwritten norms such as discouraging tactical attacks during feed zones or bathroom breaks. R Hodgetts, ‘Cycling's gentleman's club’ BBC SPORT, July 22, 2003, at http://news.bbc.co.uk/go/pr/fr//sport2/hi/other_sports/cycling/tour_de_france_2003/3086279.stm.
121 Virginia Association of REALTORS®, StraightTalk-- a guide to understanding the Code of Ethics -- Thoughts on Article 16 Working with other REALTORS® (“Don’t try to steal clients from other brokers. This and disagreements over money are perhaps the biggest source of conflict between REALTORS®, . . . Go to any city in America and the REALTORS® in that town can tell you who has a reputation for unfairly poaching clients. You don’t want that reputation because it will kill your business over time.”), http://thecodeisgoodbusiness.com/code/working-with-realtors.aspx.
fewer members.\(^{122}\)

But as the Antitrust Division's former Deputy Assistant Attorney General William Kolasky observed in 2002, cartels “can involve a surprisingly large number of firms.”\(^{123}\) Professor John Connor examined 516 private hard-core cartels that were subject to government or private legal actions (i.e., formal investigations, damages suits, fines, or consent decrees) between January 1990 and December 2008.\(^{124}\) Cartels with 3 or fewer companies accounted for less than 30% of the sample, while cartels with 11 or more companies accounted for 17.6% of his sample, and tended to be bid rigging or assisted by a strong trade association or both.\(^{125}\) When

\(^{122}\) The fewer the competitors, the less likely the divergence in their preferences over the collusive equilibrium (how much to restrict output and increase price), the fewer the options for buyers (and ability to play one competitor off the other), and the greater the impact each competitor has on price (thus making cheating by anyone more noticeable). In reviewing their recent merger data, the antitrust agencies state that “[a]lthough large market shares and high concentration by themselves are an insufficient basis for challenging a merger,” Fed. Trade Comm'n & Dept. of Justice, Merger Challenges Data, Fiscal Years 1999-2003 (2003) 2, [http://www.usdoj.gov/atr/public/201898.htm](http://www.usdoj.gov/atr/public/201898.htm). This assumption would be empirically sound if tacit or express collusion does not occur in moderately to unconcentrated markets (HHIs below 1,800). The DOJ, however, has criminally or civilly prosecuted cartels in unconcentrated or moderately concentrated markets, the structure of which, under the Merger Guidelines, should not be susceptible to such collusion. Levenstein & Suslow, “What Determines Cartel Success?” 58 (finding no simple relationship between industry concentration and likelihood of collusion).

\(^{123}\) Kolasky, ‘Antitrust Compliance Programs.’

\(^{124}\) JM Connor, ‘Cartels & Antitrust Portrayed: Internal Structure—Private International Cartels 1990-2008’ (Apr. 3, 2009) 4, [http://ssrn.com/abstract=1372849](http://ssrn.com/abstract=1372849). Interestingly, there was a higher percentage of even-numbered cartels than odd-numbered cartels. Each additional conspirator, as economic theory goes, should increase the difficulty in cartel members reaching the terms of coordination and detecting and punishing any cheating thereto. So one would expect fewer cartels with 11 members, than 10 members. But there were more cartels prosecuted with 4 conspirators than cartels with 3 conspirators, more cartels prosecuted with 8 conspirators than those with 7, and more cartels prosecuted with 10 conspirators than with 9 (or 7) conspirators.

\(^{125}\) Connor, ‘Cartels & Antitrust Portrayed’ 4.
a third-party (e.g., trade association) was involved with the cartel, the cartels generally had more conspirators.\textsuperscript{126} Moreover the average number of companies involved in the cartels is slightly higher during the period of 2000-08 than between 1983-99.\textsuperscript{127}

This is not a recent phenomenon. Judge Posner in his 1970 survey found a large proportion of DOJ and FTC cases “in industries not normally regarded as highly concentrated.”\textsuperscript{128} One empirical analysis of successfully prosecuted cartels between 1910 and 1972 likewise showed that cartels on average had many participants: where a trade association facilitated collusion, 33.6 firms was the mean of firms involved, and fourteen firms was the median; in price-fixing cartels (without a trade association involved) 8.3 firms was the mean and six was the median.\textsuperscript{129}

Indeed, a study of the government's price-fixing actions brought between 1955 and 1965 found no statistically significant relationship

\textsuperscript{126} With third-party support the average number of firms in the cartel was 16.7 (with a median of 7), versus an average of 7.4 (with a median of 4.5) where there was no alleged third-party involvement. Connor, ‘Cartels & Antitrust Portrayed’ 8.
\textsuperscript{127} Connor, ‘Cartels & Antitrust Portrayed’ 4; Levenstein & Suslow, ‘Determinants of Cartel Duration’ 12 (finding mean number of 7.4 cartel members from international cartels prosecuted between 1990-2007).
\textsuperscript{129} AG Fraas & DF Greer, ‘Market Structure & Price Collusion: An Empirical Analysis’ (1977) 26 J. Indus. Econ. 21, 36, 41; see also OECD Directorate for Financial, Fiscal and Enterprise Affairs, Competition Committee, Report on the Nature and Impact of Hard Core Cartels and Sanctions Against Cartels Under National Competition Laws 3, 7 (Apr. 9, 2002), http://www.oecd.org/dataoecd/16/20/2081831.pdf (one characteristic that recurred repeatedly in a survey of 119 cases prosecuted by 15 OECD member countries between 1996 and 2000 was the existence of an industry trade association that provided the opportunity for conspirators to meet and agree).
between industry structure (i.e., concentration) and propensity to price-fix.\textsuperscript{130} Of all defendants in national industries that were convicted of price-fixing, approximately seventy percent were in low to moderately concentrated, barely concentrated, or atomistic industries. Likewise, the GAO studied enforcement and investigative resources spent by the Department of Justice on horizontal price-fixing violations in manufacturing industries. As the GAO reported in 1980, only thirty-three percent of the government's resources were aimed at concentrated industries, and only twenty-three percent of the litigation efforts were in these industries.\textsuperscript{131}

The Chicago School’s neoclassical economic theories also posit that cartels are inherently unstable. But many conspiracies, including those with eleven or more conspirators, can last for years, if not decades.\textsuperscript{132} The average duration of successfully prosecuted international cartels in the period of 1983-94 was approximately 90 months; the average duration declined below 80 months for cartels prosecuted between 1995-99, and has


\textsuperscript{132} Connor, ‘Cartels & Antitrust Portrayed’ (finding cartels’ median duration was 57 months, with a mean duration of 82 months, and that global cartels lasted 57% longer than the average cartel); Levenstein & Suslow, ‘What Determines Cartel Success?’ 44, 51-52 (noting that duration is bimodal, with cartels lasting only one year, and twice as many lasting between four and six years).
trended upward to nearly 90 months for the period of 2005-08. Indeed, as Posner found, of cartels with more than 10 members, 64% lasted six years or more and 32% lasted more than 10 years, which represent higher percentages than cartels involving 10 or fewer members.

The anomaly becomes apparent. Why are cartels more durable than the Chicago School’s neoclassical economic theory posits? One answer may lie in the behavioral economics research: namely, price-fixers, like the test subjects in other experiments, may be more trustful and cooperative than rational choice theory predicts. As the behavioral experiments show, where trust will lead to more favorable outcomes, people tend to trust at a higher level than if all are operating under a traditional game theory. Recent studies of cartels have found the striking sophistication of their organizational structure, including compensation schemes to handle variations in demand for each cartel member’s products. Such

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133 Connor, ‘Cartels & Antitrust Portrayed’ 11; see also Kolasky, ‘Antitrust Compliance Programs’ (“[c]artels are more durable [than] sometimes thought. After the ADM plea, the Wall Street Journal stated ‘If colluders push prices too high, defectors and new entrants will set things right.’ Our experience has shown that this is not the case. Several of the cartels we prosecuted had been in existence for over ten years, including one (sorbates) that lasted 17 years, from 1979 to 1996.”).


135 T Chorvat, ‘Law and Neuroeconomics’ (2005) 13 Sup. Ct. Econ. Rev. 35, 43; CF Camerer, ‘Behavioral Game Theory: Predicting Human Behavior in Strategic Situations’ in Advances in Behavioral Economics 374, 378 (Camerer ed., 2004) (summarizing trust games). Other neuro-economics literature suggests that some people are more likely to be trustful and tend to cooperate, while others are more likely to behave according to the standard game theory predictions. Chorvat at 55. Trust then can be either socially beneficial or detrimental, and each individual’s level of trust may vary.

compensation schemes, as one recent study found, reflect “the level of organizational trust and cohesion necessary to implement such a scheme.” In fact, one recent study of 81 international cartels found that many cartels suffer from a little cheating. Although the compensation schemes minimized the incentives to cheat, it may be also that the cartel members were not ruthlessly seeking ways to still cheat. Those cartels that resorted to punishing cheaters were less stable and more likely to suffer a natural death than cartels that did not implement retaliatory punishments in response to perceived cheating.

Social norms, long-standing personal relations, and peer pressure may also facilitate trust in cartels with many members. In the DOJ’s NASDAQ antitrust case, an accepted business norm among the NASDAQ market-makers was not to trade for certain stocks in odd-eighth increments (such as quoting a bid or ask price for that stock at $10\frac{1}{8}$) but only in even-eighth increments (such as $10\frac{1}{4}$). This quoting convention, according the DOJ’s civil complaint, had the effect of increasing the spread and the NASDAQ market-makers’ profits. After reaching this common understanding to adhere to this quoting convention, the defendants, which included all the leading Wall Street investment firms, allegedly used peer pressure to enforce it. According to the DOJ’s complaint, Wall Street

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137 Levenstein & Suslow, ‘Determinants of Cartel Duration’ 29.
138 Levenstein & Suslow, ‘Determinants of Cartel Duration’ 29.
executives made it known throughout the industry that it was “unethical” or “unprofessional” for a market maker to “break the spread” by using odd-eighth quotes in stocks with dealer spreads of three-fourths of a point or greater and accused market makers who did so of “making a Chinese market.” This peer pressure also included coercing non-complying market makers to adhere to the common understanding. Such coercive tactics included, among other things, making telephone calls to market makers who had violated the quoting convention or narrowed the inside spread, or refusing or threatening to refuse to deal with traders and firms that violated the quoting convention.

A ninth situational factor is to make exit costs high. In Milgram’s experiment, the exit costs for the teacher-participants were nominal. The teacher-participants had no social bonds with the lab workers. They committed themselves only to an hour for the study, and were paid at the beginning of the survey $4.50 (including 50 cents for carfare). This payment, they were told, “was simply for coming to the laboratory, and that the money was theirs no matter what happened after they arrived.” To extricate themselves from this experiment, they need only walk out of Yale University’s Linsly-Chittenden Hall. Yet few did.

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141 Zimbardo, Lucifer Effect 274.
In contrast, the exit costs for cartel members are greater. The executives likely have social bonds with their co-workers and industry participants.\textsuperscript{143} Their identity may be intertwined with their employer, which brings them status within their community. Consequently, unlike white collar criminals who can weigh, and switch between, the legitimate earnings and illegitimate gains (such as through insider trading), an executive engaging in price fixing has higher switching costs. The antitrust violator, after all, colludes with the other major companies in that industry. To extricate themselves from the cartel, the executives must not only exit the company, but depending on the cartel’s geographic scope, the industry altogether. Whistle-blowing may earn the honest employee the reputation of “troublemaker” and traitor.\textsuperscript{144} Thus, only 20\% of respondents in one recent survey were willing to immediately report a large company’s price-fixing to authorities: 14\% would not report it because they feared too much at stake and that they might lose their job, and 2\% would not report because they believed price-fixing should be legal. Contrary to the assumption of self-interested maximizers, only 6\% required a monetary bounty in addition

\textsuperscript{143} Leslie, ‘Trust, Distrust, and Antitrust’ 565-68 (describing social friendships among cartel members). Moreover, as in Zimbardo’s prison experiment, group camaraderie & emergent social norms may influence behavior. Students were randomly assigned into two groups: Prison Guards and Prisoners. While the experiment was scheduled to go for a couple of weeks, it was stopped after 6 days. Even though everyone involved knew that the experiment involved students, who were randomly assigned between prisoners and guards, the student prison guards became sadistic and student prisoners became depressed and showed signs of extreme stress.

\textsuperscript{144} Leslie, ‘Trust, Distrust, and Antitrust’ 586 n 504 (describing electrical equipment cartel).
to guaranteed anonymity. Instead, 49% chose the option of report the crime only if they can remain anonymous.\footnote{Stephan, ‘Survey of Public Attitudes to Price-Fixing and Cartel Enforcement in Britain’ 27.}

The tenth situational factor is offering “an ideology, or a big lie, to justify the use of any means to achieve the seemingly, essential goal.”\footnote{Zimbardo, Lucifer Effect 274; see also J Milton, Paradise Lost 9 (Penguin 2000) (“The mind is its own place, and in itself/Can make a Heav’n of Hell, a Hell of Heav’n”).} In Milgram’s experiment, the paid volunteers’ actions were seemingly helping Yale University complete a scientific study on memory and learning. The ideology of science as promoting a greater good was the subtext, as the lab assistant told the teacher-participants “the experiment requires that you continue.”\footnote{Milgram, ‘Behavioral Study of Obedience’ 374.}

At times, cartel leaders “have successfully inculcated their members with a social norm that price-fixing is normal and not blameworthy.”\footnote{Leslie, ‘Trust, Distrust, and Antitrust’ 586.} Cartels may appeal to a higher ideal to justify their price-fixing. Ideologies that depend on “[r]uinous competition, financial disaster, evils of price cutting and the like,” observed the U.S. Supreme Court “appear throughout our history as ostensible justifications for price-fixing.”\footnote{United States v. Socony-Vacuum Oil Co., Inc., 310 U.S. 150, 221 (1940); see also Leslie, ‘Trust, Distrust, and Antitrust’ 588.} Cartel members may justify their actions as self-preservation or to combat other “genuine or fancied competitive abuses.”\footnote{Socony-Vacuum, 310 U.S. at 221.} For example, the Code Of Pharmaceutical
Ethics as adopted by the Pharmacy Council of India states that “No attempt should be made to capture the business of a contemporary by cut-throat competition, that is, by offering any sort of prizes or gifts or any kind of allurement to patronizers or by knowingly charging lower prices for medical commodities than those charged by fellow pharmacist if they [are] reasonable.”151 The executives are not personally profiting, they are only seeking a “fair” profit for their company, their customers are unethical in lying about the low prices charged by the other competitors, and with the excess capacity, the ruinous competition will lead to a worse outcome of bankruptcies, plant closings, and layoffs. At times, even the U.S. Supreme Court is susceptible to such framing.152

Similarly, cartel members may justify their actions by pointing to state-owned enterprises, which are immunized from competition, industries where price fixing is immunized, or lax antitrust enforcement of mergers, where the cartels customers or suppliers enjoy greater market power. Foreign nationals “frequently” told the DOJ that cartel activity was not a

152 Appalachian Coals, Inc. v. United States, 288 U.S. 344, 377-78 (1933). Coal producers were confronted with the oversupply of coal, exacerbated in part by certain “destructive” trade practices, such as buyers dumping “distressed” coal (due in part to lack of storage facilities) onto the market. In response to industry conditions, 137 coal producers formed Appalachian Coals, Inc., as its exclusive selling agent, enabling the former competing producers to fix the coal prices. Before commencing operations, Appalachian Coals approached the DOJ for approval. Instead the United States challenged its horizontal price restraint. Using its rule-of-reason factors, the Court held that the competitors’ proposed price-fixing did not violate the Sherman Act. The Court justified this horizontal restraint in a distressed industry as fostering “fair competitive opportunities.”
criminal offense in their home countries and “still a culturally accepted way of doing business there.”

IV. RECOMMENDATIONS

It makes little sense to assume executives behave as rational profit-maximizers who quickly respond to increased criminal penalties. Unless one believes that price fixers need to be imprisoned for a purpose other than general deterrence, then even for the most aggressive utilitarian, the optimal prison term should be shorter, rather than longer: “after a relatively short time the marginal cost to society of additional prison time likely would exceed the gains from additional deterrence.”

Nor is the DOJ’s Amnesty Program the answer. No doubt the Amnesty Program has its benefits. It in theory should increase the cartel’s instability by fostering greater uncertainty that cartel members will snitch (and thereby prevent some cartels from forming). It reduces the risk of false positives and the DOJ’s costs in detecting and prosecuting cartels, resources that can be redeployed to prosecuting other antitrust offenses.

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153 Hammond, ‘When Calculating the Costs and Benefits of Applying for Corporate Amnesty, How Do You Put a Price Tag on an Individual’s Freedom?’.
154 OECD Cartel Sanction Report 8; see also Ehrlich, ‘Crime, Punishment’ 62 (“many studies find that increasing the risk of imprisonment for most crime categories has a significantly larger deterrent effect in elasticity terms than increasing the length of imprisonment, especially for violent crimes, and that the magnitude of the elasticities is less than 1”).
155 There is the issue of whether public antitrust enforcement is more efficient than private enforcement. Although government prosecutors bear a higher burden of proof in a criminal trial, they can seek incarceration as a penalty and rely upon “covert taping, informants, search warrants, and foreign assistance request[s].” See Hammond, ‘Recent Developments.’
But an amnesty program also represents a failure. The fact that corporations are lining up for amnesty may mean good business for antitrust prosecutors. But it also shows that the amnesty program did not deter the formation of the instant cartel and charging for many years supra-competitive prices. One would expect cartels broken up on account of amnesty to be more unstable, and thus of shorter duration than other cartels. Instead, a recent study found that cartels broken up by amnesty applications were relatively long-lasting (with an average duration of 10.3 years), compared to average duration of 8.1 years for the entire sample.156

As the amnesty program is elevated in importance, other interests to the extent they conflict are sacrificed.157 An amnesty program also undercuts the moral outrage from price-fixing. As competition authorities effectively convey the wrongfulness of cartels, the harder it will be to defend an amnesty program (or antitrust immunities). Citizens, as one survey of British residents found, may disagree with offering complete

157 F. Hoffmann-La Roche Ltd. v. Empagran S.A., 542 U.S. 155, 174-75 (2004) (government expressing concern that “an expansive interpretation of the FTAIA would greatly expand the potential liability for treble damages in United States courts and would thereby deter members of international cartels from seeking amnesty from criminal prosecution by the United States Government”); see also Hammond, ‘Recent Developments’ (“The Antitrust Criminal Penalty Enhancement and Reform Act of 2004 enhances the incentive for corporations to self-report illegal conduct by limiting the damages recoverable from an applicant to the Division's Corporate Leniency Program (that also cooperates with private plaintiffs in their damage actions against remaining cartel members) to the damages actually inflicted by the leniency applicant's conduct. The detrebling provision removes a major disincentive for self-reporting and makes the Division's Corporate Leniency Program even more effective at detecting and prosecuting cartels.”).
leniency to one culpable price-fixer to catch the other cartel members.\textsuperscript{158}

This is not to argue for the amnesty program’s abolition. Instead, in a well-functioning antitrust enforcement program, a leniency program should be a weapon, not necessarily its primary weapon, to prosecute cartels.\textsuperscript{159}

Rather than seeking new milestones in criminal fines and incarcerations, competition authorities instead should consider how the inter-disciplinary behavioral economics literature can improve their understanding of the dispositional and situational factors that foster executives to engage in collusion. While optimal deterrence theory assumes that rational agents seek to maximize their wealth, and thus are motivated by financial gains and deterred by financial penalties, executives may also be motivated by informal social and ethical norms, which can help deter cartel activity.\textsuperscript{160}

\textsuperscript{158} Stephan, ‘Survey of Public Attitudes to Price-Fixing and Cartel Enforcement in Britain’ 25.

\textsuperscript{159} Absent a significant risk of the cartel otherwise being exposed and successfully prosecuted, the members may have little incentive to seek amnesty (unless an honest employee has moral qualms about the criminal activity and notifies the DOJ). Thus, one concern within the U.S. antitrust bar reflects possible side-effects of the Leniency Program. The AAI noted the concern of the low number of criminal trials. AAI Transition Report 23, 35 (noting that last trial of large corporate price-fixer occurred in 2001). The American Bar Association suggested that “the success of the Antitrust Division’s Leniency Program has contributed to its problems with developing trial capabilities.” Am. Bar Ass’n Section Of Antitrust Law, 2008 Transition Report 42 (2008), \url{http://www.abanet.org/antitrust/at-comments/2008/11-08/comments-obamabiden.pdf}. This raises long-term implications. If the government relies too heavily its amnesty program and under-invests in independent criminal investigations of cartel activity, then fewer amnesty applicants may arise, which can lead to the erroneous conclusion that the amnesty program is indeed deterring cartels.

\textsuperscript{160} Stucke, ‘Morality and Antitrust’ 505-23 (discussing how moral norms can help
A good starting point is for the DOJ to conduct more empirical post-conviction review. After securing its criminal convictions, the DOJ should inquire, and publicly report, how the cartels with many members or competitors were formed and enforced. Did they act as many profit-maximizer game theories would predict, or were they more trustful and cooperative than these theories’ predicted outcome? If so, why? As the number of cartel members increases, were there other specific factors that enabled them to successfully collude? What, besides its leniency program, can the government do to deteriorate that trust and cooperation among price-fixers (without adversely affecting other legal rules that foster socially beneficial trustful relationships)? The DOJ should make publicly available a computerized database identifying all civil and criminal antitrust consent decrees, pleas, or litigated actions involving cartel activity under section 1 of the Sherman Act. The database should include certain industry characteristics, such as: (i) the number of conspirators (and best estimate of their market shares); (ii) the length of conspiracy; (iii) the product or services market in which collusion occurred; (iv) the number of competitors (and their market shares) who were not part of the conspiracy; (v) the


number of entrants (and their market shares) during the period of the conspiracy; and (vi) the nature of the conspiracy.

Although the United States accounts for 5 percent of the world’s population, it has nearly 25 percent of the world’s prison population. Empirical work, while lacking the glamour of dawn raids on the conspirators’ lair, may provide better insight as to why executives break the law, and what mixture of legal, social and moral norms can best deter their behavior. It may also reduce the need for incarcerating aging executives to longer jail sentences, at the taxpayers’ expense.

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